



WATER and CLIMATE: Everyone is getting mobilized to act fast!



COP22 - Marrakech - November 2016



COP21 - Paris - December 2015



World Water Forum Daegu - April 2015



INBO GA Merida - June 2016



INBO GA Dakar - January 2010

In January 2010, INBO World General Assembly in Dakar had already given the alert to the risk that **"freshwater would be one of the first victims of climate change"**, had proposed emergency measures to be taken urgently and insisted on the need to increase upstream-downstream solidarity in the basins of all the rivers, lakes and aquifers of the world to face the numerous current challenges.

UNECE and INBO are coordinating a platform for pilot basins to test and promote the most effective measures to adapt to the climate change impacts on water resources, including, alongside usual infrastructure, the "Natural Water Retention Measures", inventoried with the support of the European Commission, and in a more general way the use of "green engineering" and the control of the water demand.

In 2015, this work led to the joint publication, by the United Nations and INBO, of a compendium of good practices and recommendations for quick action.

At the COP21 in Paris, 359 Organizations from the entire world signed the "Paris Pact" and committed themselves to take immediately applicable and "no regret" measures for water and adaptation in the basins.

INBO World General Assembly in Merida in June 2016 mobilized the Basin Agencies of the whole world for adaptation to the climate.

The results of the first pilot projects were presented during **the Official Water Day, co-facilitated by INBO at the COP22 in Marrakech**, where the four Alliances for Basins, Megacities, Business and Desalinization constituted among them **the "Global Alliances for Water and Climate"**, to join their efforts for adaptation, mobilize all field partners and pool the technical knowledge needed.

The Alliances are already getting mobilized to support new projects and promote their results, especially at the **"EUROPE-INBO 2017"** Conference in Dublin in September, the **"Water and Climate"** Conference in Rome in October, **the next COP23 in Bonn** in November 2017 and at **the World Water Forum** of Brasilia in March 2018.

**It is time to move from words to action.
We have the means to succeed together!**

10th INBO World General Assembly

From 1st to 4th June 2016 in Merida - Mexico

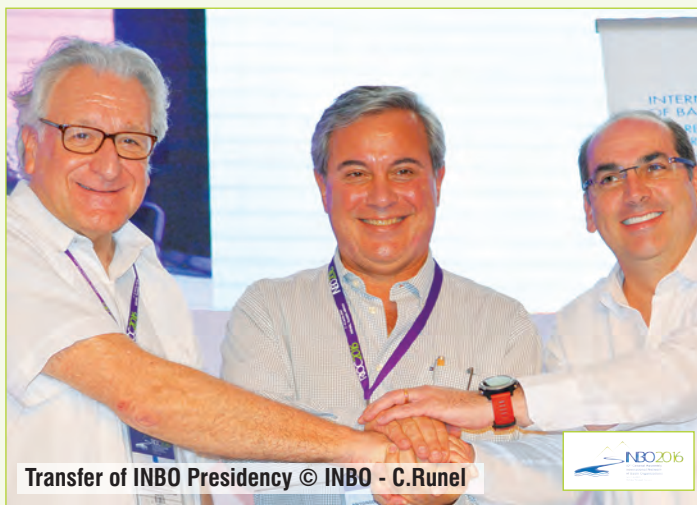
Faced with major global challenges, water management in basins is essential everywhere in the world!

20 years after its first General Assembly in Morelia, the 10th INBO World General Assembly gathered in Merida in Mexico more than 600 participants from 50 countries, including Mr. Rolando Zapata Bello, Governor of Yucatan, Mr. Abdelaziz Zerouali, representative of Ms. Charafat Afailal, Minister Delegate for Water (Kingdom of Morocco), Presidency of the COP22, Mr. Diène Faye, Secretary of State for Water (Senegal), Mr. Péter Kovács, Secretary of State for Water (Hungary), Mr. Jacques Ganoulis, Special Secretary of State for Water (Greece), Minister Rafael Pacchiano Alamán, Federal Secretary for Environment and Natural Resources - SEMARNAT (Mexico), Mr. Ibrahim Addulkarim Mansoor Obeidat, Ambassador of Jordan to Mexico, and Mr. Roberto Ramírez de la Parra, Director General of the National Water Commission of Mexico (CONAGUA).

The General Assembly led to the organization of a Forum of International Cooperation Organizations and four thematic roundtables:

- Adaptation to climate change in basins,
- Mandates, composition, role and means of the Basin Councils and Committees,
- Sustainable basin management: planning and funding,
- Participation of the economic sectors and citizens.

Mexico +20!



Transfer of INBO Presidency © INBO - C.Runel

The topic of the first roundtable has become a priority of the Climate Conferences since the COP21 in Paris. It was addressed several times during the General Assembly, especially with the presentation and signatures of the **"Paris Pact on Water and Adaptation to the Effects of Climate Change in the Basins of Rivers, Lakes and Aquifers"**, which has already been signed by 359 organizations over the world..

Mr. Roberto Ramírez de la Parra, Director General of CONAGUA, presented water management in Mexico, the host country of the General Assembly.

He particularly stressed the two biggest challenges facing his administration: ensuring adequate water supply to all uses with scarce resources and limiting the hydro-meteorological risks and their impacts in the context of climate change, increasing activity of hurricanes in the Caribbean and Pacific regions of the country.

The INBO World Presidency was transferred from Mr. Lupercio Antonio Zioldo (President 2013-2016) to Mr. Roberto Ramírez de la Parra, Director General of CONAGUA, (new President 2016-2019).

The new INBO President is committed to promoting the development of River Basin Organizations and the implementation of a basin integrated management policy in liaison with the High Level Panel on Water.

His action plan sets six objectives for the 2016-2019 period:

- 1 **Strengthening INBO Regional Networks** to transform them into true resources centers to help professionalize the technical and administrative executives of Basin Organizations and their partners.
- 2 **Encouraging studies on adaptation to climate change in basins** in support to participatory decision-making processes.
- 3 Ensuring access of developing countries to international resources to reduce gaps in institutional organization and infrastructure equipment, **so that basin management is increasingly effective.**
- 4 **Building national, regional and international capacities** to progressively implement new water resources and basin management models, including transparency, information management and financial resources.

- 5 **Promoting the modernization and development of hydrological cycle and climate variables measurement systems and, more broadly, the design and implementation of genuine Water Information Systems (WIS) and those on aquatic environments**, both at basin level and at national and transboundary level.

- 6 **Improving performance indicators** on sustainable management of river basins and water user systems, especially within the OECD Water Governance Initiative.

At the end of its work, the General Assembly adopted the **"Merida Declaration"**, which calls for integrated water resources management at basin level to be taken into account as a priority in the **Global Climate Action Agenda (GCAA)**, approved at the COP21 in Paris, as well as in the work of the **High Level Panel on Water and Sustainable Development**.

Find the Declaration of Merida, as well as the various documents and photos from the General Assembly on the Website:

www.inbo-news.org



"FOR BETTER BASIN MANAGEMENT IN THE WORLD"

9 November 2016 - Marrakech - Morocco

Freshwater finally recognized as a priority in the Global Climate Action Agenda

As part of the Global Climate Action Agenda - GCAA (successor of the Lima-Paris Action Agenda - LPAA), the International Network of Basin Organizations (INBO) was designated by the two Climate Champions, the Environment Minister of the Kingdom of Morocco, Ms. Hakima El Haite, and the French Ambassador for the negotiations on climate change, Ms. Laurence Tubiana, as facilitator of the Water Action Day, in partnership with the World Water Council and the Moroccan Ministry Delegate for water.

Two official events were organized on 9 November 2016:

- A "Water Showcase", in the morning, dedicated to promoting practical initiatives;
- A "Water Dialogue", in the afternoon, built as a high-level debate on major water and climate policy issues.

On this occasion, the "Blue Book on Water and Climate" (collection of orientations and recommendations) was launched by the Moroccan Government and its partners as a concrete outcome of its interim International Conference on Water and Climate, hosted in Rabat in July 2016, in cooperation with the French Government, INBO and the WWC.

"This aligns perfectly with COP22, which is striving to be a COP for action!", remarked Ms. Charafat Afailal, Minister Delegate for Water in Morocco. "Now, we need to realize what is at stake, since water insecurity leads to increased conflicts, tension between populations, and also provokes migrations that threaten overall stability".

Climate justice was also a priority of the Water Action Day, as evidenced by the launching of the "Water for Africa Initiative", established by the Kingdom of Morocco and supported by the African Development Bank.

Global Alliances for Water and Climate

The four "Alliances" for Basins (Paris Pact), Megacities, Business and Desalination, created at the COP21 in Paris and strongly involved in water and climate action, which today represent more than **450 organizations worldwide**, jointly committed themselves to mobilize their partners, identify and disseminate good practices and support the development of new projects by field stakeholders involved in adaptation and resilience of the water sector.



These "Alliances" reported, in particular, during the "Water Showcase" on:

- the positive progresses made with the Flagship Projects on water adaptation launched at the COP21, such as the Hydrological Information System of the Congo River, the integrated management of the Hai River in China, the strengthening of the new Mexico Metropolitan Organization for Urban Stormwater Drainage or the "Eco-cuencas" Climate Adapt cooperation project between European and Andean countries,
- new adaptation projects announced at COP22's Water Day, for example, the Sebou River management in Morocco, the creation of the "Water Adapt Training Center HYDRUS" in Brasilia, or the future use of the SWOT satellite for hydrological observations, among other things".

"Adaptation of water resources to climate change must be organized at the natural level of national or transboundary basins of rivers, lakes and aquifers, where water is flowing from upstream to downstream, and mobilize all field stakeholders, including local authorities, economic sectors and civil society, to achieve, through dialogue and in due time, a common vision to face the climate change challenges", said Mr. Roberto Ramirez de la Parra, INBO World President.

In addition, INBO also organized or participated in a dozen side events on adaptation to climate change that promoted the "Paris Pact", the joint management of ground and surface waters, Water Information Systems (WIS) and Social Innovations (AfriAlliance project).

Finally during the COP22, INBO, in partnership with the International Secretariat for Water (ISW), presented the "Blue Passport" initiative, which aims to promote basin citizenship and encourage new commitments to improve the management of rivers, lakes and aquifers.

A personal "Blue Passport" was handed to Ms. Ségolène Royal, French Minister for the Environment, Energy and the Sea, and to Ms. Judith Enaw, Secretary General of the International Congo-Ubangui-Sangha Commission (CICOS) and President of the African Network of Basin Organizations (ANBO), in recognition of their respective contributions for better management of the French and African river basins and of their action for climate.

www.inbo-news.org



MARRAKECH
COP22|2016|CMP12
UN CLIMATE CHANGE CONFERENCE

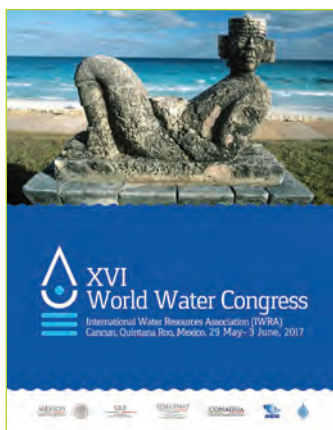


Signing of the 4 Alliances' Declaration ©INBO - C. Runel



IWRA XVI World Water Congress

29 May - 2 June 2017 - Cancun - Mexico



The XVI World Water Congress focused on "Bridging Science and Policy" and was held in Cancun, Mexico.

It was organized jointly by the International Water Resources Association (IWRA), the National Water Commission of Mexico (CONAGUA) and the National Association of Water and Sanitation Services (ANEAS).

The purpose of the Congress was to facilitate cooperation and coordination among professionals in order to achieve the Sustainable Development Goals, particularly those related to water, as well as the climate agreements established under the auspices of the UN Framework Convention on Climate Change (UNFCCC).

The **International Network of Basin Organizations (INBO)** actively participated in this Congress by facilitating a Special Session on "The Legacy of COP22: Implementing the Global Action Agenda for Climate and Water (GCAA-Water)".

A meeting of the **Global Alliances for Water and Climate**, that were created at the COP22 in Marrakech and of which INBO is the Secretariat, also took place on this occasion.



Mr. Jean-François Donzier, INBO Secretary General, participated in the High Level Panel on Water and Climate © INBO - C. Runel

For the first time, a special session was also devoted to vocational training for water professionals, including leaders and partners of Basin Organizations.

INBO was also invited to a special session hosted by the Australian Government and dedicated to data and indicators useful for following-up the UN-SDG 6 on Water.

International Water Resources Association (IWRA)

www.iwra.org

www.worldwatercongress.com



CONAGUA
comisión nacional del agua



INBO is getting mobilized for the COP23

The next United Nations Climate Change Conference of the Parties (COP23) will be held from 6 to 17 November 2017 in Bonn (Germany), under the chairmanship of Fiji Islands.

This Fijian Presidency will be an opportunity to draw attention to the problems of the Small Island States and coastal lowlands due to the global warming and its impacts, such as rising sea levels and the intensification of extreme meteorological events.

The United Nations University Institute for Environment and Human Security (UNU-EHS) has published a series of reports detailing the impact of climate change on the Pacific islands community.

INBO will participate in COP23 by presenting the progress made in two years by the "Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes and Aquifers", today signed by 359 organizations worldwide and on the many related projects.

The four **Global Alliances for Climate and Water**, created at the COP22 in Marrakech, will also present the progresses made over the past year thanks to the mobilization of basin institutions, metropolises and business, including the "incubation" of many pilot projects.

www.cop-23.org



COP23 FIJI
UN CLIMATE CHANGE CONFERENCE
BONN 2017

Launching of the 8th World Water Forum

18 - 23 March 2018 - Brasilia - Brazil



On 27 and 28 June 2016 in Brasilia, Brazil, the launching of the 8th World Water Forum gathered 800 participants, with an important number of representatives from the Latin American States and Brazilian civil society.

The structure and organization of WWF8 were at the core of the discussions. The Forum will focus on five processes: Policy, Regional, Thematic, Citizen and Sustainable Development.

The thematic process seems to be the most structured at this stage. It broadly reflects the structure and priorities of the Sustainable Development Goals (SDGs).

In this thematic process, INBO was selected as a member of the "Governance" Coordination Group, especially with regard to transboundary cooperation and to the **Global Alliances for Water and Climate**, of course, on water adaptation to climate.

The ninth edition of the Forum will be organized in 2021 in Senegal in Dakar.



Roundtable of Development Partners: "Strengthening Hydrometeorological Services for Sustainable Development"

13 - 14 April - Geneva - Switzerland



The group of participants

INBO participated in this roundtable organized by the World Meteorological Organization (WMO) and the World Bank (WB), in partnership with the Global Framework for Climate Services (GFCS) and the Global Facility for Disaster Reduction and Recovery (GFDRR).

The event aimed to promote increased international support to the development and enhancement of investment and technical assistance for the National Meteorological and Hydrological Services (NMHSs).

It gathered a wide range of participants, representatives of Multilateral Development Banks and National Meteorological and Hydrological Services (NMHSs) from developed and developing countries.

These stakeholders initiated thinking about the principles and good practices to be implemented in order to respond to the need for better coordination of the different capacity building programs for NMHSs, in particular:

- **Hydromet Africa** (Regional Framework Program for Improving NMHSs in Sub-Saharan Africa),

- **The CREWS initiative** (on the strengthening of systems for prevention, information and warning about dangerous hydrometeorological and climatic events),
- **The WISER Program** (Strengthening Weather and Climate Services in East Africa).

The participants in the Roundtable highlighted, on the one hand, the key role that National Meteorological and Hydrological Services (NMHSs) play in achieving the Sustainable Development Goals of Agenda 2030 and, on the other, the difficulties encountered in establishing sustainable and autonomous funding mechanisms for official development assistance to these services.

They also stressed the need to finance not only infrastructure but also the sustainable functioning of NMHSs and the capacity building of their staff, services to end-users and operation and maintenance of infrastructure.

Like the Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes and Aquifers, which especially targets the strengthening of water measurement networks and Water Information Systems, this initiative helps to promote the idea that good water management is conceivable only with a good knowledge of the resource and its uses.

**We cannot manage
what we cannot measure!**

Stockholm Water Week

28 August - 2 September 2016 - Stockholm - Sweden

SIWI WORLD WATER WEEK

The Stockholm Water Week, as a step towards 2016 COP22, broadly addressed the issue of the relationship between water and climate.

Many side events have highlighted the initiatives launched at COP21 for follow-up in Marrakech COP22, such as the **"Paris Pact on water and adaptation to climate change in the basin of rivers, lakes and aquifers"**, the **Alliance of Megacities and the Business Alliance**.

INBO participated in a working meeting organized by the French and Moroccan presidencies of COP21 and COP22 to present the history of the Paris Pact and its prospects.

INBO also intervened in the side event organized by the World Water Council, **"Actions speak louder than words"**.

The event aimed to follow-up the interforum thematic roadmaps between the 7th World Water Forum in South Korea in 2015 and the 8th World Water Forum in Brazil in 2018.

As a **"Champion for the Daegu-Gyeongju implementation commitment"** (DGIC) for theme 4.3 **"Cooperation to reduce conflicts and improve transboundary water management"**, INBO presented the progress made in the past year.

In addition, INBO facilitated a roundtable on the theme of transboundary management to highlight the links between the SDGs, to enhance the actions carried out and present the implementation prospects before the World Water Forum in Brasilia.

Finally, as a member of the **Steering Committee of the OECD Water Governance Initiative**, INBO also participated in the side event on **good water governance indicators**, together with the Scientific and Technical Association for Water and Environment, Crossflow Consulting, Transparency International, and the Water Integrity Network.



Mr. Eric Tardieu, Deputy Permanent Technical Secretary of INBO

International Events

19th International Rivers Symposium



12 - 14 September 2016 - New Delhi - India

The Himalayan mountain range is the headwaters of 10 major rivers that provide ecosystem services, water, energy and food to more than 1.5 billion people in Asia, i.e. one fifth of the world's population.

It is therefore essential to work towards the development of a more optimal river management in this region.

On the basis of this observation, the India Water Partnership (IWP) organized, in partnership with the International River Foundation, the 19th International Rivers Symposium, on the theme **"Great rivers of the world: Management for shared benefits"** and the issue: how to better balance economic development and environmental protection in various regions of the world?

5 topics were discussed during the plenary sessions of the Symposium, which gathered about 500 participants representing various sectors and regions of the world:

- The Water-Energy-Agriculture nexus in the Himalayan river basins: balancing the benefits,
- Understanding and adapting to climate change,
- Protecting and restoring river ecosystems as part of integrated river basin management,
- Developing community resilience: linking local action to basin planning,
- Cooperative management approaches in transboundary basins.



Jean-François Donzier, INBO Secretary General, was a keynote speaker in the climate session, in which he presented the implementation of the Paris Pact on Water

and Adaptation to Climate Change in River, Lake and Aquifer Basins.

<http://riversymposium.com>

Transboundary Waters Assessment Program - TWAP



First global indicator-based assessment of Transboundary River Basins released

The Transboundary Waters Assessment Program (TWAP) was initiated by the Global Environment Facility (GEF).

The TWAP project covers all 276 transboundary river basins of the world.

After several years in preparation, including three years in indicator development and analysis, involving nine expert partner organizations, the assessment results have finally been released in the report **"Transboundary River Basins: Status and Trends"**.



The Transboundary River Basins assessment is indicator-based, allowing for an analysis of risks to both societies and ecosystems in each basin.

The assessment includes 20 core indicators, covering five 'clusters' of issues:

- water quantity,
- water quality,
- ecosystems,
- governance,
- and socioeconomics.

The assessment has taken an innovative approach in assessing the relative risks not only at basin level, but also for the Basin Country Units of each riparian country.

This approach allows better understanding the distribution of the risks and underlines the need for basin level integrated approaches in resource management.

Some of the key findings include:

- The extinction risk to freshwater biodiversity is moderate to very high in 70% of the area of transboundary river basins.
- Risks in four hotspot regions (the Middle East, Central Asia, the Ganges-Brahmaputra-Meghna Basin, and the Orange and Limpopo Basins in Southern Africa) are projected to increase in the next 15-30 years.
- The construction of dams and water diversions is in progress or planned, but is often without adequate international water cooperation instruments.

Global and regional risk maps and tables for more than 20 indicators can be accessed and downloaded via the project web portal.

276 Basin Factsheets containing key information for each of the transboundary basins can be downloaded from the portal.

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International Events

The Youth Parliaments for Water



Youth involvement in River Basin Organizations

Where there is a will there is a way!

The world's youth, wittingly or unwittingly, play a major role.

The future generations will have to face the consequences of the current choices made for water management, including more droughts and floods.

Like other generations, youth have to decide whether to continue impinging on natural resources or to make use of tools now available, to pave the way towards a more sustainable future and better conservation of water resources.

The Youth Parliaments for Water (European and World), initiatives of the International Secretariat for Water and Solidarity Water Europe, are comprised of young people who are very active in the water sector.

They work hard on implementing water related initiatives, from awareness projects in schools to advocating for better national and international water management.

Granted, young people have a lot to learn from the older generations, it is worth pointing out that they also have ample to offer.

The interest of young people to act locally or globally in water management is increasing, especially by getting involved in River Basin Organizations.

The presence of youth in the River Basin Organizations is pivotal: this helps the younger generations to develop their networks, learn from experts and experience the importance and difficulties of basin management.



Young people get the chance to advocate for better policies and to have an open discussion with the decision makers. Such discussions are very stimulating and sometimes serve as a wake-up call to the older generations.

The youth will be more involved in river basin management to voice their concerns and proposals.

After all, multi-generational accountability and ownership are fundamental to create a positive change towards conserving the vital resource we have in common, **WATER**.

Claire Pace & Sarah Dousse

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riversnetwork.org©

Sharing "Water Stories"

Aware of the need to manage water resources in a more integrated way and to consider the river basins as the most appropriate units for managing water resources, whatever the administrative boundaries or international borders crossed, **riversnetwork.org** is a web

platform that aims at exchanging experiences through links that illustrate various aspects of river basin management.

The basic organization of **riversnetwork.org** is geographical. A world map of river basins, created from various information sources, includes 173 river basins and coastal zones, themselves divided into 1167 sub-basins.

Each sub-basin has its "blog" in which various river "stories" are stored according to a thematic approach. These are links to websites, videos or reference documents.

An essential element of **riversnetwork.org** is the interactive mapping.

Each blog presents an interactive map showing the boundaries of the basin, the rivers and the floodplains.

Thematic layers are gradually developed such as, for the time being, Ramsar sites, protection zones according to the "Protected Planet" data base and Natura 2000 sites.

World Thematic Maps allow pointing out the stakeholders concerns on key issues such as biodiversity, flood management, riverside people stories, climate change, management of deltas, etc.

A twitter account (@riversnetwork) and a discussion group on LinkedIn (<https://www.linkedin.com/groups/3954330>) are associated with **riversnetwork.org** website.

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www.riversnetwork.org





6th General Assembly and Liaison Bureau

20 - 22 September 2016 - Kigali - Rwanda



The 6th ANBO General Assembly, which took place from 20 to 22 September 2016 in Kigali, has a special place in the history of the institution, created in 2002 and then designated in 2007 as Technical Committee of the African Ministers' Council on Water (AMCOW).

It shows the growing importance of the Network with the adoption of its new statutes and recognition of its key role in the implementation of the 2016-2025 Priority Action Plan for Water Resources Management in Africa, produced by the Technical Advisory Committee of AMCOW.

This Priority Action Plan aims to achieve the **2025 African Water Vision**: i.e. "An Africa where water resources are used and managed in an equitable and sustainable way for poverty reduction, socioeconomic development, regional cooperation and environmental protection".

The General Assembly also enabled to evaluate past actions, present the budgetary situation of ANBO and introduce future projects.

Mr. Eric Tardieu, INBO Secretariat, presented the "**AfriAlliance**" project, whose implementation will be the subject of close cooperation with ANBO.

It aims to network European and African stakeholders in innovation to reduce water management vulnerability to climate change in Africa.

INBO, as facilitator of the COP22 Water and Climate Day, presented the organizational plan for this event and invited the African partners to be represented at the best level.

The approval of ANBO new statutes was unanimously welcomed. ANBO Secretariat is taken care of by the Organization for the Development of the Senegal River (OMVS).

The General Assembly finally elected **Ms. Judith Enaw** (Secretary General of the International Commission of the Congo-Ubangui-Sangha Basin - CICOS) as the new ANBO President.

www.raob-anbo.org

AWIS

The African Water Information System (AWIS)

By sharing experience and knowledge, the African River Basin Organizations can find solutions to the many challenges they face.

They differ in terms of seniority, experience, size and mandate and this diversity offers a great opportunity to exchange, learning, capacity building and cooperation among them.

In this sense, the African Network of Basin Organizations (ANBO), through the African Water Information System (AWIS), is establishing a common platform for the African continent to support the exchange of experience, knowledge and expertise between Member Organizations, to improve coordination and harmonization of policies, strategies and practices in trans-boundary water management.



Workshop in Dakar - Senegal

In 2016, an analysis of the existing sites in Africa and elsewhere in the world was carried out, and AWIS weaknesses and strengths were analyzed, at a participatory workshop held in April 2016 in Dakar, taking into account the opportunities.

This workshop recommended some main lines for **AWIS development strategy**.

www.awis.org



The African Great Lakes Conference

2 - 5 May 2017 - Entebbe - Uganda



The African Great Lakes Conference, organized by The Nature Conservancy with the support of many partners and sponsors, including INBO, provided a regional framework for jointly discussing the challenges to be faced and ensuring conservation and sustainable development.

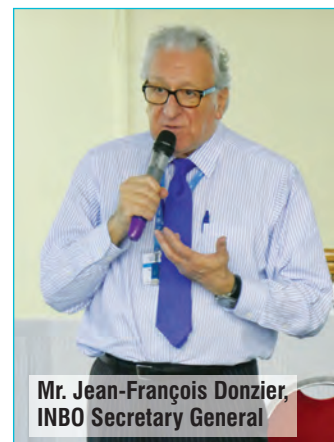
More than 200 representatives from local and national governments, African Great Lakes Basin Organizations (Lake Albert, Lake Edward, Lake Kivu, Lake Malawi / Nyasa / Niassa, Lake

Tanganyika, Lake Turkana and Lake Victoria), donors, academic institutions, the private sector and non-governmental organizations, discussed ways to improve the management of river/lake basins and associated resources in this vast region spanning 850,000 km², where 12 countries share the benefits of rich biodiversity.

In addition to the speeches of its representatives and partners, of the Lake Victoria Basin Commission (LVBC), the Lake Chad Basin Commission (LCBC),

the Congo-Ubangui-Sangha International Commission (CICOS) and the Volta Basin Authority (VBA), in three thematic sessions (Governance and Financing at Basin Level - Climate Change Impacts, Mitigation, Adaptation, - Balancing Conservation and Development), INBO held two events:

- **The AfriAlliance workshop**, organized in partnership with the International Office for Water, (IOWater), which brought together around 40 participants to identify the challenges and solutions related to water and climate in the region.
- **A side event on "The Legacy of COP22 and the Global Alliances for Water and Climate"**, that gathered more than 80 people to discuss case studies on climate change adaptation in basins.



In his speech at the closing session of the Conference, Mr. Jean-François Donzier, Secretary General of INBO, reminded that basins of national or transboundary rivers, lakes and aquifers are the places where appropriate and "no regret" measures must be taken without delay to adapt water resources to the effects of climate change.

www.greatlakesofafrica.org

Assessment of African groundwater vulnerability

Groundwater is a strategic resource for the development of the African continent, but it is subjected to many pressures.

It is important to identify which aquifer systems are most vulnerable to these pressures.

Methods for assessing groundwater pollution risk were developed on the African scale as part of a doctoral thesis project financially supported by

the Islamic Development Bank Group (IDB) and the "Université Catholique de Louvain" (UCL).

The most recent information on soil, land use, geology, hydrogeology and climate was compiled in a GIS and a vulnerability map was produced by using the generic DRASTIC index indicator.

This map reveals that groundwater is highly vulnerable in Central and West African groundwater basins, where the water table is very low.

On the contrary, very low vulnerability classes are found in the large sedimentary basins of the African deserts where groundwater is situated in very deep aquifers.

The generic groundwater pollution risk map was obtained by overlaying the DRASTIC vulnerability indicator with current land use.

The northern, central and western parts of the African continent are dominated by high vulnerability classes, related to the low water table depths and the development of agricultural activities.

The main lesson to be learned is that shallow groundwater poses a pollution problem to Africa.

This map could usefully serve as a general guideline for planners and decision-makers in land-use and water management.

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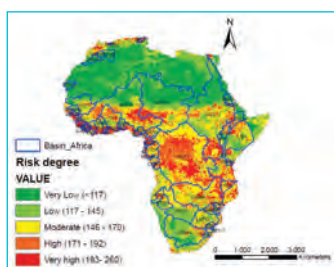
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www.riversnetwork.org



Innovative solutions for water and climate in Africa



AfriAlliance kick-off meeting - Delft - The Netherlands

Africa is one of the regions that need to find innovative solutions to address the challenges related to water and adaptation to climate change.

Funded by the EU Research and Innovation Program (H2020), the **AfriAlliance project** aims to build Africa's capacity to meet the water-related challenges and climate change by developing joint work and the sharing of innovative solutions between existing African and European networks.

Over the next five years (2016-2021), the 16 partner organizations of the project, in which INBO is in charge of communication, will work at increasing and enhancing research and innovation related to water and climate change.

Entering into a continuous process of transfer of technology and knowledge, the first project action consisted in establishing five thematic groups, made up of researchers, managers, NGOs, etc., that address the following issues:

- Integrated Water Resources Management,
- Food security and Agriculture,

- Capacity Building,
- Climate Change Adaptation and Mitigation,
- Networks for water data monitoring, collection and analysis, and climate forecasting.

A second line of work focuses on the innovation needs at local and regional level in Africa.

The identification of the needs and existing solutions is starting, including through workshops held across Africa such as ANBO General Assembly, from 20 to 22 September 2016 in Kigali, Rwanda, the WaterNet / WARFSA / GWPSA Symposium in Gaborone, Botswana, from 26 to 28 October 2016, the COP22 in Marrakech, Morocco, on 8 November 2016 or the African Great Lakes Conference, from 2 to 5 May 2017 in Entebbe, Uganda



AfriAlliance workshop - Entebbe - Uganda

First Conference in South Africa in March 2017

The first "AfriAlliance" Conference was organized as a side event of the Local Climate Solutions for Africa (LoCS4Africa) 2017 Congress in Ekurhuleni, on the outskirts of Johannesburg, from 22 to 24 March 2017.

This inaugural "AfriAlliance" conference enabled to present the AfriAlliance Action Groups and their areas for action, to promote initiatives in research, innovation and African capacity building by seeking new European and African partners and to provide input and proposals on the development of the AfriAlliance project activities.



Ms. Uta WEHN
Coordinator AfriAlliance



afrialliance.org



Congo River Basin - "CICOS"



The Rhine and the Congo River Basins : an old and lasting relationship



Group photo of CICOS stakeholders in Brazzaville - November 2016

Since 2013, IOWater, INBO Secretariat, has been helping in the implementation of the Master Plan for Water Development and Management (SDAGE) of the International Commission of the Congo Ubangui-Sangha Basin (CICOS) with support from the French Rhine-Meuse Water Agency (AERM).

Cooperation between the Congo and the Rhine indeed dates back to the creation of "CICOS" in 1999, supported at that time by the Central Commission for Navigation of the Rhine.

"AERM" experts intervened during the "CICOS"s' Fourth Regional Consultation Platform held in Brazzaville in November 2016, to share experience on the functioning of the Rhine-Meuse Basin Committee and its participatory approach, which "CICOS" wishes to inspire from.

Adaptation to climate change in the Congo River Basin

During the COP 21 in December 2015 in Paris, a new financing agreement was signed by the French Development Agency (AFD) and the International Commission of the Congo-Ubangui-Sangha Basin (CICOS).

This new project started when the new Secretary General of "CICOS", Ms Judith Enaw, took office.

The project specially aims to improve the monitoring of water resources in the Congo River Basin, combining the

classical "in situ" approach and the innovative use of satellite altimetry.

The SWOT satellite program ("Surface Water and Ocean Topography") is a French-American project of Earth observation satellites that will provide spatiotemporal variations of continental water levels for 2020.

A Working Group on Space Hydrology, established in 2014, gathers AFD, BRLi, CNES, CNR, IRD, IRSTEA, and IOWater.

As part of this "CICOS" project, this group supports the installation of new hydrometric stations, as well as carrying out an analysis of hydrological monitoring and space applications in the Congo River Basin.

The results of this study will help guide the design and implementation of "CICOS" Hydrological Information System.

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Ms. Judith Enaw at the COP22 in Marrakech
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www.cicos.info



Mono River Basin Authority (MBA)

Togo and Benin together in a same Basin Authority

The Mono River Basin Authority (MBA) is entering into its operational phase.

Following its establishment, the Ministers of the two countries chose Benin as host of the "MBA" Executive Directorate.



The Mono River

The strategic plan of the institution is being validated by the various stakeholders.

The establishment and operationalization of the "MBA" are supported by the ECOWAS Water Resources Coordination Center, as well as by IOWater, INBO Secretariat, and pS-Eau with the support of the French Rhine-Mediterranean-Corsica Water Agency (AERM).

The project also promotes the emergence of water and sanitation cooperation projects carried out by French Local Authorities in both countries. Three partnerships are currently being formalized, involving French Local Authorities and solidarity associations.



Setting up of a GIS and Database

For monitoring uses and valorization of the water resources of the Senegal River

The Diama Dam Management Company (SOGED) is partly financing its activities and structures through charges paid by the users.

But despite the growing water demand, recovery of these charges (being close to 40%) is still low.

The recovery system, based on planned abstractions and users' declarations, offers no guarantee of reliability, "SOGED" lacking the means for a contradictory check.

To remedy this shortcoming, "SOGED" has introduced geomatics in its technical system.

Indeed, given the high concentration of users, the need to monitor the spatial and temporal dynamics of the valley landscape units justifies the development of a GIS based on a geospatial database of recipients, which is detailed and regularly updated.

The next step will be the development of a Common Geomatics Repository (CGR) within OMVS.

The CGR will be a dynamic platform for the collection, harmonization and exchange of data for stakeholders in the Senegal River Basin. The institutional architecture of the CGR and the operationalization of the "SOGED"'s GIS are already established.



Crossing lock of Diama Dam

Cooperation is being developed with the Ecological Monitoring Center (CSE), the Coteaux de Gascogne Deve-

lopment Company (CACG) and the University of Arizona for the sharing of technology, skills and data.

"SOGED" is levying a charge for water abstraction in the Senegal River Basin:

Background, context, present situation, evolutions and prospects

The resources of "OMVS"'s Diama Dam Management Company (SOGED) mostly come from contributions of the Member States and users. They are intended to cover the company's costs for operating and managing the dam and its ancillary structures, but also for servicing the debt.

A charge for water abstraction from the river was introduced in 1986 after the commissioning of the Diama Dam.

The tariffs adopted by the Council of Ministers vary according to the type of users: billing per hectare of crop for subsistence farming, per cubic meter of water abstracted for agro-industry, drinking water and mining industry and when passing through the lock for navigation.

The trend is marked by a sharp increase in the amounts recovered during the past three years, rising from 546 million at the end of 2012 to nearly 1.044 billion FCFA in 2015.

Despite this increase in absolute value, the recovery rate remains fairly stable (on average 40% over the 2012-2015 period), reflecting the still limited performance of the recovery mechanism to deal with the increase in abstractions and in the number of users.

The sums that are recovered represent less than 20% of "SOGED"'s budget for a current objective of 30%.

"SOGED"'s ambition is to secure a long-term financial self-sufficiency through a gradual reduction of the States contribution and the coverage of all the current costs of operation, maintenance and renewal by the users' contributions.

The weak performances recorded have led "SOGED" to undertake, since 2013, a large project that aims at redesigning and improving the recovery system.

In this context, the various studies carried out allowed establishing a complete analysis of the situation and validating ways towards a lasting recovery based on strengthening the partnership with the relay structures (ADRS, SAED and SONADER) and the financial institutions.

The planned application of an innovative recovery approach based on the transfer of money through ICT will allow broadening the customer base by offering an alternative to a large number of motivated users who are funded outside the usual channels (banks and microfinance).

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The Diama Dam

"SOGED" / "OMVS"

Participatory approach and users' consultation framework

To better manage the billing and recovery of charges for water abstraction from the Senegal River

"SOGED" is facing a growing water demand that reflects the strategic vision of OMVS Member States to support agriculture as a driver of economic growth.

Access to basic social services, such as drinking water supply and the exploitation of the mining potential, has resulted in increasing water abstractions from the more accessible surface water resources.

Faced with the multiplicity and diversity of water users and uses and the imperative need to ensure a continuous and quality service, "SOGED" introduced an innovation in the approach to communication with and awareness of its customers.

This approach aims to increase the citizens' participation in public decision-making, one of the foundations of sustainable development, through continuous information and consultation.

A framework for dialogue with the users was established in October 2014.

The purpose of this body is twofold: first, to meet the users' expectations by informing them more, and secondly to make them aware of the issue of the charges to make recovery more efficient by informing them better of the advantages given by the OMVS structures.

The General Assembly is made up of all categories of users: agro-industrialists, groups of farmers and producers' federations and cooperatives, drinking water companies, mining companies, shipping companies. The process also involved state stakeholders (administrations and technical services) and OMVS structures.

A three-member Executive Board has been set up. "SOGED" provides the secretariat and contributes to the facilitation and functioning through the provision of a permanent home office in Nouakchott.

Under the impetus of a think-tank called the "Group of 12", composed of four representatives of the three "SOGED" shareholder States (Mali, Mauritania and Senegal), the Dialogue Framework plans for semi-annual and annual meetings, during which topics of common interest are discussed. These include water management, access to drinking water, irrigation, tariffs and the recovery of charges.

To reinforce the dynamics of consultation and transparency, "SOGED" is currently developing suitable computerized tools such as Geomatics for data sharing and price modeling.

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Constitutive meeting of the Dialogue Framework in Saint-Louis in 2014

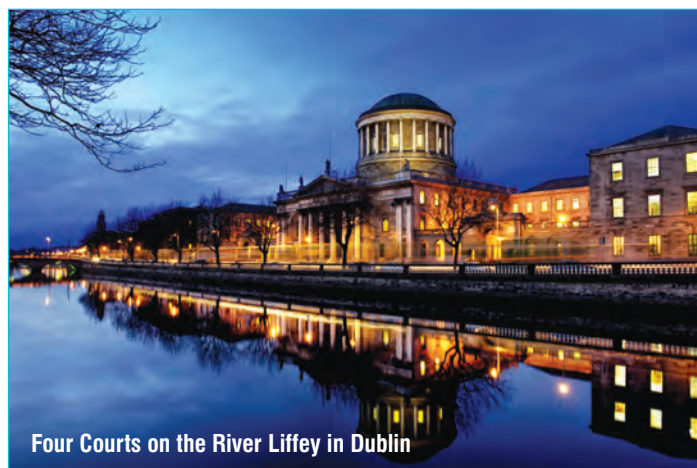


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Four Courts on the River Liffey in Dublin

Burkina Faso - Nakanbe River Basin



Cooperation between Châtelleraut (France), Herzogenaurach (Germany) and Kaya (Burkina-Faso)



Women preparing millet in Kaya

The French Loire-Brittany Water Agency (AELB) is supporting a cooperation project for the development of the Nakanbe Water Agency in Burkina Faso.

The Burkinabe Municipality of Kaya is located in this Nakanbe Basin.

The twinning project between Kaya and the City of Châtelleraut in France was initiated in 1976, facilitated by a wish for solidarity to contribute to reducing poverty in Burkina Faso, which is one of the poorest countries of the planet.

The "Châtelleraut-Kaya-Twinning-Cooperation" Partnership has been supporting this twinning project since its beginning with the assistance of the city and the department council of the Vienne.

It carries out an effective agricultural and rural development program.

When in 2005, decentralization accelerated in Burkina Faso, the City of Châtelleraut started providing an institutional support to its Kaya counterpart, through the "Châtelleraut Community of Agglomerations" (CAPC) and the Loire-Brittany Water Agency, to finance actions for access to drinking water supply and sanitation (since 2011), for collection and treatment of waste (from 2017), and since 2013, in cooperation with the Twinning Committee of Herzogenaurach in Germany.



Signing of a tripartite partnership agreement between the three municipalities on 19 October 2016

Four days of hard work

From 17 to 20 October 2016, meetings were held in Châtelleraut between the new Mayor of Kaya, accompanied by the Director of the municipal services and the Chairman of the twinning committee of Kaya, and their Châtelleraut counterparts and those of Herzogenaurach in Germany.

Regarding DWSS, the three partners signed a new partnership agreement on the construction of drinking water supply works, the rehabilitation of 4 boreholes and the building of collective latrines in schools or areas of population concentration, support to the equipment of family latrines and the development of a system for the collection and treatment of sludge.

Acting on the change in social practices, the program is financing a heavy component including information, education and communication with the populations.

Since 2011, the Municipality of Châtelleraut has supported the establishment of a municipal water technical service and a municipal dialogue framework in a national context of decentralization, transferring the DWSS responsibilities to the municipalities of Burkina Faso.

Decentralization lays out the principle of the municipal control of the DWSS sector with a concern to guarantee the sustainability of the facilities and actions.

The experience of Châtelleraut and Herzogenaurach accompanying their African partner helps to overcome the weaknesses of an early public policy in Kaya and strengthens the position of the municipal authority.

The Intermunicipal Syndicate "Eaux de Vienne - SIVEER", which is the operator of the drinking water supply and sanitation systems in the Châtelleraut area, has taken the responsibility of the technical and administrative training of the Burkinabe agents who are in charge of the DWSS program.

The results of the project developed in Kaya will be capitalized on the Nakanbe Basin scale.

Cooperation should be extended to the start of a new project for waste collection and management,

The uniqueness of the contracting authority, a municipality in both cases, should facilitate the emergence of innovative technical solutions to articulate the management of solid and liquid waste in Kaya.

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Water and Climate: Meeting of the Great Rivers of the World

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Burkina Faso



The Nakanbe Water Agency

The project for strengthening the **Nakanbe Water Agency (AEN)**, launched in 2011 with the support of the **Loire-Brittany Water Agency (AELB)**, has developed at a steady pace in 2016.

Priority was given to the drafting of the Master Plan for Water Development and Management (SDAGE), especially focusing on the methodology for developing scenarios and accompanying tools.



The Nakanbe River

The scenarios, a major step in the "SDAGE" development, are also being drafted.

A workshop for capacity building of the General Directorate's staff on the quantitative and qualitative monitoring of water resources was organized in Ziniaré, home office of the AEN General Directorate.

Support was increased to the development of the Water Information System.

The second half of the year was marked by the launching of Phase 3 of the support program.

A mission of an "AELB" expert took place in October 2016 to develop a tool for following up the **"AEN" Strategic Development Plan**.

The latter aims to increase the efficiency of the structure to make it a model of the implementation of Integrated Basin Management in Burkina Faso and in the sub-region, up to 2026.



Mouhoun Water Agency

Since 2014, an institutional and technical assistance to the **Mouhoun Water Agency (AEM)** has been continuing, with support from the **Seine-Normandy Water Agency (AESN)**.

Year 2016 was marked by the launch of Phase 2 of the support program.

This second phase aims to achieve the operational management of the Mouhoun Basin through the implementation of the **Multi-year Action Plan**.

The means to complete this are, among others, the capacity building of the "AEM" teams and bodies.

A key step was achieved through the organization in Dédougou of a workshop on the "AEM" multi-year Action Plan, its follow-up and evaluation.

This one-week workshop allowed drawing the lines for a future local contractual policy between "AEM" and the basin partners (public, private, voluntary) who can potentially become in charge of the activities of the Multi-year Action Plan.



Workshop in Dédougou - September 2016

Republic of Congo



Strengthening of the Hydrological Service

Towards the recruitment of a private operator to support the Hydrological Service?

The need for an operational hydrological and meteorological service, including for adaptation to the climate change effects, pushed the Republic of Congo to innovate in this strategic field.

A feasibility study was thus launched for recruiting a private operator for support to the National Hydrological Service.

Two objectives guide the reflection: the search for sustainability and quality of the service to users of hydrometeorological data.

If the feasibility of such a Design-Construction-Operation (DCO) contract is conclusive, additional funding will be sought.

The use of a private operator for the provision of such services is a particularly innovative project.

In addition to securing a sustainable funding of the National Hydrological Service, the task of the private operator is to generate revenue to maintain the monitoring network. It will have to make itself less and less necessary up to its retirement in a few years, as the Congo Hydrological Service has been building up at the same time.

Volta River Basin



IWRM implementation in Ghana



Ramsar Site in the Rensu Delta in Ghana - June 2016

The project to support Integrated Basin Management of the White Volta, a transboundary tributary of the Volta River, in Ghana has entered into a new phase.

The partners of this project, supported by the French Loire-Brittany Water Agency, are: the Water Resources Commission, the White Volta Basin Board and the Volta Basin Authority (VBA).

Two main issues, funding and hydrological monitoring, were addressed to in June 2016.

A workshop was organized in Ouagadougou in February 2017 with Ghanaian and Burkinabe partners. Sustainable funding and planning were at the core of the exchanges in this workshop that dealt with:

- **Taxes for funding IWRM**, incentives to pollute less through the introduction of a pollution tax in both countries;
- **Data exchange** between the national Water Information Systems and the Volta Basin Observatory.

www.abv-volta.org



- **The progress of the Master Plans for Water Development and Management (SDAGE)** in the White Volta and Nakanbe sub-basins, in relation with the VBA Master Plan;

Cameroon



A framework for the Sanaga Basin Management

The Sanaga is the largest river in Cameroon. With a surface area of 133,000 km², 99.8% of which is in Cameroon, its catchment basin covers just over a quarter of the country.

The State of Cameroon has commissioned the Electricity Development Corporation (EDC) to develop its hydropower potential in accordance with the IWRM principles.

A technical assistance to EDC, which is financed by the French Development Agency (Agence Française de Développement - AFD), is being performed in the context of the Lom Pangar hydroelectric project to build a 6bn m³ reservoir dam with the aim of increasing Cameroon's electricity production capacity and reducing the seasonal fluctuations in the Sanaga river flow rate.

The numerous challenges linked to water management in the Sanaga Basin, as well as the progressive harnessing of its hydroelectric potential, will require the establishment of a rational, equitable and sustainable management framework that ties with the national process of water sector reform. They also require the restoration of the data collection system, the introduction of effective management tools and the development of human resources dedicated to IWRM.

From December 2014 to June 2016, the Technical Assistance dealt with the following tasks:

- Develop a strategy for training, information and communication regarding IWRM;
- Assess the budget required for the operation of the SRBC and its STP. Develop a lasting mechanism to fund their operation;
- Perform an audit of the current Water Information System (WIS), identify the needs of the new WIS and draw-up its Terms of Reference;
- Establish a technical partnership between EDC and a foreign company managing reservoir dams, hydroelectric plants and gauging station networks.

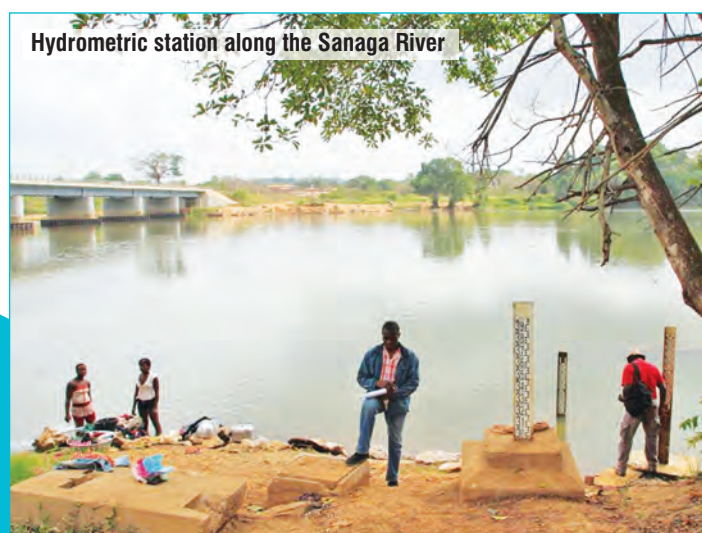
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- Organize national consultation workshops;
- Prepare the draft decree creating the Sanaga River Basin Commission (SRBC);
- Assess the human resources and training required for members of SRBC and its Permanent Technical Secretariat (PTS);



Hydrometric station along the Sanaga River

North America - The Caribbean

Canada - Quebec



From innovation to action in the water cycle



Americana 2017

For more than 50 years, "Réseau Environnement" (Environment Network) and its 3,000 members have been at the core of water issues.

It offers practical tools and accompanies municipalities in the different phases of the water cycle: from treatment to distribution, in addition to providing tools for raising the citizens' awareness about drinking water saving.

Established in 2000, PEXEP-T is the Quebec adaptation of the American Water Works Association's "Partnership for Safe Water".

In Quebec, 26 municipalities with 42 treatment plants participate in the program. More than 4,100,000 people are supplied with drinking water by PEXEP-T treatment plants.

"Réseau Environnement" has also developed "Québec-Eau", a training center dedicated to water professionals, whose aim is to promote the development of skills in the workforce.

Americana, which took place from 21 to 23 March 2017 in Montreal, is the largest multi-sector environmental exhibition in North America.

In addition to its trade show, it offers more than 200 conferences and coordinates more than 3,000 Business Meetings.

The water sector plays an important role.

Caroline Sanchez Valero, M. Sc.

Vice-president

Technical sectors and programs

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Cuba



Support to the management of water bodies supplying Havana

The cooperation project, carried out by IOWater, INBO Secretariat, and co-funded by the French Adour-Garonne Water Agency, focuses on the Integrated Management of the Water Bodies that supply the agglomeration of Havana.

The central partner of the cooperation project is the National Institute of Water Resources (INRH), whose mission is to manage, carry out and

monitor the implementation of the State policy for planning, control and protection of water resources in Cuba.

The Authorities are aware of the great difficulties they have to face that are especially caused by:

- The extended operation of the infrastructure without appropriate maintenance;
- The impact of extreme meteorological events on the infrastructure;

- Resource overexploitation practices;
- The low cost billed to the user for the service provided;
- Financial constraints;
- The fact that water has not been recognized as an item of the National Economy Plan until 2010.

Pollution problems in rivers and aquifers, saline intrusion phenomena are regularly observed and often get worse, especially for the two river basins and groundwater bodies that supply water to the 3 million inhabitants of the capital.

In this pilot river basin region, the project aims to help the Cuban partners in establishing a most appropriate governance and in developing the necessary management tools:

- Consolidation of a Basin Council and of its Executive Secretariat;
- Support to the characterization of the basin: monitoring, parameters, global vision;
- Planning methodology and Basin Management Plan;
- Information System and data management.

It also includes a capitalization component at national level.

The cooperation agreement was signed for the next two years on the occasion of the "CubaAgua" week in March 2017.



Signing of the cooperation agreement in Havana in March 2017



Latin America

"EcoCuencas"



Funding of adaptation to climate change: Economic mechanisms for Latin American basins

The "EcoCuencas" project, which, since January 2015, has been dedicated to the development of economic mechanisms for adaptation to climate change in Latin America, continued its efforts during its second year of implementation.

Co-funded by the European Union, the project proposes to theoretically develop and practically apply incentive economic instruments, dedicated to water resources management that can also be strategic structural tools for long term adaptation to climate change.

With a high degree of ownership, the project involves a wide variety of stakeholders, such as the National Water Authority in Peru and the National Water Secretariat in Ecuador, the PCJ Agency in Brazil, the Cuenca Verde fund in Colombia, IOWater and Asconit in France, the IRAGER Institute in Peru, the German Ecologic "think tank", and OECD, INBO, REBOB and different Spanish, Italian and French basin organizations.

The project aims to give a true picture of the existing economic mechanisms in Latin America, and the tracks to follow to improve their efficiency in adapting to climate change.



The "EcoCuencas" project involves three pilot basins offering a wide panorama of situations:

- **that of Catamayo-Chira boundary river** shared by Ecuador and Peru,
- **the Brazilian basin of the Piracicaba, Capivari and Jundiaí rivers** that supply drinking water to the city of São Paulo,
- **the river basin of the Rio Grande II dam in Colombia**, essential to the water consumption of the Colombian city of Medellín.

Designed to serve as a basis for further activities, analyses of the effects of climate change and of existing economic mechanisms have been published in each basin.

Their preparation was implemented by the Latin American partners in the project. It led to specific workshops rich in experience sharing in the first half of 2016.

At the same time, a guide dedicated to economic mechanisms for water resources management in a context of climate change was also drafted.

It will be back-fed by the lessons learned from the practical implementation of its proposals in the various pilot basins.

The proposed pilot actions, undertaken by partners in 2016, are taking various forms depending on the context and relevance of their implementation: establishment, strengthening, broadening of economic fees for water use and pollution, development of payment mechanisms for environmental services, etc.

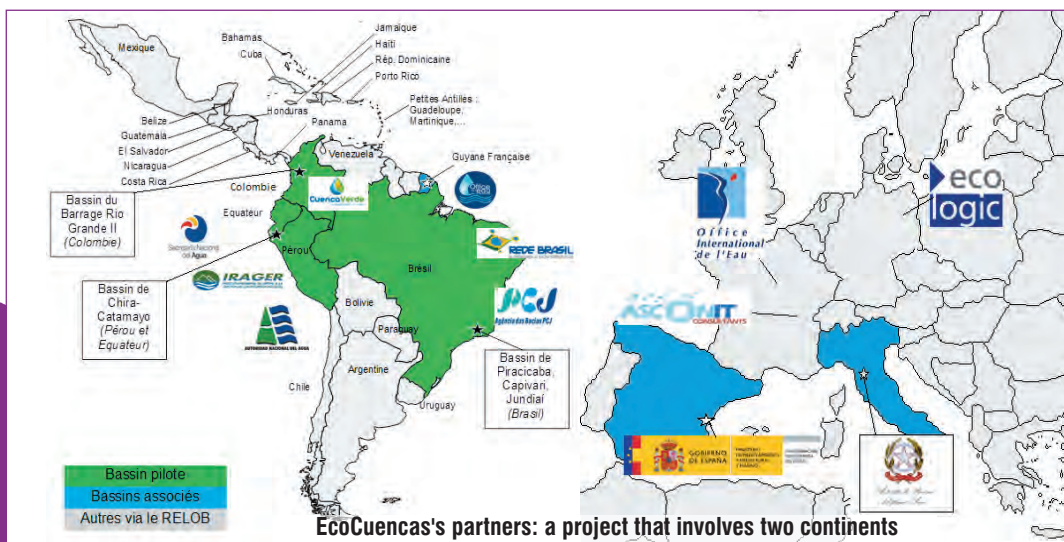
As regards adaptation, the project also provides for action planning and prioritization of measures against the effects of climate change.

Finally, "EcoCuencas" deals with the institutionalization of water resources management in a transboundary context to enhance the shared adaptive potential with, for example, the significant progresses made by Ecuador and Peru in 2016 towards the establishment of a sole commission for better management of their nine transboundary basins.

The Brazilian (REBOB), Latin American (LANBO) and international (INBO) Networks of Basin Organizations, involved in the project, have a central role in facilitating the networking and dissemination actions needed to share the lessons learned.

Note: This article was written with the financial support of the European Union. Its contents are the sole responsibility of the authors and it cannot be considered to reflect the EU's position.

www.ecocuencas.com



EcoCuencas's partners: a project that involves two continents



Colombia



Facilitating coordination between institutions

The second phase of the project in support to the Colombian Ministry of Environment and Sustainable Development (MADS) for developing Integrated Management in Colombia began in 2016, thanks to the help provided by the French Adour-Garonne Water Agency.

This project is divided into three axes of cooperation.

- 1 **Firstly**, a support to the operation of Basin Organizations with the specific case of the **Regional Environmental Council of the Macro Magdalena-Cauca Basin (CARMAC)**, and the articulation between the different levels of participation and planning especially for adaptation to climate change.



The Magdalena River

- 2 **Then**, a new cooperation activity with the **Regional Autonomous Corporation of Boyacá (CORPOBOYACA)**, on adaptation to climate change, but also on biodiversity. It includes very specific topics such as the contracting mechanisms for environmental protection and flood prevention,

hydromorphology, groundwater management or the interface between environmental regulation and its social acceptance.

- 3 **Finally**, a component dedicated to **Water Information Systems**, which aims at promoting interoperability of the data produced by many stakeholders.

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Ecuador - "SENAGUA"



From the establishment of Basin Councils to participatory planning

The support to the Ecuadorian National Water Secretariat (SENAGUA) for the development of Integrated Water Resources Management in Ecuador, co-funded by the Adour-Garonne Water Agency (AEAG), continued for a second year in spite of the very difficult situation generated by the earthquake of April.

Relations between France and Ecuador about water resources management have reached a new plateau, with the signing of a cooperation agreement by the French Embassy, the Ministry Coordinator of Strategic Resources of Ecuador, the Adour-Garonne Water Agency, the "SENAGUA" and IOWater, INBO Secretariat.

The project is structured around three components:

- Firstly, a support to the establishment of a **pilot Basin Council for the Rio Portoviejo**, in the Manabi Province. The lessons learned have been used at national level to facilitate the same dynamics in the nine River Basin Districts (RBDs) and in thirty-seven Local Water Planning Units (LWPUs).
- **Then**, the **drafting of the Water Resources Management Plans by the newly created Basin Councils**.

A national guidance document for participatory planning was written.



National IWRM workshop - June 2016 - Quito - Ecuador

- **Finally**, a support to the **Water Information Systems** for facilitating interoperability between the data of the various institutions of the sector.

This work will facilitate the analyses of the situation needed for planning.



Latin America

Brazil - ADASA - DF



ADASA's staff training program on Integrated Water Resources Management

Training in Brasilia - Field trip on Lake Descoberto



An Organization with administrative and financial autonomy, the **Regulating Agency for Water, Sanitation and Energy of the Federal District - ADASA (Brasilia, Brazil)** is assigned with the regulation of public water, sanitation (including waste) and energy services in the Federal District, the basin management policy, the technical and institutional support to the three Basin Committees of the Federal District and especially for the drafting of the Master Plans for Rivers Development and Management.

ADASA must also ensure that its activities are integrated with those of the River Basin Organizations, defined at national level as a result of the Water Act of 1997, as Brasilia is located upstream of the river basins of the "federal domain": Paranaíba-Paraná, São Francisco and Tocantins-Araguaia.

It organizes the establishment of economic fees for the use of water resources in the Federal District, and especially for the catchment areas of the tributaries of the Paranaíba River.

The challenges of an integrated and participatory management of water resources and of improving water quality and availability in drought periods led the Agency to pay special attention to institutional development and the continuing training of its staff.

In this context, ADASA set up in 2011 a partnership with UNESCO, which includes among its immediate objectives, "to provide technical and scientific support to the structuring of public agencies and of the participatory management of users of river basins in the Federal District, particularly to deal with critical events".

In the second half of 2016, a program for cooperation, exchanges and international technical assistance was developed to improve the training of the Agency and Federal District's executives and staff in water resource management.

This program, funded by UNESCO, aimed at consolidating the Basin Committees of the Federal District, by improving the management tools provided by the Water Law of the Federal District (No. 2725/2001), which plans for the creation of a Basin Agency to implement and finance programs of general interest in the river basins.

The first technical visit, which was addressed to executives of ADASA and of the Water and Sanitation Company of Brasilia (CAESB), took place in France in August 2016.

This visit focused on the policies, organizations and mechanisms of water management in the Rhone-Mediterranean Basin

The delegation was received by the Verdon Regional Natural Park, the Canal de Provence and Development of the Provencal Region Company, the Directorate for Water, Sanitation and Stormwater of Aix-Marseille-Provence Metropolis, the Rhône Mediterranean Corsica Water Agency and IOWater.

The second phase of the training program took place in Brasilia from 26 to 30 September 2016.

It addressed **25 staff members of ADASA** and of various agencies involved in water management in the Federal District.

The five-day Program, opened by **Mr. Paulo Salles, President-Director of ADASA, and Mr. Israel Torres, Director of ADASA**, consisted of lectures, case studies, discussions, exchanges of experience and field visits focusing on the Lake Descoberto (the main source of drinking water for Brasilia) and Lake Paranoa Basins.

Training focused on the comparative analysis of key elements of a river basin management policy and was organized in 5 modules taught by IOWater experts:

- Basin management experiences and international cooperation;
- Analyses of basins and water use;
- Integrated river basin planning;
- Funding of integrated river basin management;
- Institutional organization of Water Agencies and Basin Committees

The following phases, in March 2017, provided a specialization in France of **ADASA's** managers of strategic projects in the field of integrated water resources management.

www.adasa.df.gov.br



Brazil



Triangular cooperation for better basin management

For three years, a cooperation program between the Basin Organizations of the Piracicaba, Capivari and Jundiá Rivers (PCJ) in the State of São Paulo and the Basin Committees of the Rio Grande do Sul State has been implemented with support from the French Loire-Brittany Water Agency (AELB).

After the PCJ Basins and the State of Rio in 2015, a visit of the water stakeholders of the Rio Grande do Sul was organized in 2016 in the State of Ceará in Northeastern Brazil, where the country's oldest Basin Agency is located, the **Water Resources Management Company**.

This agency, founded in 1996, is financing, with economic fees for water use, a much elaborated system for the participatory management of dams and canals.

Twelve Basin Committees coordinate the work of fifty-four water allocation Commissions that organize the sharing of this valuable resource among farmers, industry and inhabitants of this semi-arid region.

The most significant Brazilian experiences were also analyzed,

A delegation, led by the State Secretary for the Environment of the State of Rio Grande do Sul and several Presidents of Basin Committees, was invited in France at the home office of the Loire-Brittany Water Agency in Orleans and at the delegation of Le Mans during a week from 13 to 17 June 2016.

Alternating technical presentations, field visits and discussions with the staff of the Agency and its partners, exchanges enabled the Brazilian delegation to understand how the French



Agencies manage to mobilize local basin stakeholders to achieve Good Ecological Status.

Territorial Contracts and a strategy to fund project managers and facilitators across territories especially caught the attention of the participants.

Based on this knowledge, cooperation is entering into a new phase of establishment of **an Agency in the Pilot Rio Ibicuí Basin, a tributary of the Rio Uruguai, located at the extreme south of Brazil.**

Drawing lessons from the analyzed Brazilian experiences and inspired by the approach of Territorial Contracts set up by the "AELB", local partners developed a **Pact for Water Resources Management in the Ibicuí Basin**, to be proposed to technical and financial policymakers.

On such a basis, the first technicians of the pilot agency should be recruited in 2017.



"HYDRUS-BRAZIL": Water Training Center and Adaptation to Climate Change

The need for training and professional qualification in the Brazilian water sector led to the creation, in 2015, of the "Hydrus-Brazil" Association.

The Hydrus-Brazil project is based on the creation of two specialized entities:

- **A management training center in the Federal District (Brasília)** devoted to the training of decision makers and executives of Basin Committees and Water Agencies, Regulatory Authorities, Drinking Water Supply and Sanitation Utilities, Irrigation services and water-using industries.

- **A technical training center in the State of São Paulo**, dedicated to the design, management, operation and maintenance of drinking water supply and sanitation utilities,

Adaptation to climate change in Brazil is a strategic issue and the Hydrus-Center in Brasília is proposing to provide the necessary skills to the executives of public organizations and private enterprises involved in water resource management and drought and flood prevention.

The French Ministry of the Environment, Energy and the Sea is supporting the center for:

- **The realization of a preparatory study of the center and the elaboration of the 1st Training Catalogue to be proposed;**
- **The implementation of pilot training sessions in 2017:** "Climate change: adaptation of water resources management" in May in Brasília, and "Performance indicators for water and sanitation utilities" in June in Piracicaba;
- **The development of digital educational tools:** "Efficiency of drinking water supply systems and leak detection", "Energy saving in water and sanitation utilities".

This project is part of the 8th World Water Forum to be held in Brasília in March 2018.

www.hydruscapitacao.com.br



Latin America

Brazil



Adaptation to climate change in the PCJ Basins

The water issue was the subject of a technical debate at the prefecture of Piracicaba



Climate change in Latin America has shown disastrous scenarios, more precisely in the Piracicaba, Capivari, Jundiaí (PCJ) Basins, in the São Paulo State. The severe drought which occurred in 2013/2014 has pointed out the system's fragility in terms of drinking water supply.

To anticipate the effect of climate change, the "EcoCuencas" project, co-financed by the European Union under

the WATERCLIMA-LAC program, is testing economic tools that enable the redistribution of the resources and offer alternative solutions in the context of climate change.

The PCJ Basin Agency is one of the partner institutions chosen to integrate the "EcoCuencas" Action Program since December 2014.

With the financial support of more than 200,000 Euros for the PCJ Basins only, "EcoCuencas" is offering the possibility of experimenting new financial mechanisms. The resources for investment in the PCJ Basins come from the charges for water use (São Paulo State Charges, Federal Charges, Minas Gerais State Charges, and State Water Resources Fund - FEHIDRO).

Since 1994, about 600 millions of Reais have been invested in the PCJ Basins for projects on sewage treatment, reforestation, water loss control, environmental education, etc. The projects are based on the PCJ Basin Action Plan, established by the PCJ Basin Agency and Committees, which underlines the priorities for the 76 municipalities located on the PCJ Basin territory.

"EcoCuencas" is a great opportunity to reevaluate the water resources management system operating in the PCJ Basins and redirecting some outcomes with the partnership of great institutions from Europe and Latin America.

The international seminar held in June 2016, gathered technicians and specialists in Piracicaba, State of São Paulo. It allowed every participant to learn about climate change and financial redistribution in order to seek alternative solutions to act in a relevant way.

Ivanise Pachane Milanez

PCJ Basin Agency

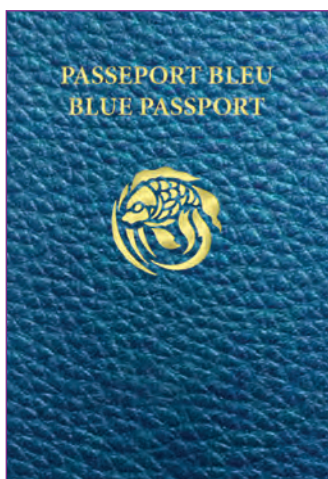
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Peru



The Blue Passport: an instrument for citizen mobilization



The Blue Passport is an initiative of the International Secretariat for Water (ISW), the International Network of Basin Organizations (INBO) and institutions that are interested in disseminating this citizen awareness-raising tool.

Receiving a Blue Passport is an official recognition of involvement in water protection, use, conservation and management.

It promotes local, individual and / or collective citizen actions that benefit the protection of the water resources on the basin scale.

The ISW and its local partners held on March 5, 2016 a public consultation in the Cachi River Basin, in Ayacucho in Peru.

Approximately 1,200 blue passports were delivered to citizens, mainly coming from indigenous communities, who participated in this public consultation.

The participants especially expressed themselves on:

- The constitution of a communal authority to manage and conserve the basin;
- Prioritize the use of resources coming from ecosystem's services compensation to support rural water supply and sanitation projects.

The results of this public consultation were sent to the Peruvian authorities.

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Chinese-French cooperation on integrated management in the Hai River Basin

The Hai River Basin, with its 130 million inhabitants, which is one of the most developed economic zones in China, including the cities of Beijing and Tianjin in particular, has been selected as a pilot sector under the Cooperation Agreement signed in December 2009 by the Chinese Ministry of Water Resources and the French Ministry of Ecology for capacity building in Integrated Management and Water Resources Protection.

The project partners are, for the Chinese part, the Ministry of Water Resources, the Hai River Water Conservancy Commission and the Water Boards of Tianjin City Hall and Hebei Province, **and for the French part,** the Ministry of Ecology and Solidarity-based Transition, the Seine-Normandie Water Agency (AESN), the Interdepartmental Syndicate for Sanitation of Greater Paris (SIAAP), the Interdepartmental Institution of the Seine Great Lakes, the French Embassy and IOWater, INBO Secretariat, the latter taking care of its coordination.

After a first phase of mutual understanding of the operation of basin institutions in France and China, **a first Pilot Project tested, in the Zhou River Sub-basin (2,100 km²), the application of new governance tools,** such as the establishment of a Zhou River Basin Coordination Group and the preparation of a water resources assessment, a Basin Management Plan and a Program of Measures to meet the major challenges of the sub-basin.



The signatories of the French-Chinese agreement in China - March 2016

Extension of cooperation: phase 3

Due to the success encountered and the satisfaction of the stakeholders of both countries, the partners agreed, on the occasion of the COP21 in Paris, to continue this cooperation from March 2016 for three years.

A new agreement, under adaptation and resilience to climate change, was officially signed at the Steering Committee that took place in March 2016 in Tianjin.

This third phase aims to develop abilities in Integrated Management in the pilot Zhou River Basin and also in the new pilot Luan River Basin (55,500 km²), where the tools of the previous phases will be replicated: water resources assessment, establishment of a Basin Coordination Group, a Management Plan with a Program of Measures.

The project will also deal with point and non-point pollution control, management of aquatic ecosystems and restoration of environments, monitoring networks and information systems, master plans for sanitation and management of lakes-reservoirs.

In support to the historical institutional components, **a new economic one funded by the AFD's instrument "FEXTE"**, enables additional experts' missions and the experimentation of French technologies in the field of water management.

New partnerships are added to the historical partnerships in order to integrate this new operational and economic dimension and to strengthen the relations with:

- **The local administrations in charge of the water, agriculture, energy and environment sectors** and the research organizations of the Zhou and Luan River Sub-basins,
- **French companies** (Biotope, Veolia, very small enterprises, SMEs, midcaps, etc.) and research organizations ("Ecole des Ponts et

Chaussées"/Water-Environment Laboratory and Urban Systems-LEESU, IRSTEA),

- **The water board of Beijing City Hall.**

This extension of cooperation proves the quality of the relations established and shows a genuine will to go further in the Chinese-French cooperation on Integrated Water Resources Management.

On the occasion of the Chinese National Day on 1st October 2016, the project was selected to receive the "Chinese Government Friendship Award", handed by the Deputy Prime Minister, Mr. Ma Kai.

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Handing of the "Chinese Government Friendship Award" by the Chinese Deputy Prime Minister © INBO - C.Runel





The China-Europe Water Platform

The PIANO (Policies, Innovation And Networks for enhancing Opportunities for China-Europe Water Cooperation) project is funded by the European Framework Program for Research for Horizon 2020 (2014-2020).

It aims at developing opportunities for trade and cooperation in research and innovation between Europe and China.

Since their start in March 2015, activities have been split into 6 project components:

- ① Strengthening relations between European and Chinese networks on technological innovation and water,
- ② Making lists of European innovations that may interest China,

- ③ Studying the Chinese market, means for action, opportunities and constraints for technological innovation in the field of water,
- ④ Promoting exchanges and political dialogue in order to create an enabling environment for the adoption in China of innovative European technologies in the water sector,
- ⑤ Consolidating a strategic research and innovation agenda for the water sector between Europe and China,
- ⑥ Disseminating the project results in China, Europe and beyond.



The coordinators of each component are:

- Technical University of Denmark, (DTU),
- University of Natural Resources and Life Sciences, Vienna (BOKU), for two components,
- Stockholm International Water Institute, (SIWI),
- Institute for Environmental Protection and Research, (ISPRA),
- International Office for Water, (IOWater).

The activities of the first component are aiming at strengthening the networks and China-Europe Water Platform (CEWP) as regards Research and Innovation, by developing the mapping of stakeholders' networks and existing outstanding innovation projects.

The facilitation and visibility of the project are guaranteed via European and Chinese social networks (Twitter, LinkedIn, Facebook, Weibo).

www.project-piano.net



Mekong River Basin



Monitoring of the "Mekong-HYCOS" project

The MRC Secretariat (MRCS) has coordinated the "Mekong-HYCOS" project from 2007 to 2012, whose main objective was to establish a reliable and accurate hydrometeorological data collection system in the basin.

More than 30 hydrological stations were installed along the Mekong River and its tributaries.

This project has established a basin hydrometeorological information system, whose data are shared between the MRC and its four Member States: Cambodia, Laos, Thailand and Vietnam.

The project was managed by the Information and Knowledge Management Program (IKMP) that asked the French Development Agency (AFD) to financially support the project follow-up.

In this context, the experts of CNR, Irstea, IOWater and IWMI will work with the MRCS on the following issues:

- Sediment Management and Transport,
- Improvement of the Quality Assurance / Quality Control (QA / QC) process,
- Regional Analysis of the rivers regime.

- The presentation of examples of water data management and use for Integrated Basin Management,
- The identification of lines of work and recommendations for the overall strengthening of data management and use in MRC.

www.mrcmekong.org



Project kick-off meeting at the MRC home office in Vientiane - Laos

The monitoring kick-off meeting was held at the MRC home office in Vientiane - Laos in July 2016.

This meeting allowed:

- Exchanges on the analysis of the existing structures at national and regional level in terms of data flow organization, data management and use,



The Stung Sen Basin is testing Integrated Basin Management



Visit at the Stung Sen River Basin Committee - March 2016

The project for **Integrated Water Resources Management in the Stung Sen Basin**, main tributary of Tonle Sap Lake, is supported by the Loire-Brittany and Rhine-Meuse Water Agencies.

It is entering into its third phase.

The two previous phases allowed making real progress:

- **Implementation of water resources planning steps with members of the Stung Sen River Basin Committee:** characterization of the basin, defining the challenges and objectives, establishing the associated action plan and cost estimate;
- **Training of the teams** of the Tonle Sap Authority (TSA), the Ministry of Water Resources and Meteorology (MOWRAM) and of the Secretariat of the National Committee for River Basin Management on the training of trainers and on the organization of Water Information Systems.

In recent years, **the Stung Sen River Basin Committee met on several occasions**, especially in the presence of the MOWRAM Minister, Mr. Lim Kean Hor, and the General Managers of the Loire Brittany and Rhine-Meuse Water Agencies in March 2016.

Thus, the first version of **the Stung Sen Basin Management Plan and Program of Measures** has been made possible by the work done with the teams of TSA, MOWRAM and local representatives.

Meetings with the Ministries of Economy and Finance, Environment, Public Works and Transport, Rural Development allowed identifying potential funding at national level for the implementation of the actions of this Management Plan.

For the production of water data, the Government of Cambodia is implementing a dynamic policy and recently installed 15 new hydrological monitoring stations in the country - including 4 in the Stung Sen River Basin, and 15 meteorological monitoring stations, including 2 in the Stung Sen River Basin.

These new data will complement and refine the results of rainfall and hydrological statistical analyses included in the characterization of the River Basin.

In terms of data management, the project provided methodological support for the development of reference GIS layers on rivers and sub-basins. In addition, work for integrating the data produced by the automatic stations is underway with the use of dynamic mapping available on the Web portal of the Tonle Sap Authority.

To deepen the characterization work, the TSA-MOWRAM team made several flights over the Stung Sen at different times of the year to better understand the conditions of the river and its banks.

These missions have collected many aerial photographs that give an overview of the area. The first flight in the dry season confirmed that, like its neighbors, the Stung Sen suffered from an exceptionally dry season this year, but is still relatively preserved.

The third phase of the project, which started in 2016, focuses, at the Stung Sen level and in the whole country, on the financing of the water management policy and on the users' willingness to pay.

It also includes an increase in the training of trainers, the preparation of national methodological guidelines for the planning process and the strengthening of the link between institutional cooperation projects and solidarity projects. The project scope will also extend to the Tonle Sap Lake Basin to make an analysis of the situation.

In coordination with the project, several French NGOs are working on the establishment of access to drinking water and sanitation in the basin. This is the case, for example, of the Kraing Speu Association that is installing a drinking water supply system powered by photovoltaic energy in the village of Thmey, and has made this year the drilling and construction of the water tower.

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Water Tower being built in Thmey

A new national dynamics

The project for Integrated Water Resources Management (IWRM) in Laos, implemented in the pilot Nam Ngum Basin, entered into its third phase early 2016.

This phase 3 aims to continue supporting the Lao Authorities for better governance of water resources:

- Through a pilot experiment in the Nam Ngum Basin;
- By fostering the emergence of basin management strategies at national level;
- By seeking better legal and institutional organization;
- By developing data collection and recovery tools.

During an official visit carried out in March 2016, the General Managers of the French Rhine-Meuse and Loire-Brittany Water Agencies, both providing support to the project, met Mr. Sommad Pholsena, the new Minister of Natural Resources and Environment (MONRE) in Laos.

The latter expressed the wish to continue this cooperation and to be able to travel to France as part of a study visit to meet with stakeholders at national and basin levels.

The Water Resources Department of the Ministry (DWR-MONRE) is revising the country's Water Law and is wishing for technical support on this, particularly in terms of water data sharing.

This is a new topic for the department. Year 2016 saw the first version of the Lao Water Information System, developed as part of the project.

The project provides support to the structuring and implementation of databases and software tools (metadata, dynamic mapping, presentation portal,...).

The DWR team, in charge of data management, was trained, from September to December 2016, to learn how to structure and manage these tools.



Meeting between the MONRE Minister and the French delegation

The purpose of this capacity building is to allow DWR to master the tools facilitating the integration, processing and recovery of the data produced internally and by various partners in order to generate the information useful for planning and decision making.

At the same time, training activities are continuing: a dedicated DWR team, supported by French experts with the help of the methodological guide, which has been developed in previous

phases of the project, is applying to other Lao River Basins the methods used in the Nam Ngum Basin at the various stages of the planning process.

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Myanmar



A support project with a regional logic

After the regional seminar organized in October 2014 in Vientiane, Myanmar wished, like its Laotian and Cambodian neighbors, to develop Integrated Water Resource Management (IWRM) on its territory.

A first exploratory mission, that took place in January 2015, gave the opportunity to meet members of the Ministry of Natural Resources and Environmental Conservation and of the Ministry of Transport to present them the principle of institutional cooperation in pilot basins.

The project started in 2016 with the support of the French Loire-Brittany Water Agency.

The Myanmar project leaders expressed their willingness to dedicate local teams to IWRM implementation in the Prawn-Pilu pilot Basin, an emblematic basin that includes Inle Lake.

The year's program ended with a training that focused on basin management and the implementation of Master Plans for Water Development and Management (SDAGE).

The main topics were the following:

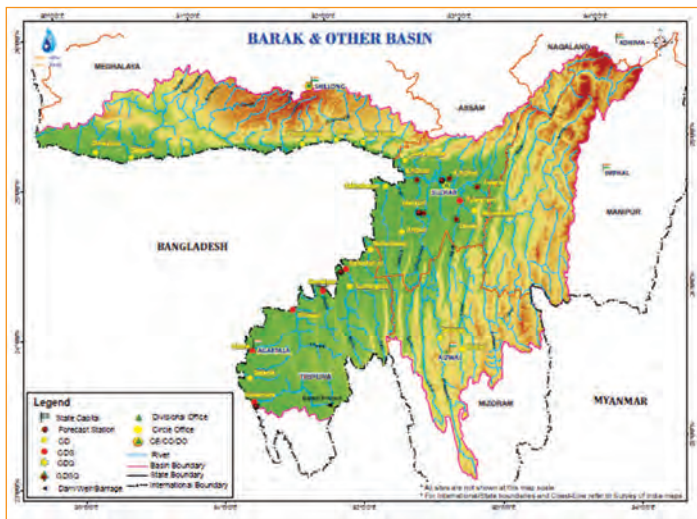
- Evolution of IWRM in Europe, in France and in the Mekong River Basin;
- IWRM prospects in Myanmar;
- The content of a Basin Management Plan and the methods needed for its preparation;
- Preservation of ecosystems;
- The stakeholders' participation in IWRM.



Meeting with the team of the Director of the "Basin Management" Division



Meghalaya: Sustainable Basin Management



In the North-East region of India, the Meghalaya Basins Development Authority (MBDA) is implementing the Integrated Basin Development and Livelihoods Promotion Program (IBDLP) launched in April 2012.

The IBDLP program, based on four pillars (Knowledge Acquisition, Natural Resource Management, Entrepreneurship Development and Good Governance) is being implemented through 20 missions.

Every mission is designed to leverage the comparative advantage that Meghalaya has in that sector and to generate livelihood opportunities for every household and to accelerate growth.

These actions are supplemented by convergence and capacity building programs. Convergence, between departments dealing with water, energy, agriculture and food, land and forests, etc., has been facilitated to prepare a Status



Report based on the mapping of agricultural land, wasteland and forestland and on the collection of data on rainfall in different geographic areas and on gauging the river flow per hour.

The collected data help in ascertaining the quantum of water availability and water quality, which enables the authorities to cater to the respective water needs of different sectors like agriculture, drinking water, sanitation, forestry, industries etc.

Harnessing of technology for water conservation and power generation through dams and multi-purpose reservoirs has enabled Meghalaya to

use both water and energy in a sustainable manner to ensure water security, energy security and food security and resilience to climate change.

Increased economic growth rate, environmental resilience and sustained pace of overall development in Meghalaya are direct outcomes of judicious basin management.

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India-EU Water Partnership

Capacity building on governance and river basin planning

As part of the India-EU Water Partnership, a workshop was organized on 14 and 15 June 2016 in New Delhi, to analyze the governance problems in the Ganges River Basin and to propose some solutions resulting from the experience of the European Union in river basin management.

This workshop made an overall presentation of the status of water resources in India, current challenges and plans to address them.

It also provided an overview of the European and international experience in Integrated Basin Management, which allowed the identification of common points as well as the potential for adaptation in India of the tools, methodologies and measures implemented within the European Union to respond to water management problems.

About fifty participants attended the event, including representatives of the National Mission for Clean Ganges (NMCG), the National Water Mission

(NWM), the Indian States, the European Union and its Member States and water resources managers, experts and researchers.

The International Network of Basin Organizations (INBO) presented its international experience on the structures, mechanisms and challenges of basin organizations.

It also facilitated and reported on the conclusions of the Working Group organized on the 2nd day of the workshop on the establishment of basin organizations in India and the lessons that can be learned from the European experience.



Central Asia

International Conference of EECCA River Basin Organizations

"Cultural and Educational Issues Related to Water Management"

9 February 2016 - Almaty - Kazakhstan



The participants in the EECCA-NBO Conference

The participants of the International Conference "Cultural and Educational Issues Related to Water Management in the EECCA Countries" met in Almaty on the 9th of February 2016 within the framework of the Network of Water-Management Organizations from Eastern Europe, Caucasus, and Central Asia (EECCA-NBO), and especially underlined that:

- **Water is a common heritage**, the management of which must meet the needs of the people, of agricultural production and energy, environmental demand, and aquatic flora and fauna conservation.
- **Water is a source for beneficial cooperation** and by no means a cause of conflict.
- **Water is the nature's gift**, without which no life is possible on the Earth. Everyone has the right to water, which, in no circumstance, can be considered as a commodity, although it has an economic value.

- **Equitable and reasonable access to water** in sufficient quantity for each is a right guaranteed by the State.
- **Each user must practice water saving by avoiding its wastage**, protecting headwater quality from pollution and deterioration, covering costs related to water production, treatment and conveyance.

The participants also underlined the interest of their professional community in information exchange and dissemination of best practices.

The participants took notice of the Network work progress, including:

- ❖ Information collections and scientific publications (www.eecca-water.net),
- ❖ Extension of the knowledge base on CAWater-Info portal with tools for IWRM implementation that are adapted to the specific conditions of arid and semi-arid zones in EECCA countries (www.cawater-info.net/bk/rubricator.htm),

- ❖ Participation of EECCA-NBOs members in international events, such as the "EUROPE-INBO 2015 and 2016" International Conferences on the Water Framework Directive Implementation (Thessaloniki, Greece, and Lourdes, France), the 9th International Conference "The Rivers of Siberia and the Far East" (Irkutsk, Russia), the 66th Meeting of the ICID International Executive Council and the 26th European Regional Conference "Innovate to Improve Irrigation Performance" (Montpellier, France), and the 7th Meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Budapest, Hungary).

The participants believed it necessary to make deeper efforts for:

- **implementation of a long-term program** aiming at equitable distribution of transboundary water, efficient use of freshwater in economic and social sectors, control of water pollution;
- **training in the key areas** contributing to improved water management;

- **development of regional and national knowledge hubs** for assistance to water users at various levels;
- **upbringing of future "water leaders"** among young professionals;
- **promotion of a Youth Water Parliament**;

The participants thought it necessary to deepen the activity of the Network by:

- 1 Keeping submitting on regular basis the information on national events in the area of water management and information on new publications, software, methodologies and training materials, in order to raise awareness among water professionals and encourage water sector development in EECCA.
- 2 Enhancing cooperation with the focal points of other networks and organizations, working on related issues in the EECCA region.

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Speech of INBO Deputy Secretary

"The Challenges of River Basin Management in a Context of Climate Change"

International Conference - 18 - 19 May 2017 - Moscow - Russia



© INBO

The International Conference "Challenges of River Basin Management in the context of Climate Change" was organized in Moscow on 18-19 May 2017 by the Network of Basin Organizations from Eastern Europe, Caucasus, and Central Asia (EECCA-NBO), on the premises of the Russian Research Institute of Hydraulic Engineering and Land Reclamation.

The following issues were dealt with:

- National strategies for adaptation to climate change;
- River Basin Management Plans for national and transboundary basins;
- Practical measures for adaptation to climate change in basins and the water-food-hydropower-environment nexus;
- Support to the development and strengthening of operational Basin Organizations;
- Data management using new information-communication technologies (ICT) at the level of national and transboundary basins to develop operational Water Information Systems (WIS) for decision making;
- Role of economic analysis and financial mechanisms in sustainable basin planning;
- Land reclamation issues in river basins, protection and restoration of wetlands and aquatic ecosystems.
- Control of water demand and strengthening of efficient uses of water.



Signing of the IFAS cooperation agreement © INBO

The participants reminded that the challenges related to climate change and its consequences (floods, droughts, aquatic ecosystem destruction, etc.) require urgent adaptation measures.

The "Paris Pact on water and adaptation to climate change in the basins of rivers, lakes and aquifers", proposes practical measures through:

- ❖ capacity building and better knowledge especially in operational Water Information Systems (WIS);
- ❖ strengthened governance;
- ❖ adequate financing.

Of particular note is the role that the UNECE Water Convention and its task-force on water and climate play in the development of adaptation strategy for transboundary river basins by preparing guidelines, implementing projects, and exchanging experience.

It is of prime importance to engage economic development sectors into a dialogue about management and use of freshwater resources.

In this respect, the advantage of developing dialogues in transboundary basins to facilitate cooperation among the concerned parties in various sectors was highlighted, and the establishment and strengthening of Basin Councils and Committees were recommended.

The participants expressed a strong interest in the European Union Water Initiative for the Eastern Partnership in 6 EECCA Countries and wished to be informed of the results of this project.

The participants proposed to organize the next Network's conference in 2018 on the theme "Land reclamation in the EECCA countries: problems and solutions" and especially discuss the following topics:

- new technology for land reclamation, more effective use of water, and prevention of soil salinization;
- prospects of irrigated agriculture development;
- application of up-to-date information technologies for monitoring and assessment of irrigated land.

The participants expressed high interest in the participation of representatives of EECCA basin organizations and national authorities in next international events such as the Europe-INBO international conferences in Dublin (Ireland) in September 2017 and in Seville (Spain) in October 2018 and in the 8th World Water Forum in March 2018 in Brasilia (Brazil).

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Сеть водохозяйственных организаций стран Восточной Европы, Кавказа и Центральной Азии

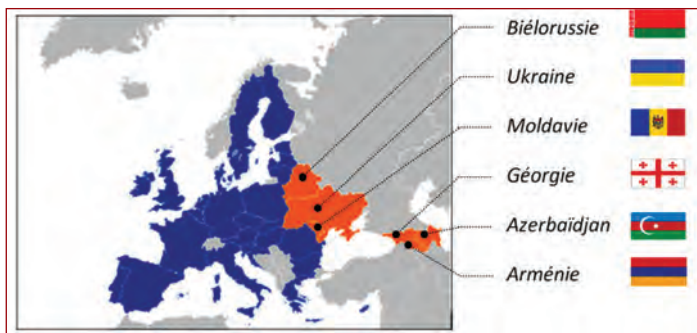


Central Asia

EUWI+ for Eastern Partnership



Capacity building for water professionals



The Eastern Partnership (EP) is a joint political initiative launched at the Prague Summit in May 2009.

It aims to deepen and strengthen relations between the European Union and its six Eastern neighbors: Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine.

Water is a key resource for the sustainable economic and social development of these countries in the EU's neighborhood zone. With major rivers such as the Dnieper or the Kura in the Caucasus, the majority of the water

resources in these 6 countries are transboundary, which is a major challenge for regional cooperation based on the transposing of the "acquis communautaire".

In recent years these countries have demonstrated their willingness to align their water policies with the general principles and requirements of the Multilateral Environmental Agreements (MEAs) and those of the EU's Water Framework Directive (WFD) and other thematic and sectoral Directives on water.

In such a context, the "European Union Water Initiative Plus for Eastern Partnership Countries" (EUWI + 4EaP) was initiated by the European Neighborhood and Enlargement Negotiations Directorate General (DG NEAR) of the European Commission for a 4-year duration (2016-2020).

The project is coordinated with other cooperation initiatives in the field of water and is based on the results learned from the regional projects already carried out in these countries, the "Environmental Protection of International River Basins (EPIRB)" (2012-2016) in particular.

This work is carried out in partnership with UNECE and OECD, which lead the inter-ministerial process of National Dialogues, the Austrian Environmental Agency, leader of the consortium of Member States, in charge of ground-

water monitoring and support to laboratory accreditation, and IOWater, INBO Secretariat, that is intervening on behalf of the French Ministry of Ecology, Sustainable Development and Energy.

The task is to transfer know-how on the development and implementation of River Basin Management Plans, stakeholder participation and shared data management.

www.euneighbours.eu



High-level Symposium on SDG 6 and its targets

9 - 11 August 2016 - Dushanbe - Tajikistan

The Government of the Republic of Tajikistan in partnership with the United Nations organized in Dushanbe an International Symposium, which gathered 700 people representing 66 countries and whose aim was to

specify the measures needed to rapidly implement the water SDG and its targets: Access to water and sanitation (6.1 and 6.2), Reduction of water pollution (6.3), Increase of water use efficiency (6.4), Integrated Water

Resources Management - IWRM (6.5), Protection and restoration of water ecosystems (6.6), Expanding international cooperation (6.a) and strengthening the participation of local communities in water and sanitation management (6b).

The exchange of experience and good practices was organized around 8 thematic sessions that swept across the SDGs.

The International Network of Basin Organizations (INBO) actively participated especially regarding Integrated Water Resources Management - IWRM and innovative cooperation mechanisms.

The symposium was also the occasion of bilateral and multilateral meetings organized on the initiative of six European countries (Germany, Finland, France, Hungary, the Netherlands, Switzerland) to establish, within the United Nations System, a new intergovernmental body specialized in the management of freshwater resources with a strengthened secretariat.

Water is the victim of a great institutional fragmentation: more than thirty United Nations Agencies work in one way or another on water management.



International Conference on "Water and Climate"

Meeting of the Great Rivers of the World

23 - 25 October 2017 - Rome - Italy

The Italian Ministry for Environment, Land and Sea will hold the International Summit "Water and Climate: Meeting of the Great Rivers of the World" from 23 to 25 October 2017 in Rome, Italy.

This international summit is organized under the patronage of the Presidency of the Italian Republic and of the Presidency of the Italian Council of Ministers, in partnership with the International Network of Basin Organizations, the Global Alliances for Water and Climate (GAfWac), AquaMadre and UNECE.

It will be closed on Wednesday 25 October by the President of the Italian Republic.

This event is designed as a milestone in the preparation of COP23 (Bonn, 6 - 17 November 2017) and of the World Water Forum (Brasilia, 18 - 23 March 2018).

It will promote further integration of water as one of the top priority issues of international negotiations on climate change and it will call on donors and project holders to take action for the financing of ambitious projects intended to improve knowledge, governance, public participation, ecosystem protection and risk prevention for water and adaptation to climate change.

The focus will be on addressing the impacts of climate change on water resources and their dramatic consequences (floods, droughts, etc.).

The summit will be a unique occasion to match project proposals and financing opportunities and to foster experience sharing between great river basin organizations, local, national and regional administrations in charge of climate change adaptation policies and



Rome - Fountain of the Four Rivers - Navona Square

water resources management, bilateral and multilateral donors and other institutions interested in adaptation to climate change and basin management (UN agencies, Secretariat of the UNFCCC and UNFCCC Member States, etc.).

Let's participate !

www.inbo-news.org



"EUROPE-INBO 2017"

For the implementation of the European Water Directives



**Dublin - Ireland
20 - 23 September 2017**

To participate, please register:

www.inbo-news.org



The Grand Hotel Malahide - Dublin - Europe-INBO venue



14th International "EUROPE-INBO 2016" Conference

19 - 22 October 2016 - Lourdes - France

The 14th Conference of the "EUROPE-INBO" Group took place in Lourdes, France, from 19 to 22 October 2016, at the invitation of the French Water Agencies, the City of Lourdes and with ONEMA's support.

It gathered 199 participants, representatives of national administrations, basin organizations, as well as of NGOs, companies, international and regional organizations, coming from 44 countries.

The work of the conference was organized around four round tables which discussed the following topics:

- WFD review for 2019;
- Governance of transboundary basins;
- Adaptation to climate change and water resources, scarcity and drought management;
- Knowledge of flood risks, management of aquatic environments and preventive measures in the basins.

Prior to the conference, three work-shops were organized on:

- ◆ The Programs of Measures under the Peer-Review Mechanism;
- ◆ The Smart Water Management System, "SAID" project;
- ◆ Circular Economy and Wastewater Reuse.

In addition, the EDgE (End-to-end Demonstrator for improved decision making in the water sector in Europe), ADAPT-Climate (European Climate Adaptation Platform) and EcoCuencas projects were presented in side events of the conference.

The WFD review

The WFD is to be reviewed by 2019 and the first challenge is its future beyond 2027, when it is clear that the objective of "Good Status" of Water Bodies will not be achieved in all the European basins at that date.

After an extraordinary meeting of the Water Directors on 6 October, the European bodies and Member States have now started thinking of the issue.

Everyone recognizes the progress made by the WFD, but its implementation should be boosted and its credibility to the set objectives be restored.

At this stage, several factors should be taken into account:

The WFD principles and its high environmental goals are now widely recognized.

The investments already made to implement the WFD, both from the point of view of the organization and practical work, should be amortized and sustained.

Integrating the objectives by sector, especially in the areas of agriculture, industry, land management, and the marketing of chemical products remain a challenge.

There are still some difficulties in defining real techniques for "Good Status" and the way of reporting the progress made and the improvement of the health of aquatic ecosystems.

The principle "one out, all out" masks the progress actually made.

Finally, adaptation to climate change should start quickly.

The Conference participants considered that a cautious approach to the WFD review should be adopted and, rather than modifying the wording of the WFD itself, it would be better to improve the operational conditions for its implementation with both a pragmatic approach to the objectives set, based on established scientific data,

and by integrating its objectives into the other EU sectoral policies (agriculture, energy, transport, marketing of chemical products, etc.).

It is also necessary to take into account the evolution of the global context with the adoption by the United Nations in September 2015 of the Agenda 2030 and of Sustainable Development Goals, and with the adoption, in December 2015, of the Paris Agreement on climate at the end of the COP 21. These two events, which place water at the highest level on the global agenda, must be taken into account in the WFD review.

Water governance in transboundary basins

The EUROPE-INBO Conference participants reminded their wish for effective application of international regulatory instruments - 1992 Water Convention, 1997 UN Convention, draft article on transboundary aquifers - for better management of transboundary waters.

At the EU level, these instruments are largely taken into account and their implementation is real, but given



199 participants from 44 countries © INBO - C. Runel

"TO FACILITATE THE IMPLEMENTATION OF EUROPEAN WATER DIRECTIVES"

on the Water Framework Directive implementation



the decisive role of the International Commissions in the implementation of the EU Directives, even beyond EU borders, greater support to these Commissions of transboundary Districts must be considered.

Governance should also aim at better coordination between the WFD, the Flood Directive and the Framework Directive on the Marine Environment Strategy, in transboundary basins and marine areas, including those shared with the riparian non-EU countries.

Adaptation to climate change

As underlined during the COP 21, held in Paris in 2015, we must increase our efforts for properly assessing the effects of climate change on water resources, and appropriate adaptation measures must be decided and quickly implemented in basins.

The "Paris Pact on water and adaptation to the effects of climate change in the basins of rivers, lakes and aquifers" was signed by 359 organizations, and now it is necessary to resolutely take action.

The official Water Day of the COP 22 in Marrakech, facilitated by INBO, is a privileged place to discuss the measures to be taken for adaptation in the basins and to exchange on the projects already committed under the Global Climate Action Agenda (GCAA).

The document "Water and Adaptation to Climate Change in Transboundary Basins: Lessons Learned and Good Practices" published by UNECE and INBO in 2015, is a very practical source of inspiration.

In the European Union, the River Basin Management Plans and future Programs of Measures must integrate the adaptation measures taken with a multisectoral approach to all economic sectors that impact water and river basins and take into account all pressures such as demography, urbanization or agricultural development.

The EUROPE-INBO participants recommended **strengthening Water Information Systems** to include climate change data and monitoring and control systems for correcting plans and programs in real-time, keeping in mind the degree of uncertainty induced by climate change.

The systems to be established must include structural and non-structural measures.

To anticipate droughts

The structural measures concern actions that allow, for example, water saving, reuse of treated wastewater, increased storage capacity in a multi-functional approach.

Natural Water Retention Measures (NWRM) and, more broadly, green infrastructure are to be favored to improve the sustainable availability of resources.

Such an approach leads to better resilience of the environments and greater flexibility of any existing infrastructure and thus addresses the need for "no regrets" measures imposed by the uncertainty linked to climate change.

At the same time, non-structural measures have to be taken to incite users to reduce their consumption, regulate water abstractions, establish a drought crisis management framework and facilitate the society's responsiveness to any extreme water scarcity event.

For better flood management

Better integration between the WFD, the Flood Directive and the Marine Strategy Directive should be looked for.

Coordination between River Basin Management and Flood Risk Management Plans, required during their drafting, should continue during the whole implementation process, especially in the case of transboundary basins where cooperation among the Member States themselves and with the neighboring countries should be strengthened.

The EUROPE-INBO participants recalled that flood prevention can be better achieved by relying on the natural functions of rivers and aquatic ecosystems and by developments that favor the use of wetlands and natural areas for flood mitigation or the dynamic slowing of floods.

More specifically, public policies must aim at the preservation or restoration of the riparian areas of rivers with buffer strips, zones of free circulation of water, flood retention areas...

Mr. Jean LAUNAY was elected President of the EUROPE-INBO Group for the year to come, until the next conference in 2017.

The next two EUROPE-INBO Conferences will take place in Dublin and Seville, in 2017 and 2018 respectively.



Budapest Summit

28 - 30 November - Budapest - Hungary



In 2013, in partnership with the World Water Council and United Nations Secretary-General Ban Ki Moon, Hungary had organized a first Water Summit that had played a key role in the definition and adoption of a water-dedicated goal and targets as part of Agenda 2030 for Sustainable Development.

Under the patronage of János Áder, President of Hungary and Member of the High-level Panel on Water SDG, this second Summit was an important event in the preparation of the 8th World Water Forum of Brasilia.

It aimed to promote the practical implementation of this Water SDG6 and its targets, as well as of the water-related objectives of the Paris Agreement on the climate.

It included a Scientific Forum, a Citizen Forum, a Youth Forum, a Women's Forum and a Water Professionals' Trade Fair.

2,200 participants from 117 countries contributed to the discussions on the 6 targets of the "Water" SDG.

INBO Secretary General, Mr. Jean-François Donzier, spoke in plenary meeting to introduce session 3 dedicated to "good governance" in the Citizen Forum.



He reminded the need to work on river basin management, transboundary cooperation and capacity building.

He also participated in the High Level Panel on the benefits of aquatic ecosystems and green engineering.

These topics were identified as priorities in the "Budapest Declaration".

www.budapestwatersummit.hu

WaterInnEU Marketplace



Join it for accessing new innovations in River Basin Management

The "WaterInnEU Marketplace" is a newly launched match-making hub that has been established to accelerate the market translation of products and services of specific relevance to River Basin Management.

The Marketplace directly supports innovations from across Europe that have been previously funded by the EU, but still need to achieve market adoption.

Its role is to raise awareness amongst River Basin Managers, their supply chains and stakeholders, regarding the availability of potentially relevant new products, and to facilitate introductions with their designers.

It provides access to a combination of commercial and open source technologies and models, both fully available and near-to-market, and best practice guidance.

Are you involved in river basin management and are you looking for innovative solutions to support your daily tasks?

Do you develop innovative solutions for water management or river basin management?

In both cases the "WaterInnEU Marketplace" provides access to new products and services and helps you to find and implement the right tool.

WaterInnEU facilitates the exchange among practitioners in order to enhance the efficiency and sustainability of river basin management across Europe, enabling discussion and knowledge transfer around innovative products and their implementation.

The platform seeks to bring together all stakeholders of the river basin community.

The platform also allows you to get easily in touch with a support community: by registering on the Marketplace you can contribute and upload your own product or event, add your organization to our community, use our matchmaking service to find an organization or partner that can help you choose or apply a product, communicate your own service offering, sign up for alerts to receive information on new or updated products, or use the open forum to start or join a discussion on a topic of interest.

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Water Framework Directive

Success for the EU Peer-Review Mechanism

The **Peer Review process**, implemented since September 2014 by the International Office for Water, INBO Secretariat, together with the National Institute of Hydrology and Water Management (Romania) and the Mediterranean Network of Basin Organisation' Secretariat (Spain), was achieved in December 2016.

The purpose of this mechanism, supported by the European Commission, was to develop a voluntary and targeted system to allow mutual learning between peers about the Water Framework Directive (WFD) implementation in Europe.

Sixteen River Basin District Authorities in 11 EU Countries decided to take part in this process and have some specific parts of their River Basin Management Plans reviewed.

Out of 71 candidates, **40 experts were selected** to actively participate in the process because of their experience and ability to respond to requests from candidate District Authorities.

All the participants were very satisfied with this mechanism, and the Member State representatives at the Common Implementation Strategy's Strategic Coordination Group (CIS-SCG) expressed the wish to have it developed over time.



Reviewing mission for the South Baltic District - Sweden

In parallel with the Peer Review missions, specific workshops were organized during 2016 on the topics which received most attention: "Data management", "Groundwater", and "Program of Measures and economic analysis".

These workshops gave the opportunity to gather a higher number of experts in order to discuss more in details these topics and reach an agreement on some key recommendations regarding the implementation of the WFD.

Visit the project Website:

www.aquacoope.org/peer.review

"BeWater"

Society as a key player in river basin adaptation to climate change

Global change will affect water availability, especially in the Mediterranean. However, many water management initiatives do not adequately address climate change impacts at the river basin level.

There is thus an urgent need for adaptation plans to outline how river basins can prepare for the impacts of global change.

To maximize their effectiveness, local communities must engage with such strategies and play an active role in their development.

A key objective of the European Union-funded **BeWater** project is the collaborative development of adaptive water management strategies on the river basin scale.

Over the past three years, the **BeWater** project team elaborated an approach integrating science and society to prepare four River Basin Adaptation Plans for the Tordera (Spain), Pedieos (Cyprus), Vipava (Slovenia) and Rmel (Tunisia) river basins for facing climate change.

These plans are available on www.bewaterproject.eu.

The four plans enable informed choices to be made in management strategies for each of the river basins.

The publication of the adaptation plans marks a major milestone in the **BeWater** project.

Next steps include raising interest for policy uptake in locally relevant areas, including the organization of a local policy forum in each of the four river basins in 2017.

Lessons learned will be documented in a handbook on drafting participatory adaptation plans.

A River Basin Adaptation Conference took place in Slovenia in March 2017, to share science-society interactions as developed within the **BeWater** project and other initiatives.

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www.gwpmed.org



Pedieos River Basin Case Study



Innovative solutions for smart irrigation in Europe



WEAM4i final Workshop - 6 April 2017 - Barcelona

33 countries around the world will face extremely high water stress by 2040.

The reasons behind this water stress come mainly from the frequency of drought due to climate change as well as the growing water demand.

In Europe, the agriculture sector is accountable for 30% of the total water consumption, but reaches up to 70% in several European southern countries. In recent years, most of the efforts have

been focused on water efficiency, without taking care of energy aspects, resulting - in some cases - on a significant increase in energy consumption.

The WEAM4i (Water and Energy Advanced Management for Irrigation) project has developed a smart solution to help irrigation communities to optimize water consumption taking into account energy costs as well as climate variables and crop requirements.

This Smart Irrigation platform provides: local weather forecast at the micro-level, crop irrigation requirements and access to the energy market.

The tool is flexible and adaptable to local conditions and can be easily configured to any area in the world.

These solutions have been demonstrated in 3 demo sites: Aragon (Spain), Lower Saxony (Germany) and Alentejo (Portugal). The first achievements are very promising with improvements in the water energy efficiency (kWh/m^3) by 15% in Spain and up to 36% in Germany, as well as improvements in energy unit cost by 11% in Portugal and up to 25% in Spain (€/MWh).

Case studies presenting outcomes and proposals to overcome current barriers preventing water users to access the interactive energy market are currently being performed.

Please visit the official WEAM4i Website.

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EU-CIRCLE



EU-CIRCLE

A pan-European framework for strengthening
Critical Infrastructure resilience to climate change

Impact of climate change on interconnected structures

The worsening of droughts in southern France is a direct consequence of the rising temperatures and lower rainfall.

This climate change directly affects the water reserve in the soil, and therefore its availability for vegetation, leading to an increasing fire risk, which is already occurring today.

The objective of the H2020 EU CIRCLE project (<http://eu-circle.eu>) is to make critical interconnected and interdependent structures more resilient to climate change.

The analysis and simulation tools thus developed are based on an integrated approach to climate risk management.

Five international pilot sites (France, United Kingdom, Poland, Germany, Bangladesh) are validating these tools for different hazards (river flooding, surging seas, droughts / forest fires, strong winds), in collaboration with infrastructure managers and local decision-makers.

Regarding the French application site in the Provence-Alps and Riviera region, the Partnership on Mediterranean Forests evaluates the various indices related to the risks of forest fires and uses operational fire propagation models based on hydro-climatic parameters.

This allows, on the one hand, anticipating and characterizing the starting of a fire and, on the other, sizing its impact mainly on transport and electricity networks.

All these tools will be used during a training exercise in autumn 2017 involving critical structure operators and

civil security services on the Partnership site in Valabre (Bouche du Rhône).

Catherine Freissinet

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The A55 highway closed to traffic near Martigues in France due to brush fire, 10 August 2016, photo: SDIS13, air surveillance aircraft



Spain



The Segura River Restoration

The project won the prestigious European Prize on River Restoration

The Segura River Restoration Project (Southeast of Spain) has won in Vienna the European prize in the field of river restoration, awarded by the International RiverFoundation.



It was also finalist of the Thiess International Prize.

The Segura River Basin is the driest region of continental Europe. However, it is a main agriculture producer and the leading fruit and vegetable seller in the European Union. Consequently, this is a water stressed area where the lack of water and pollution turned the Segura River into an open air sewer.

A joint regional initiative between local governments launched the Segura River Project early this century.

The river restoration was an ambitious water regeneration and reuse scheme, developed thanks to advanced treatment methods, which, in ten years, transformed the dead river into a newly alive ecosystem.

The pollution gradually went down as the fifty big wastewater treatment plants and collectors -funded by the European Union- were operational.

Nowadays contamination is undetectable along the river.

Improvements on flora and fauna are clearly visible, like the recovery of otter and eels populations. Besides, two newly created ponds linked to the new treatment plants have been included in the Ramsar List of Wetlands of International Importance.

These places are excellent shelters to migratory birds for breeding and resting.

The wastewater treatment plants produce every year 110 million cubic meters of valuable water to be reused in agriculture.

The panel of International RiverFoundation judges said: "The Segura River Project is a great example of an integrated approach with environmental, social and economic restoration activities.

The project included a solid science foundation and governance shared by the various administrations.

The applied water treatment criteria were ahead of the European Directives requirements.

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France



The Public Local Basin Authorities (EPTB)

At the service of River Basin Strategies

The "EPTBs" gather French local Authorities at all levels (Municipalities, Public Institutions for Inter-municipal Cooperation (EPCI), Departments and Regions) to facilitate the exercise of their respective responsibilities at the appropriate basin level, as part of a joint and shared solidarity project.

The "EPTB" provides a range of services tailored to the specificities of the areas: as a result, it is contributing to gaining better knowledge and expertise, assisting local and regional

Authorities, developing action planning and programming, undertaking missions for project management or studies, training, information, awareness raising.

When necessary, its action can be supplemented on a sub-basin scale.

The "EPTB" is the spokesman of the basin elected representatives, and thus constitutes the privileged interlocutor of the State.

There are 40 "ETPB" in France.

The French Association of Public Local Basin Authorities (AFEPTB) is an association gathering elected representatives of "EPTBs" whose missions are to promote general interest approaches on the basin scale and to capitalize and disseminate experiences, reference tools in terms of River Basin Management.

The "AFEPTB" organized on 17 October 2016 in Lyon the "PREVIRISQ FLOODS" Workshops, which gathered 180 participants for an integrated approach to flood risks.

Indeed, in the context of major legislative and regulatory developments, the integration of public policies is a major challenge for French local and regional authorities.

An independent jury selected 6 exemplary projects that received a prize or a special mention during these workshops.

The compilation of experiences presenting these projects is available.

Due to the success of this first edition, and with regard to the work already done, a second edition is scheduled.

Léa Bouguyon

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Handing of the PREVIRISQ FLOODING 2016 prize



"SANDRE"

French National Service for Water Data and Common Reference Frames Management

Establishing a common language

Given the proliferation of information systems and the growing need for data, the "SANDRE" was created in 1992 to simplify the exchange of these data between the various public and private stakeholders. It thus offers a unique exchange interface and addresses the need to establish a common language between partners from the water world.

Through "SANDRE", many tools are then developed to allow the stakeholders concerned to make their information systems interoperable: dictionaries and exchange scenarios and web services, reference data, a cartographic atlas, a metadata catalogue, audits of computer systems, compliance labels, etc.

"SANDRE" is proposing a repository of more than 25,000 pages of technical specifications and more than 200 datasets. It establishes compliance labels for over 20,000 files per year and more than 30,000 interventions (taxons, substances, etc.). Its website receives more than 800,000 visitors a year.

IOWater, INBO Secretariat, has taken care of "SANDRE" Technical Secretariat since its establishment in 1992 and now continues to do so with the support of **the National Agency for Water and Aquatic Environments / French Agency for Biodiversity (ONEMA / AFB).**

Adapting to the stakeholders' needs

Historically, many efforts have been made to publish standards for the exchange of electronic data between computers.

The 2016 edition of a "hackathon" demonstrated to users of the Water Information System (WIS) the progress made especially with the establishment of the "Water Hub". This prototype is based on WIS data complying with "SANDRE" standards in the Big Data context.

In this perspective, many scenarios in the CSV (Comma-Separated Values) format have been specified since 2015 to improve the exchange of computer data between users, such as the scenario on the knowledge of the physico-chemical and microbiological quality of aquatic environments.

A new Atlas has been integrated into "SANDRE" Website. It allows its users to search in "SANDRE" geographic repositories, especially to have access to the repositories according to the topics defined by "SANDRE" and INSPIRE.

For the first time in the history of "SANDRE", the user has access to 3-dimensional representation of geographic repositories that have their own quality set.



At the same time, the first "SANDRE" methodological notes have been published. This new document aims at improving the management of the data produced by "SANDRE".

The new "SANDRE" specifications documents now include a QR Code on the front page.

This two-dimensional barcode allows, by scanning it, to directly download the document in digital format and possibly its latest version and to subscribe to the evolutions of the document.

In order to better communicate "SANDRE" results, the first progress report was published on the website. It reminds the origin of "SANDRE" and the most significant projects (2013-2014). A study is planned every two years.

Extension to other fields

European INSPIRE Directive



Following the approximating of "SANDRE" and INSPIRE models, which was published

on "SANDRE" website last year, an online service was set up that allows users to transform a file on water-courses, water police or a file on stations measuring surface and inland water quality into an INSPIRE-conformant file.

Interoperability

The identification of the Web resources by URIs (Uniform Resource Identifiers) was generalized. "SANDRE" geographic repositories are now accessible by "id.eaufrance.fr" addresses stored in a new URI-SANDRE catalogue, administered by the "SANDRE" Technical Secretariat.

This is new, the user now has access to the description of each geographical object, such as a dam for instance.

Flood forecasting



The Central Service for Hydrometeorology and Flood Forecasting Support (Schapi), supported the modeling of flood forecasting data, which are based on the concept of flood warning entities.

The latter corresponds to the geographical scope affected by a level of risk incurred by the population within 24 hours of the date of issuance of the flood warning information. The data flows of this Web tool are now compliant with "SANDRE".

www.sandre.eaufrance.fr

Twinning agreements between European River Basins

Bulgaria: East Aegean River Basins

The Bulgarian East Aegean River Basin Directorate and the French Artois Picardy Water Agency have taken advantage of the International EUROPE-INBO Conference in Lourdes to renew for five years their cooperation agreement.

In addition to the implementation of the Water Framework Directive (WFD), especially regarding environmental objectives and extension of deadlines,

this agreement now contains a component devoted to the Flood Directive including flood risk assessment at transboundary level, taking into account links between the Management Plan of the WFD and the Management Plan of the Flood Directive.

It also includes a point on the taking into account of climate change in water resources management.



Signing of the Bulgaria-France Cooperation Agreement in Lourdes

Upper Vistula Regional Water Management Authority



Signing of the Cooperation Agreement in Krakow

On the 4th of July 2016 in Krakow, the Polish Upper Vistula Water Authority and the Artois Picardy Water Agency renewed, for five more years, their historical cooperation agreement that has existed since 1995.

This agreement now contains a component on the Flood Directive with the implementation of the Flood Risk Management Plan and flood risk maps, as well as a component for the protection of water resources in the context of climate change.

Poland

Visit of a Polish delegation on the implementation of the European Directives

A delegation of sixteen Polish experts from the Ministry of Environment and Regional Water Management Authorities (RZGW) made a technical visit in France in October 2016.

This delegation's aim was to be acquainted with the different European Directives and especially with the Urban Waste-Water treatment Directive, the Water Framework Directive as

well as with European litigations, but also to learn about existing techniques for drinking water purification or wastewater treatment.

The Artois Picardy Agency welcomed the delegation on two sites located in its basin.

The wastewater treatment plant of Douai was adapted over time to comply with the European Directives and especially with the Urban Waste-Water treatment Directive. It also has a very efficient sludge treatment system by drying which allows its storage.

The water treatment plant of the city of Somain, inaugurated in May 2013, uses the nanofiltration technology

which preserves the facilities in a more efficient way and produces a very low amount of lime in water without using the chemical products usually needed in drinking water treatment systems.

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AGENCE DE L'EAU
ARTOIS - PICARDIE



Visit of the Somain treatment plant

Europe - The Mediterranean

EMWIS

SEMIDE EMWIS

Better management of knowledge on water in the Mediterranean area

The WIS, indispensable tool for sustainable water resources management

The establishment and strengthening of **Water Information Systems (WIS)** in the Mediterranean Area is a solution underlined at the COP22 in Marrakech in November 2016.

The **Mediterranean Water Knowledge Platform** was presented as a pilot action for adaptation to climate change at the COP21 in Paris at the end of 2015.

Mobilization for research and innovation in the water sector

PRIMA, the Partnership for Research and Innovation in the Mediterranean Area, with a provisional budget of €225 million, is structured around an integrated program for a 10-year period starting in 2018.

A support and coordination action was initiated in 2016 to define the priorities, content and modalities of the calls for projects to be launched.

EMWIS is one of the three partner networks, alongside CIHEAM and EMUNI, for this action.



Support to European cooperation programs on Water and the Environment

The European Union has renewed its regional cooperation programs in the water and environment sectors in the Mediterranean.

The **EMWIS** Technical Unit is part of the support team of the **SWIM-H2020** program for Sustainable Water Integrated Management and Horizon 2020 Initiative for a Cleaner Mediterranean (2016-2019) for the Southern and Eastern Mediterranean countries.

In 2016, **EMWIS** was selected to be part of the support team with the Austrian Environment Agency, CEDARE and ZOI for Phase II of the program for the implementation of Shared Environmental Information Systems (SEIS) in the countries of the European Neighborhood.

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Other projects on innovation



Algeria

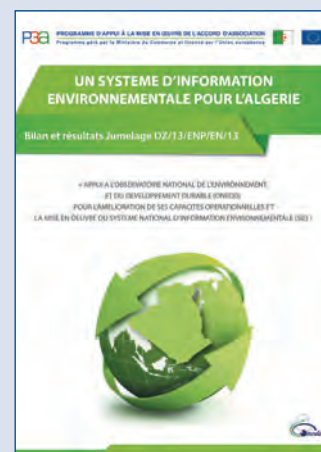


National Environmental Information System

The institutional twinning arrangement between France, Austria and Algeria for the improvement of operational abilities and the implementation of a National Environmental Information System by the **National Observatory of the Environment and Sustainable Development (ONEDD)**, was completed in March 2016 after 18 months of work.

This project especially enabled the choice of indicators related to the water sector, the architecture of the information system, and finally the establishment of a geocatalogue for the inventory and availability of data.

onedd.org



PRIMA kick-off conference Rome - October 2016



Morocco



Working with IWRM!

European Twinning Project on Governance and Integrated Water Resources Management

The Delegate Ministry for Water at the Ministry of Energy, Mines, Water and Environment (MEMEE) of the Kingdom of Morocco is the beneficiary of the **twinning project on "Governance and Integrated Water Resources Management in Morocco"** funded by the European Union.

France, together with Spain and Romania, has been responsible for its implementation since its start in October 2015.

In concrete terms, this twinning project aims at providing the teams in charge of planning in the Ministry with organizational and technical tools, related to the implementation of this Directive, for the **drafting of Basin Management Plans in particular**.

These plans make it possible to coordinate the actions to be implemented, based on a shared vision, elaborated within the Basin Committees, involving all water stakeholders and the population.

The twinning project provides methodological support to the development of a pilot Management Plan for the Sebou Basin.

The actions carried out in this test basin will be capitalized in a guide and by inter-basin working groups so that they can be implemented in the other Moroccan basins.

The mid-term conference on the twinning project took place on 15 September 2016 and allowed assessing the actions carried out in the specific context of the promulgation of a new Moroccan Water Law (36-15).



Meeting of twinning experts in Morocco

The twinning project was presented in various side events during the COP 22 in Marrakech, showing how the Basin Management Action Plans can contribute to the adaptation to climate change.



Ms. Samira El Haouat,
Director General of Sebou
ABHS at the COP22
© INBO - C.Runel

Identification, valorization and protection of water geosites in the Errachida region

The Tafilalet, an oasis tourist circuit, is located in the South-East of Morocco. Morocco's tourist literature and many national and international websites refer to the very attractive landscapes of southern Morocco, including the geomorphosites of the Errachidia Province, renowned for their very diverse

geology, a highly contrasted geomorphology offering superb landscapes carved by many erosive phases and dotted with several oases.

Research work aims to promote a geotourism for the sustainable development of this region.

The High Atlas Mountain shelters natural sites deserving guided visits of the hydrogeological and karst geomorphosites well known for their headwaters.

The site of Tifounassine is especially known for several treks, organized from spring to summer, for groups of visitors.

The study of the geotouristic promotion of this area, where vital water is scarce, aims at introducing sustainable regional development into the protection of the water landscape of the High Atlas Mountain.

It is based on proposals for the protection and valorization of aquifers through the organization of geotouristic routes for the discovery of the geodiversity and the geological and water heritage of the region.

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The spring of Tamda N'msoud



The Mediterranean

Tunisia



Support to public water resources management policies for rural and agricultural development (PAPS-Water)

Evaluation of the National Program on Water Saving in Irrigation (PNEEI)



In 1995, the Tunisian Ministry of Agriculture and Water Resources launched the first National Program on Water Saving in Irrigation (PNEEI).

The "PNEEI" has just been evaluated under the Program for Support to Public Water Resources Management Policies for rural and agricultural development (PAPS-Water) funded by the European Union.

The study has two components:

- The technical and financial assessment at national and regional level;
- An agro-economic analysis of results on main crops, in standard farms and irrigated areas, supplemented by detailed recommendations for better water use.

A synthesis is also available to decision-makers.

Towards the establishment of participation and arbitration mechanisms for the Tunisian water sector

The "AGIRE" project, carried out by GIZ since 2013 in the Center of Tunisia, meets the needs of the Water Balance Planning Department of the Ministry of Agriculture and Water Resources

to set up participatory mechanisms and new instruments for water resources planning and monitoring in pilot areas.

A bibliographic study of international best practices in participation and arbitration in the water sector, used in Spain, Morocco, Mexico and Portugal, was carried out.

It concludes with recommendations adapted to the Tunisian situation

Study visit in the South-West of France

Upon the request of the Tunisian Ministry of Agriculture and Water Resources (MARH), a study visit was organized, from 21 to 26 March 2016, on the allocation of water resources

in a deficit situation, groundwater management and complex system of interconnected reservoirs in the South-West of France.

A delegation, including 13 Tunisian officials from MARH, the Regional Agricultural Development Agency (CRDA), the National Water Supply Company (SONEDE) and the Drinking and Irrigation Water Supply Company (SECADENOR), was received by all the authorities, managers and users of water resources in the Region.

This study visit was part of the process of arbitration of the Nebhana system (Governorate of Kairouan) initiated and financed by GIZ.



Water and Climate: Meeting of the Great Rivers of the World

23 - 25 October 2017
Rome - Italy



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The Mediterranean

Turkey



Free Speech

Urban water management's problem in terms of sustainable development

One of the most important contemporary problems of the cities in developing countries is to provide a sustainable urban water service.

What should be done in developing countries to manage urban water in relation with sustainable development?:

- Consumption habits should be changed.
- Adaptation to climate change should involve all the economic sectors.
- Better relations between central and local governance should be established.
- Development models should be determined for urban and metropolitan areas in agreement with their economic, social and environmental sustainability.
- Skilled professionals should be hired and trained: "The Right People in the Right Place".
- Interdisciplinary and permanent education is vital for the efficiency of institutions, companies and citizens.
- Finally, capacity and output of the urban water service should be controlled.

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Palestine



Support to the water reform

As part of a wide-ranging institutional reform project in the water sector, launched in December 2009, the **Palestinian Water Authority (PWA)** has contracted with PricewaterhouseCoopers (PWC) to help it in implementing the planned actions.

PWC entrusted the International Office for Water, INBO Secretariat, with:

- **The revision of the Transboundary Water Resources Management Strategy** prepared by PWA in 2013;
- The proposition of different possible scenarios for **the creation of transboundary water management institutions.**
- **The development of tools for an overall Water Demand Management Policy (WDM)**, which will show the benefits of such a policy and give orientations for a management plan as well as an implementation method taking the constraints into account and relying on a list of alternative indicators for monitoring.

www.pwa.ps

سلطة المياه الفلسطينية
PALESTINIAN WATER AUTHORITY



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For the implementation of the European Water Directives



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Four Courts on the River Liffey in Dublin



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The website of basin management over the world

- The International Network of Basin Organizations
- The Regional Networks of Basin Organizations:
 - Africa - ANBO
 - Latin America - LANBO
 - North America - NANBO
 - Asia - NARBO
 - Brazil - REBOB
 - Central Europe - CEENBO
 - Eastern Europe, Caucasus, Central Asia - EECCA-NBO
 - The Mediterranean - MENBO
- "EUROPE-INBO 2017" - Dublin - Ireland - 20 - 23 September 2017
For European Water Directives Implementation
- Handbooks for Integrated Basin Management
- World Water Forum 2018 in Brasilia
- COP23 :
"Paris Pact on Water and Adaptation to Climate Change"
Global Alliances for Water and Climate

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Flashcode