Joint Efforts to Increase Water Management Adaptation to Climate Changes in CE

Transboundary Water Management Under Global Change

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Structure

- Some definitions
- State of transboundary water management (TBWM)
  - Central Europe
    - EU-Directives
    - River basin institutions
  - Examples at the global perspective
    - Central Asia (Lake Aral)
    - Central Africa (Lake Tchad)

- Discussion: Pro‘s and Con‘s of recent status of TBWM

Some definitions

- **Transboundary management** across borders (catchment, administrative and national)
- **Water management** is the activity of planning, developing, distributing and managing the use of water resources according to principles and rules.
- **global change** refers to impacts of direct human activities on water resources, such as excessive abstraction of groundwater, as well as impacts of climate change**.**

Impacts on water cycle

- The **direct human interventions** in the water cycle are so far larger than climate impacts
  - Channelisation of river and acceleration of runoff processes
  - Losses of flood plains, wetlands and habitats and finally in natural retention capacity
  - Overexploitation of rivers and groundwater systems (environmental flows ?)
  - Pollution of water bodies (surface and groundwater)
- **Climate change** has additional impacts on the water cycle
  - Changes in mean values, variability, persistence, and intensity

State of transboundary water management in Europe

- **EU Directives**
  - EU Water Framework Directive (EU-WFD) (EU-2000/60/EC)
    - achieve good ecological and chemical status of all water bodies
  - EU Flood Risk Directive (EU-FRD) (EU-2007/60/EC)
    - reduce existing flood risk and avoid the emergence of future flood risks
- **River Basin institutions**
  - Danube: Danube Commission (1948), ICPDR (1994), Tisza Group (2010), Sava Commission (2004)
  - Rhine ICPR (1999)
  - ……

EU-WFD

Goals:

- achieve good ecological and chemical status in all water bodies including coastal waters
- Reduce and avoid hazardous substances

Approach and principles:

- basin wide water management plans, transparent and public participation, land use is partly considered, adaptive approach (six years updating cycle)

The EU-WFD cycle

EU-FRD

Goals:

- Reduce existing flood risks and avoid the emergence on new risks
- reduce potential adverse consequences for human health, the environment, cultural heritage and economic activity
- **Approach and principles:**
- basin wide water management plans, transparent and public participation, adaptive approach (six years updating cycle), nonstructural measures

The EU-FRD schedule

International water agreements

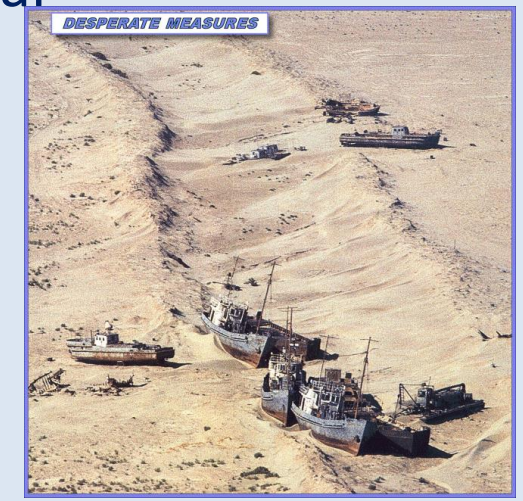
- 263 international basins covering about 47% of land surface (excluding Antarctica) and 40 % of world population
- 300 transboundary aquifers with 2 billion people
- In 106 river basin some agreements about water exist
- ~ 400 international agreements about international waters
- Since 1948 53 conflicts are reported

Data base for water agreements

- The Transboundary freshwater dispute data base (Oregon State University, 2022) https://tfddmgmt.github.io/tfdd/index.html
- FAO Water Treaties Database (includes all water related treaties, agreements) http://extwprlegs1.fao.org/watertreaties/index.htm
- UNECE/UNESCO (2015) UN-Water Transboundary Waters Thematic Priority Areas. www.unwater.org/activities/thematic-priority-areas/transboundary-waters/en/
- Water Encyclopedia (2022) Transboundary Water Treaties. http://www.waterencyclopedia.com/St-Ts/Transboundary-Water-Treaties.html

Transboundary problems at the global scale

- A few examples: Lake Aral, Dead Sea, Lake Tchad
- Driven by growing population
- Mainly problems due to overexploitation and inefficient water use
- Climate change is of minor importance, so far
- Lack of efficient transboundary institutions



Global policies related to water

- Some UN documents
  - Dublin Declaration on Water and Sustainable Dev.
  - Water-Energy-Food Nexus (IWRM)
  - Millenium goals
  - Sustainable development goals

Positive aspects of TBWM in Central Europe?

- **Directives** have a basin wide approach, demand public participation, are adaptive (reactive), progress is monitored and documented, consider non-structural measures
- **River Basin institutions**: science and evidence based, joint principles and rules, information sharing, communication platform

Deficits in TBWM in Central Europe

- Sediment issue is only fragmentarely addressed in the directives, partly considered by river basin authorities
- Land use planning is an external driver but not anticipated in the directives
- Flood risk directive is differently applied in countries
- Water issues have low weight in land use planning and development

Deficits in TBWM in Central Europe

- River basin institutions are essential for TBWM but have low enforcement power and conflict resolution strategy
- Large socio-economic gradients in some basins, e.g. Danube
- Several institutions within one basin (e.g. ICPDR, IDC)
- SDGs are not explicitely addressed
- More emphasis should be on wetlands
- More emphasis should be given to ecosystem services/non-structural measures

Thank you for your attention

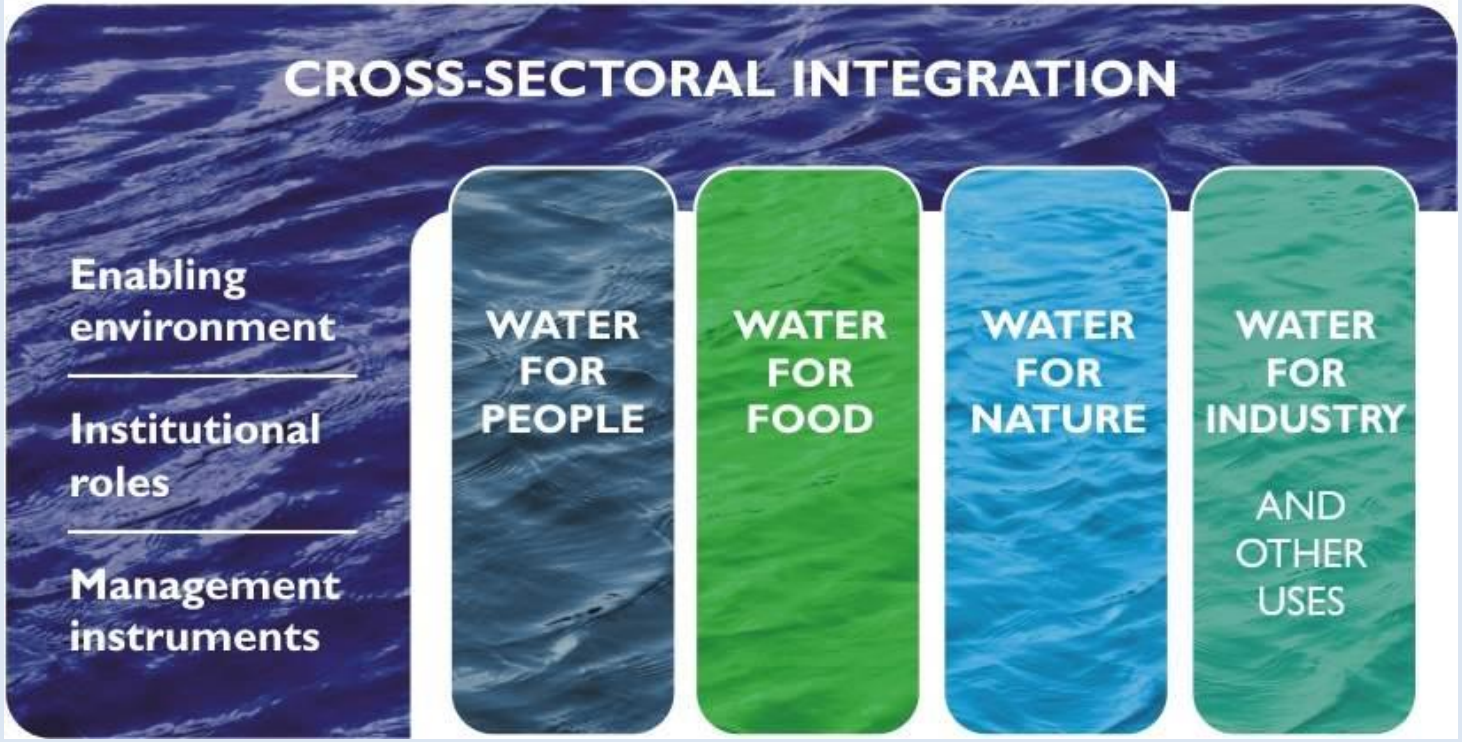
Integrated water management: goals

- Economic efficiency
- Ecological sustainability
- Social equity

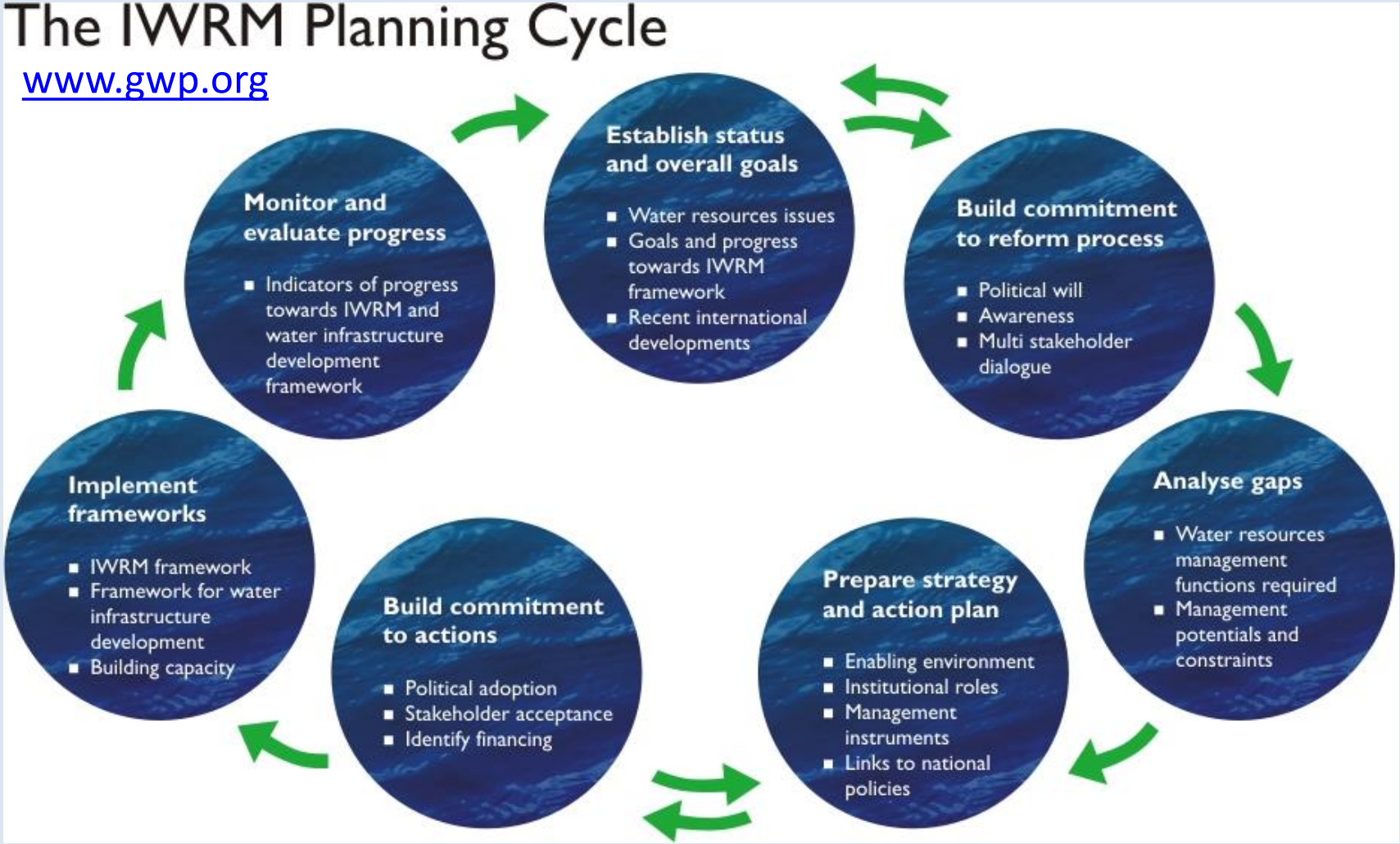
Integrated water management: sectors

IWRM and its Relations to Sub-sectors

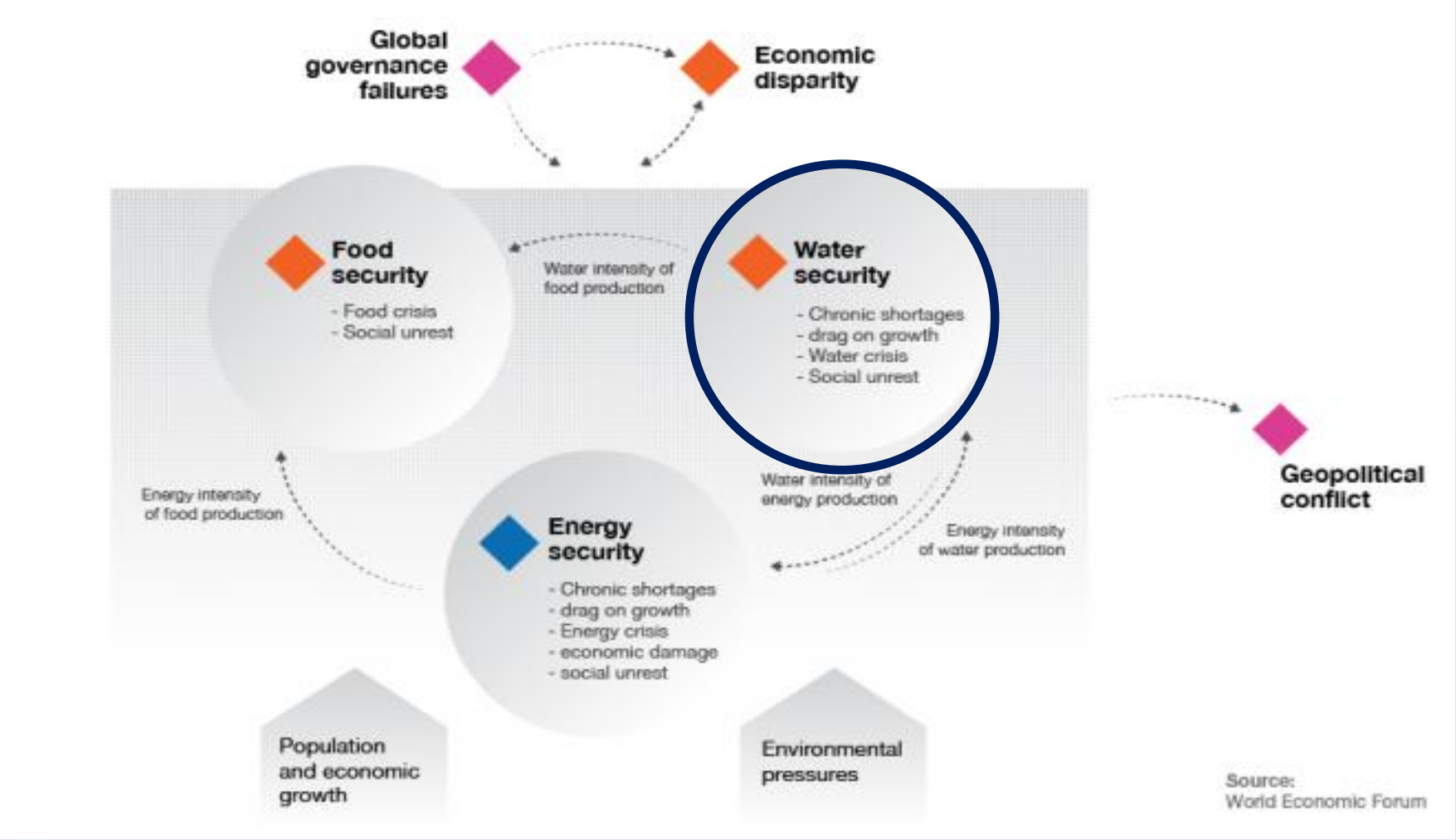
www.un.org/waterforlifedecade



Integrated water management: process



The Water-Energy-Food Cycle



Water and SDGs