What is the Future of the Water Science and Research for Sustainable Development: IDSSD Perspectives

Abdelaziz Zaki

Science Program

UNESCO Regional Office in Cairo

aa.zaki@unesco.org

Overview

- IDSSD Background
- The Decade Vision, Mission, Main Objectives and Outcomes
- Challenges and Opportunities
- UNESCO IHP-9 Strategic Plan
- UNESCO/WSTA Special Session: objective and expected outcome of the session

Proclamation of the International Decade of Sciences for Sustainable Development by the United Nations General Assembly

- ***Agenda 2030 for Sustainable Development:***
  - Far-reaching and people-centred set of universal and transformative Sustainable Development Goals and targets,
  - Reaffirmed on science, technology and innovation for development,
  - Recognizing that full and equal access to and participation in science, technology and innovation for women and men is essential to achieve sustainable development,
  - Requiring a more effective and inclusive approach based on synergistic cooperation of all sciences–basic and applied sciences as well as social and human sciences, including traditional knowledge

- ***Year 2022: "International Year of Basic Sciences for Sustainable Development***
  - *Emphasizing that the evidence-based methodologies and the models of operation and collaboration used in research* can support policymakers in finding adequate responses to the present and future complex challenges, and that open science can help in promoting and strengthening international cooperation,

Proclamation of the International Decade of Sciences for Sustainable Development (2024-2033)by the United Nations General Assembly

- ***IDSSD:*** acknowledging the imperative to bridge across scientific disciplines and knowledge forms in order to address the complex and intricate challenges of our time.

- ***UNESCO*** leads the implementation of the Decade, in collaboration with other relevant organizations of the United Nations system as well as other stakeholders, namely: regional and subregional organizations, academia, civil society organizations, the private sector and individuals

- ***Major Activities:***
  - Observe and raise awareness of the importance of all sciences for sustainable development,
  - Promote a coordinated, collaborative, scientific approach providing policymakers with evidence-based analyses and data necessary for establishing and effectively implementing policies per national priorities

unesco
Intergovernmental Hydrological Programme

The International Decade of Sciences for Sustainable Development

The Decade at a Glance

Vision

The sciences and a science culture required for a sustainable world developed and accessible to all.

Mission

To engage all societal actors to further advance science and equally benefit from it.

Objectives

With the aim of advancing scientific knowledge and fostering a culture of science, the Decade has two key objectives:

Objective 1: To enhance scientific endeavours to deepen our understanding of nature and humanity, and the intricate interplay between them, and to generate, use and leverage actionable scientific knowledge to accelerate the achievement of the Sustainable Development Goals (SDGs) and beyond.

Objective 2: To build a robust science culture ensuring that everyone has the right to participate in science and enjoy the benefits of scientific progress and its applications in accordance with the Universal Declaration of Human Rights.

Expected Outcomes of the Decade

Outcome 1: Global community empowered through scientific literacy

Outcome 2: Actionable scientific knowledge is produced and used to advance the achievement of SDGs in alignment with human rights

Outcome 3: Basic sciences are advanced through global collaborative research initiatives

Outcome 4: Open science is widely and equitably used to democratise scientific processes and access to scientific knowledge

Outcome 5: Science, technology and innovation (STI) systems are transformed to better respond to the needs of science and society

Challenges and Opportunities for Sciences for Sustainable Development

- Example of Water Science related Challenge:

  Limited public, policymaker, and scientific/engineering community recognition of the fundamental importance of sciences hinders support and investment in research and innovation, impacting progress on global challenges and sustainable development.

Opportunities :

- Strengthen sciences through targeted science communication initiatives to enhance public awareness and foster increased support and investment in scientific research and innovation for sustainable development.

Challenges and Opportunities for Sciences for Sustainable Development	
Challenge	**Opportunity**
The proliferation of misinformation and disinformation, exacerbated by the restricted ability of various societal actors, beyond the scientific community, to access scientific information and comprehend, evaluate, and engage with scientific concepts, processes, and evidence	Empowerment of the global community through scientific literacy
Lack of institutional support, recognition, and incentives for collaborative generation, use and dissemination of actionable knowledge addressing the pressing societal needs	Transformation of the STI systems to prioritize the production, dissemination and use of actionable scientific knowledge to advance sustainable development in alignment with human rights
Limited public, policymaker, and scientific/engineering community recognition of the fundamental importance of sciences hinders support and investment in research and innovation, impacting progress on global challenges and sustainable development.	Strengthen sciences through targeted science communication initiatives to enhance public awareness and foster increased support and investment in scientific research and innovation for sustainable development.
Disciplinary silos and limited interdisciplinary collaboration due to the existing structural institutional, financial and communication constraints	Advancement of and targeted investment in global collaborative transdisciplinary and multidisciplinary research initiatives
Growing inequalities between and within nations in the access to scientific education, knowledge, infrastructures, and benefits of science. the inherent disconnect between science and societal needs and lack of diversity, inclusion and equity in STI systems	Transition to open science in line with the values and principles of the 2021 UNESCO Recommendation on Open Science
STI systems disconnected from society and driven by cultural and social factors, norms and biases which influence what knowledge is produced, which voices are heard; whose knowledge is valued; who participates and who benefits from scientific knowledge, processes and progress.	Transformation of the STI systems to encourage collaboration, agility, social justice, inclusivity, diversity, equity and responsiveness to societal needs

Challenges and Opportunities for Sciences for Sustainable Development

- Example of Water Science related Challenge:

  Disciplinary silos and limited interdisciplinary collaboration due to the existing structural institutional, financial and communication constraints

Opportunities :

- Advancement of and targeted investment in global collaborative transdisciplinary and multidisciplinary research initiatives

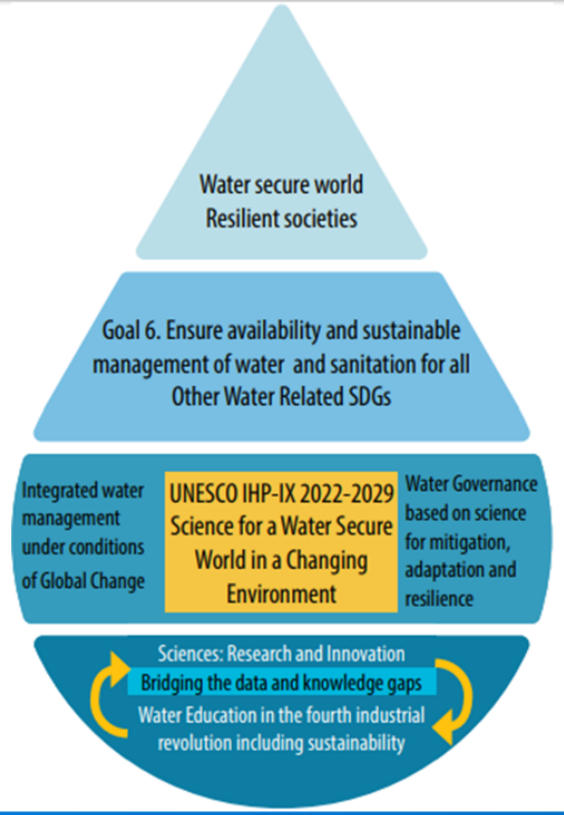
Challenges and Opportunities for Sciences for Sustainable Development	
Challenge	**Opportunity**
The proliferation of misinformation and disinformation, exacerbated by the restricted ability of various societal actors, beyond the scientific community, to access scientific information and comprehend, evaluate, and engage with scientific concepts, processes, and evidence	Empowerment of the global community through scientific literacy
Lack of institutional support, recognition, and incentives for collaborative generation, use and dissemination of actionable knowledge addressing the pressing societal needs	Transformation of the STI systems to prioritize the production, dissemination and use of actionable scientific knowledge to advance sustainable development in alignment with human rights
Limited public, policymaker, and scientific/engineering community recognition of the fundamental importance of sciences hinders support and investment in research and innovation, impacting progress on global challenges and sustainable development.	Strengthen sciences through targeted science communication initiatives to enhance public awareness and foster increased support and investment in scientific research and innovation for sustainable development.
Disciplinary silos and limited interdisciplinary collaboration due to the existing structural institutional, financial and communication constraints	Advancement of and targeted investment in global collaborative transdisciplinary and multidisciplinary research initiatives
Growing inequalities between and within nations in the access to scientific education, knowledge, infrastructures, and benefits of science. the inherent disconnect between science and societal needs and lack of diversity, inclusion and equity in STI systems	Transition to open science in line with the values and principles of the 2021 UNESCO Recommendation on Open Science
STI systems disconnected from society and driven by cultural and social factors, norms and biases which influence what knowledge is produced, which voices are heard; whose knowledge is valued; who participates and who benefits from scientific knowledge, processes and progress.	Transformation of the STI systems to encourage collaboration, agility, social justice, inclusivity, diversity, equity and responsiveness to societal needs

Major outcomes of the IDSSD

1. Global citizens with basic Science Literacy
2. Actionable Scientific knowledge for Sustainable Development is produced and applied ethically
3. Advancing Big Science: Creating an Inclusive and Transformative Scientific Ecosystem
4. Fundamental infrastructure for Open Science is established and operated
5. A new/Dynamic Science system is created

The Intergovernmental Hydrological Programme (IHP)

IHP-IX (2022-2029): Science for a water secure world in a changing environment



Five priority areas:

1. Scientific research and innovation
2. **Water Education** in the Fourth Industrial Revolution including Sustainability
3. Bridging the **data-knowledge gap**
4. Integrated **water resources management** under conditions of global change
5. Water Governance based on science for mitigation, **adaptation and resilience**

34 expected outputs
151 Key activities (draft implementation Plan)

KEY AREAS OF INTERVENTION TO UNLEASHING SCIENCE FOR SD AND PEACE

Philosophies/Epistemologies

On water security in a changing world:

A. **Ecohydrology:** increase the number of countries establishing Ecohydrology demonstration sites and promote eco-hydrology in UNESCO designated sites.
B. **Mapping glaciers** in different regions: UNESCO will continue to map glaciers. The International Year of Glacier preservation will be a great opportunity to advance actions related to preservation of glaciers but also to develop resilience and adaptation capacity in communities living in the poles and near glaciers.
C. **Science based assessment** for informed decisions in addressing complex interconnected water challenges through scientific data collection to improve management and governance of transboundary water systems (surface and ground water)

KEY AREAS OF INTERVENTION TO UNLEASHING SCIENCE FOR SD AND PEACE

Philosophies/Epistemologies

On water security in a changing world:

D. **Climate risk water management** through CRIDA climate risk informed decision analysis
E. **Floods and droughts** monitoring across of the globe,
F. **Enhancing water management in Megacities** within the context of global change
G. **UNESCO World Water Quality Portal** deployed for many water bodies for improved water quality monitoring.
H. **Water education** the Global network of water education with focus on developing countries and the new indicator on water education.
I. **Enhancing the assessment of transboundary aquifers** and improving their science-based management and governance. And **Promoting gender transformative water policies**, management and governance.

UNESCO Cairo Special Session/ Roundtable: Frontiers in Water Science and Technology Research: UNESCO and the International Decade of Science for Sustainable Development

The session involves leaders of key water research institutions in the GCC and the Arab Water Academy

- sharing their institutional vision of short and mid-range R&D priorities, especially with respect to localization of technologies and the sharing of knowledge responding to the GCC water future.

The outcome of the session:

- key water science research priorities, opportunities for cooperation, and their expectation from IDSSD.

Outcomes of this session will be used to:

- shape UNESCO regional input to the IDSSD decade,
- enhance UNESCO planning of future IHP actions in the region within the Decade and to
- produce a publication including a chapter based on the outcomes of the concerned session.

Thank You