



United Nations
Educational, Scientific and
Cultural Organization



Uncertainty, Risk and Possible Futures of Global Water Systems

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- Exploring Alternative Futures of the World's Water to 2050

A Second Generation of Water Scenarios

- Stand-alone project; Phase 1 contributing to the 4th UN World Water Development Report (WWDR4)



WHY NEW SCENARIOS?

- Many existing global water scenarios need to incorporate additional driving forces (among them climate change, globalization and security issues) and update the information they are based on.
- The evolution of the drivers and the logic behind them should be re-examined.
- Important new policy initiatives have emerged since the last world water scenarios were developed (for example, Millennium Development Goals).
- Linkages are possible with other scenario processes being undertaken at the global level.
- In most cases there are no existing water scenarios at the national and sub-national levels.



Four Phases:

1. Review and analysis of principal drivers including:
 - identifying linkages,
 - considering applicability of drivers, depending on major distinguishing characteristics of groups of countries.

- 2) Review of drivers by Scenario Development Group (SDG) and representatives of countries:
 - to outline set of about four scenarios (possible futures) to be developed through qualitative and quantitative analysis (modelling) and used as background material for the preparation of scenarios by local actors.



Four Phases:

3. Development of scenarios for selected transboundary and country basins and for some countries and states; review by SDG of the global scenarios to take account of learning at local level.
4. Dissemination/outreach/training to strengthen the capacity of water managers and professionals as well as people in other sectors at the local, national, transboundary and regional levels. Will also inform political decision-making and address risks and uncertainties linked to global changes.

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Phase 1 nearing completion:

Drivers researched

- Climate change & variability
- Water resources, including groundwater & ecosystems
- Demography
- Governance & institutions (includes the right to water)
- Technology
- Economy & Security
- Ethics, society & culture (includes questions of equity)
- Agriculture
- Infrastructure
- Politics

The relevance of these drivers will vary in different regions of the world.



Agriculture

Importance:

- Withdrawals for agriculture grow from 3,100 billion m³ to 4,500 billion m³ in 2030. (2020 = **46%**; 2030 = **58%**)
- The slowing pace of deforestation continues (1990-2000: 16 million ha lost; 2000-2010: 13 million ha lost). (2020 = **59%**; 2030 = **58%**)

Probability:

- Use of untreated waste water for irrigation continues in many developing countries despite the health risks. (2020 = **73%**; 2030 = **64%**)
- Water productivity in grain triples in some developing countries (e.g. China today produces 1 kg wheat or corn per cubic metre of water; Ethiopia, 0.1 to 0.2 kg/cubic metre.) (2020 = **63%**; 2030 = **71%**)
- Investments in infrastructure improve production potential of rainfed farming, e.g. improving rainwater collection & storage systems. (2020 = **57%**; 2030 = **74%**)



Technology

Importance:

- One billion of the largest water consumers use products to conserve water: pressure-reducing valves, horizontal-axis clothes washers, water-efficient dishwashers, grey-water recycling systems, low-flush tank toilets, low-flow or waterless urinals. (2020 = **50%**; 2030 = **77%**)
- Technologies for water desalination in large volumes become so inexpensive that nearly all people within 100 miles of coastlines have water for their needs. (2020 = **22%**; 2030 = **40%**)

Probability:

- Rainwater harvesting is practiced widely and new simple and cheap ways of purifying the collected water become available. (2020 = **54%**; 2030 = **74%**)
- Agriculturists use affordable technology to capture real-time data on their crops and soil moisture, to make informed decisions on efficient watering schedules. (2020 = **54%**; 2030 = **74%**)



Economy and Security

Importance:

- Demand for water in developing countries increases by 50% over today's. (2020 = **75%**; 2030 = **85%**)
- Unequal access to water creates new economic polarities. (2020 = **80%**; 2030 = **87%**)

Probability:

- Over 40% of world countries experience severe freshwater scarcity. (scarcity = water supplies drop below 1,000 cubic meters per person per year) (2020 = **77%**; 2030 = **74%**)

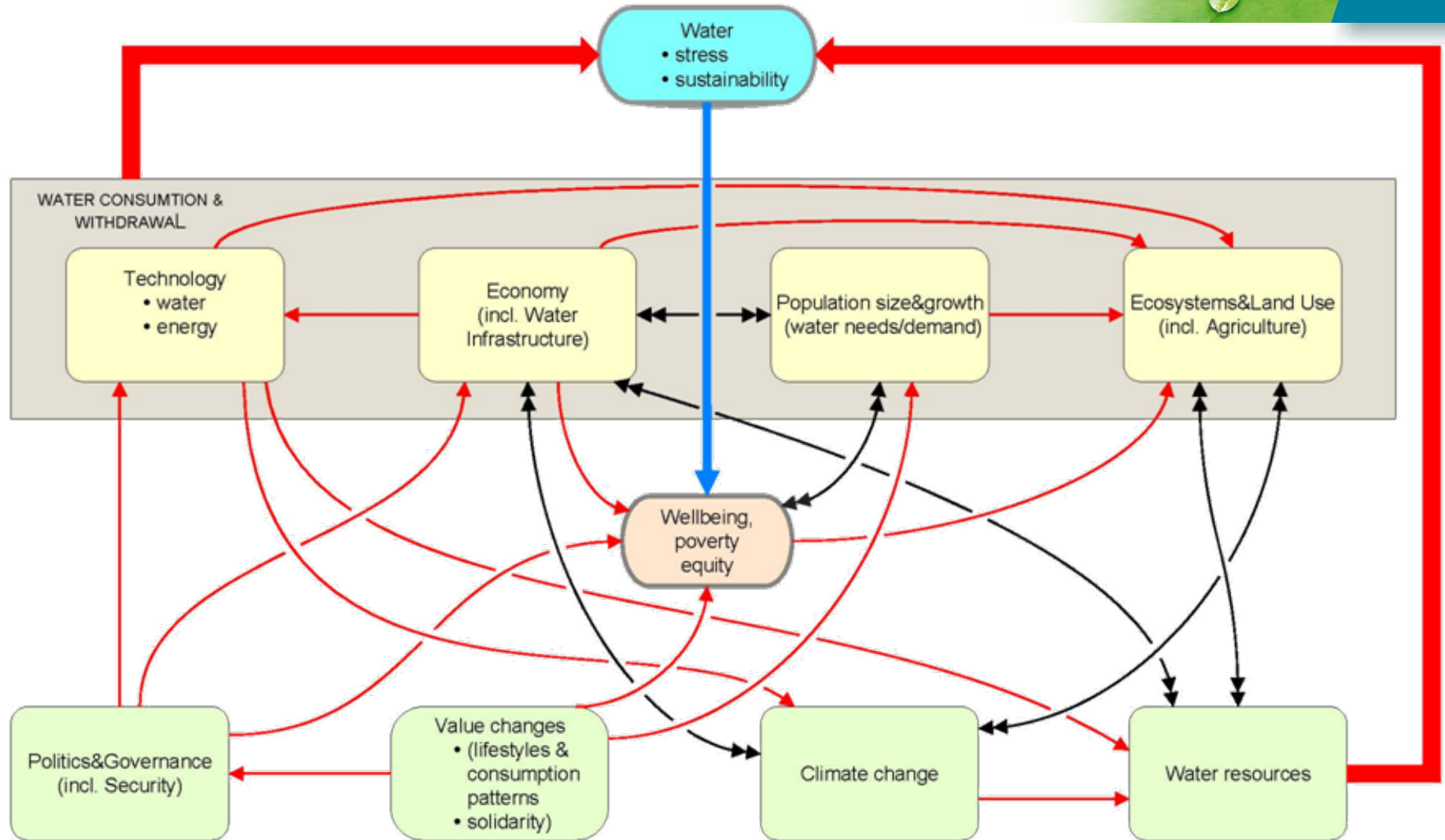


Ethics

Importance:

- In addressing human values, most people would agree that the present has an obligation to preserve opportunities for the future. (2020 = **66%**; 2030 = **75%**)
- Increasing scarcity deepens current inequalities in access to water in poor countries. (2020 = **66%**; 2030 = **72%**)

Causal Links among Drivers





<http://www.unesco.org/water/wwap>

Thank you!