

WATER DIALOGUES FOR RESULTS



Accelerating cross-sectoral
SDG 6 implementation

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Outcome Document for the Science & Research Forum

Linking Research and Policy - Making use of science for accelerating
SDG6 implementation



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety



Federal Ministry
of Education
and Research

An Initiative of the Federal Ministry of
Education and Research

GRoW

WATER AS A GLOBAL RESOURCE



United Nations
Educational, Scientific and
Cultural Organization

Science contributions to accelerating cross-sectoral SDG 6 implementation

Science and research are key for building up the data and knowledge bases for informed decision-making and developing sustainable solutions for a water secure world in a changing environment. Against this background, the Science & Research Forum provided space to discuss the role of science in enabling decision-making and accelerating cross-sectoral SDG 6 implementation. The first public part of the Forum showcased latest scientific advancements in providing improved data and innovations to assessing water scarcity and analysing SDG interlinkages, with inputs from the BMBF research programme „Water as a Global Resource (GRoW)“ and UNESCO World Water Assessment Programme. AGRHYMET, the World Meteorological Organisation and the International Energy Agency provided insights on current practice in providing water-related data and information services for cross-sectoral decision making. Inputs from the public audience with regard to increasing science contributions were collected through Mentimeter.

In the subsequent consolidation workshop, invited participants discussed on main knowledge gaps that still remain in achieving SDG6 and interlinked SDGs, and reflected on mechanisms required to successfully feed science inputs into decision-making.

Participants of the Consolidation Workshop

This outcome document has been prepared based on the workshop discussions with active participation of:

- Abou Amani, Secretary, UNESCO Intergovernmental Hydrological Programme
- Cesar Carmona-Moreno, Project Leader - Water Management in Developing Countries, Institute on Sustainable Resources, European Commission Joint Research Centre
- Johannes Cullmann, Director “Water, Snow and Ice”, World Meteorological Organisation
- Annika Kramer, Head of Programme “Water”, adelphi / GRoWnet (Germany)
- Hartwig Kremer, Senior Program Manager - Head of Global Environment Monitoring, Water Quality Alliance, Science Liaison, UNEP
- William Logan, Director, International Center for Integrated Water Resources Management, US Army Corps of Engineers (USA)
- Concepción Marcuello Olona, Coordinator International Water Issues - DG Water, Ministry for the Ecological Transition and the Demographic Challenge (Spain)
- Michela Miletto, Coordinator, UNESCO World Water Assessment Programme
- Anil Mishra, Chief of Section, Hydrological Systems and Water Scarcity Section, UNESCO Intergovernmental Hydrological Programme
- Claudia Pahl-Wostl, Director, Institute of Environmental Systems Research, University of Osnabrueck (Germany)
- Stefan Uhlenbrook, Strategic Program Director – Water, Food & Ecosystems, International Water Management Institute (Sri Lanka)
- Leif Wolf, Program Manager, PTKA on behalf of the Federal Ministry for Education and Research (BMBF, Germany)

Main findings of the Science & Research Forum and related Consolidation Workshop

Taking a systems perspective is needed to better understand and manage the complex interlinkages between water and other SDGs

There is increasing recognition of the interlinked nature of SDGs, but more science and research is needed to better understand the trade-offs and synergies. Moreover, taking a systems approach in science and policy, i.e. considering the interconnected environmental, economic, and social components of a given system, is required to design strategies and solutions across all SDGs. Science-based information and capacity development should help ensure that decision-makers have the necessary understanding of the most critical interlinkages and can develop systemic solutions towards achieving the SDGs.

In order to leave no one behind, interdisciplinary science and research is necessary to identify and address inequalities in SDG implementation

So far, too little data is available on water demand, use, access and control of water resources, which are essential for local and national planning and policy-making. Moreover, we need more disaggregated data (e.g. spatially or sex-disaggregated data) in order to direct funding and actions towards those groups that are most in need. This requires better understanding of the social and political components of the water system through interdisciplinary research, involving local knowledge and citizen science. It also requires providing open access to reliable, transparent, and understandable data for civil society.

We need more research along the value chain of hydro-systemic information services

While science and technology has advanced significantly in providing new methods and approaches for data collection and processing, available data is often not systematically utilized. We need better understanding of various steps along the value chain of information services, in order to provide:

- **Integrated and quality-checked data:** increased knowledge on how to integrate data from various sectors and sources, incl. climate and socio-economic data, citizen science, local knowledge - not only to fill existing data gaps but also to validate data generated from global models and remote sensing. Science needs to be transparent, so that people trust the knowledge provided.
- **Targeted information services:** better understanding of the information needs, capacities, and processes of decision-making in various sectors and levels of action, e.g. through communication and behavioural sciences.
- **Valuation of information services:** demonstrating the benefits and cost-savings that can be generated by basing decisions on scientific evidence and qualified forecasts will not only encourage better use, but also help ensure funding of information services and the required data collection.

Science and research should help moving from better understanding of the systems towards implementing systemic approaches for accelerating SDG6

Participatory approaches and cross-sectoral coordination in science and decision making are recognised as facilitating systemic approaches and bridging the implementation gap. However, there is still a lack of knowledge of how concepts such as co-design or citizen science are effectively put into practice.

Fragmented governance frameworks are often a major hurdle: in many cases, institutions are not ready to implement systemic, innovative, participatory, or cross-sectoral approaches. Social sciences can provide a better understanding of stakeholder networks and governance systems that support implementation of systemic approaches. More implementation science is needed, also to better understand how good practices can be transferred and scaled-up.

Recommendations towards the policy messages to accelerate cross-sectoral SDG 6 implementation

The role that science and research can play in enabling evidence-based decision-making and developing systemic solutions towards cross-sectoral implementation of SDG6 should be strengthened in the key messages. Relevant actors and decision-makers at all levels should foster inter- and transdisciplinary research, innovation, science-based information services and capacity development within their respective realm. In particular the following aspects should be strengthened:

Establish science as a regular element of decision-making processes

Scientific data and knowledge should form the basis of water-related decision-making processes. This will also support high-level capacity development. By providing evidence and understanding, science can further build a bridge between diverging worldviews in markets, civil society and politics. Appropriate mechanisms to support science contribution in decision-making processes should therefore be established at different levels. At UN level, this could include setting up an international scientific advisory panel for SDG implementation. At the local to national level, partnerships involving science, administration, civil society and the private sector, should be established to foster the flow of information from science to implementation. These could build on existing informal networks as appropriate.

Encourage data-sharing across sectors and between science, the public and the private sector and make sure data are transparent and openly accessible

For science and research to contribute to the evidence-base for accelerating cross-sectoral SDG implementation, it needs access to data from public and private sources. For this we also need to step forward with regard to interoperability and global comparability of data. Vice versa, scientific data and research findings should be accessible to the public (open science). Moreover, in order to support decision making, science needs to provide credible, reliable and transparent data and information that adds value, is understandable and actionable for their defined target groups.

Promote a systems approach and strengthen cooperation between science and practice to help bridging the implementation gap

Research towards SDG6 implementation should not focus only on generating improved data bases and innovative technologies, but include social sciences, to foster understanding of the social and political components of water and related systems and enabling conditions for systemic change. Transdisciplinary research, engaging stakeholders in the research process and including communication, behavioural and implementation sciences is needed to better understand how data and research can meet the needs of decision-makers. This will help defining how to address different communities with different information products and water management solutions, and support bridging the implementation gap.