UNESCO's Intergovernmental Hydrological Programme (IHP)

Phase Nine (IHP-IX)

Priority Area 1
"Scientific Research and Innovation"

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Region IV: Asia and the Pacific

United Nations
Educational, Scientific and
Cultural Organization

Intergovernmental
Hydrological
Programme

A feature/impression of this section (and possibly other sections as well)

- Usually, the way of writing and itemization tends to be “disasters”, “groundwater”, “scarcity”, “quality”, “ecohydrology”, “cryosphere”, …
- In this document and in this section, however, sectionalism is rather minimized, and the description is made in a more holistic and overarching way or in a cross-cutting way.

Expected Outputs (excerpt)

- 1.1. Integration of **citizen science** in hydrological research promoted, …
- 1.2 The interaction between **human and water** systems in line with **socio-hydrology**...
- 1.3 International scientific cooperation enhanced to address **unsolved problems in hydrology**, improving scientific understanding of hydrological cycles across river and aquifer basins.
- 1.4 **Uncertainty** in hydrological **predictions and forecasting** … for better adaptive water management strategies.
- 1.5 for Integrated Water Resource Management (IWRM) … ecohydrology re**Nature based solutions** search...
- 1.6 …**water quality and reducing water pollution**.
- 1.7 …the impacts of **global change** (including climate change) on river basins, aquifer systems**, cryosphere** and human settlements…
- 1.8 …**non-conventional water**...
- 1.9 …**disasters such as flood and drought** enhanced for timely forecasting.
- 1.10 **New technologies**….

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Relation between this priority area and the Agenda 2030

- Link to SDGs 13, 6, 7, 9, 2, 1, and the UN Decade of Action (2020-2029) are mentioned.

Innovation and partnerships

- unprecedented tech-driven and big-data era for innovation, numerical models (hydro-informatics) of hydrology for simulation, assessment and forecasting, and new monitoring techniques.

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Further research in hydrological cycles, ecohydrology and groundwater

- spatial homogeneity, heterogeneity, and scales in hydrological variables and fluxes
- harmonization of grey and green infrastructures to achieve sustainability

Reducing uncertainty in water management

- Variability in the hydrological cycle, including extremes such as floods and droughts
- Research on melting snow reserves, mountain glaciers, permafrost, and groundwater

Innovative techniques for addressing water quality, involving social sciences

- Socio-hydrology. Human- Nature.
- “co-innovation” and “co-design”
- Water quality as an example.

Innovation and use of technologies

- ICT, AI, cubesats (nano-satellites), IoT, new sensors, data assimilation…
- impacting efficient and effective use of water resources, and reducing disaster risks.

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Improving Citizen Science

- Using citizen science inputs provides new opportunities for society, like water awareness, …, and pro-active support.
- From a science perspective, citizen science widens spatial and temporal data collection possibilities.

Accurate and adequate monitoring

- Accurate and adequate monitoring of hydrological systems is still lacking in many parts of the world
- scientists generally protected their data; but, today, transparency…