



## Safeguarding water resources in a globalized world: A science-based call for action

*Initiated by the research programme "GRoW – Water as a Global Resource," funded by the German Ministry for Education and Research (BMBF)*

The availability of and access to water is of critical importance to mankind and nature, for food security, economic development and peace. **But the global water system is in crisis with increasingly severe local hotspots.** Climate change, population and economic growth drive the demand for more food and energy, putting pressure on water resources. Two thirds of the world's population experience water scarcity at least one month per year, and unsustainable water use and mismanagement are widespread. The UN Sustainable Development Goals rightly call for the sustainable use of water and land for food and energy production. Scientists from the research programme "GRoW – Water as a Global Resource" have compiled a list of key observations based on over 40 case studies from around the world:

- **Water is a global resource.** We need to link water, food and energy in a **local-to-global understanding of water resources** across all levels of decision-making. Achieving many of the Sustainable Development Goals, for example – SDG1 (no poverty), SDG2 (no hunger), SD3 (good health) and SDG16 (peace) – requires progress on SDG6, clean water and sanitation.
- Far too often, decisions that affect water resources and aquatic ecosystems (e.g. land use, agriculture, hydropower) **do not take the basic requirements of water sustainability into account.**
- Sustainable water management requires **transparent decision-making that is based on evidence.** We need advanced tools to create and share scientific knowledge.
- **Digital solutions and new sources of data offer enormous potential.** Satellite technology, innovative sensors, global databases, and advanced modelling approaches allow new insight into global teleconnections and local solutions.
- **Effective water governance is essential** to protecting water resources and addressing social and economic trade-offs. It requires coordination and cooperation **across all levels of governance and economic sectors.**

**The GRoW community is calling upon global leaders in business and policy** to tackle the global water crisis in three key areas: leveraging digitalisation, addressing teleconnections, improving governance.

LEVERAGE  
DIGITALISATION

ADDRESS  
TELECONNECTIONS

IMPROVE  
GOVERNANCE

## CALL TO ACTION FOR BUSINESS AND POLICY LEADERS

### ACTION ITEM I: LEVERAGE DIGITALISATION

#### Take advantage of the potential of the digital era to improve water management

The private and public sectors should support the use of digital solutions based on free and open data to take into account the local-to-global teleconnections in the global water system. Options like environmental big data, multi-model simulations, networked sensor systems and improved forecasts of water-related variables already exist and are ready for exploitation. We need to put them to use in easy-to-operate tools that consider economic and social factors and support evidence-based decision-making.

### ACTION ITEM II: ADDRESS TELECONNECTIONS

#### Integrate sustainable local water management into global supply chains

Business and policy leaders need to support efforts to increase local water sustainability through supply chain management and trade decisions. The GRoW community has developed tools and concepts to assess and address the impacts of global decisions on local water resources (e.g. water footprinting, monitoring and economic evaluation). Key players in the private and public sectors should use these tools to inform international production processes, agricultural trade and energy generation.

### ACTION ITEM III: IMPROVE GOVERNANCE

#### Implement and improve transparent, evidence-based water governance.

Sustainable water management fails without effective water governance. Given the complex, interconnected nature of water and its environmental, economic and social importance, water must play an integral role in all decisions related to natural resources. Therefore, effective water governance must enhance coordination across all levels of government and all relevant sectors and stakeholder groups; and integrate scientific knowledge and technological progress into decision-making at all levels.

The full version of the recommendations is available at: [www.bmbf-grow.de/recommendations](http://www.bmbf-grow.de/recommendations)

**About GRoW:** The research programme "GRoW – Water as a Global Resource", funded by the German Ministry of Education and Research, is one of the largest contemporary research initiatives on global water resources. GRoW comprises 12 international cooperation projects with 90 partner institutions from Germany and more than 40 case studies worldwide, involving approximately 300 researchers, practitioners and stakeholders over a period of more than 3 years. GRoW has investigated innovative approaches to better understand, predict and address the local-to-global teleconnections in water resources management. The approaches span from high-resolution global models of water use efficiency and agriculture via new operational rules for water reservoirs to water footprint tools, water quality assessments and, last not least, new tools for water governance. For more details, please visit: <https://bmbf-grow.de/en>

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