# Youth for Water Security

## UNESCO IHP and UNESCO Recommendations

## For UNESCO Water-Culture Integration

**Prof Shahbaz Khan**

Director and Representative

UNESCO Multisectoral Regional Bureau for East Asia

# UNESCO with, by and for youth


Youth is a **priority** group for UNESCO.
Recognizing their ***creativity***, ***innovation*** and ***capacity*** to make change happen in the world,
we firmly believe that young people are crucial ***actors***, ***leaders***, and ***partners***.

UNESCO IHP is working actively to ensure that their voices are heard because they matter.

# UNESCO Intergovernmental Hydrological Programme (IHP)

*IHP envisions a water secure world where people and institutions have adequate capacity and scientifically based knowledge for informed decision-making on water management and governance to attain sustainable development and to build resilient societies*

Mobilize **international cooperation** to improve knowledge and innovation to address water security challenges

IHP creates bridges between stakeholders from around the world

Strengthen the **science-policy** interface to reach water security at local, national, regional and global levels

Help decision makers adapt their policies based on sound scientific evidence

Facilitate **education and capacity development** in order to enhance water resources management and governance

IHP organizes courses, trainings and workshops on water-related issues and provides resources and tools at all levels

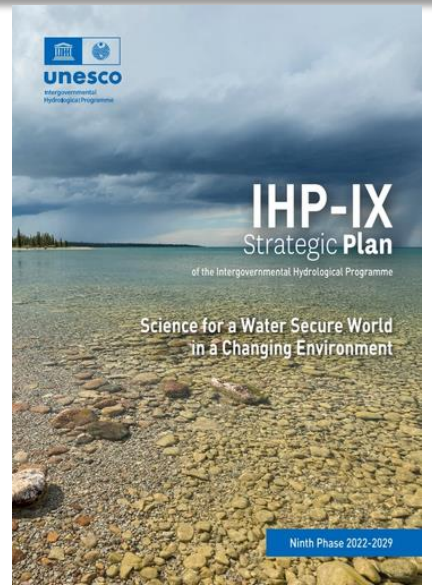
# Intergovernmental Hydrological Programme (9th Phase – 2022-2029)

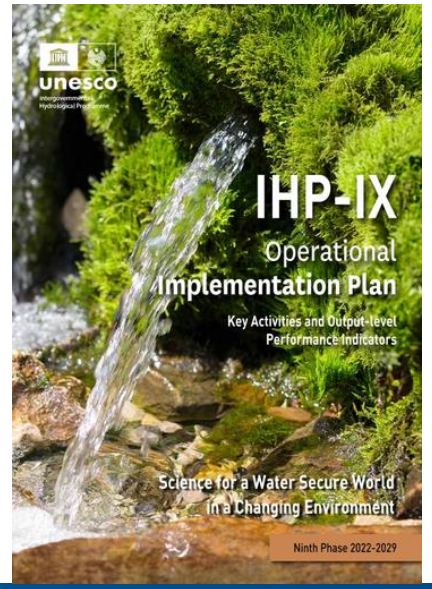

**Five priority areas:**

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**

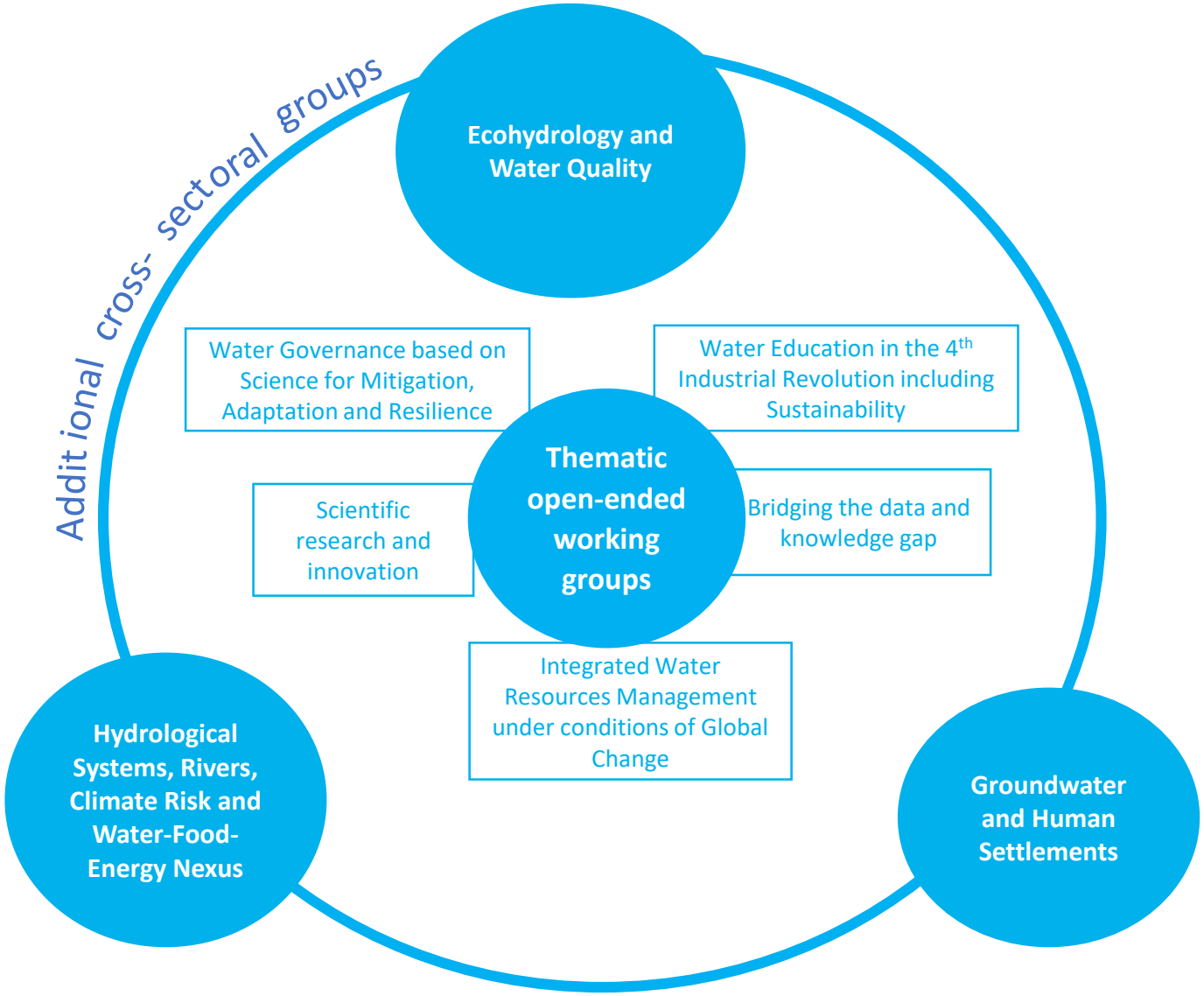
**34 expected outputs**

**150 key activities (draft Implementation Plan)**



# Intergovernmental Hydrological Programme (9th Phase – 2022-2029)




Thematic OEWG:
1. Scientific Research and Innovation
2. Water Education in the Fourth Industrial Revolution including Sustainability
3. Bridging the data and knowledge gap
4. Integrated Water Resources Management under conditions of Global Change
5. Water Governance based on Science for Mitigation, Adaptation and Resilience

Additional cross-sectoral groups:
1. Hydrological Systems, Rivers, Climate Risk and Water-Food-Energy Nexus
2. Groundwater and Human Settlements
3. Ecohydrology and Water Quality

# UNESCO's Ecohydrology Approach within IHP-IX (2022-2029)

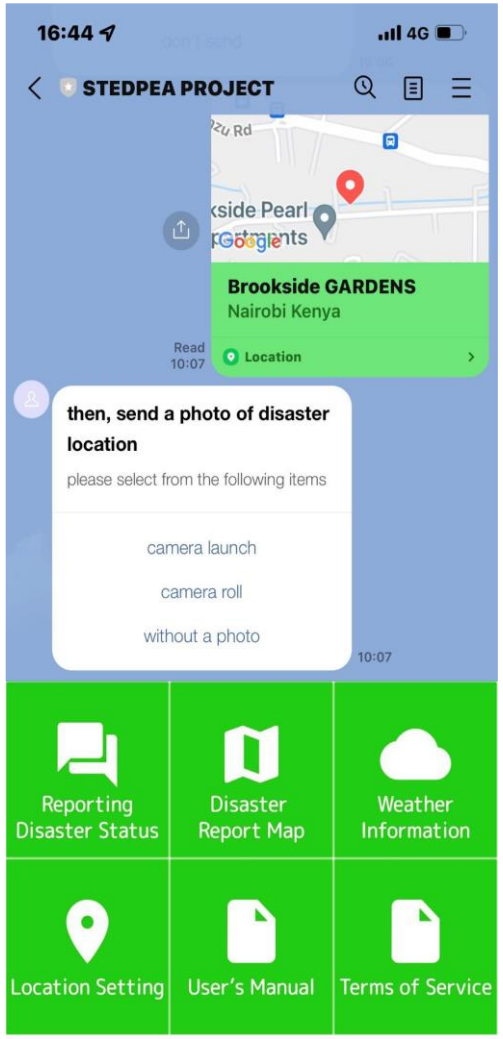
- There is an urgent need to **accelerate the implementation of water-related SDG** through water science and education.
- Considering the above the great potential for acceleration is in the use of ecosystem properties as innovative management tools – Nature Based Solutions (NBS).
- Ecohydrology as a **transdisciplinary sustainability science** is promoted strategically within the **UNESCO Water Family and Demosites Network** towards achieving a water secure world in a changing environment.
- Within the IHP-IX, UNESCO **promotes the implementation of Ecohydrology Approach in the Designated sites** (including Biosphere Reserves, Natural World Heritage Sites and Global Geoparks) which constitute a network of living laboratories.

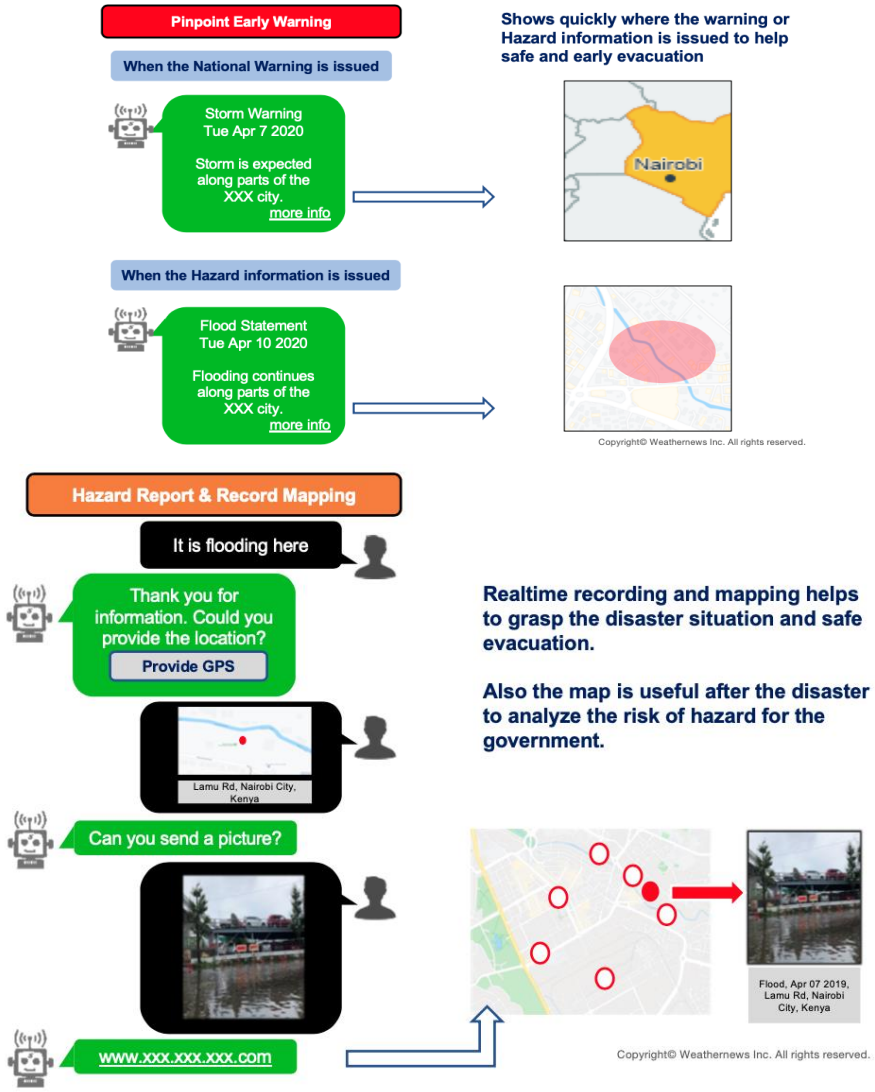
# UNESCO Innovative Product 1: AI for efficient risk communication

## Strengthening Disaster Prevention Approaches– STEDPEA

**AI Chatbot (Mobile Applications)**
*In **5 countries** (Kenya, Rwanda, South Sudan, Tanzania and Uganda)*
AI chatbot enable sharing information on disasters and connecting communities to expedite relief efforts during disasters.

- **Optimize the communication** between government and citizen
- **Share the information** of supplies and evacuation immediately
- **Grasp the situation** of damage/recovery accurately for both side

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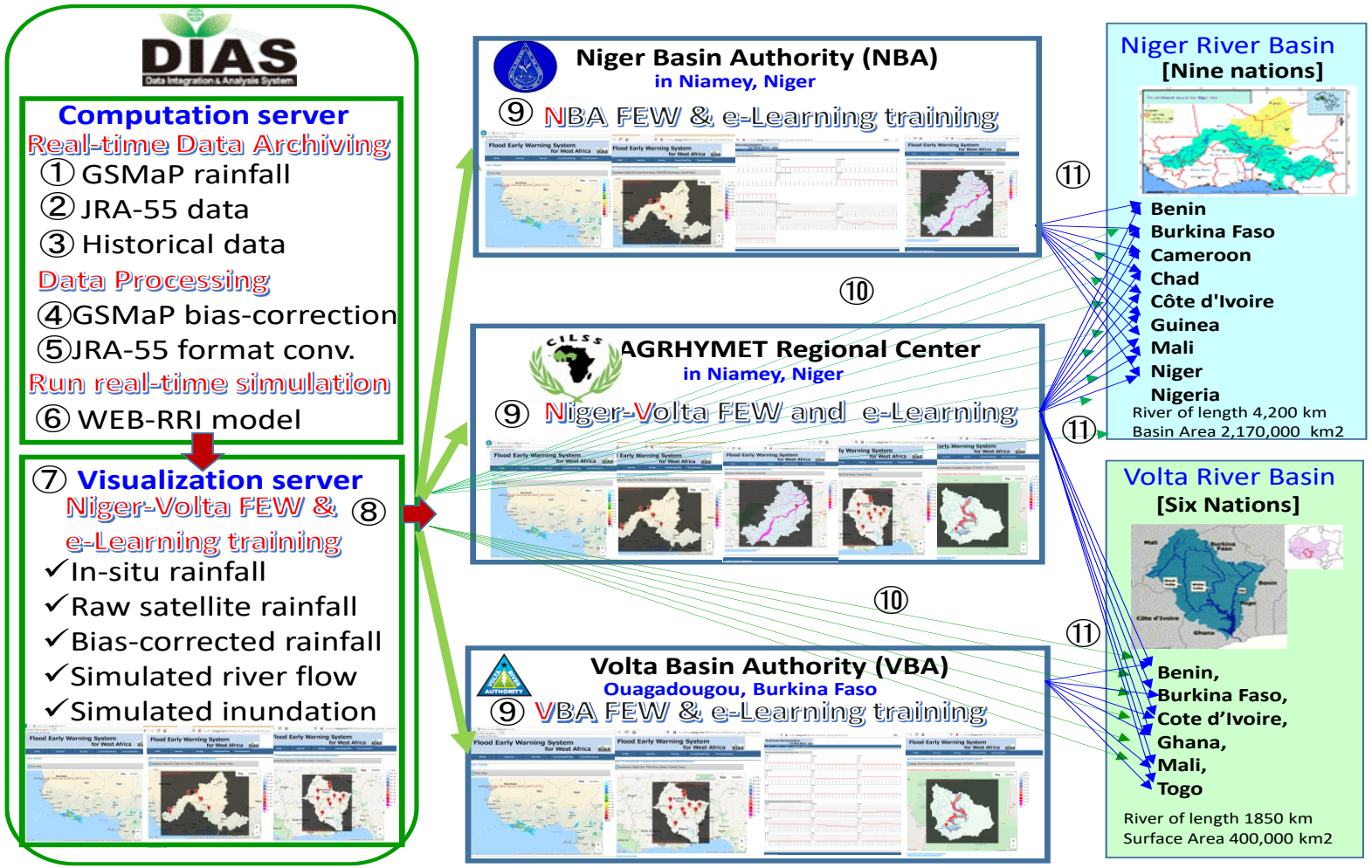
# UNESCO: Innovative Product 3: using satellite data for climate change adaptation




**Using satellite data to complement the ground data for flood forecasting**

Schematic diagram of the flood early warning system (FEWS) prototype version 1.0 for West Africa on Data Integration and Analysis System (DIAS).

# UNESCO Recommendation on Open Science



- Open science increases **scientific collaborations** and **sharing of information** for the benefits of science and society
- Makes multilingual scientific knowledge **openly available, accessible and reusable** for everyone
- Opens the processes of scientific knowledge **creation, evaluation and communication to societal actors** beyond the traditional scientific community.

# UNESCO Recommendation on Open Science

**7 areas** are recommended to take concurrent actions, in accordance with *international law* and taking into account their *individual political, administrative and legal frameworks*.


# UNESCO Recommendation on the Ethics of AI


- The framework serves as a normative instrument
- Designed by an Ad Hoc Expert Group with diverse representation across the Member States
- Includes concrete recommendations on specific policy areas.
  Some include:
  - Ethical impact assessment
  - Stewardship
  - Data policy
  - Development and international cooperation
- Addresses a variety of issues, including those related to gender and sustainability
- Adopted on 24th November 2021

# RECOMMENDATION ON THE ETHICS OF AI: AIMS

- **To guide the development and use of AI in a way that benefits all of humanity, promotes sustainable development, and stimulates the peaceful use of AI systems.**
- **To enable stakeholders to take shared responsibility based on a global and intercultural dialogue.**
- **To assist Member States in responding to the changes and challenges stemming from AI technologies.**

# RECOMMENDATION ON THE ETHICS OF AI: VALUES AND PRINCIPLES

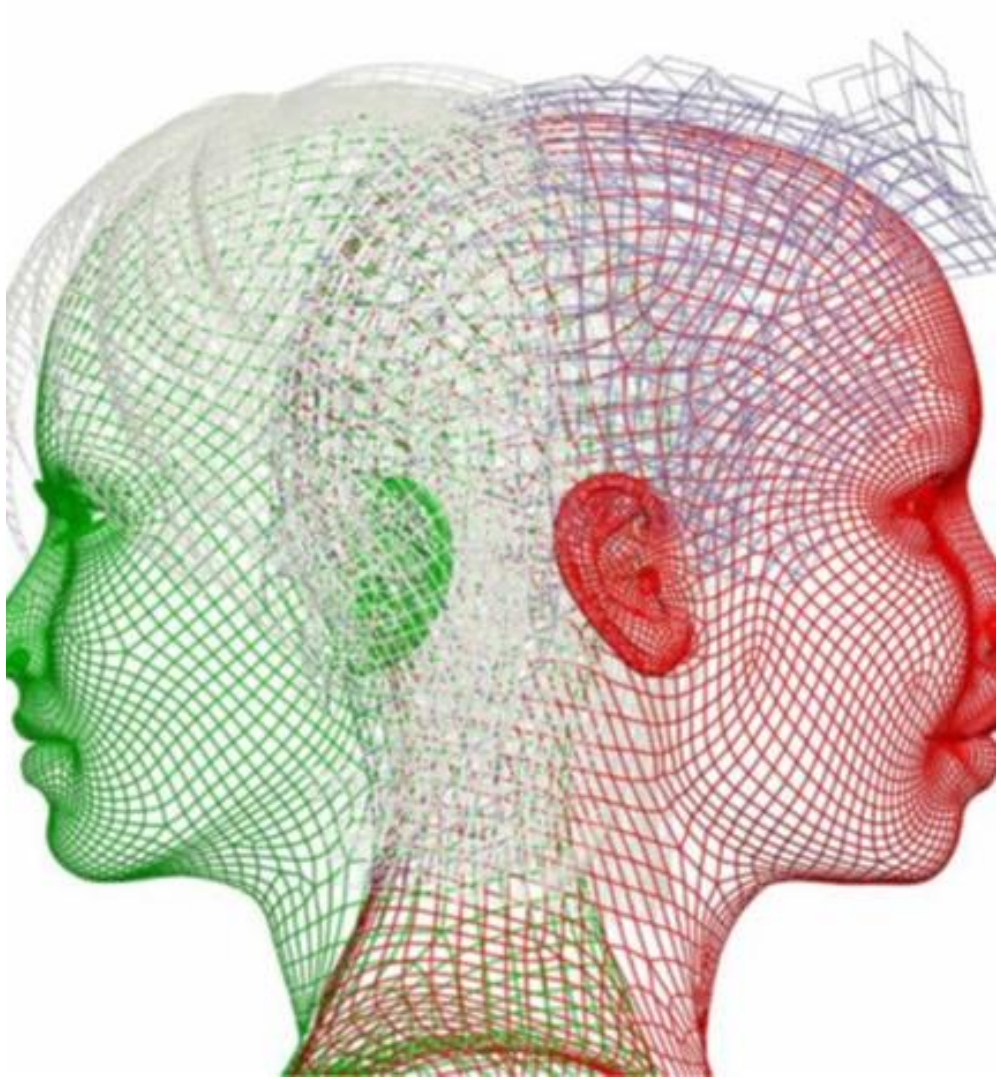
- **The Recommendation outlines 4 values and 10 principles**
- **Values:**

1. **Respect, protection and promotion of human rights and fundamental freedoms and human dignity**
2. **Environment and ecosystem flourishing**
3. **Ensuring diversity and inclusiveness**
4. **Living in peaceful, just and interconnected societies**

# RECOMMENDATION ON THE ETHICS OF AI: VALUES AND PRINCIPLES

- **Principles:**

1. Proportionality and do no harm
2. Safety and security
3. Fairness and non-discrimination
4. Sustainability
5. Right to Privacy, and Data Protection
6. Human oversight and determination
7. Transparency and explainability
8. Responsibility and accountability
9. Awareness and literacy
10. Multi-stakeholder and adaptive governance and collaboration

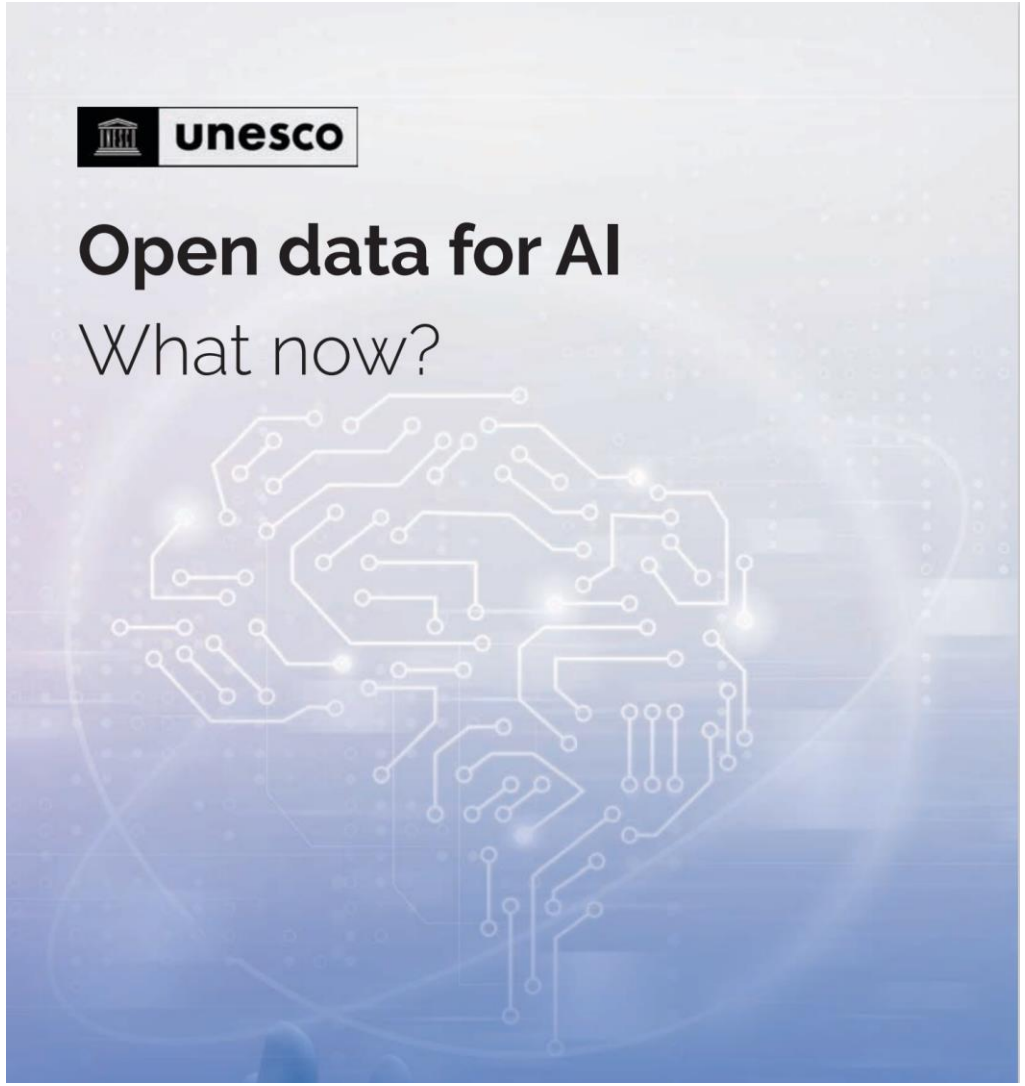


# 2023 UNESCO Publication on Open Data

These guidelines follow up on the **UNESCO Recommendation on the Ethics of Artificial Intelligence**, which, among other topics, includes a call for open data for AI. These guidelines will also play a crucial role in supporting the **UNESCO Recommendations on Open Science** by facilitating data sharing, enhancing reproducibility and transparency, promoting data interoperability and standards, supporting data preservation and long-term access.

**120**

**Countries without Open Data policies**



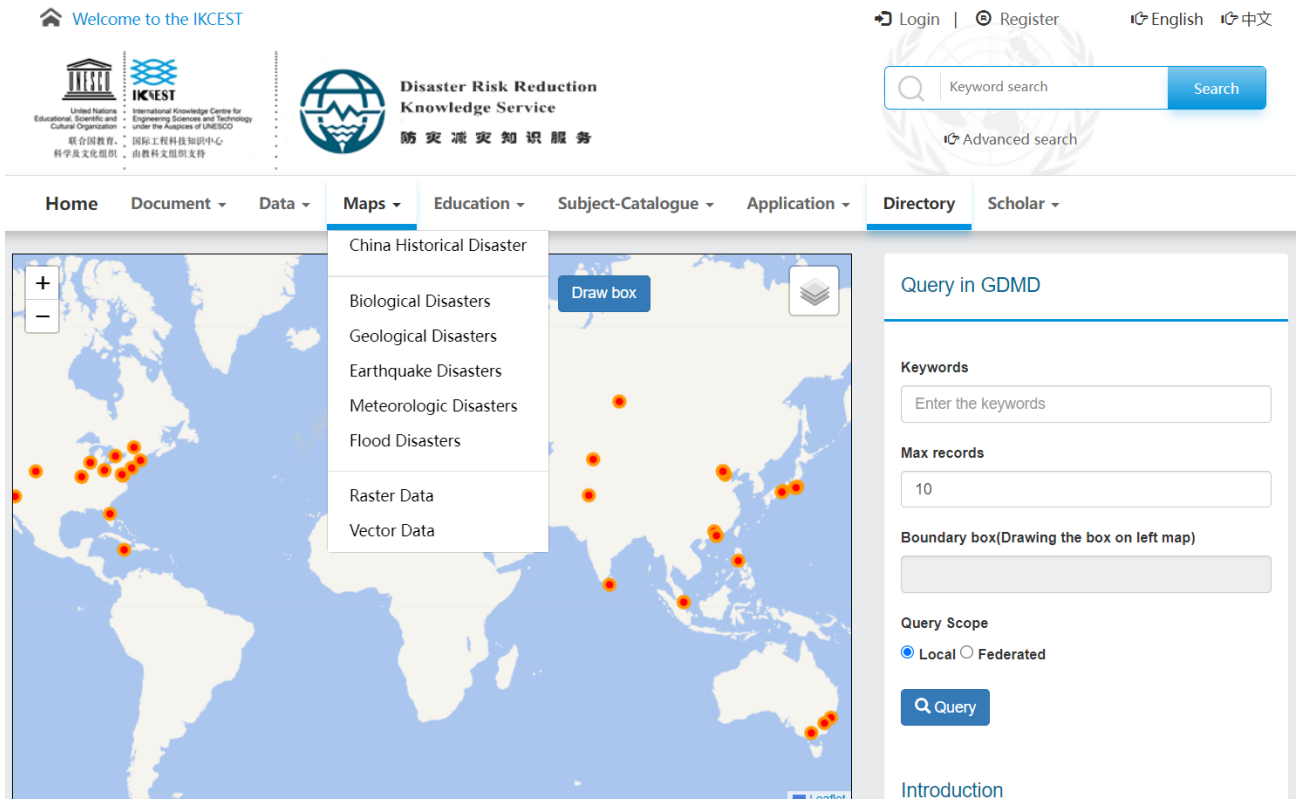

Emphasizes **FAIR** principles, data which are **F**indable, **A**ccessible, **I**nteroperable and **R**eusable

# Example: Open Science platform on DRR

International Knowledge Centre for Engineering Sciences and Technology (IKCEST), C2C in China and UNESCO has been working on the big data, data format on DRR.

December 2022, IKCEST launched a Open Science data platform on DRR, where we find the open data on natural hazards and biological hazards.

With the collective effort utilizing Open Science data, DRR practitioners and data scientist can develop better early warning system and risk assessment tool.




Screen shot of the platform

After identify 110 open science platform on DRR, IKCEST created a clearing house, where we can search data with searching function

# Key Areas of Action for Open Science and Open Data for Water – Culture Integration

1. Widen access to hydro climatic data and promote the long-term preservation of open water data (including cultural data) using FAIR principles;
2. Help improve data standards, management for AI ready data integrating youth vision, culture and values;
3. Open integrated water science for climate, agricultural, infrastructure, surface and ground water elements including cultural aspects;
4. Share best practices for open data science for SDG 6; and
5. Foster water diplomacy for open data for transboundary waters

# Thank you

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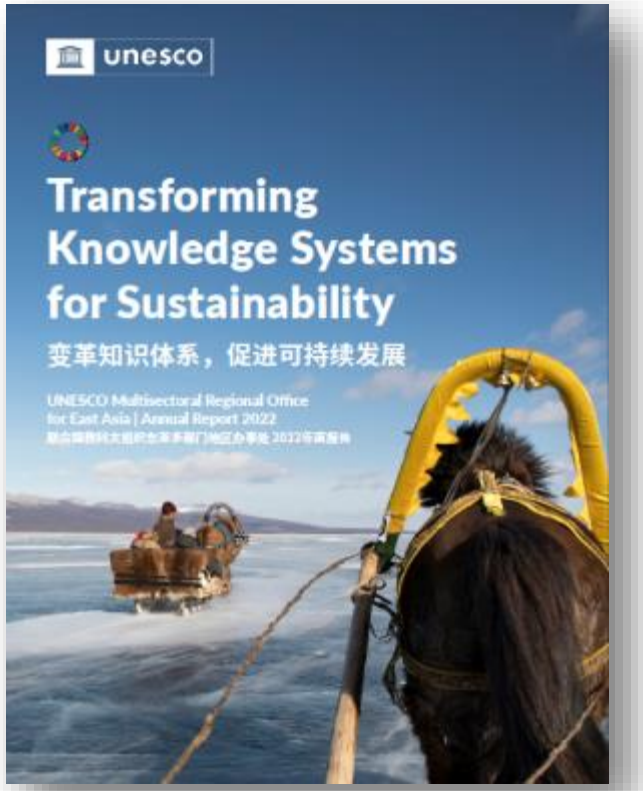
# More Information


News Letter-UNESCO Beijing Cluster Office, Sep-Dec 2022

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