

# INBO REPORT ON THE 3<sup>RD</sup> INTERNATIONAL CONFERENCE ON WATER AND CLIMATE FEZ, MOROCCO - 6-7 JULY 2023



## INTRODUCTION

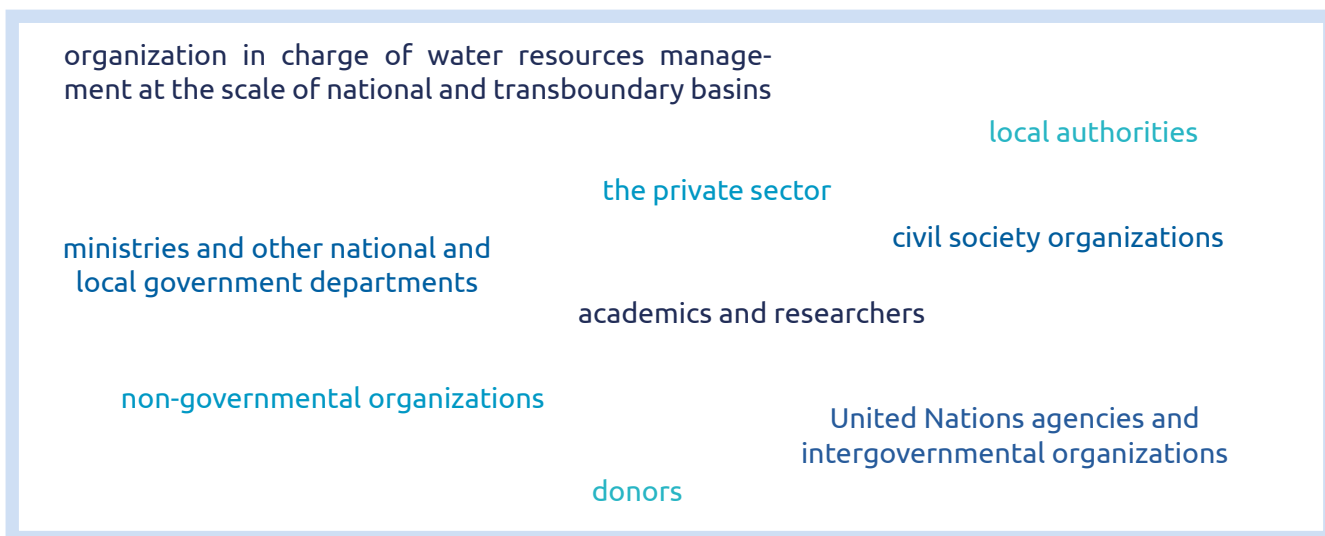
The 3<sup>rd</sup> International Conference on Water and Climate, co-organized by the Kingdom of Morocco, the International Network of Basin Organizations and the World Water Council, focused for two days on **basin management as a key to adaptation and achieving the Sustainable Development Goals**. It brought together 400 participants from around a hundred countries to discuss and exchange experiences on implementing Integrated Water Resources Management (IWRM) and responding to climate change challenges.

Depending on the contexts and issues of the world's various regions and basins, sectors and uses of water, solutions have been developed to achieve better management of water resources, in terms of:

- 5 Promotion of innovation and technologies for water saving
- 7 Groundwater management: challenges and prospects
- 9 Water intersectoral governance and commitments by and for basins
- 11 Taking into account the real cost of water in resource mobilization

To meet the challenges of climate change adaptation, it is essential to identify and promote best practices in implementing IWRM through experience sharing and concerted communication. IWRM at basin level remains poorly and imperfectly implemented, despite the dedicated Sustainable Development Goal 6.5.1. This target marks institutional and worldwide recognition of the interest of this basin-scale governance tool for optimizing and enhancing water use. It also brings multiple benefits for the development of human societies in a preserved environment. However, according to the latest report by the United Nations Environment Programme, based on data collected from 172 UN member states, the degree of implementation of IWRM is 54%: real progress has been made, but there is still plenty of room for improvement. We need to keep up the good work!

Basin organizations are key players in all aspects of water resource management. They were given pride of place at this conference, which brought together high-level participants representing **a wide range of players from a wide variety of backgrounds:**



*Speakers from all over the world*

Inclusiveness remains one of INBO's cardinal values. We have therefore also ensured that the panelists' presentations are geographically balanced.

This geographic balance was made possible by the support of our host, the Kingdom of Morocco, in providing simultaneous interpretation in four languages (French, Arabic, English and Spanish). We also endeavored to ensure gender balance of our speakers, but this was unfortunately not possible for all the sessions.

With strong political representation at the opening ceremony, at the ministerial session and throughout the various conference sessions, as well as through the participation of international personalities and experts from different countries, a strong signal was given to the international water and climate community on the need to redouble efforts to implement IWRM at basin level, as a tool for climate change adaptation.



This meeting was an important milestone between the United Nations Water Conference (March 2023, New York), the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28, December 2023, Dubai) and the World Water Forum to be held in May 2024 on the theme of "Water for Shared Prosperity".

The conference concluded with the [Fez Declaration for strengthening the implementation of Integrated Water Resources Management at basin level](#), through the sharing of experience, the promotion of new technologies, pollution control and the use of renewable energies for cross-sectoral and concerted management of surface and groundwater.

### **The participants in this meeting affirmed or reaffirmed their support for initiatives in favor of basin management.**

- The [Dakar Action Plan for River, Lake and Aquifer Basins](#). It highlights basin organizations as peace-makers and accelerators of sustainable development, places for dialogue and multi-stakeholder platforms. It fosters the commitment of basin organizations to water security, the promotion of innovative financing mechanisms, and the strengthening planning and management of water use.
- The [Transboundary Water Cooperation Coalition](#): This coalition promotes a stronger commitment to transboundary water cooperation, for the management of the transboundary basins of our lakes, rivers and aquifers. Transboundary water cooperation aims to achieve the common goals of water, energy, food and ecological security on which our societies depend.
- The [incubation platform for water and climate projects](#): The objective of the incubator of water and climate projects is to accelerate the emergence of quality adaptation projects at the scale of hydrographic basins. Incubation consists of technical support for the production of a project concept note mature enough to be submitted to climate finance donors. A significant leverage effect is expected, with a ratio of 1 to 100 between the budget of incubation and the budget of the project implementation.

## Signature of a memorandum of understanding

One of the highlights of the conference was the **signing of a memorandum of understanding (MoU)** between:

- the **Government of the Republic of Indonesia**, represented by Mr. Basuki Hadimuljono, Minister of Public Works and Housing, Vice-Chairman of the National Organizing Committee of the 10th World Water Forum 2024;
- the **World Water Council (WWC)**, represented by Mr Loïc Fauchon, President;
- and the **International Network of Basin Organizations (INBO)**, represented by Mr. Nizar Baraka, INBO President, Minister of Equipment and Water of the Kingdom of Morocco.

The signatory organizations reaffirm their support for the organization of the tenth **World Water Forum** from May 18 to 24, 2024 in Bali, in particular through the **active preparation of the basin segment of the political process**. Its objectives are to promote dialogue between the stakeholders involved in water resource management at basin level and to support the commitments made by and for basin organizations. This basin segment will be integrated into the forum's political process, and will also be linked to regional and thematic processes



*Signing of a memorandum of understanding to prepare the "basin segment", a high-level political event at the 10th World Water Forum*

### **TO FIND OUT MORE:**

- A look back at the very first edition of the "[Basin Segment](#)", organized during the 9th World Water Forum in Dakar (March 2022);
- Join the [Dakar Basin Action Plan](#) to show your support for ambitious measures to promote Integrated Water Resources Management!

# PROMOTION OF INNOVATION AND TECHNOLOGIES FOR WATER SAVING

## Background and challenges

Basins are faced with the problems of **increasing frequency and intensity of droughts**, as well as **irregular availability of water resources**, sometimes coupled with **excessive consumption by users**.

**Innovative technologies (such as multi-sensor satellite data)** are improving our knowledge of rain-fall, flow and evaporation. These new technologies and data are essential **for saving water and adapting to climate change**, particularly in **contexts of water stress** and scarcity.



These water-saving technological solutions are presented in the following geographical contexts:

- the Moroccan territory, in particular the Tensift basin, a basin with recurrent droughts, a water deficit and limited water resources strongly affected by climate change, and overexploitation of groundwater;
- the Indian territory, subject to great spatio-temporal hydrological variability and a deterioration in the quality and quantity of surface and groundwater;
- the Júcar basin in Spain, also affected by severe water stress.

## Solutions

The solutions for saving water presented at the conference were considered as inseparable from the efforts to increase knowledge and develop non-conventional resources:

- agro-ecological techniques (30% reduction in consumption), intelligent irrigation and micro-irrigation;
- equipping farms with intelligent resource management systems;
- variation of water pricing according to volume demand;
- **satellite observation** to monitor the state of water resources;
- the **mix of available resources** and the use of **non-conventional water resources**, including **desalination**, planned for 2025 to supply drinking water to the city of Marrakesh, and the **reuse of treated wastewater** for irrigation and industrial purposes;
- **rainwater harvesting**;
- **water transfer**.

**Communication efforts** aimed at citizens in the case of water management organizations, or employees in the case of private companies, have an important role to play in promoting water conservation, particularly in encouraging the reuse of (treated) wastewater or more responsible, water-efficient use.

However, it remains important to maintain efficient traditional **data and information systems**, on which even the most innovative technologies are based. Moreover, the need to **consume better and less** remains the mainstay of water conservation. Controlling consumption does not always require technological innovation. The knowledge deficit sometimes faced by stakeholders is not only due to technical shortcomings. A favorable environment is sometimes lacking: **sustainable funding mechanisms** for data and information systems governance and the implementation of tools and procedures need to be improved.



### TO FIND OUT MORE:

- The [incubation platform for water and climate projects](#), supported by INBO, has made it possible to **develop numerous innovative solutions for saving water resources at basin level**.

# GROUNDWATER MANAGEMENT: CHALLENGES AND PROSPECT

## Background and challenges

On a global scale, **groundwater supplies over 50% of drinking water**, 40% of water for irrigated agriculture, and 30% of water required for industrial activities. However, the availability of surface water is decreasing due to human activities and climate change, and water scarcity is impacting a growing number of vulnerable regions and people around the world. At the same time, **dependence and pressure on groundwater continues to grow**. In some regions, groundwater accounts for **up to 100% of drinking water supplies**.

**Sustainable groundwater management** is needed to cope with the impacts of climate change on the quantity and quality of the resource. As with rivers, it is important to deal with both national and transboundary aquifers, **transboundary cooperation** being essential for the proper management of shared aquifers. The desire to “make the invisible visible” expressed at the UN-Water Summit on groundwater in Paris in 2022 is reaffirmed, and reflects the necessity to improve our understanding of this resource.

The problems faced by the areas studied are **overexploitation of resources**, resulting in falling water levels and drying up of springs. In addition, there is **sectoral competition** for use, which calls for inter-sectoral cooperation. Water pollution and contamination, leading to **deterioration in water quality**, are risks that these territories must address. There are also **shortcomings in information systems**, reliable and accessible data, and a **lack of tools for concerted management** of shared waters.

The challenges and prospects of national and transboundary groundwater management are presented in the following geographical contexts:

- **Hungary**, where 95% of the country’s drinking water comes from groundwater;
- **Morocco**, where groundwater acts as a buffer against water shortages due to recurrent droughts;
- the **Sahara and Sahel** regions, particularly affected by climate change and drought;
- **Denmark**, where 100% of drinking water comes from groundwater;
- the **Nile basin**, where transboundary management is an additional challenge;
- and **Senegal**, an example of joint management of surface and groundwater shared by four countries.



## Solutions

The solutions for sustainable groundwater management presented at the conference are:

- the establishment of groundwater resource protection areas and water use restriction programs;
- joint management of groundwater and surface water, and technical, institutional and legal cooperation,
- implementation of artificial recharge and projects of **Natural Water Retention Measures** (<http://nwrn.eu>);
- development of **partnership agreements** between countries for transboundary water management and national **action plans**;
- **improving knowledge** and monitoring the state of the resource by monitoring parameters through integrated monitoring systems and participatory approaches;
- capacity building.

In addition to these solutions, there is a need to **strengthen the financial aspects** through economic development of the resource. Efforts must also be made to improve communication and transparency with users.

### ***To FIND OUT MORE:***

- Incubation project for [the participative management and safeguarding of the Fès-Meknès groundwater table](#);
- Handbook "[Toward a Joint Management of Transboundary Aquifer Systems](#)".



# WATER INTERSECTORAL GOVERNANCE AND COMMITMENTS BY AND FOR BASINS

## Background and challenges

**Water management** is by its very nature **cross-cutting, and concerns all facets of sustainable development**. All sectors (health, agriculture and food, energy, industry, urban planning, tourism) depend on water resources and are affected by climate change through the disruptions it causes to the water cycle. **Involving the various key players and stakeholders** in water resource management is essential to guarantee the sustainability of water-related services. Thus, **cross-sectoral governance** that takes all uses into account is a sustainable approach that enables coordinated management and use of natural resources, at all scales and particularly at hydrographic basin level. River basins play a special role in the implementation of **Integrated Water Resources Management (IWRM)** at their scale, through commitments **by and for the basins**. Cooperation therefore applies between various sectors, as well as within a single country or on an international scale, or through the joint management of surface and groundwater (see theme: “Groundwater management: challenges and prospects”).

Governance issues and prospects are presented in geographical contexts:

- **Indonesia**, which was keen to address the challenges and improvements to IWRM in the Citarum river basin, one of the most polluted in the world;
- **Morocco**, and in particular the Sebou basin, which is subject to spatio-temporal irregularities in resource availability, and whose governance is made tricky by the multitude of stakeholders involved;
- the **Lake Atitlán basin in Guatemala**, subject to erosion, fire and pollution;
- **Ghana**, with its inequitable water distribution and drought;
- the **Guadalquivir basin in Spain**, where water scarcity and fragility are exacerbated by climate change;
- **Brazil**, whose water bodies are deteriorating as a result of water treatment problems and the pressure exerted by the increase in extreme climatic phenomena, endangering human health and ecosystems;
- the **river and lake basins of Central Asia** (Kazakhstan, Uzbekistan, Turkmenistan and Kyrgyzstan), most of which are transboundary;
- **South Africa**, particularly affected by climate change and where water resources are scarce; and
- **Senegal**, where extreme climatic events are recurrent and high population growth is putting pressure on resources.



## Solutions

The solutions for cross-sector governance, particularly at basin level, presented at the conference are:

- **Integrated Water Resources Management (IWRM)** through **national and transboundary** basin organizations and the creation of basin committees to ensure water sharing and equitable access to resources, and the **planning and implementation of IWRM projects**;
- defining and **clarifying the roles of water governance stakeholders**;
- **improving organizational structure and regulatory and legislative frameworks**;
- strengthening coordination and promoting **inter-sectoral consultation, international cooperation**, the involvement of civil society and non-governmental organizations, and the establishment of agreements;
- **improving data availability**, information and monitoring systems, and mapping;
- increasing **wastewater treatment** and sanitation;
- **climate change resilience projects** to improve the quality of water bodies for human health, and to restore and protect ecosystems.

In addition to these governance solutions, there are financial needs, such as **strengthening the budget** for resource management, and **environmental protection** initiatives such as reforestation.



### ***TO FIND OUT MORE:***

- Incubation projects for climate change adaptation in the [basins of the Dallol-Maouri](#), Niger and [Mouhoun](#), Burkina Faso ;
- Handbooks on IWRM in hydrographic basins, either [national](#) or [transboundary](#) as well as on [good practices in the basins of the african continent](#).

# TAKING INTO ACCOUNT THE REAL COST OF WATER IN RESOURCE MOBILIZATION

## Background and challenges

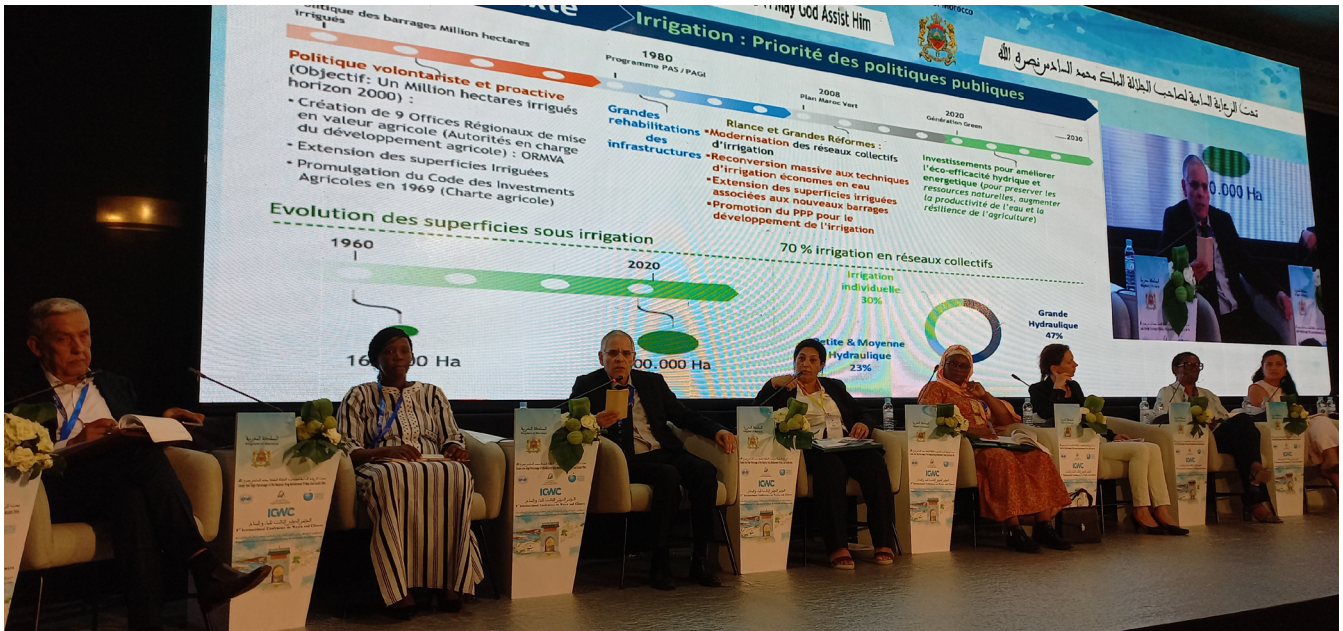
Mobilizing water resources and making them available to the various users requires **substantial investment, operating and maintenance expenditures**. It is becoming more and more technically difficult, and therefore more and more economically costly, particularly when recourse to **non-conventional water resources** proves necessary to overcome water shortages: seawater desalination and reuse of treated wastewater. The mobilization of these new resources, together with the protection of existing resources, the fight against leakages and the rationalization of water use, will enable **water saving** for all uses.

Pricing for drinking, industrial or irrigation water generally does not cover the full cost of developing water resources. This does not encourage the use of alternative resources. Pricing that reflects the real value of these resources would encourage rationalization of use and management of water scarcity.

The issues addressed are the **role of the various institutions in assessing the cost of water**, how to integrate the cost of mobilizing resources, and how to **take into account the social aspects of pricing** so as to minimize the impact on the most vulnerable social strata

The challenges of taking into account the real cost of water are presented in geographical contexts:

- **Martinique**, where the price of water is one of the highest in France (32% higher than in mainland France);
- the **Volta Basin** (shared by Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali and Togo), where equitable water sharing between member countries is a challenge, and where corruption is pointed out as an obstacle to development;
- **Morocco**, where climate change and competition for water are forcing an overhaul of the allocation rules laid down over 60 years ago: they are no longer sustainable, given farmers' ability to pay, the water restrictions they face and, in the case of **Fez**, the 20-year stagnation of tariffs despite the many investments made (the price of water is much lower than the actual cost of mobilizing it).
- **global context**, with an increasing demand for water, growing risks to water security, misallocation of resources between different sectors, under-funding of operation and maintenance, and a lack of information on planning and budgeting processes.



## Solutions

The solutions presented at the conference to take account of the real cost of water in resource mobilization are as follows:

- progressive pricing, taking into account:
  - **the total cost of water, based on the entire water cycle from mobilization, through treatment, transfer and distribution, to reclamation of treated wastewater;**
  - the value of water in interconnected systems;
  - the additional cost of treating poor-quality water;
- **setting up autonomous, sustainable financing mechanisms** based on the user-pays or polluter-pays principle;
- assessing the financial implications of different investment choices and funding sources, and **optimizing costs** through public finance reviews and financial modeling;
- adopting a sufficiently long time horizon to take into account the effects of climate change;
- **assessment of the value of water infrastructures**, taking into account all resource uses, as well as indirect and non-use values;
- **consultation with stakeholders:** public authorities, industry, farmers;
- the fight against corruption where it prevails.

### ***TO FIND OUT MORE:***

- The United Nations world water development report 2021: [valuing water](#);
- UNECE handbook "[Funding and financing of transboundary water cooperation and basin development](#)";
- The guide "[Tariffs, Taxes and Transfers](#)".