United Nations Development Programme

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Institutional Arrangements and Water Governance

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Water in Human Development

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What is the most important medical milestone since 1840?

(British Medical Journal, 2007)

Sanitary Revolution (Introduction of clean water and sewage disposal)

AVERAGE LIFE EXPECTANCY

30 years

Neanderthals (30,000 years ago): Died of injuries caused by rock falls, hunting accidents and conflicts. Food scarcity led to malnutrition. These hunter-gatherer groups contracted diseases that spread from animals. Rabies, tuberculosis, brucellosis, yellow fever and encephalitis were widespread.

38

Neolithic (8500 BC to 3500 BC): Agriculture, irrigation and urbanization brought problems associated with settled populations, such as fecal contamination of water and diseases such as cholera, smallpox, typhoid, polio and influenza. Malaria and other diseases carried by mosquitoes and insects, which fed on domesticated animals, appeared.

35 **Classical Greece and Rome** (500 BC to 500 AD): Tuberculosis, typhoid fever, smallpox and scarlet fever spread among the denser urban populations. Malnutrition, gastroenteritis and violence were also big killers.

38 LATE MEDIEVAL

AD to 1500 AD): Life expectancy grew with urbanization, but famine caused by crop failures and bubonic plague were the big killers. The Black Death (1347-1351) wiped out 25 million people in Europe and 60 million in Asia, returning several times, culminating in the Great Plague of London (1664-1666). By 1500, life expectancy had dropped back to 38.

40

Victorian (1850s to 1900): Typhus, typhoid fever, rickets, diphtheria, tuberculosis, scarlet fever and cholera raged in crowded cities.

MEN **70** WOMEN **75**

1900s: Better health care, sanitation and living conditions boosted life expectancy to 70 for men and 75 for women by 1950.

CANADA: MEN **82** WOMEN **85**

Today: Cancer, heart disease and stroke are the biggest killers in the developed world. Our longer lifespan also comes with unprecedented loss of mental function and

(Source : google)

Earth Water Distribution

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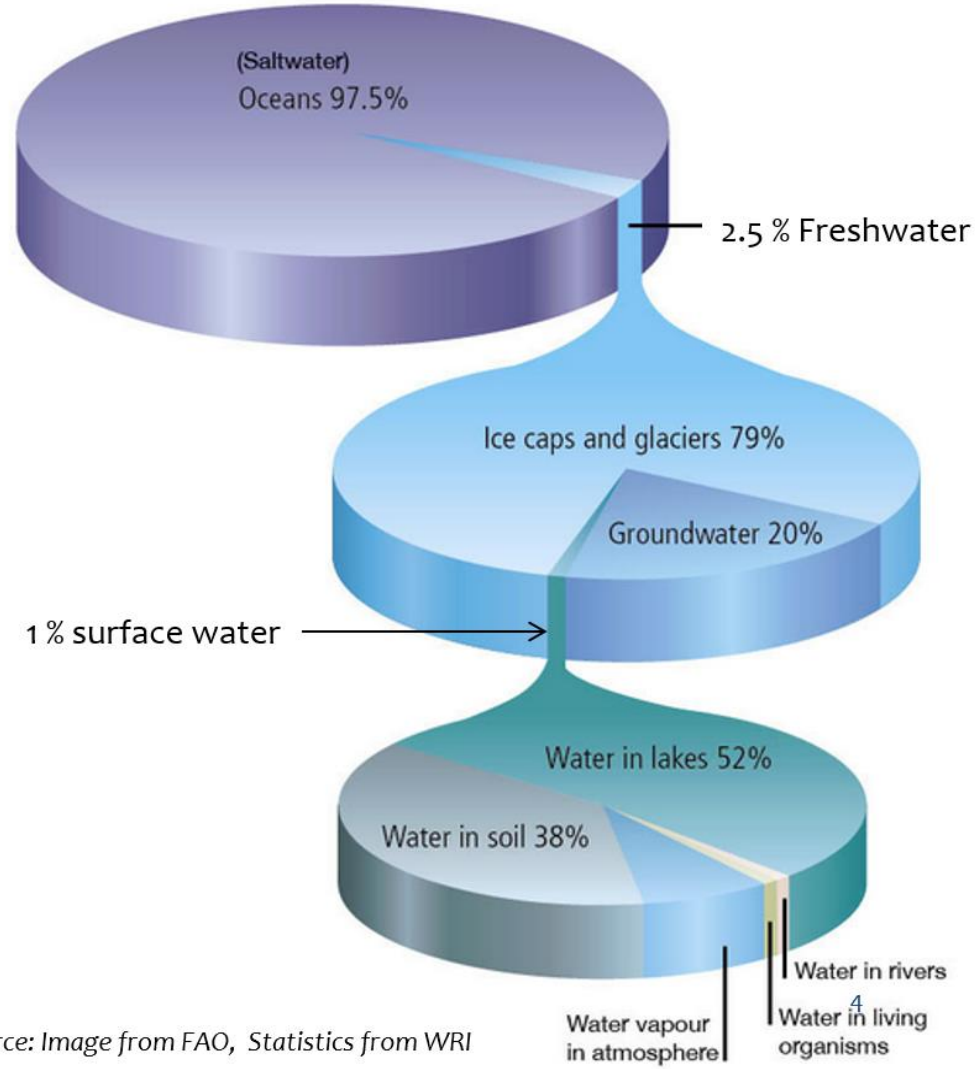


Only 0.007 percent of the planet's water is available to fuel and feed its 6.8 billion people

Source: Image from FAO, Statistics from WRI

Global Water Crisis

- ✓ Global water demand is projected to increase by 55%:

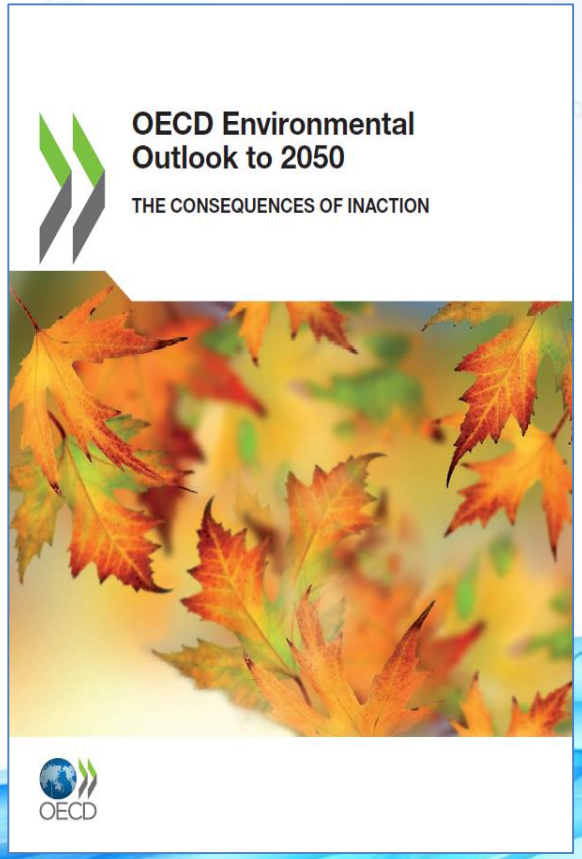
  3,500㎥ in 2000→ 5,500㎥ in 2050”

  (1 km^3=1,000,000,000m^3,

  1 Olympic-sized swimming pool=2,500m^3)

- ✓ Over 40% of the world’s population is projected to be living in river basins experiencing severe water stress by 2050”

- ✓ <u>(Main drivers) Human activities</u>
  - Domestic water demand
  - Use of agricultural and industrial water
  - Urbanization



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Threats to Water Resources

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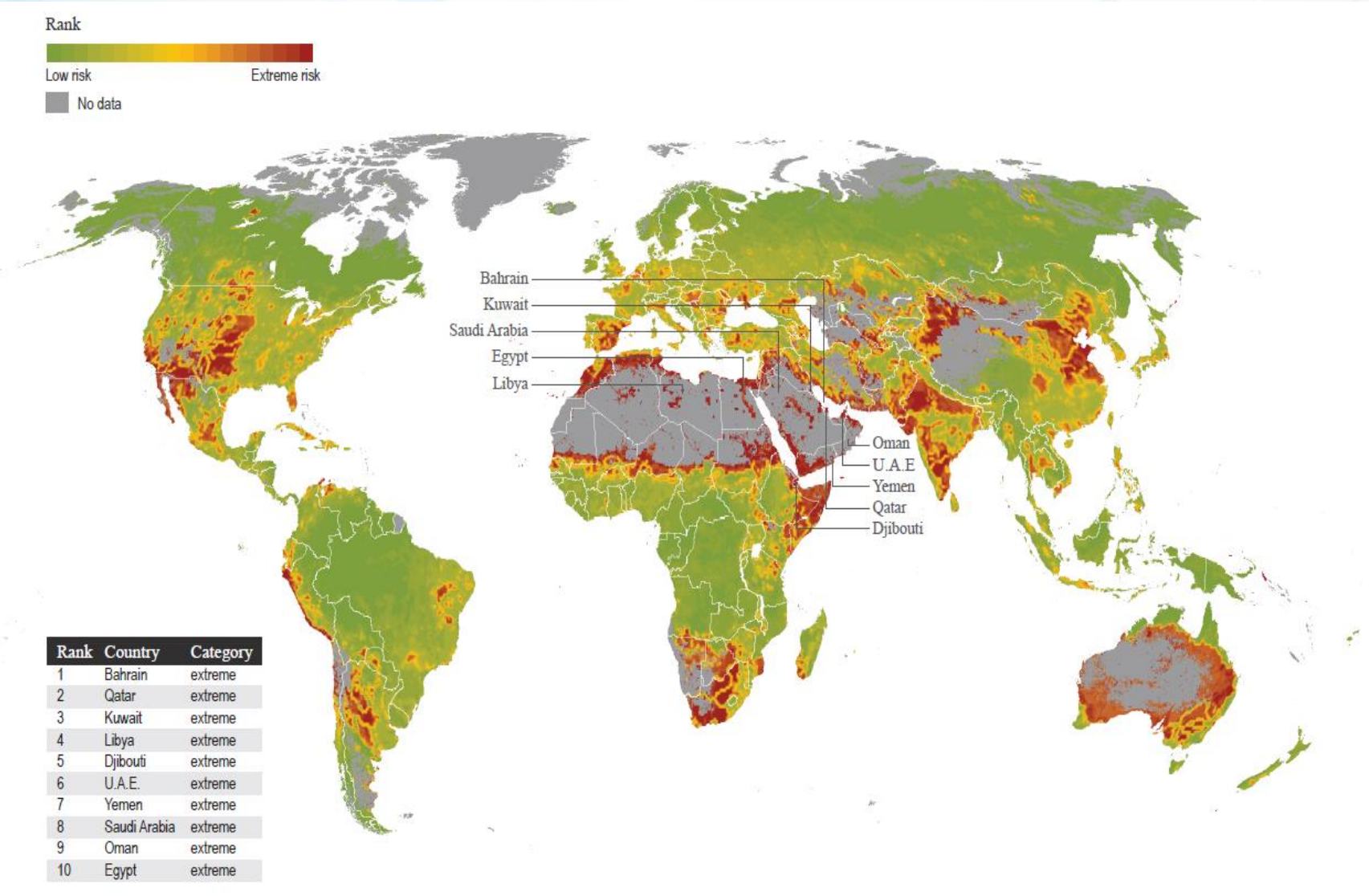
- ✓ **Climate change** causes change in frequencies of droughts and floods
- ✓ Pollution and contamination by **sewage, agricultural and industrial run-off**
- ✓ Depletion of aquifers caused by over consumption as a result of **population growth**

Water Stress Index 2012



Rank	Country	Category
1	Bahrain	extreme
2	Qatar	extreme
3	Kuwait	extreme
4	Libya	extreme
5	Djibouti	extreme
6	U.A.E.	extreme
7	Yemen	extreme
8	Saudi Arabia	extreme
9	Oman	extreme
10	Egypt	extreme

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Water Scarcity & Mega-cities Converge in 2025

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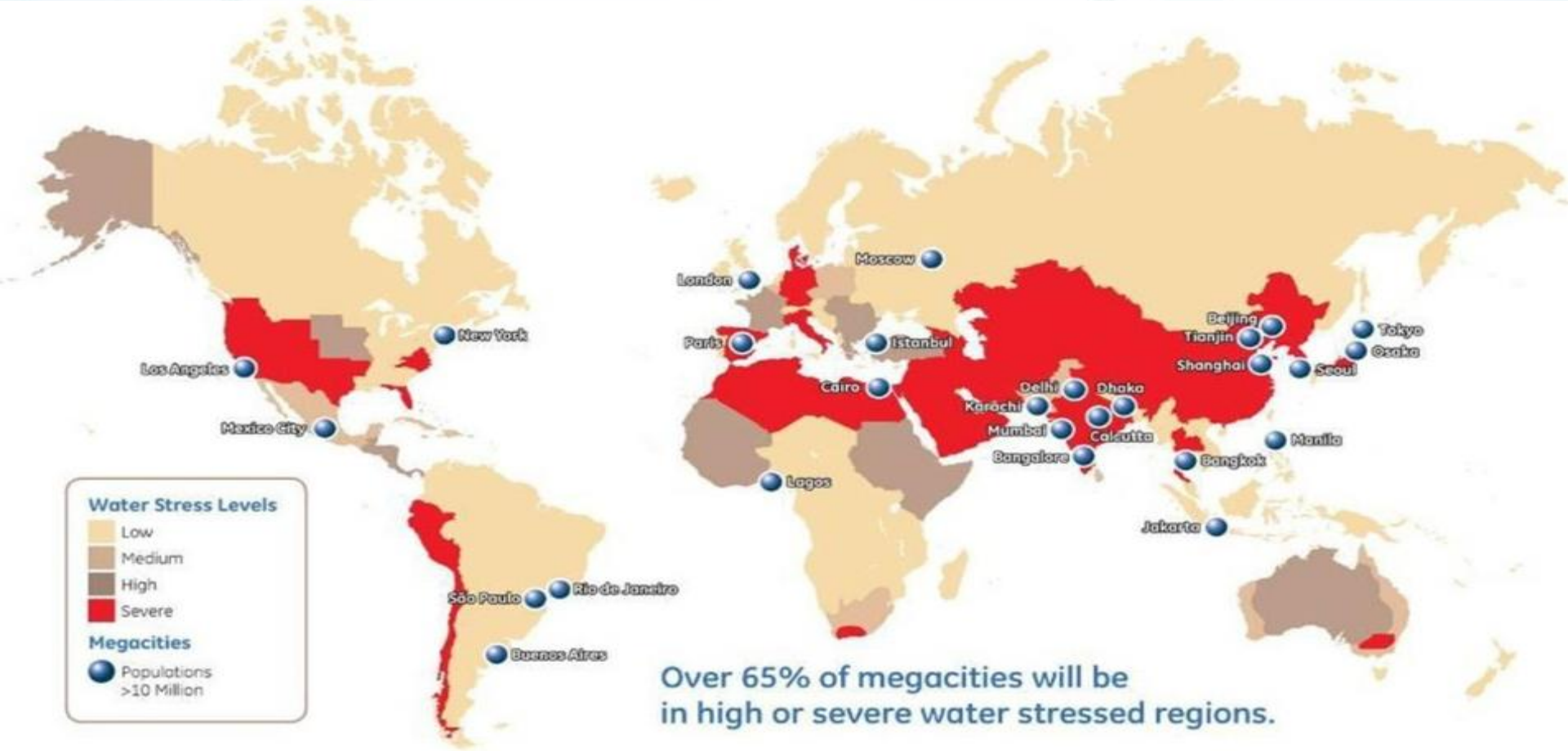

imagination at work

Water in the 2030 Agenda

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Goal 6: Ensure availability and sustainability of water and Sanitation for all

- ✓ **Water Supply (6.1)**
- ✓ **Sanitation and Hygiene (6.2)**
- ✓ **Pollution Control and Reuse (6.3)**
- ✓ **Sustainable Use and Efficiency (6.4)**
- ✓ **Integrated Management (6.5)**
- ✓ **Water-related Ecosystem (6.6)**

Water in the 2030 Agenda

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Interlinkages between Water Goal 6 and other SDGs

- ✓ Water-borne disease and malnutrition (3,2)
- ✓ Poverty and gender inequality (1,5)
- ✓ Sustainable food production and energy(2,7)
- ✓ Decoupling economic growth from environmental degradation (6,4)
- ✓ Sustainable Infra, industry, cities, and consumption and production (8,9,11,12)
- ✓ **Climate change mitigation and adaptation(9)**

Water and Three SD Dimensions

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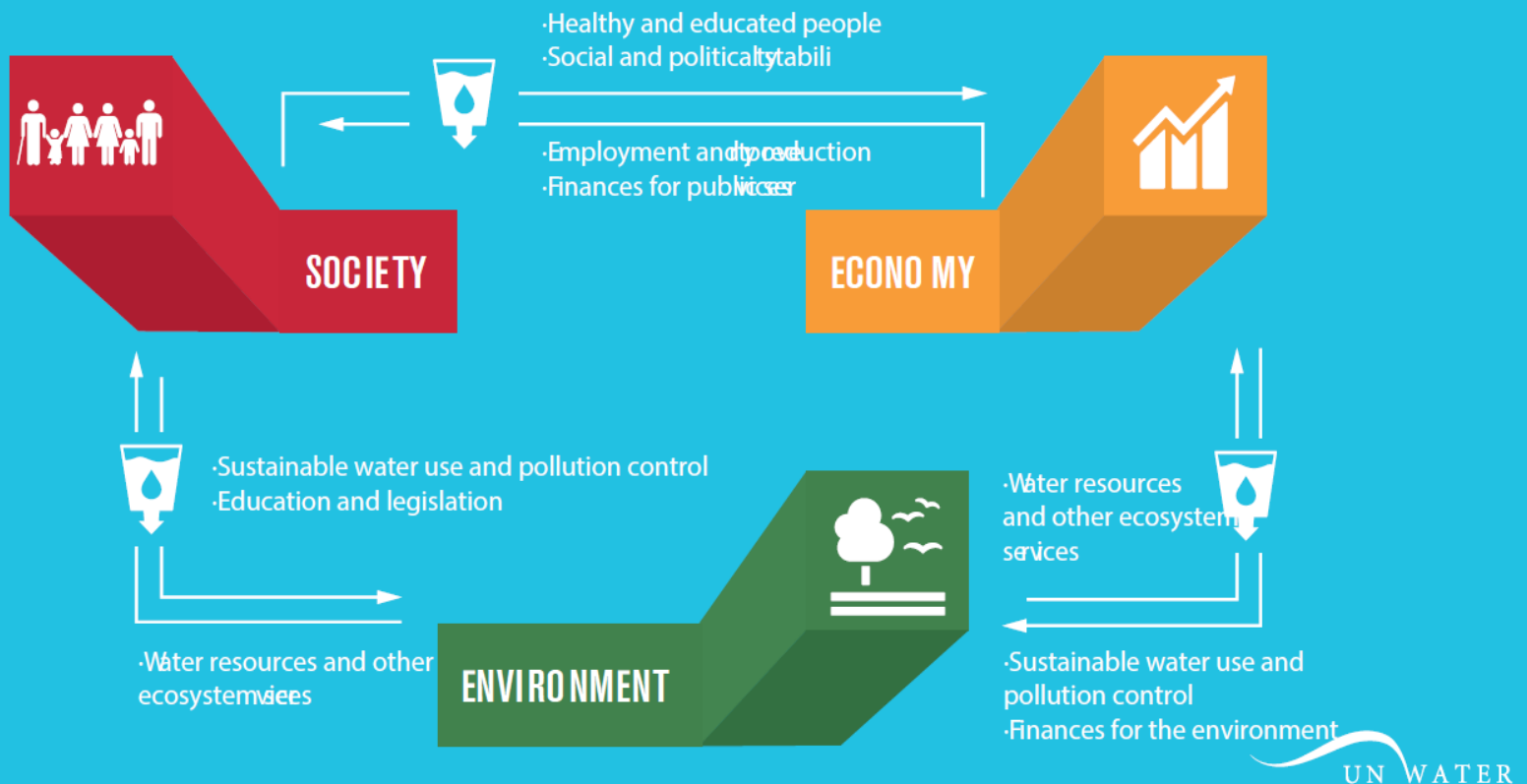

Water Governance

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How to establish coordination mechanisms across institutional structures with different mandates?

- ✓ **"Whole-of-Government" approach**
- ✓ Intersectoral Partnerships
- ✓ Inter-ministerial Coordination Committees
- ✓ Joint monitoring & evaluation process and criteria
- ✓ **Public participation and stakeholder engagement**

Framework for water resources & service

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How to ensure fair, efficient and sustainable allocation of water resources across various sectors?

- ✓ Integrated Water Resource Management(IWRM)
- ✓ Principles of Human rights, gender equality, and environmental sustainability
- ✓ Social and Environmental Impact Assessments
- ✓ Incentives for private sector financial flows and innovative technologies

UNDP Social & Environmental Standards

Legal Framework for water management

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How to strengthen water acts to develop and manage water resources?

- ✓ An autonomous Water authority or decentralized structures
- ✓ Covering Freshwater, groundwater, or transboundary waters
- ✓ Addressing water supply, water quality, or flood control and drought management
- ✓ Water tariff structure

Water and Climate Resilience

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How to reduce water-related climate change risks, while increasing synergies for water-climate nexus?

- ✓ **Adapting to the risk of flooding**

  - early warning & risk communication, investment in water infrastructures, sustainable land use, ecosystem management and restoration

- ✓ **Adapting to the risk of drought**

  - saving water, reusing wastewater, developing diverse water sources

- ✓ **Mitigation**

  - reducing carbon footprint, recovering resources such as energy, gas, gas, nitrogen and phosphorus

- ✓ **Water information system, technology and indicators**

Water and Capacity-buildings

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What capacity gaps need to be addressed for a better water governance?

- ✓ **Policy integration**
- ✓ **Data/information management**
- ✓ **Partnerships**
- ✓ **Financing**

Urban Water Governance

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How to meet increasing water demand, while ensuring equitable access to water resource for marginalized people ?

- ✓ **Bottom-up initiatives and local knowledge**
  - managing drinking-water services
  - Ensuring access to sanitation (particularly informal settlement and slum areas)
  - Protecting water resources
  - Improving the management of run-off water

Governance for Transboundary waters

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How to unlock potential for water resources for drinking, agriculture and industry, flood risk management, fisheries and tourism, hydropower, and inter country navigation ?

- ✓ **Integrated river basin management**

  e.g.: UNDP GEF project (8 ASEAN countries, 8 rivers)
- ✓ Joint planning and flexible management
- ✓ Effective management of Infrastructures
- ✓ Improved data and information-sharing
- ✓ Enhancing benefit-sharing

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Thank you