



United Nations
Educational, Scientific and
Cultural Organization



International Research
and Training Center on
Erosion and Sedimentation



Building a community with a shared future - giving international organizations a bigger role to play

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International Research and Training Center on Erosion and
Sedimentation (IRTCES)

China Institute of Water Resources and Hydropower Research (IWHR)

September 2023

1 Background

2

Bridge and linkage

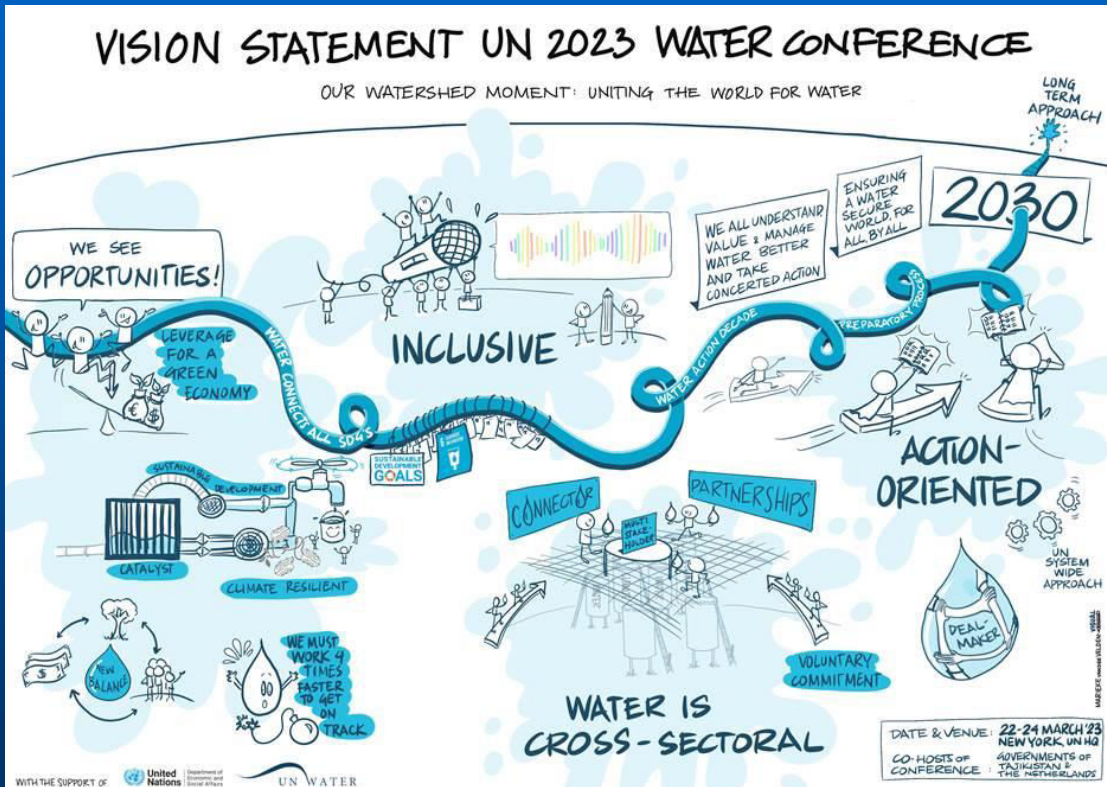
Contribute to SDGs and UNESCO IHP-IX

3

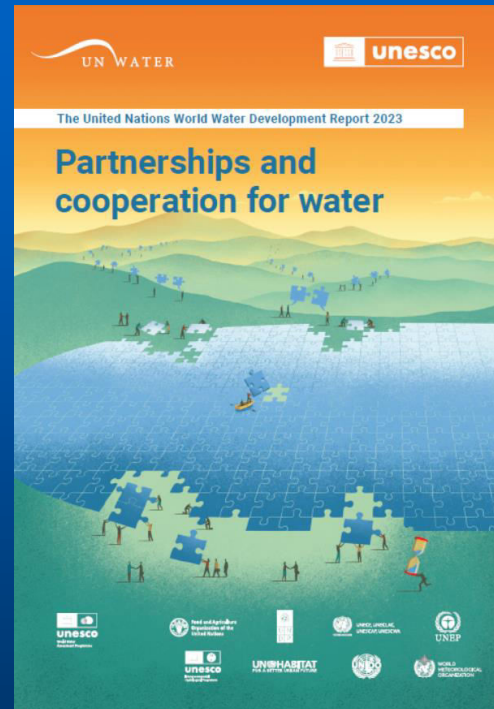
Summary

1 Background

Urgently set the world back on track to achieving SDGs



Progress on water related goals and targets remains **alarmingly off track**



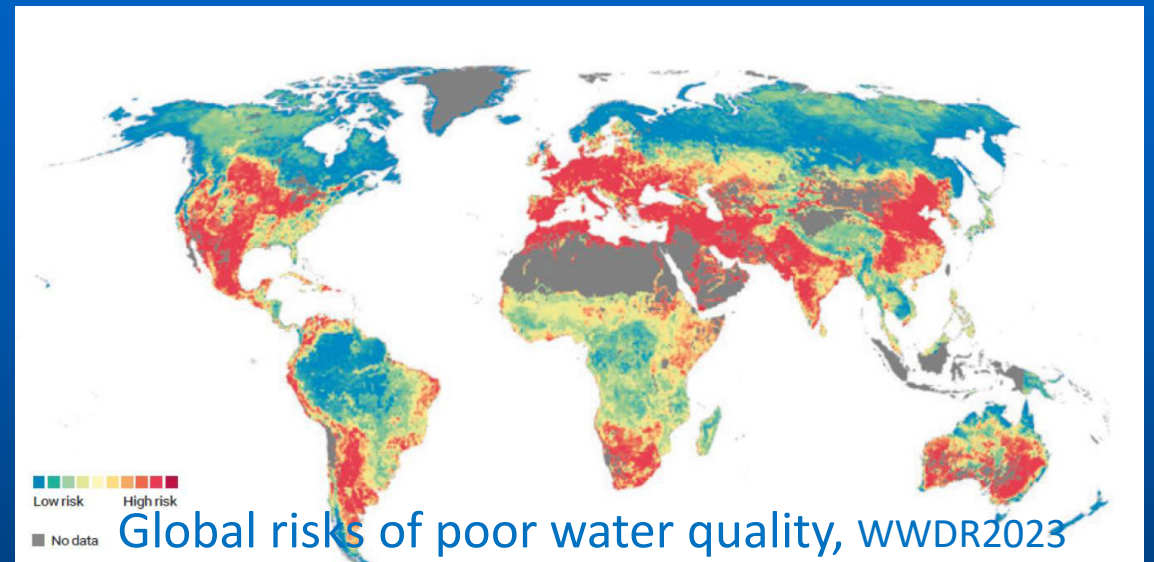
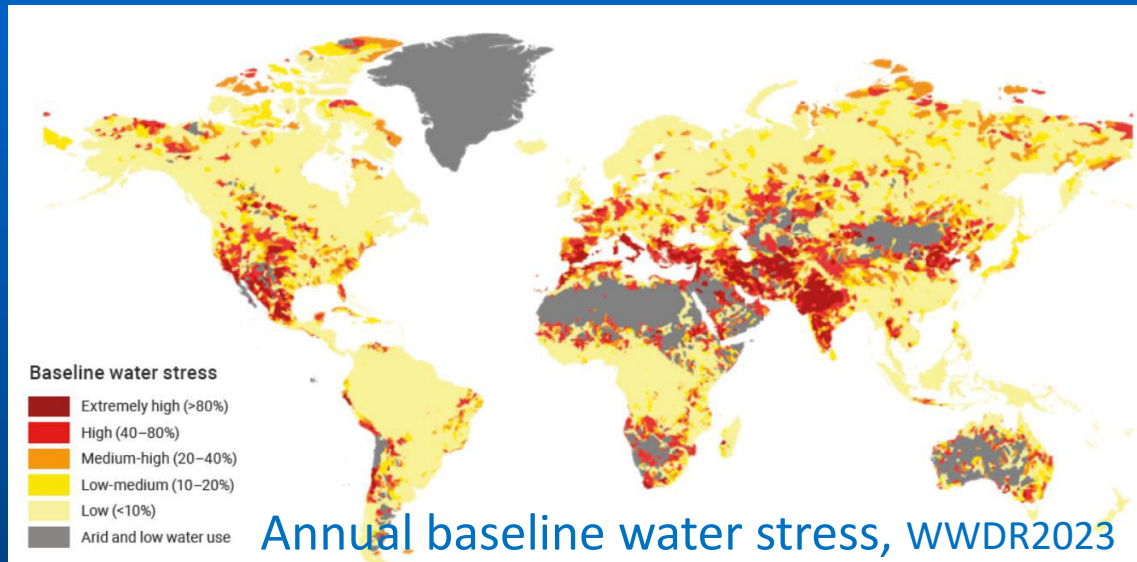
Governments will need to **work four times faster** to meet their SDG6 targets by 2030



- Accelerate the progress on water related goals and targets

1 Background

Global water crisis



Water Shortages



Climate Change



Water Pollution



Biodiversity loss

1 Background

How to do?

UN 2023 water conference



UN Secretary-General



President of Tajikistan

- As humanity's most precious global common good, **water unites us all**. That's why water needs to be at the **centre of the global political agenda**
- Today's Conference should go down in history not only in terms of promoting the **correct understanding** of the challenges and problems but also in finding **effective and efficient solutions**

Three initiatives



Minister, MWR, China



- **Freshwater resources** are limited and there is no substitute.
- Respect the fundamental right of rivers to survive in nature, achieve a harmonious coexistence between **human and river**.
- An **exchange and cooperation platform** for governments, international organizations, civil societies and other stakeholders.

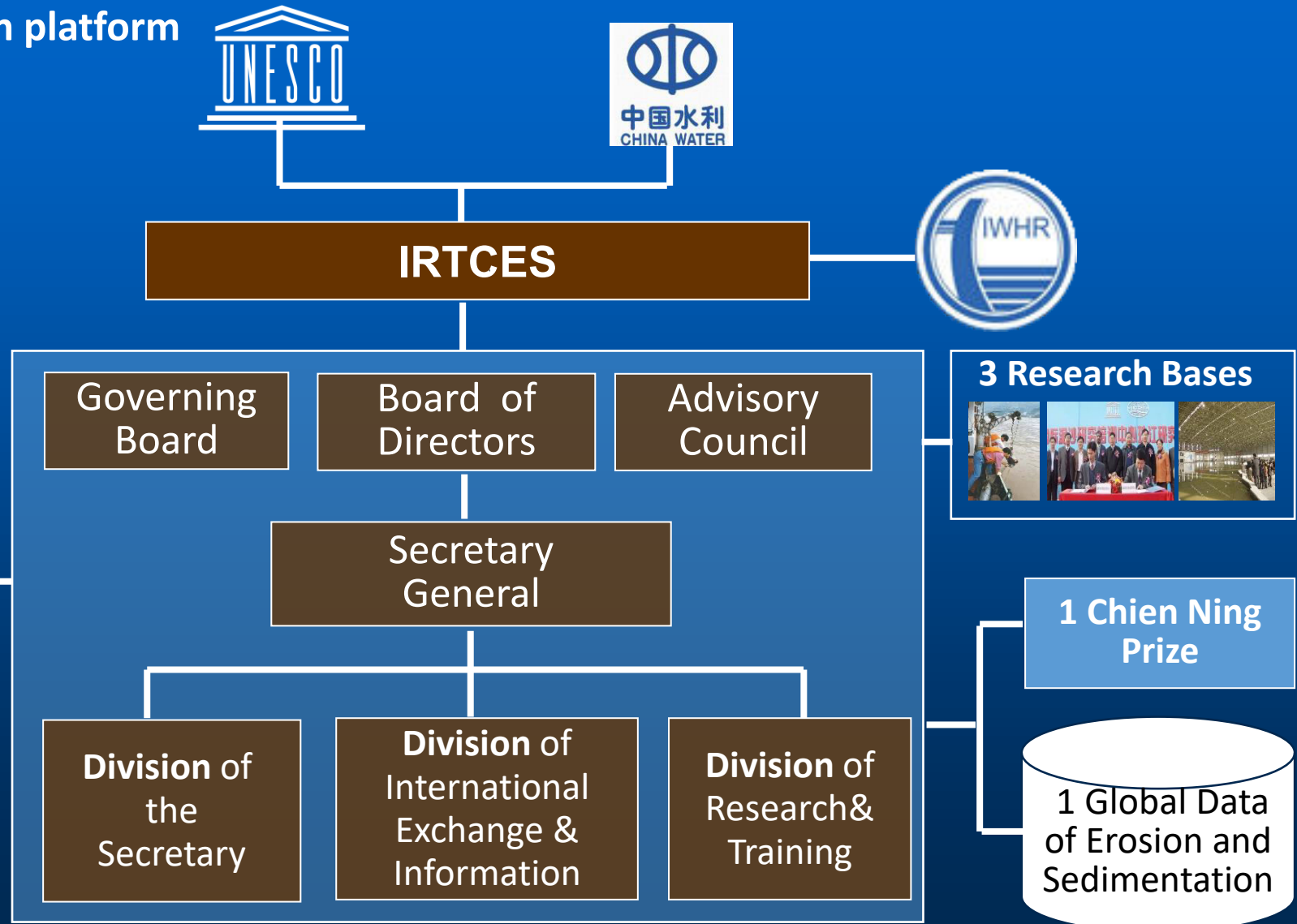
1 Background

IRTCES - Exchange and cooperation platform



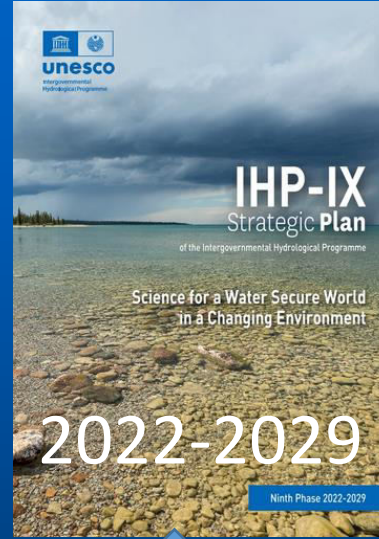
Established in 1984, first UNESCO category II center

2 Association
1 Initiative
4 Conference ISRS ICEC WASWAC
.....
2 Journal
1 Gazette



2 Bridge and linkage-Contribute to SDGs and UNESCO IHP-IX

Giving international organizations a bigger role to play



Five priority area

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



Initiative/
Commitment



Research/
Consultant



Conferences
/Workshop



Training/
Education



Open science
/Open data



Partnership

2 Bridge and linkage-Contribute to SDGs and UNESCO IHP-IX

i: Initiative/Commitment

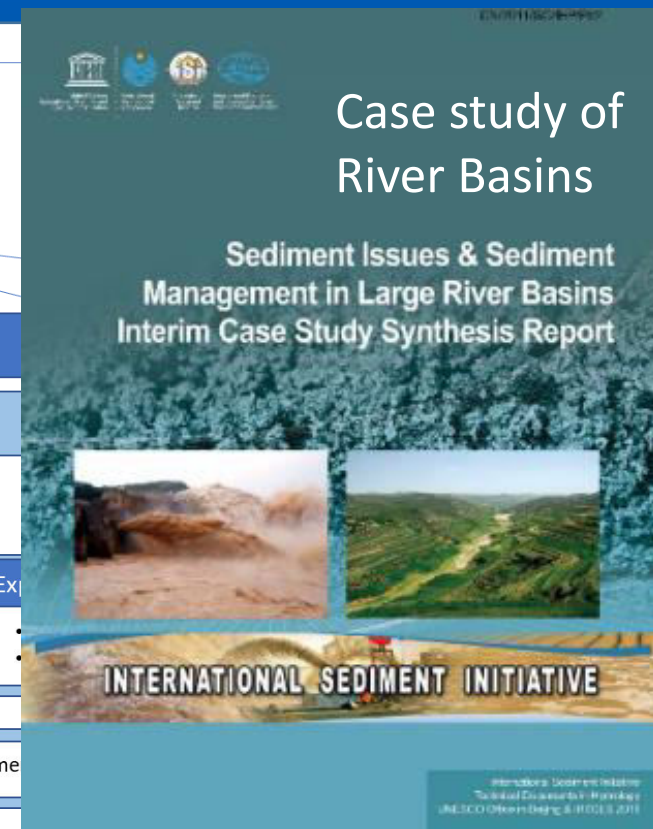
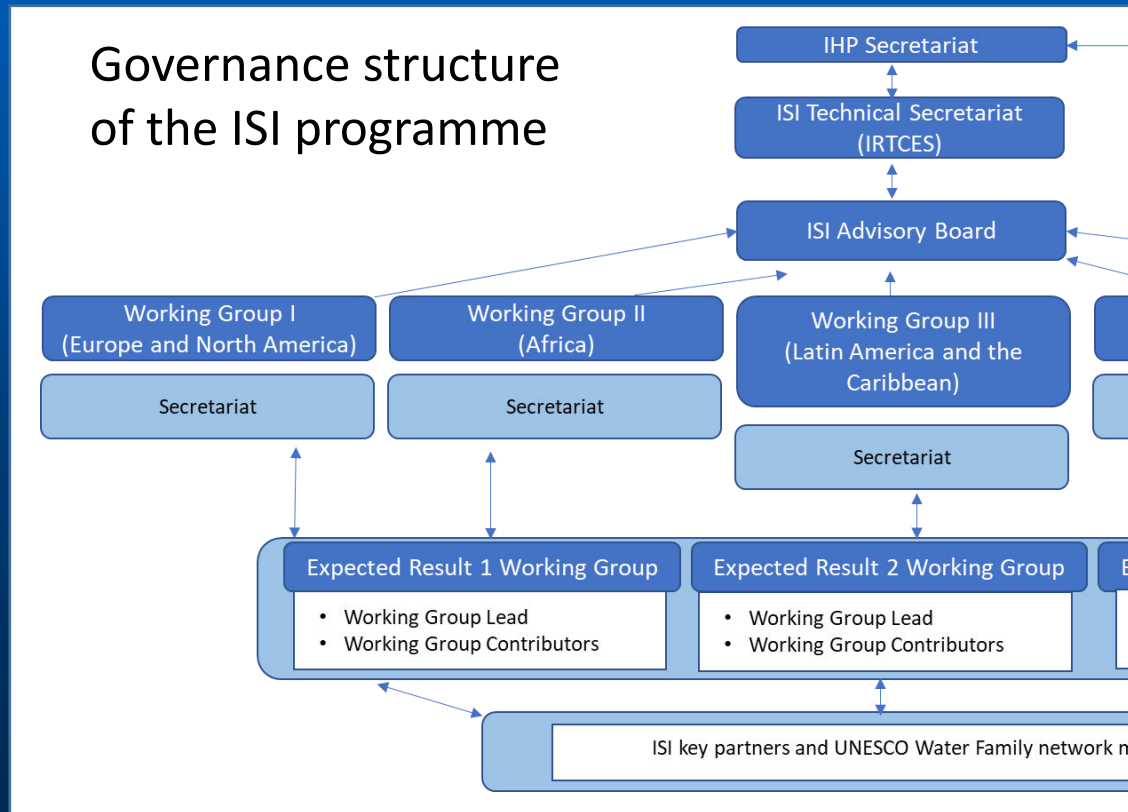


UNESCO ISI flagship Programme
(International Sediment Initiative)

- Assess **erosion and sediment transport** to marine, lake or reservoir environments
- Creation of a holistic approach for the **remediation and conservation of surface waters**
- Linking **science with policy and management** needs.



Global Evaluation of Erosion and Sediment Transport
(GEST Project)



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i: Initiative/Commitment

United Nations Department of Economic and Social Affairs Sustainable Development

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Promoting Advancement of Global Sustainable Management in the Field of Erosion and Sedimentation by Providing Knowledge Dissemination and Technical Support

International Research Center on Erosion and Sedimentation (IRTCES) (United Nations / Multilateral body)
#SDGAction52296

Protecting the soil is protecting the climate initiative, 2021

UN 2023 conference commitment



Protecting the Soil is Protecting the Climate

WASWAC and IUSS Position Paper on the Interlinkages of Soil and Climate Change

The World Association of Soil and Water Conservation (WASWAC) as a worldwide academic society, was established in the USA in August 1983. The WASWAC secretariat, initially located at the Soil and Water Conservation Society (SWCS), Iowa, USA, was moved on 1 April 2003 to the International Center for Research and Training on Seabuckthorn (ICRTS), Beijing, China, and from October 2010 to the International Research and Training Center on Erosion and Sedimentation (IRTCES), also in Beijing. Since its founding, the WASWAC has devoted itself to research and communication to solve scientific and technical problems related to soil and water conservation. Many cooperative research projects have been conducted, a series of international training courses, symposia and workshops have been organized, and several awards in the field of soil and conservation have been set up and sponsored by WASWAC. The aim of WASWAC is to promote the wise use of management practices that will improve and safeguard the quality of land and water resources so that they continue to meet the needs of agriculture, society and nature. The vision of WASWAC is a world in which all soil and water resources are used in a productive, sustainable and ecologically sound manner.

Beijing declaration, 2018



Round-Table Meeting of Leader of Water Related International Organizations

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ii: Research/Consultant



- The annual **erosion of surface soil** from global river basins amounts to **60 billion tons**;
- **5-7 million ha of farmland** are annually ruined
- About **1%** of the precious **storage capacity** of the world's reservoirs is annually lost to deposition;
- Economic Loss over **USD 6 billion/year**



- Feb., 2023, UNGA President visits IWHR
- Solicit wisdom and experience for **science-based solutions** to global water crisis

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ii: Research/Consultant

Research and consultancy projects supported by the UNESCO, UNDP, World Bank and other country's governments...



The UNESCO-funded program on “Construction of Warming Dams and Its Effect on **Environment, Economy and Society** in Loess Plateau” in China

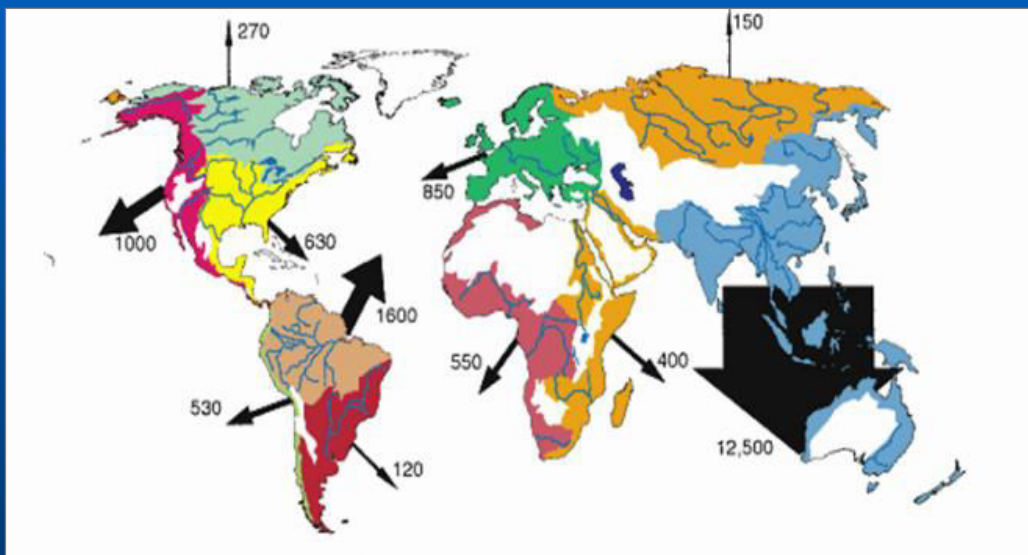


The FAO's program “Participatory **Watershed Management** Training in Asia (PWMTA)”

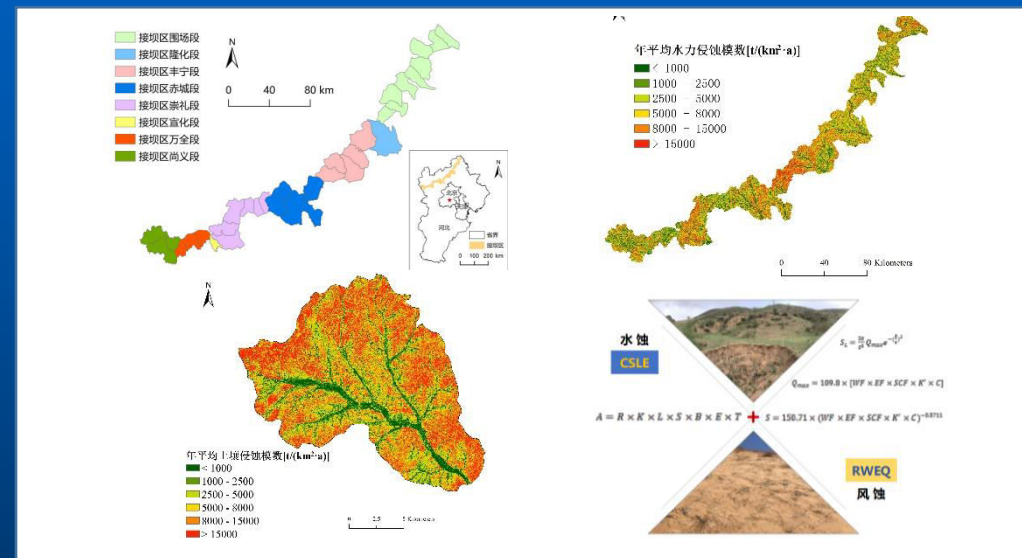
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ii: Research/Consultant

Research and consultancy projects supported by the MOST, NSF, MWR...



International S&T Cooperation Program of China
“Technical Cooperation Study on **Global River Water and Sediment Changes and Integrated Sediment Management**” (2014-2017)



National key research and development program
“ Research on Control Technology of **Complex Erosion by Wind and Water** on Slope Land in the Transitional Region from Plateau to Plain” (2016-2020)

2 Bridge and

on

HP-IX

Research bases

1

1996: Jingjiang Experimental Station



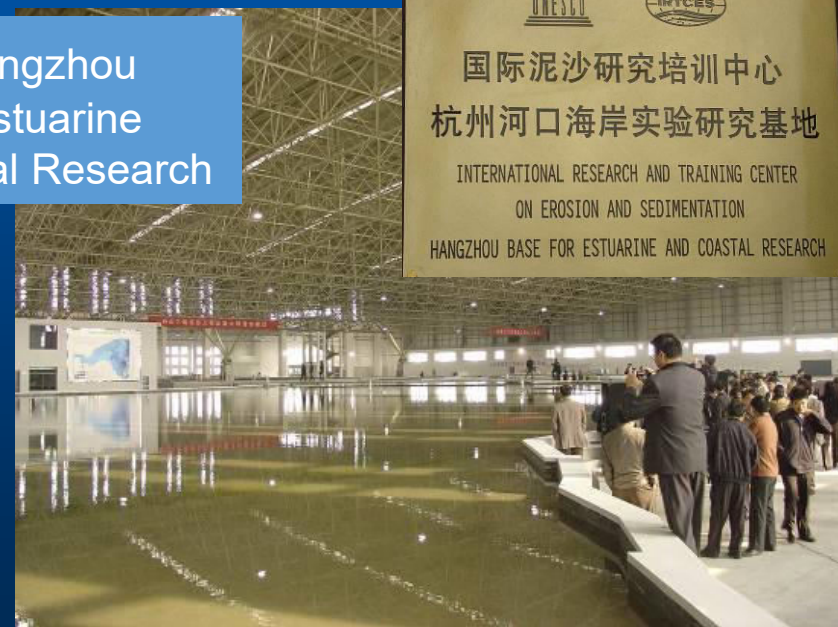
3

2005: Pearl River Base for Scientific Research



2

1999: Hangzhou Base for Estuarine and Coastal Research



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iii: Conference/workshop



Organized **international conferences and workshops** to promote international academic exchange and cooperation

4 Brand Conferences

International Symposium on River Sedimentation (ISRI)



WASWAC Conference



International Youth Forum on Soil and Water Conservation



International Conference on Estuaries and Coasts (ICEC)



Other Conferences

- International Forum on Land Degradation, Soil Conservation, and Sustainable Development
- MWR China-UNESCO-Africa Water Side Event, 2022
- Side event of the United Nations 2023 Water Conference
- ...



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iii: Conference/workshop International Symposium on River Sedimentation (ISRS)



| | | | | | | | | | | | |
|---------------------|------|----------------------------|------|----------------------------------|-----------------------------------|-----|----------------------------|-----|-------------------------------|-----|---|
| ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | |
| 1980 | 1983 | 1986 | 1989 | 1992 | 1995 | ... | 2001 | ... | 2007 | ... | 2023 |
| 1st ISRS Beijing | | 3th ISRS Jackson USA | | 5th ISRS Karlsruhe Germany | 6th ISRS New Delhi India | | 8th ISRS Cairo Egypt | | 10th ISRS Moscow Russia | | 15th ISRS Florence Italy |

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iii: Conference/workshop International Conference on Estuaries & Coast (ICEC)



2003

1st ICEC
Hangzhou
China

2006

2nd ICEC
Guangzhou
China

2009

3th ICEC
Sendai
Japan

2012

4th ICEC
Hanoi
Vietnam

2015

5th ICEC
Muscat
Oman

2018

6th ICEC
Lyon
France

2021

7th ICEC
Shanghai
China

2024 ...

8th ICEC
Quebec
Canada

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iv: Training/education



- >50 training courses
- River sedimentation, soil erosion, watershed management and flood control...
- >5000 participants
- >40 countries and regions



UNESCO-ISI Training Workshop on **Sediment Transport Measurement and Monitoring**, 2021



Promotion and Application of **Soil Erosion Measurement and Estimation Systems** in Production and Construction Projects



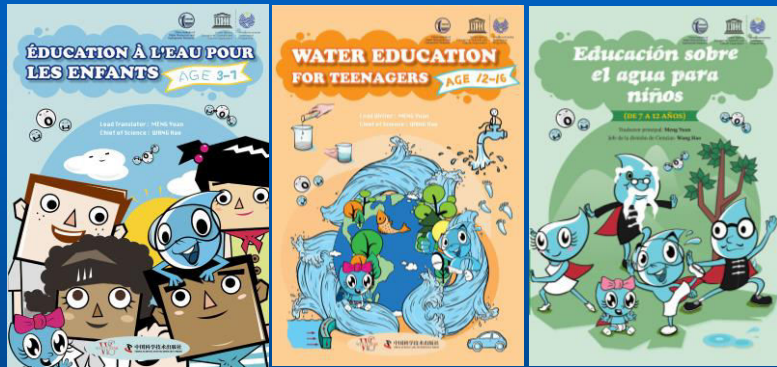
International Advance Training Workshop on **Reservoir Sedimentation Management**



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iv: Training/education

- The water education English series, 2020-now
- Living in the Soil, 2020



English, French, Spanish, Cambodian



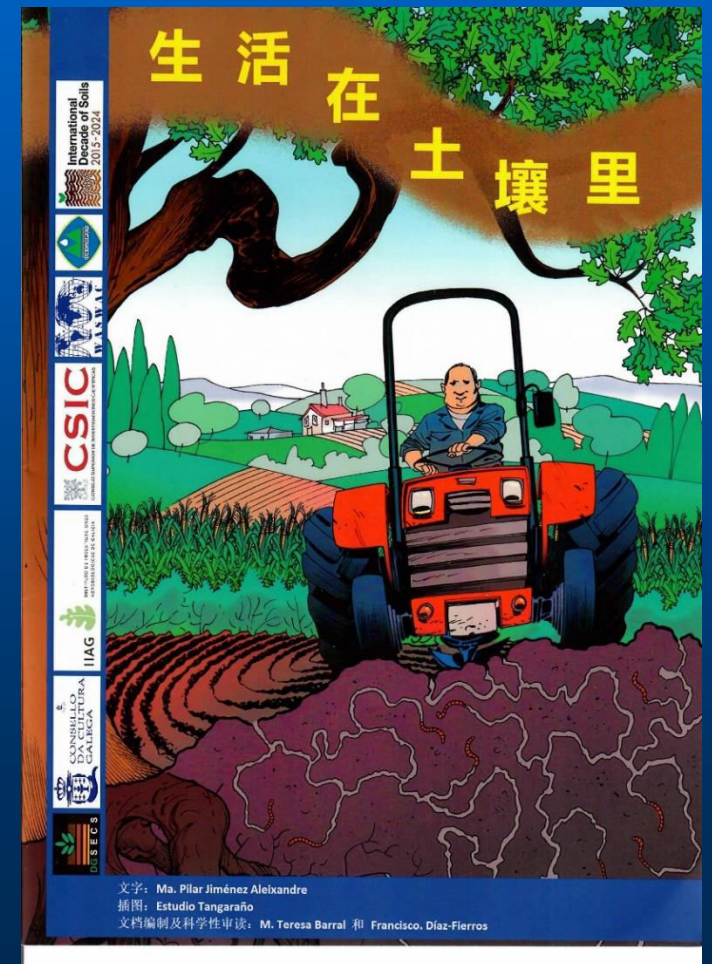
Launching ceremony, 2021



Demonstration class Kenya, 2022



Demonstration class Cambodia, 2022



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iv: Training/education



Master's students and doctoral students

Research interests

- The evolutionary law of **river channel scouring and siltation** in the upper reaches of the mainstream of the Heilongjiang River
- **Spatial and temporal changes in soil erosion** in the transitional region from plateau to plain
- **Soil erosion surveys and evolution** characteristics in the United States
- The **evaluation** of key technologies for **typical national ecological projects**.

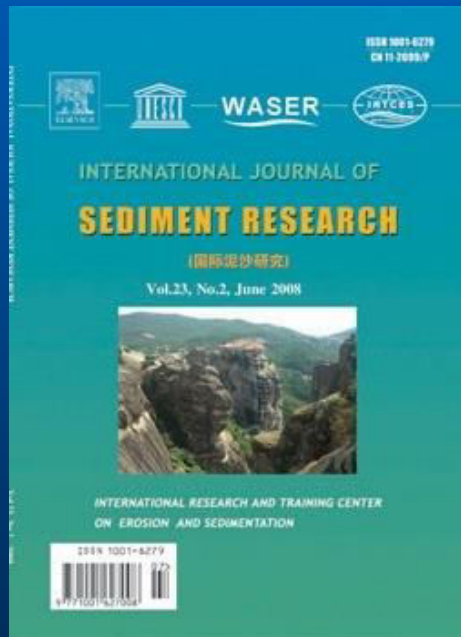
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v: Open science/data Journals and Publications

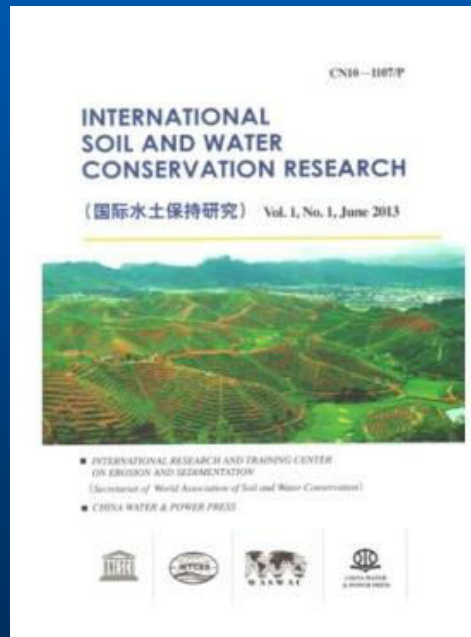


International Journal of Sediment Research

International Soil and Water Conservation Research



IF: 3.6



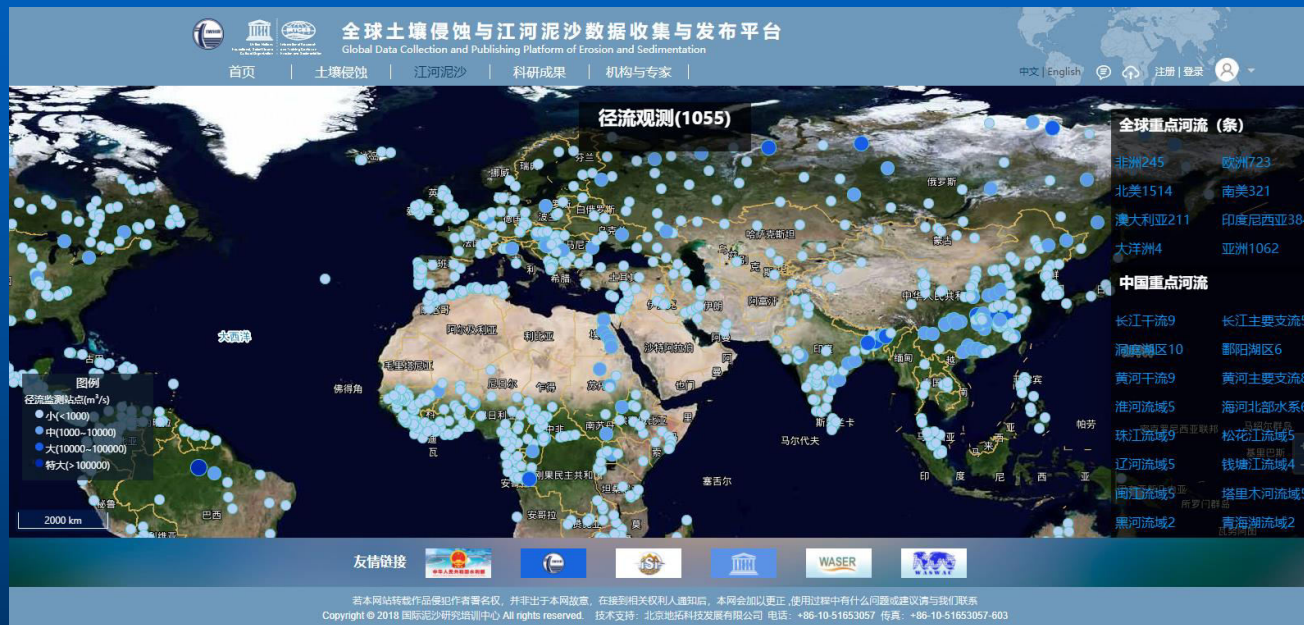
IF: 6.4



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v: Open science/data

Global Database of Erosion and Sedimentation



ISO TC (Technical committee)



2 Bridge and linkage-Contribute to SDGs and UNESCO IHP-IX

v: Open science/data

Chien Ning Prize for erosion and sedimentation

- Awards the Chien Ning Prize to outstanding sediment researchers and engineers from 1987
- 15 Prizes for Studies: 51 winners and 18 papers
- 1 Honorary Award: 8 winners
- 3 International Technology Prizes



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vi: Partnership



Good linkage and cooperation with many international organizations.



Chinese Premier Li Peng and Pakistan Premier Benazir Bhutto between IRTCES and the Pakistan Commission of Water Resources

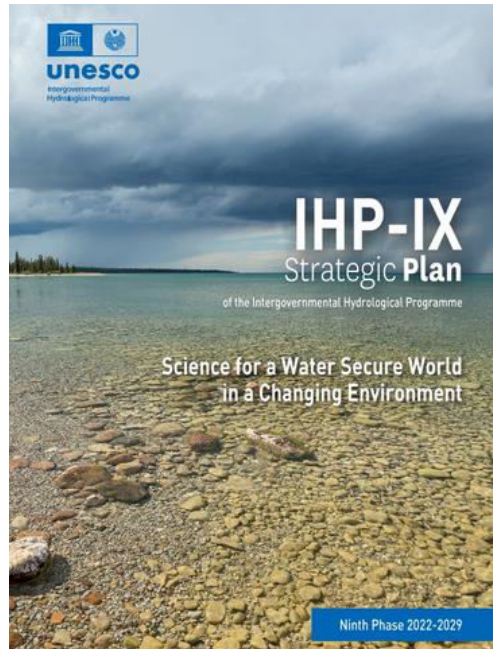


MOU between IRTCES and India



MOU between IRTCES and the ICHARM

3 Summary



1

Progress on water related goals and targets remains alarmingly off track, we need to accelerate the progress

2

International organizations should play important role supporting water related SDGs and UNESCO IHP-IX.

Initiative, research, conferences, training, education, open science/data, partnership...

3

Together, we could build a better future for everyone.



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<http://en.irtces.org>

Action
for sustainable
development
of global *soil*
and *water resources!*

Thank you for your attention!