

# Conjunctive Water Management and the Global Agenda

*Ms. Alice Aureli, PhD*

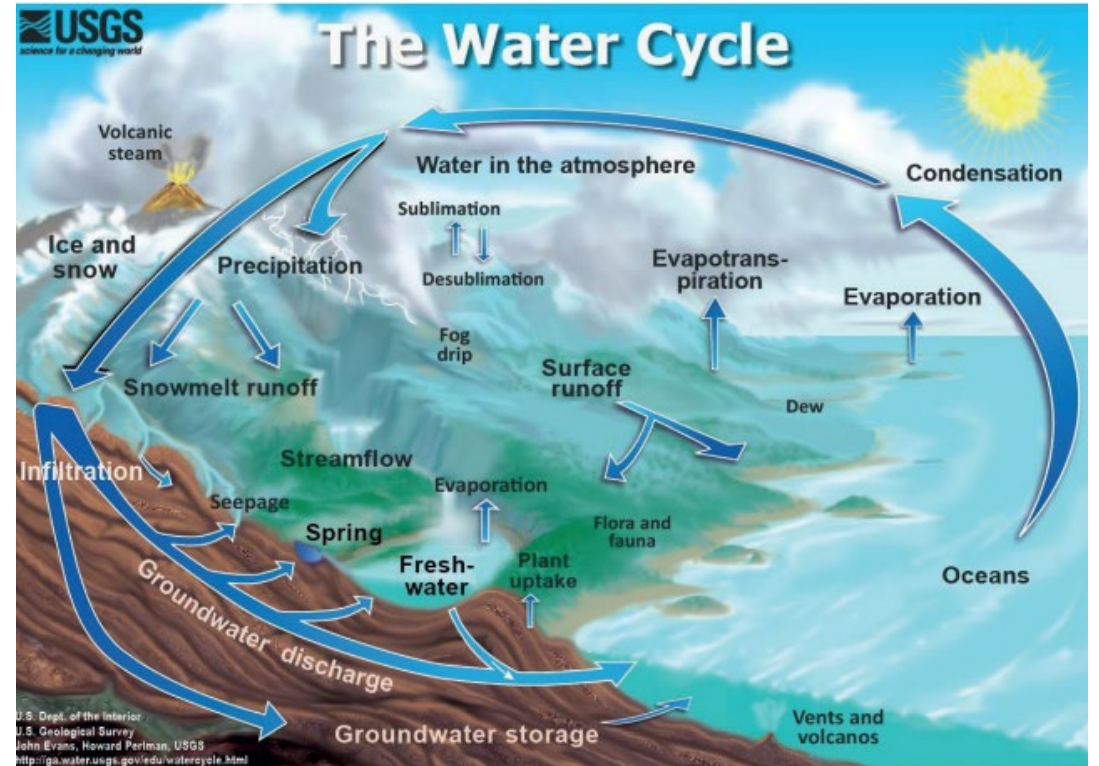
*Former UNESCO IHP Head Groundwater and Water Cooperation Section  
International Association of Hydrogeologists*

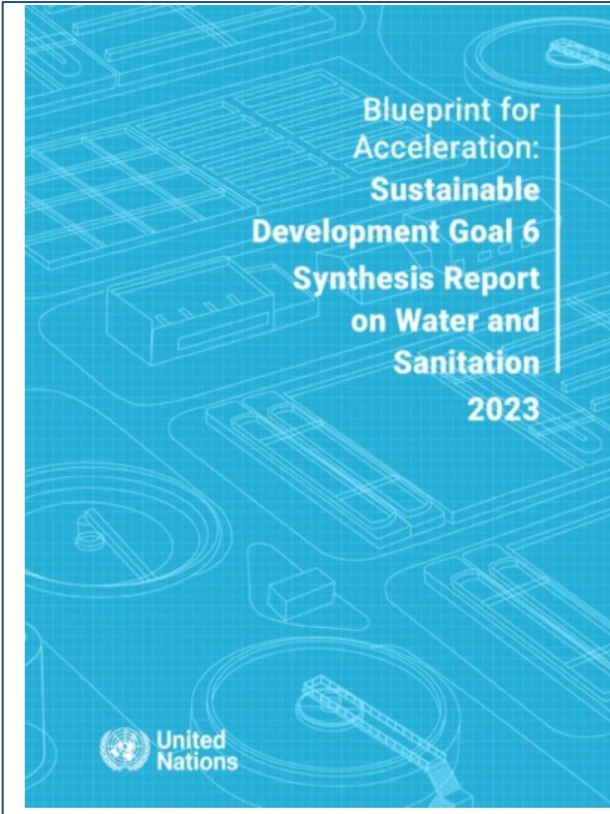
**Global Workshop  
Conjunctive Management of Surface Water and Groundwater:  
National to Transboundary Level**

**16-17 October 2013  
Palais de nations, Geneva**

## Conjunctive Water Management and the Global Agenda

# THE WATER CHALLENGE





In 2021, the UN-Water Integrated Monitoring Initiative's Summary Progress Update demonstrated that the world needs to accelerate, on average, four times faster if SDG 6 is to be reached by 2030 (UN-Water, 2021b).

**Obstacles blocking progress**

> **Not enough money flowing to water.** Enabling environments for efficient investment and spending are absent. Lack of well-prepared bankable projects and sustainable financing models make the water sector unattractive for investment.

> **Not enough data.** In too many countries, policymakers lack credible and timely data for decision-making due to inadequate monitoring and reporting systems, and insufficient resources.

> **Not enough capacity.** Gaps in the water and sanitation workforce are growing due to limited access to education, weak supportive frameworks, and poor rates of recruitment and retention of skilled staff, particularly women.

> **Not enough innovation.** From planning to implementation, innovation is too limited and slow to meet the need for rapid, transformative change.

> **Not enough coherence.** Water governance is ineffective due to institutional weakness and fragmentation, and poor regulation, accountability and transparency.

**The blueprint for acceleration**

> **Pour in more funds.** New investments must be attracted by better enabling environments, and existing finances must be used more efficiently and effectively. The global development finance architecture needs to be reformed to provide more funding to governments.

> **Fill the data gaps.** National monitoring, reporting and data dissemination systems must be strengthened to cover all SDG 6 global indicators, combining data sets from all stakeholders. Earth observation technologies and improved data practices, such as standardization and disaggregation, can enhance decision-making and reduce inequalities.

> **Invest in the workforce.** Education and employers need to collaborate to promote water and sanitation "literacy" in curricula and to attract, train and retain workers, especially women and youth. There is a need for national-level workforce assessments and studies to determine current in-demand and future skills with a view towards emerging technologies.

> **Boost innovation.** Innovative approaches must be sped and scaled up through supportive policies, utilizing technology, such as artificial intelligence, and customizing innovations to local contexts.

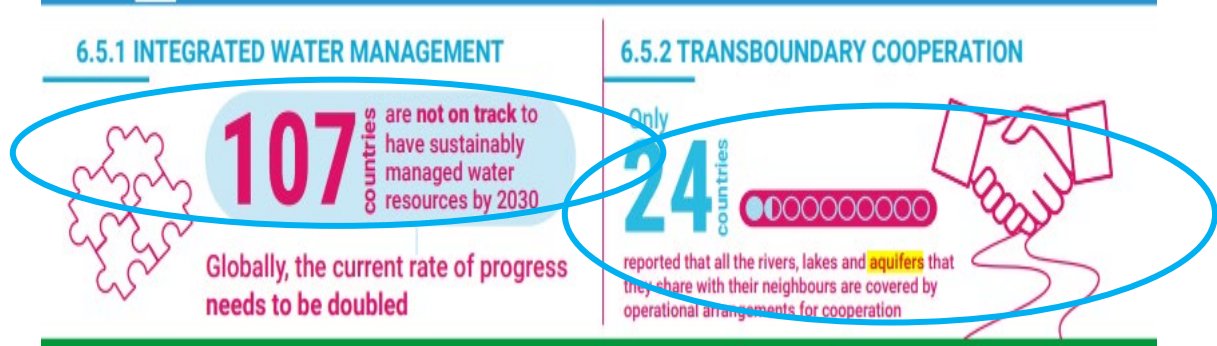
> **Maximize cooperation.** Collaboration across different sectors and national borders magnifies the effectiveness of water and sanitation management and supports social cohesion and international peace.



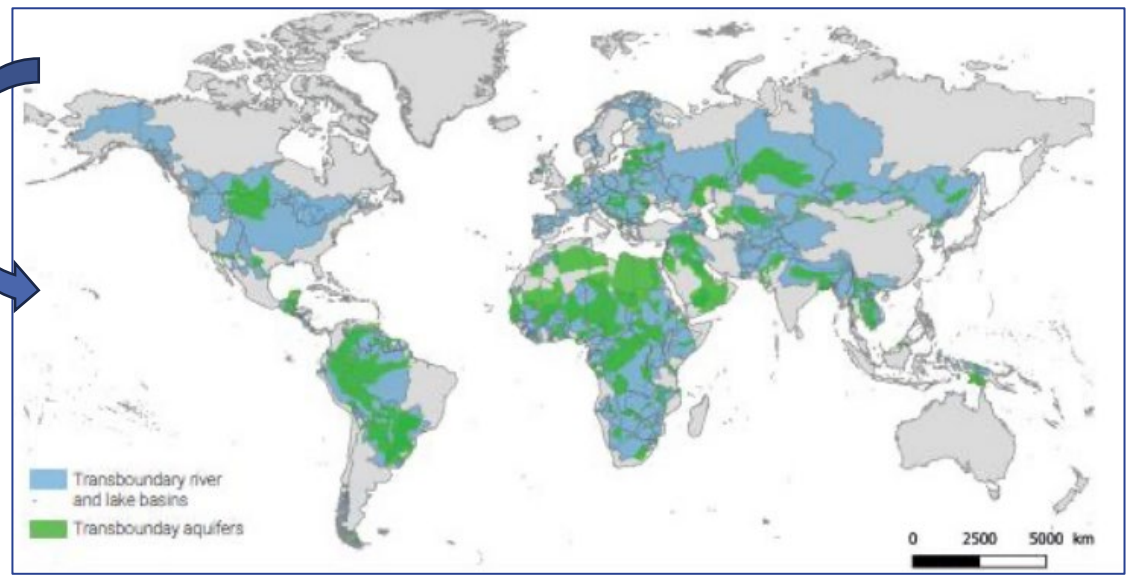
Target 6.5 by 2030 implement IWRM at all levels including trough transboundary cooperation as appropriate

Summary Progress Update 2021: SDG 6 – water and sanitation for all  
JULY 2021

Progress on Transboundary Water Cooperation  
GLOBAL STATUS OF SDG INDICATOR 6.5.2 AND ACCELERATION NEEDS  
2021



A full integrated approach the conjunctive management of surface water and groundwater



- Fragmented knowledge and management of surface water and groundwater is an obstacle to Achieve the SDG 6 Goal and to Sustainable Development



Water Conference highlighted urgency of sustainably managing planet's stressed water resource

SUMMARY OF PROCEEDINGS BY THE PRESIDENT OF THE GENERAL ASSEMBLY

UNITED NATIONS CONFERENCE ON THE MEDITERRANEAN: COMPREHENSIVE REVIEW OF THE IMPLEMENTATION OF THE OBJECTIVES OF THE INTERNATIONAL DECADE FOR ACTION "WATER FOR SUSTAINABLE DEVELOPMENT", 2018-2028





**“IPCC report page 57**

***Current mitigation and adaptation actions and policies are not sufficient”***

**“IPCC Report page 112**

***“The transboundary nature of many climate change risks increases the need for climate-informed transboundary management, cooperation, responses and solutions through multi-national or regional governance processes. (high confidence)”***

**AR6 Synthesis Report  
Climate Change 2023**

The IPCC finalized the Synthesis Report for the Sixth Assessment Report during the Panel's 58th Session held in Interlaken, Switzerland from 13 - 19 March 2023.



## BETTER USE AND MANAGEMENT OF ALL WATER AVAILABLE



UN  
environment  
programme

# Wastewater

Turning Problem  
to Solution

A Rapid Response Assessment



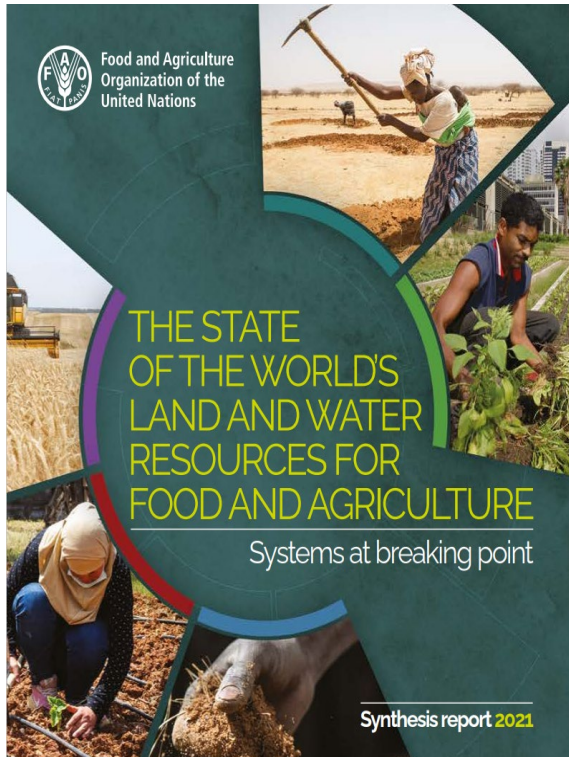
Today, only 11 per cent of the world's treated wastewater is reused and around half of the world's untreated wastewater still enters rivers, lakes, and seas.

**Meet SDG 6.3.** need to drastically increase the expansion of wastewater collection and treatment capacity



United Nations Environment Programme (2023).  
Wastewater – Turning Problem to Solution.

# “THE GLOBAL WATER BUDGET IS UNDER PRESSURE”



**Conjunctive** management is expected to reduce risks and provide a wider range of social and environmental benefits

*“In many cases, the first sign of water scarcity from increased withdrawals is falling groundwater levels”*

|  |     |
|--|-----|
| 6.4.1 Change in water-use efficiency over time   | FAO |
| 6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources | FAO |

Climate change is expected to increase evapotranspiration and alter the quantity and distribution of rainfall, leading to changes in land/crop suitability and greater variations in river run-off and groundwater recharge



Better knowledge of the state of the world’s freshwater resources requires improved monitoring, data-sharing, **cross-border collaboration** and assessments of water resources – and an accompanying increase in investments .

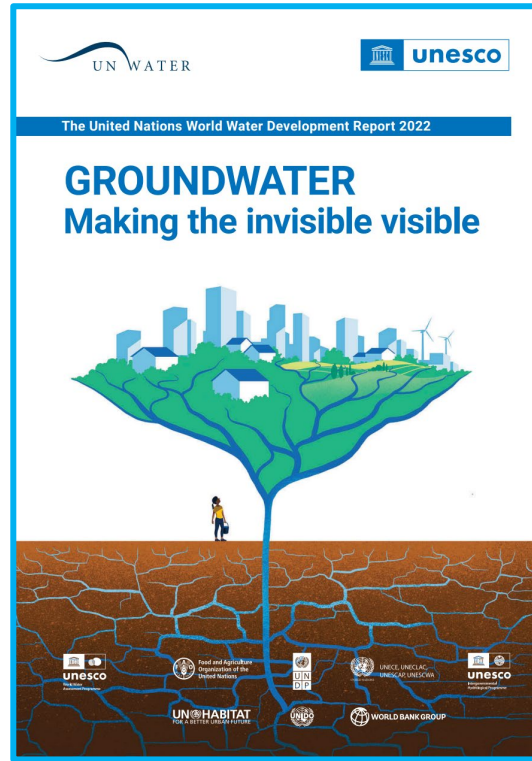
**Launched on 12-October 2023**



ACCELERATE



Improving groundwater knowledge is key to achieving IWRM



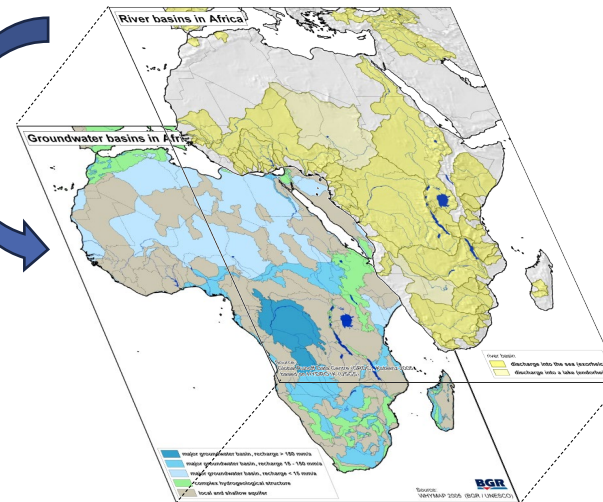
*“Developing water supplies that are resilient to climate change will need in many parts of world involve the use of groundwater conjunctively with surface water “*



The two reports highlight the need to improve our understanding about the planet aquifer systems

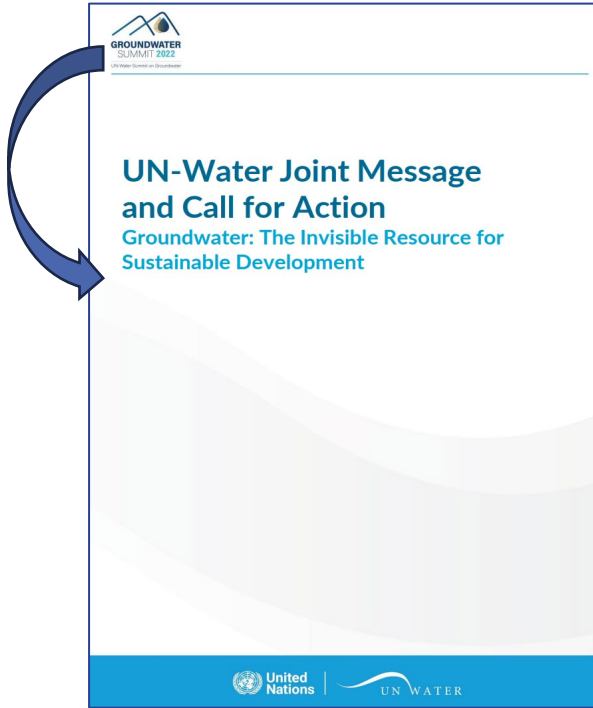


- Groundwater is a key asset in a country's portfolio to reduce poverty and promote resilient and equitable growth
- Groundwater overexploitation exposes economies to exponential risks

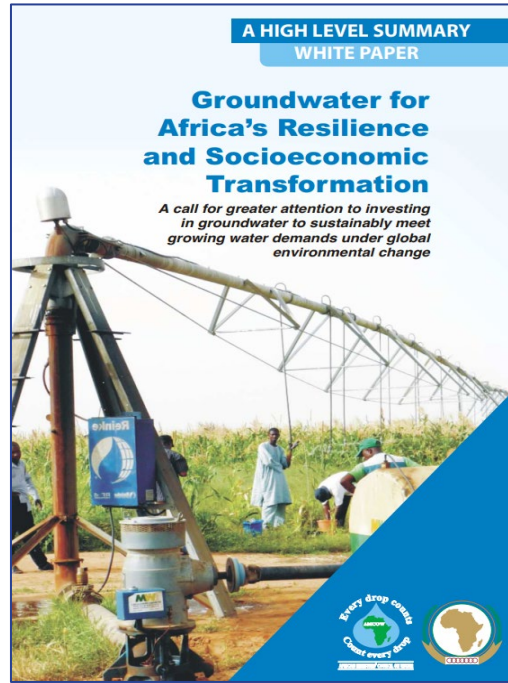


Extent of surface water basins (catchments) and underlying groundwater aquifers may differ. Management areas need to be adjusted for IWRM and – Conjunctive management

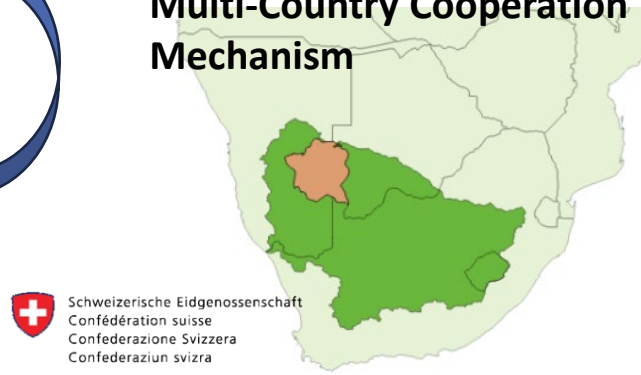
# Conjunctive Management in a transboundary context.



The complexity of achieving conjunctive water management at transboundary levels needs to be considered, as it requires build national capacities, adapting decision and policy making, prepare institutions and regulatory frameworks, fostering innovation and providing the necessary investments.



## The Stampriet Aquifer Multi-Country Cooperation Mechanism

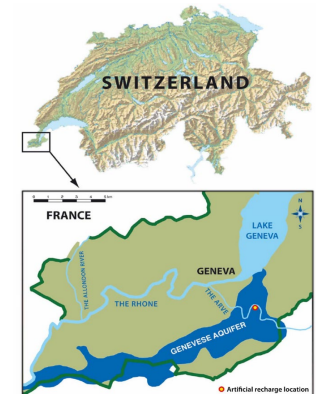


 Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra  
  
Swiss Agency for Development and Cooperation SDC



SADC-GMI -IWMI project on strengthening cooperation on the **conjunctive management of surface and groundwater** in the **Tuli Karoo System** to improve food security and resilience in Botswana, South Africa and Zimbabwe

An example of strategy for the conjunctive management of water across national borders can be seen in the management of the Genevese aquifer.

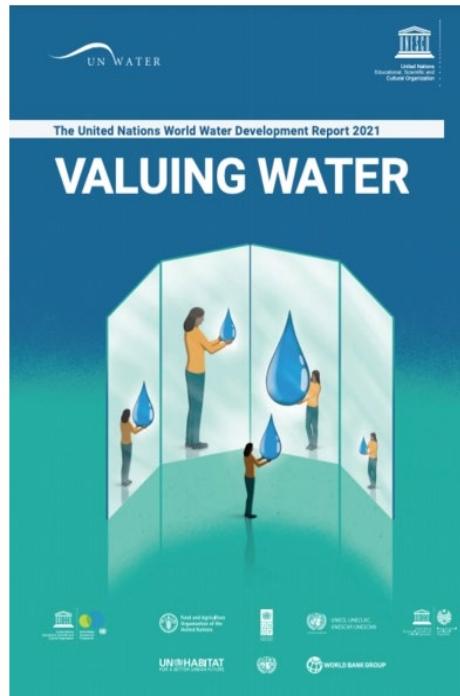




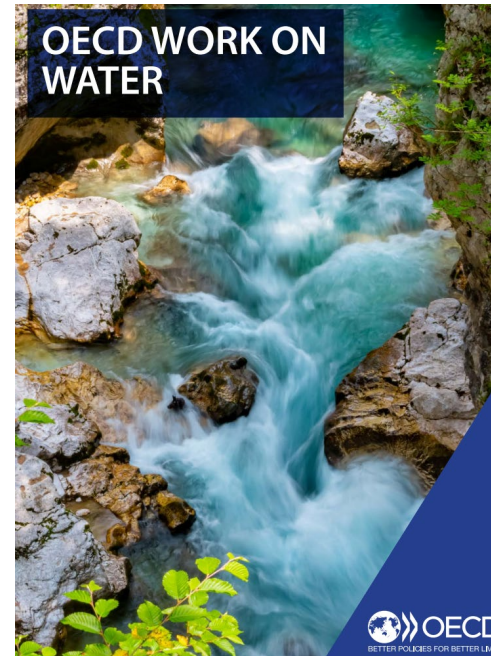


**European Commission**

promoting a more *integrated approach* to the management of water resources across sectors



The current status of water resources highlights the need for improved water resources management and develop methodologies for ***conjunctive management and nexus approaches***

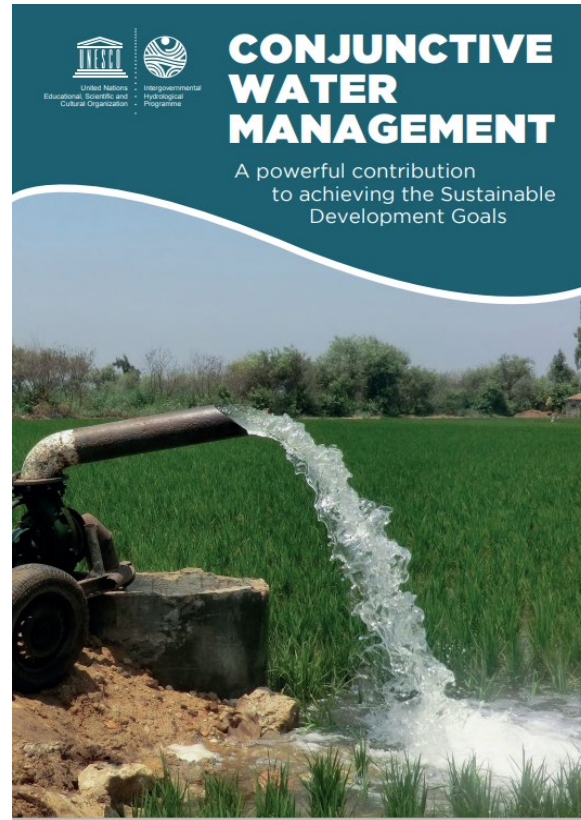
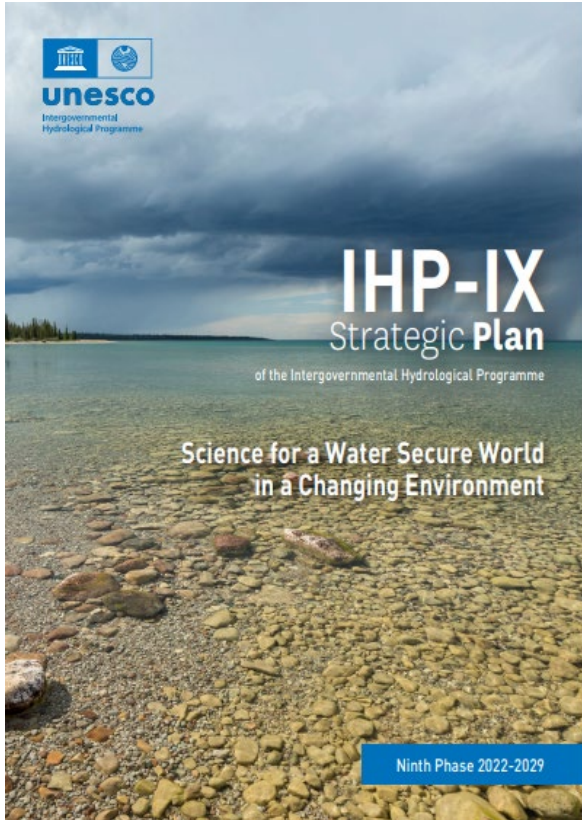


Key connections and interdependencies across the water system



INTERNATIONAL WATERS LEARNING EXCHANGE & RESOURCE NETWORK  
GROUNDWATER AND CONJUNCTIVE WATER MANAGEMENT HUB

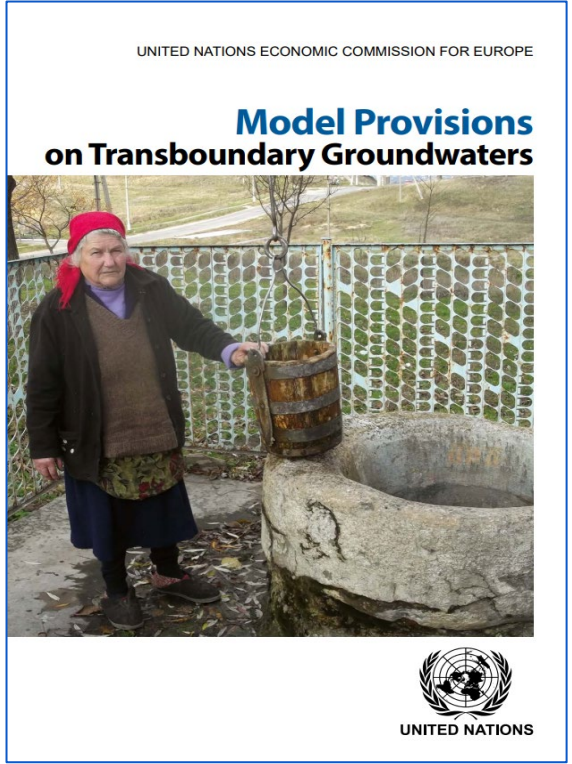




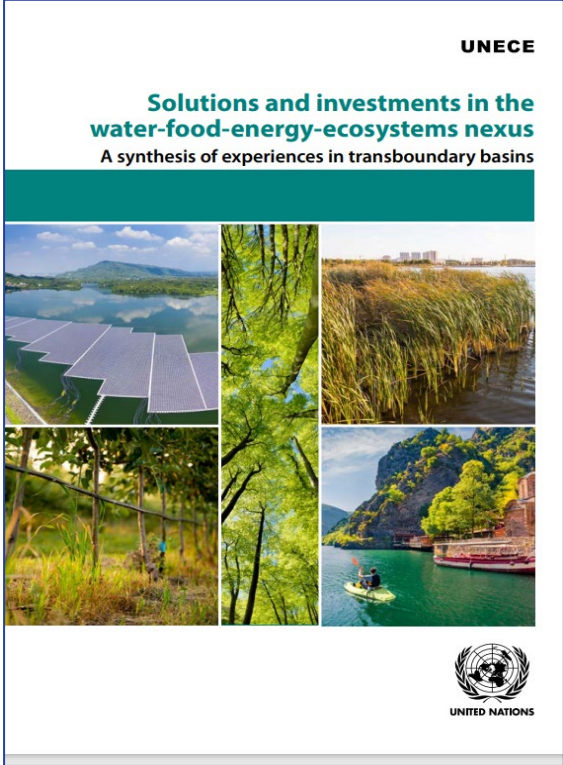
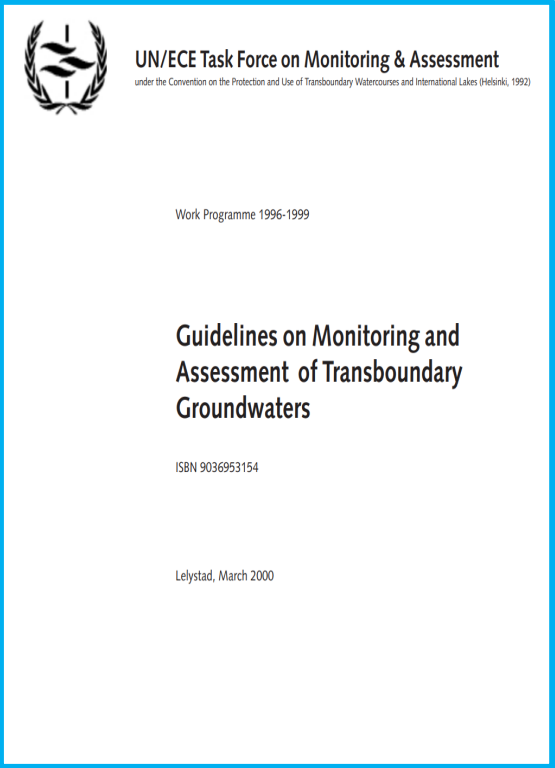
## Conjunctive Water Management

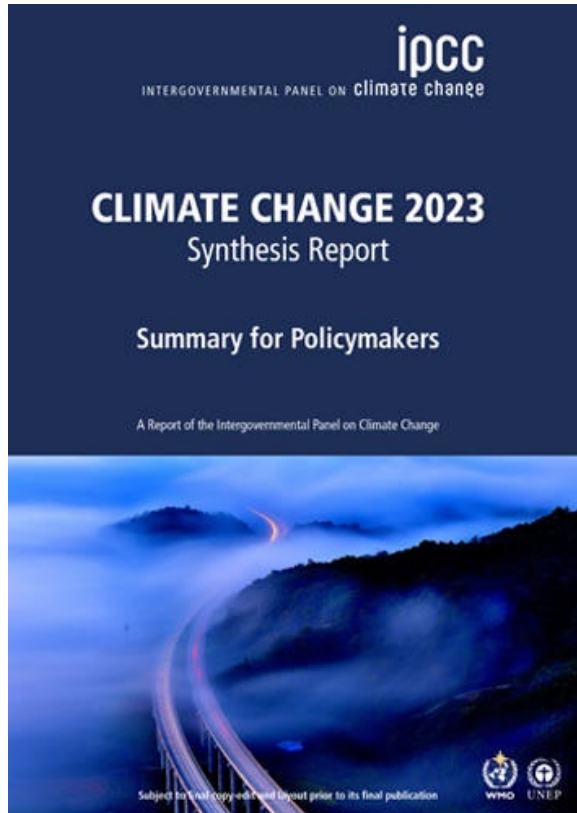
At both national and transboundary levels, conjunctive water management can help achieving IWRM optimise the water resources budget

However we lack a structured corpus of guidelines, sharing of best practices, awareness, training, capacity, enforced policies and legal process

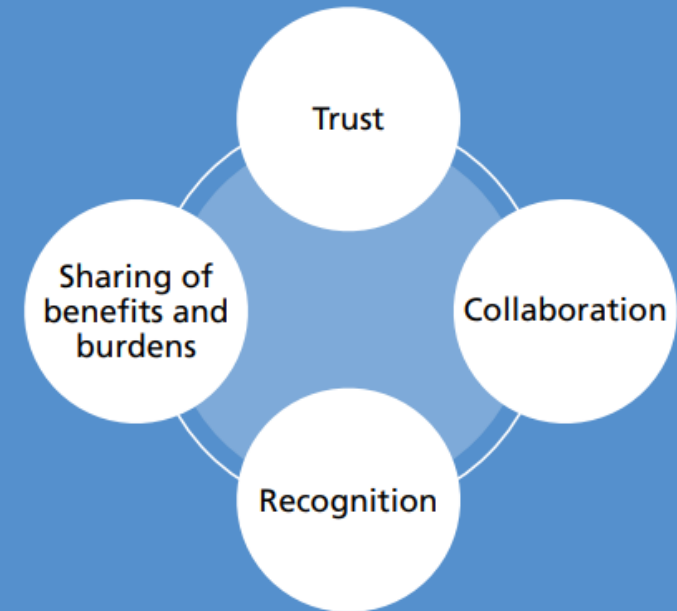


**Provision 4-**  
*“The Parties shall cooperate on the **integrated** management of their transboundary groundwaters and surface waters”... “Where feasible, the Parties should integrate the management of surface waters and groundwaters with a view to progressing towards a so-called “conjunctive use” of the two resources”.*





# Human factors also enable action



that some can contribute more than others

Sixth Assessment Report | Synthesis Report







United Nations



22-23 September 2024

Thank you

