Stakeholder consultation on the preparation of the United Nations 2023 Water Conference
24 October 2022 Conference Room 2, UN Headquarters and online (hybrid format)
on the Midterm Comprehensive Review of the Implementation of the Objectives of the International Decade for Action "Water for Sustainable Development" 2018–2028
Intervention ICWRGC in Session 3 "Data and Information"

Introduction

- Many thanks for the opportunity to give this statement. I am director of the International Centre for Water Resources and Global Change (ICWRGC) located at the Federal Institute of Hydrology in Germany
- ICWRGC is a UNESCO Category 2 Center, has mandates for WMO and UNEP, is active partner in the UN Water Family with operational, science and educational activities and decades of experience. It coordinates the Global Terrestrial Network of Hydrology which includes around 10 global water data centres (see https://www.gtn-h.info/).

Problem description

- Reliable and quality ensured hydrological data are the fundament of all science and advice for decision-making. Many important water strategy documents and most experts are pointing this out already for a long time.
- The data provision from constant in-situ monitoring of essential hydrological variables is still poor or lacking from many countries. This is known since decades but nothing is really changing. International and transboundary exchange of hydrological data is poor with many gaps.
- In contrary it can be even observed that the necessary hydrological ground instrumentation for in-situ monitoring data is even decreasing whereas earth observation via new remote sensing technologies have and are rapidly progressing with enormous data amounts.
- It is very important to consider that remote sensing data cannot replace in-situ monitoring, in contrary remote sensing needs calibration and verification by in-situ monitoring.
- Consequently the necessary knowledge to achieve the goals of the International Decade for Action "Water for Sustainable Development" 2018–2028 and SDG 6 as well as some connected other water-dependent SDGs is getting worse instead of better, because the hydrological fundament is eroding. The challenges of climate change show that disasters are dominated by hydrological events (droughts and floods), especially in S-Hemisphere, but not only.

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Fundamental transformation actions on hydrological data provision is needed, main elements should be

1 - **Establishment of a global fund for a necessary hydrological ground instrumentation for permanent monitoring of the essential water variables describing the water cycle**
   a. WMO has started in the frame of its new Data policy a new financing mechanism for meteorological instrumentation called "Systematic Observations Financing Facility (SOFF)" This has to be enlarged within WMO and set up for Hydrology and supported by all.
   b. E.g. if the money for one satellite mission could be used to support such a hydrological fund, this would already make a real difference. Let´s go for this competition and raise the awareness for the hydrological in-situ data.
   c. A big portion of the fund should be used for a permanent protection of the necessary hydrological ground instrumentation, which is often stolen or damaged in many member states.
   d. the national hydrological services have to be supported being equipped with necessary state-of- the art databases and its use.

2 - **Establishment of a global mechanism that better supports a free and quality ensured provision of the essential hydrological parameters** for open science and open data in existing global data infrastructures.
   This includes and requires
   a. long-term water data series have to be provided by the national hydrological services in the member states.
   b. the huge amount of time-limited data from research activities are added. Here an obligatory demand in each research call should be embedded for provision of data in international standards to the global data centres.
   c. common standards for metadata and exchange formats to facilitate the interaction for all and for the provision of needed products. Advanced Data Management Principles should support this process (e.g. http://geolabel.info/DMP_generation.htm).
   d. a much better coordinated workflow among the data providers in members states and the global water data centres (more efficient data acquisition) supported by the competent UN organizations.

Outlook

The transformations action should be more deeply elaborated with data providers and the experts of the global data water centers of the UN water family.

Without reliable, continuous in-situ and remote-sensing data with common standards, prevention tools (e.g. forecasting models) cannot produce the understanding for the hydrological systems and hence the sufficient scientific and technical knowledge for decision-making.

Effective prevention, adaptation measures and warning systems depend on both, system knowledge through availability of permanent hydrological ground monitoring data and scientific advance.

It would be wise and economic effective to spend more resources and efforts in common water data fundaments to stop the negative trend on hydrological ground instrumentation and data provision. We need new approaches which support the basic data monitoring and management in the national services together with the global water data centres to change the practice.

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