INTERNATIONAL NEWS

Capacity building for better water management

management
cooperation
information
training

International Office for Water

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7th World Water Forum - Daegu-Gyeongju -

It is time to take stock of the situation... "Integrated river basin

The topics of river basin management and transboundary cooperation, on the one hand, of education and vocational training on water, on the other, were widely discussed during the 7th World Water Forum in Korea and tangible progress has been achieved!

The International Network of Basin Organizations (INBO), UNESCO, UNECE, OECD, the GEF, SIWI, IUCN, Green Cross, IOWater, ANBO, the International Network of Water Training Centers (INWTC), the Youth Parliament for Water, K-Water,... were entrusted with the coordination, together with their many partners, of more than a dozen thematic or regional official sessions entirely devoted to these issues and that have required a wide preparatory mobilization for more than a year.

These sessions allowed addressing the topics of integrated management and governance in the basins of rivers, lakes and aquifers, whether national or transboundary, as well as the central issue of the now essential adaptation to the effects of climate change on water resources.

Issues, such as the statute and resources of transboundary basin organizations, planning procedures, implementation and financing of joint infrastructure, establishment of integrated water information systems and exchange of data and information among riparian countries, implementation of UN Conventions, better consideration of transboundary aquifers and joint management of surface and groundwater, users and citizens' participation in river basin management as well as **education of the populations and improvement of professional training for the different stakeholders involved,** were discussed in depth and illustrated by the presentation of many very practical case studies.

It is the same for the establishment, strengthening and financing of water training centers.

The 16 themes coordinators at the Closing Ceremony - © IOWater - C.Runel

As part of the regional process, and this is an innovation, two **"Inter-Regional Days"** were organized in Gyeongju, firstly, by the Africa - Arab Countries - Europe Regions on "cooperation to reduce conflicts and improve transboundary water management" and, secondly, by the Africa - America - Asia - Europe - Mediterranean Regions on "adaptation to the impacts of climate change on water resources".

A regional session "Europe" showcased the implementation of the European Water Framework Directive and the preparation of the next Basin Management Plans by the 28 Member States of the European Union and associated neighboring countries.

Although there are still different sensitivities, particularly on transboundary water management, an overwhelming majority of participants converged on the relevance of national and tranboundary basin approaches to address the major global challenges of water resources management.

The overall conclusions and recommendations of the debates were, for the first time in a World Water Forum, presented to the attending Ministers, who welcomed the many contributions and efforts made by the regional and thematic processes.

On the themes of basin management, these recommendations can be summarized as follows:

- It is important to maintain and recover sound water cycle through promoting relevant international cooperation as well as managing water cycle and river basins in integrated and comprehensive manner.
- Cooperation and dialogues over transboundary waters among riparian countries offer significant prospects for their sustainable development, regional integration and enhancement of mutually beneficial relations in economic, social and environmental fields.


Closing Ceremony - © IOWater - C.Runel

South Korea - 13 - 17 April 2015

management is crucial to ensure water resources sustainability"

Mr. Lupercio Ziroldo Antonio
INBO World President
© IOWater - C.Runel

- In many regions, riparian countries of transboundary basins have created joint commissions, authorities or international organizations, improving dialogues, exchanges of useful information, conflict resolutions and benefit sharing.
- One of the keys to building trust could be facilitating data and information exchanges among riparian countries of transboundary basins and aquifers.
- Cooperative efforts in the field of transboundary waters are strongly encouraged.
- The recent entry into force of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses in August 2014, as well as the amendments for the opening of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes to all United Nations Member States are useful in this context, noting that they can only apply when appropriate.
- There is a need for reasonable and sustainable management of transboundary aquifers, and countries are encouraged to enter into effective dialogues to this end.
- Capacity building in terms of water governance is also crucial.

We will add a broad consensus to promote joint management of surface and groundwater in the same territory.

These recommendations were the subject of the DGIC (Daegu Gyeongju Implementation Commitment), officially signed at the closing ceremony of the Forum by the 16 themes coordinators, including the **International Network of Basin Organizations (INBO)** under theme T4.3 - "facilitating cooperation to avoid conflict and improve transboundary water management" and the **International Network of Water Training Centers (INWTC)** under the theme T4.5 "Education and capacity building".

The Forum Ministerial Declaration stressed the need to promote good governance at all levels including basin level, based on, inter alia, water planning, public participation and the sound management of physical infrastructure and natural systems as a means to effectively tackle the water security related challenges.

The Ministers recognized the leading role that riparian countries have on advancing cooperation on transboundary waters. They recognized that transboundary water cooperation based on win-win solutions can contribute to sustainable development and sound management of the transboundary waters between riparian countries and to peace and stability of the nations.

They noted the key role of the United Nations in promoting international water cooperation at the global level. Several of the principles of the relevant international Conventions on water can be useful in this regard.

They emphasized that Integrated Water Resources Management supported by appropriate land management at the basin level is crucial to sustainable water management and planning.

They declared that vocational training on water should be supported by sustainable financial mechanisms and by creating and strengthening national and international water training centers.

They encouraged multilateral cooperation programs on water to incorporate these ideas and the experimentation, evaluation and exchange of know-how on vocational training and higher education, including by supporting cooperation networks between existing training centers and academic centers and new centers to be created.

In parallel to the official sessions of the Forum, several side events allowed presenting a broad range of field experiments and direct exchanges among managers of basin organizations, especially **the two sessions on examples of fruitful cooperation supported by the French Water Agencies,** in East and Southeast Asia, on the one hand, and in Africa, on the other, as well as **two sessions on river basin management and vocational training organized at the French Pavilion,** with the support of the French Water Partnership.

Of course, all the problems will not be solved as by magic, but unquestionably basin management, transboundary cooperation and vocational training have scored during the World Water Forum in Korea!

All the papers and photographs of these events, organized during the last World Water Forum in Daegu and Gyeongju from 12 to 17 April 2015, are available and can be downloaded on INBO and INWTC websites.

www.inbo-news.org

www.inwtc.org

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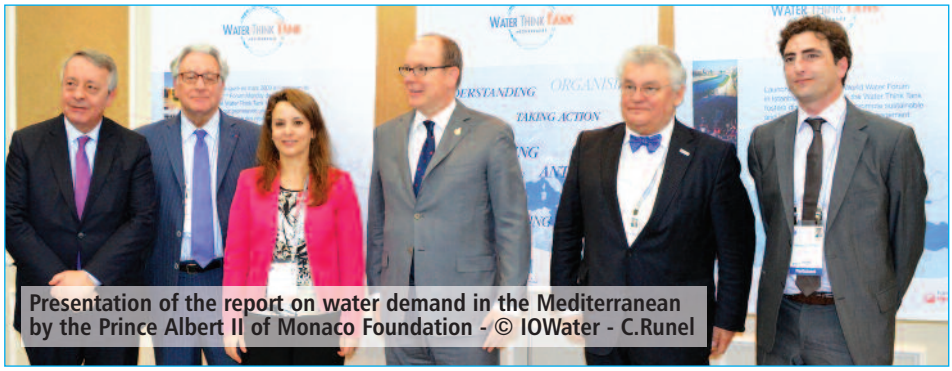
Presentation of the report on water demand in the Mediterranean by the Prince Albert II of Monaco Foundation - © IOWater - C.Runel

COP21 - Paris - November 30 to December 11, 2015

324 organizations worldwide have signed the Paris Pact on Water and Adaptation to Climate Change in the basins of rivers, lakes and aquifers

As part of **the "Lima-Paris Action Agenda",** Peru, supported by France, organized on the 2nd of December 2015, **the official day on "Water and Climate Change Adaptation" of the COP21 in Paris,** under the joint chairmanship of Mrs. Ségolène Royal, French Minister for Ecology, Sustainable Development and Energy, Head of the French Delegation to the COP21, and Mr. Manuel Pulgar-Vidal, Peruvian Minister for the Environment, organizer of the COP20 - 2014 in Lima: **so, for the first time in the COP history, the issues of freshwater are officially taken into account.**

"The Paris Pact on water and adaptation to climate change in the basins of rivers, lakes and aquifers" was presented at the day opening.

"The Paris Pact is the first concrete commitment of the COP 21: We call all water stakeholders to join it. (...). This pact will give a boost and can be considered as an innovative instrument", Mrs. Ségolène Royal said when she formally signed the document alongside the Peruvian Minister for the Environment and Mrs. Charafat Afailal, Minister in charge of water in Morocco, the country that will be the organizer of the COP22 in 2016.

Mr. François Hollande, President of the French Republic, also declared at the official closing session of the Action Day, this last Saturday, 5th December: "It was important that initiatives be launched here in Paris (...) there is the Paris Pact for water which gathers 324 organizations and 87 Countries (…)".

Drafted by the **International Network of Basin Organizations (INBO)** on the request of the organizers, the "Paris Pact" aims at a global mobilization of the basin organizations and all other stakeholders involved, multilateral and international organizations, governmental administrations, local authorities, companies and all economic sectors, the civil society, for starting without any delay the actions needed to adapt freshwater management to the effects of climate change: all organizations involved in integrated river basin management were invited to sign this "Pact".

Thus to date, **324 organizations have already signed the "Paris Pact" in 87 countries,** which shows that everywhere it greatly mobilized all stakeholders in water resources management, because we have to act quickly before it is too late!

Mrs. Royal has encouraged all water stakeholders to sign the Pact and "thus to add their tributary flows to swell the mainstream".

Mr. Jean-François Donzier, INBO Secretary General, presented the Pact during the official day on "Water and adaptation to climatic change" and reminded that climate change is already affecting and will increasingly affect the quantity and quality of freshwater and aquatic ecosystems, especially through the greater intensity and frequency of extreme hydrological events, such as floods and droughts.

In these perspectives, the basins are natural areas where water flows on the surface and in the subsoil: appropriate water resources management and adaptation should be organized at that level.

The "Paris Pact" includes two components: **part one** is describing the context and providing general principles for adaptation to climate change in basins, and **part two** is listing the commitments to be made by the signatories to organize adaptation to climate change and take appropriate measures.

The action of basin organizations and all other stakeholders involved is essential to increase the resilience of our societies to the risks facing water resources in the context of climate change.

The round table, organized during this "Water and Adaptation" Day and facilitated by INBO, allowed presenting real examples of adaptation projects in different basins in China (Hai River Basin), India (aquifer management), Mexico (Mexico Valley), South America (Eco-cuencas project), the Senegal River (OMVS), the Niger River (NBA), the Congo River and its tributaries (CICOS) and Morocco (ABH) and **the platform of pilot basins to test adaptation measures, led by UNECE and INBO:** These projects show that we can act quickly if the stakeholders are getting mobilized!

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Mrs. Ségolène Royal and Mr. Manuel Pulgar-Vidal signing the Pact - © IOWater - C.Runel

COP21 - Lima-Paris Action Agenda (LPAA)

Signing of cooperation agreements on adaptation to climate change between France, China and Mexico

❶ Support to the establishment of the "Greater Mexico" Metropolitan Water Organization and to the "Mexico Valley" Basin Council:

This 4-year project was the subject of two agreements signed on 2 December at the COP21, between SERMANAT, CONAGUA and MEDDE on the one hand, and between the Mexico Valley Basin Council and the Seine-Normandy Water Agency, on the other, also involving SIAAP, Seine Great Lakes and **IOWater.**

❷ Support to integrated management of the Hai River and its tributaries (Beijing and Tianjin basins):

It is a new 3-year agreement, from 2016 to 2018, for the launching of the third phase of the project initiated in 2011, signed by the Hai River Conservancy Commission (HRCC) and the Seine-Normandy Water Agency and also involving SIAAP, Seine Great Lakes and **IOWater** on the French side.

The French-Chinese agreement signed by Mrs. Ségolène Royal and Mr. Chao Lin © IOWater - C.Runel

This signing ceremony at the opening of the COP21 official Day on water and adaptation was chaired by Mrs. Ségolène Royal.

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COP21: Thinking of water for the city of tomorrow

Adaptation of jobs and of vocational training

A debate on the theme **"Think of water for the city of tomorrow"** took place on 8 December 2015 in Paris, at the Grand Palais, as part of the COP21. 50% of the world population already lives in cities and by 2050 this percentage will reach 70%. This urban population growth is increasing pressures on water resources and requires an evolution of urban services.

The debate organized by the French Water Partnership gathered testimonies about potential solutions and actions already taken by the Interdepartmental Syndicate for Sanitation of Greater Paris (SIAAP), "Eaux de Paris", SUEZ, the Marseilles Water Company (SEM) or the **International Office for Water (IOWater).**

This debate was an opportunity for **IOWater** to present its vision on the evolution, related to the effects of climate change, which will occur in water professions and on the organization of water services and developments in management practices.

For example, the reuse of treated wastewater involves mastering the filtration and disinfection techniques used in the treatment plants.

To take into account the scarcity of the resource implies that the water systems operating staffs must incorporate into their daily tasks increasingly sophisticated techniques to manage water consumption, losses, pressure, etc ... in real-time.

On this occasion, IOWater presented its training catalogue on adaptation to the effects of climate change.

Its training offer for 2016, is already taking into account these developments in water professions and associated skills.

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Two new publications for better basin management

In 2015, the **International Network of Basin Organizations (INBO),** the UN Economic Commission for Europe (UNECE), the Global Water Partnership (GWP), the National Agency for Water and Aquatic Environments (ONEMA) and the International Office for Water (IOWater) jointly published two books entitled:

- **"Water and Climate Change Adaptation in Transboundary Basins: Lessons Learned and Good Practices",** in the UN collection (INBO, UNECE),
- **"Management and Restoration of Aquatic Ecosystems in River and Lake Basins"** (INBO, GWP, ONEMA, IOWater), in the collection of Handbooks on Water Management.

Both publications, distributed free of charge and initially published in English for the World Water Forum in Korea, have been translated into French on the occasion of the COP21 in Paris and then will be translated into other languages.

They continue previous publications of the various partners involved, including the "Handbook on Integrated Water Resources Management in Basins" (2009), the "Handbook for Integrated Water Resources Management in Transboundary Basins of Rivers, Lakes and Aquifers" (2012), the "Guidance on Water and Adaptation to Climate Change" (2010) or the "Report on experiences of Transboundary Basin Organizations in Africa" (2014).

The English version of these documents is available on:

www.basins-management-publications.org

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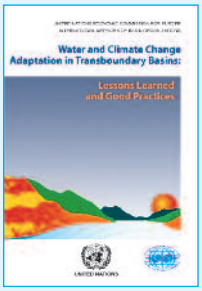
Water and Adaptation to climate change in transboundary basins



In spite of local uncertainties about the intensity and variability of climate change, the frequency of extreme events that result from it, and about its impacts on water resources, it is urgent to initiate now adaptation measures in river basin management, including transboundary basins. Thus, the drafting of multi-year Management Plans for the Basins of national and transboundary rivers, lakes and aquifers, is becoming a priority and should incorporate these adaptation measures.

In transboundary basins, strong cooperation between riparian countries is needed, and this requires attention to be paid at all levels and in all sectors. For the adaptation plan to have solid bases, the participation of all stakeholders is essential, crossing the multiple physical, political and institutional borders, and opening it up to all sectors with water-related activities.

Some basin organizations around the world have already taken action to adapt to climate change. It is now crucial to be able to benefit from their experience and to promote exchanges among all institutions concerned by climate change adaptation.

To facilitate this exchange, this publication mobilized about sixty experts from international organizations (WMO, GWP, AGWA,...) and transboundary and national basin organizations worldwide.

This publication identifies the field experiments made and aims to provide practical advice through **58 case studies and 63 "lessons learned"** about how to prepare and implement a strong, realistic and operational medium-to-long-term plan for adapting to climate change in the basins.

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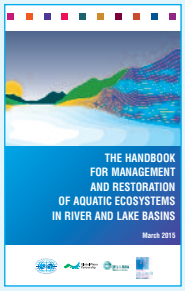
Management and restoration of aquatic ecosystems in river and lake basins



Freshwater resources are increasingly used, wasted and polluted, aquatic ecosystems are threatened and sometimes destroyed. In addition to their great heritage value for landscapes and biodiversity, aquatic ecosystems provide significant services in regulating water resources and flows and in the self-purification of pollution. Wetlands improve water quality by trapping sediment, filtering pollutants and absorbing nutrients. They also play a key role in flood control and drought prevention.

However, human activities, where they do not merely destroy these environments, often disrupt biotopes, cause pollution and fragment the longitudinal flow of many rivers over the world.

It is now recognized that aquatic environments play the role of **"green infrastructure",** which is as essential to proper water resources management as a traditional artificial infrastructure.

Examples of good practice and effective natural developments can be identified in many countries.

Today, significant progress is more than ever needed to move from theory to practice and take practical measures to preserve and restore aquatic ecosystems, by using, in particular, these successful examples coming from the field and identified in various national or transboundary basins.

This handbook identifies **45 examples of field achievements** and aims to give practical advice through **25 "lessons learned"** about how to use a realistic, effective and operational "green infrastructure", to restore, protect and develop aquatic ecosystems, especially in the context of Basin Management Plans including measures for adaptation to the climate change impacts on water resources.

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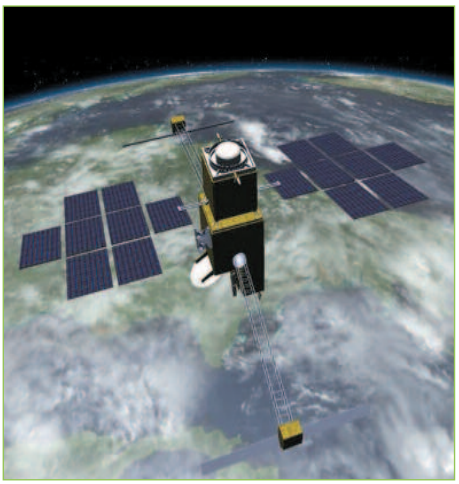
Working Group on Space Hydrology

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



The working group met on three occasions in 2015: in February on the premises of the CNR in Lyons, in June on the CNES site in Toulouse, in October at the BRL head office in Nimes and then in Paris early 2016.

Two members of the **International Congo-Ubangi-Sangha Basin Commission (CICOS)** attended the meeting in Nimes for future cooperation: the Congo Basin is being approached to be the pilot basin for the **SWOT** project as it has already a HYCOS project funded by AFD and FFEM, and european satellite altimetry projects (AMESD and MESA).

The **SWOT** (Surface Water and Ocean Topography) satellite program is a French-American project of Earth observation satellite that will provide for 2020 the spatial and temporal variations in the water levels of major rivers and lakes, in the flows of large rivers and in the ocean levels.

Meeting in October
at BRL Home Office in Nimes (France)

This union between space and hydrology at the service of IWRM should provide basin organizations with new tools for measurements and hydrological monitoring.

Satellite altimetry is a component among others of operational hydrology.

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Afri-Alliance

Afri-EU Innovation Alliance for water and Climate

Afri-Alliance (Afri-EU Innovation Alliance for Water and Climate), an European H2020 project, 2016-2021, is mobilizing 16 partners. It aims to enable African and European stakeholders of the water sector to work together on issues of innovation and Science Policy Interface in order to develop the African capacity to meet the future challenges generated by climate change.

The project, coordinated by the UNECO-IHE Center, will strengthen and enhance research and innovation related to water and climate change.

Afri-Alliance, that will last five years from the first half of 2016, is part of a continuous process of technology and knowledge transfer (WP3 / WP5).

Particular attention is paid to innovation needs at different regional levels in Africa, collected through the analysis of innovation needs of existing networks in the short and medium term which will allow developing groups of specific actions.

IOWater will coordinate the development of a research & innovation agenda. All this work will be supported and followed up by key stakeholders in research and innovation in Africa and Europe, regrouped together in an Advisory Committee.

Partners: UNESCO-IHE, Waternet (ZWE), Water Research Council-WRC (ZAF), ICLEI Africa (ZAF), African Network for river Basin Organization-ANBO, Global Water Partnership-GWP, African Water Association-AfWA (CIV), West Africa Service Center on Climate Change and Adapted Land Use-WASCAL, BothEnds (NLD), Akvo (NLD), International Institute for Environment Engineering-2iE (BFA), Council for Scientific and Industrial research-CSIR (BFA), Water Environment and Business for development-WE&B (ESP), **International Office for Water- IOWater (FRA),** Faculty of Geo-Information Science and earth Observation-ICT-UTwente (NLD), Water supply and sanitation technology Platform-WssTP.

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Gabon

Audit of the "SEEG"

IOWater is involved with the Deloitte Touche Tohmatsu Gabon Company in the audit of the concession agreement of the Energy and Water Company of Gabon (SEEG) with a view to the contract ending planned in 2017.

In 1997, after an invitation to tender, the Gabonese State entrusted the management of "SEEG" to Veolia Water, which became a majority shareholder together with Gabonese investors. The concession covers the water and electricity sectors of most Gabonese urban and semi-urban areas.

IOWater takes care of the technical part of the audit related to drinking water by controlling the good condition of the facilities, the quality of operating procedures and compliance with contractual commitments through the analysis of performance indicators.

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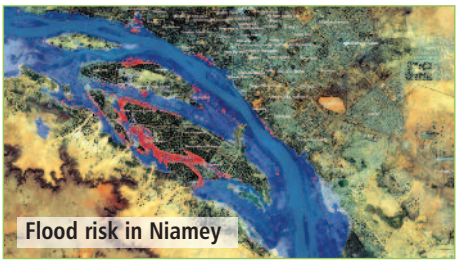
SEEG

Niger Basin Authority (NBA)

Flood control in the Niger Basin



Flood risk in Niamey

The project for support to the **Niger Basin Authority (NBA)** by the German International Cooperation Agency for Development (GIZ) on flood control ends in early 2016.

The **Deltares / UNESCO-IHE / IOWater** group, in charge of the project implementation, has carried out:

- Mapping of flood risk in the basin and in pilot zones (Niamey in Niger and Malanville in Benin);
- Development of a flood forecasting model;
- Improvement of hydrological data management (Niger HYCOS);
- Improvement of the warning system.

Training courses are also provided by the group to strengthen the abilities of the NBA teams.

www.abn.ne

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giz

"CICOS"

Cartography of partners of the International Congo-Ubangi-Sangha Basin Commission

The International Congo-Ubangi-Sangha Basin Commission (CICOS) was established in 1999 by Cameroon, the Central African Republic, Congo and the Democratic Republic of Congo (DRC).

Gabon and Angola joined the institution later.

"CICOS" mandate is to promote inland waterway transport and develop water resources in the basin.

The implementation of projects and programs of **"CICOS"** and of its Member States is supported by various technical and financial partners.

To enhance the effectiveness of this support, a profile analysis of the partners operating in the sectors of inland navigation and water management was carried out at national and regional levels.

This study, financed by German Cooperation (GIZ) and entrusted to **IOWater,** combined a literature review, interviews with partners in each country and field investigations.

IOWater developed a comprehensive list of partners indicating their position in relation to **"CICOS"** and the nature of the projects implemented.

Based on the major trends thus observed, a number of recommendations to **"CICOS"** for mobilizing funding was established.

www.cicos.info

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Lake Chad Basin Commission (LCBC)

Implementation of the Water Charter

The Water Charter of Lake Chad Basin was adopted in N'djamena on 30 April 2012 by the 14th Summit of Heads of State and Government of the Member States of Lake Chad Basin Commission.

The Charter comprises one hundred articles and is supplemented by five appendices:

To ensure the operability of the Charter, the **International Office for Water,** with funds from the **French Fund for Global Environment (FFEM),** has provided support to facilitate national workshops for the ratification of the Charter, for the drafting of new Terms of Reference of new annexes and exchanges with other Basin Organizations in the region.

A sub-regional workshop to share experiences on transboundary water management was held in Yaoundé (Cameroon), on 25 and 26 March 2015. This meeting allowed exchanges, including on obstacles to the implementation of the Water Charters of the Senegal, Niger and Chad Basins.

A new Annex, on updating the missions, the responsibilities and functioning of the Lake Chad Basin Commission's bodies, is also being drafted with the support of two regional legal advisers.

www.cblt.org

Sub-regional workshop

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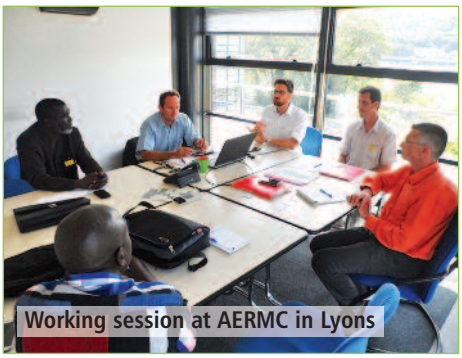
COMMISSION DU BASSIN DU LAC TCHAD
LAKE CHAD BASIN COMMISSION

FFEM
Fonds Français pour l'Environnement Mondial

Mono Basin Authority (MBA)


Working session at AERMC in Lyons

On 30 December 2014, the Heads of State and Government of Benin and Togo signed the draft Convention on the Statutes of the Mono River, which crosses both countries, creating the **Mono Basin Authority (MBA).**

Alongside the Water Resources Coordination Unit of ECOWAS and with the support of the Rhone Mediterranean Corsica Water Agency (AERMC), IOWater and pS-Eau have been helping this gradual process of MBA establishment since September 2014.

The objectives are twofold:

- To assist in the successful implementation of Integrated Basin Management;
- To encourage the development of cooperation on water and sanitation projects supported by the French Authorities in the whole basin.

A first pilot year allowed approaching the central government, local authorities and civil society partners to identify a set of needs and actions to be taken, both at transboundary level (MBA) and at national level in Togo and Benin: drafting of a Master Plan for Water Development and Management (SDAGE), establishment and structuring of Basin Committees and Local Water Committees, thinking about the establishment of funding mechanisms, strengthening the Information Systems, building of drinking water and sanitation infrastructure and support to the governance of services.

The originality of the approach is based on the relationship between the writing of planning documents, the programming and financing of short-term actions and the development of cooperation projects on IWRM and access to drinking water supply and sanitation services.

The participation in July 2015 of the Water Resources Directors of Togo and Benin in two meetings of exchanges and information in France took place under this framework.

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Volta Basin Authority (VBA)

Towards a Master Plan and a Water Charter


Visit of the NWTC by VBA delegation

Started in 2012, the **Volta Basin Authority (VBA)** Capacity Building Project for the implementation of priority actions of the 2010-2014 Strategic Plan was completed in 2015.

It received support from the Water Facility of the European Union, the French Development Agency, the Seine-Normandy and Adour-Garonne Water Agencies.

In April 2015, members of the **VBA** Committee of Experts and Executive Directorate undertook a working visit to France.

The delegation got acquainted with the activities of the Canal de Provence Company (SCP), the National Space Center (CNES), the Coteaux de Gascogne Development Company (CACG), and **IOWater's National Water Training Center (NWTC)** and **National Water Information Center (NWIC)** in Limoges.

A study was made of the future Water Charter to prepare arguments for the stakeholders.

An information leaflet was developed and a closing workshop was organized by **VBA** and **INBO** in Ouagadougou in April 2015. It gathered representatives of **VBA** countries and Executive Directorate, and of its partners. The workshop allowed discussing the preparation of the Water Charter and Master Plan, two major products that **VBA** will develop in the coming years.

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Volta HYCOS

The Volta Basin Authority (VBA) has received funding from the African Water Facility, hosted by the African Development Bank, and support from the International Union for Conservation of Nature / Swedish International Development Agency (IUCN / SIDA) through the implementation of the **Volta HYCOS** Project.

This support includes a training component made of five modules:

- Use of satellite data for IWRM,
- Gauging with Acoustic Doppler Current Prolfiler (ADCP) and reel,
- Data management by Hydromet software,
- Hydrological modeling and flood forecasting,
- Installation and Management of Data Collection Platforms.

These training courses were organized at the AGRHYMET Regional Center in Niamey, between March and April 2015 by the group AGRHYMET / CNR (National Company of the Rhone) / **IOWater,** supported by the know-how of the IRD and independent consultants.

A total of 53 participants from the six Member States and VBA Executive Secretariat were trained using some appropriate educational materials.

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Burkina Faso

Mouhoun Water Agency: towards the implementation of the "SDAGE"

The assistance provided by IOWater to the Mouhoun Water Agency (AEM) with the support of Adour-Garonne and Seine-Normandy Water Agencies is continuing.

After the adoption of the Mouhoun Master Plan for Water Development and Management (SDAGE) in July 2014, year 2015 was devoted to accompanying the **"AEM"** in the operational implementation of the "SDAGE" and in strengthening its departments and services with assignments dealing with:

- Development of knowledge of water resources, with a mission of two experts of **IOWater** in Dédougou, **"AEM"** home office, to support the Water Resources Department in the definition of monitoring;
- Drafting of the **"AEM"** Multi-Year Action Plan;
- Recovery of the Financial Contribution regarding water.

A pilot Water Police service was established in the Kou sub-basin.

A second visit to France in 2015 allowed the various stakeholders to exchange on the difficulties encountered, to participate in a Basin Committee and work with their counterparts on topics such as: communication, Programs of Measures and their funding.

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The Mouhoun

Integrated management of the Nakanbe in Burkina Faso and the White Volta Basin in Ghana

The Nakanbe

IOWater has been helping the Nakanbe Water Agency (AEN) since 2011 with the support of the Loire-Brittany Water Agency (AELB).

Throughout 2015, the **"AEN"** continued its "SDAGE" elaboration by adopting the Nakanbe Basin assessment and working on Basin Development scenarios.

An **IOWater** expert was mobilized to accompany this process and share his experience.

A training course for the members of the Basin Committee was also held as a side event of the Assessment Adoption session.

As the White Volta is a transboundary river, an IWRM project was also started with the support of the "AELB" in the downstream sub-basin of the White Volta in Ghana.

The first phase of this project was completed in 2015 with a three-day workshop, led by **IOWater** and two experts from "AELB", on the topics of joint planning between Burkina Faso and Ghana and sustainable financing of basin agencies. A report was drafted on this occasion and the outlines of the 2nd phase were drawn.

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Benin

Support to the National Water Company of Benin (SONEB) and Beninese Local Authorities

At the end of 2015, German Cooperation - **GIZ** initiated with **IOWater** two support missions for skill development for the management of drinking water supply, sanitation and household waste utilities in rural areas.

The first mission studied the technical restart of the educational platforms of **"SONEB"** internal training center.

The second mission developed an action plan with the Beninese local Authorities, which includes a dialogue between the various stakeholders of rural services and the improvement of management tools and procedures.

The rural, public or private, stakeholders' needs for capacity building will also be assessed in the future and will feed the economic model for the operation of **"SONEB"** training center.

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soneb

Burkina Faso

Sectoral support to DWSS

Under the Accompanying Measures for Sectoral Support to Drinking Water Supply and Sanitation (DWSS) funded by German Cooperation, KfW:

- Puts funds at the disposal of Burkina Faso for making water and sanitation investments and for support to the stakeholders in the building of infrastructure;
- Establishes stakeholder capacity-building programs for sustainable management of structures and for the quality-assurance system linked to the planning and implementation of equipments.

In this context, the RODECO-IOWater Group works with the National Water and Sanitation Office (ONEA) on two main components:

- Stakeholders' capacity building and skill development through vocational training for nearly 550 staff members;
- The implementation of a Quality System, in connection with planning and the building of structures.

In 2015, RODECO and IOWater developed the following actions:

Implementation of a Quality System:

- Assessing "ONEA" operational departments to characterize the working procedures and methods used and identify the existing strengths or weaknesses;
- Facilitating consultation meetings with "ONEA" staff, to define areas for improvement that will provide the basis for the new Quality System;
- Analyzing the functioning of "ONEA" for the definition of proposals to improve and simplify, where appropriate, the procedures concerning the contractual follow-up and work supervision, investment planning, the drafting of tender documents.

Training the staff of ONEA and of the water sector:

- Selection by "ONEA" of a staff training program for the operational investment planning (IPR), exploitation (DEX) and sanitation (DASS) departments;
- Drafting of detailed descriptive sheets for 35 training courses;
- Development of educational tools for "ONEA"'s internal trainers to conduct training sessions and enrich the educational resources of "ONEA" Water Training Center (CEMEAU).

✔

ONEA Home Office

ONEA giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Capacity Building of "CEMEAU"

The project for the capacity building of the Water Training Center (CEMEAU) of the National Office for Water and Sanitation (ONEA), led by the GFA-IOWater group and funded by German Cooperation GIZ (GIZ- PEA program), ended in July 2015.

Among the latest technical assistance activities carried out by the **International Office for Water** from October 2014 to July 2015, we may mention in particular:

- Completion of the Center's Management Handbook;
- Development of the website and training catalogue;
- Recommendations on the expected evolution of the Center's staff;
- Consolidation of the Center's financial management tools;
- Definition of a priority program of training courses for water stakeholders of Burkina Faso others than ONEA's ones, such as: decentralized administrations, local technical services, private operators, companies and repair shops, NGOs;
- Establishment of platforms and practical workshops on electromechanical engineering and automation.

In addition, a technical visit to the **IOWater's National Water Training Center (NWTC)** was organized in France in June 2015 for the Director of "CEMEAU" and a team of trainers.

It focused on:

- Educational organization and commercial management tools of a WTC;
- Technical training on electromechanical maintenance;
- How to carry out practical workshops.

Improving "CEMEAU" training equipment

The large GIZ technical assistance program for "ONEA"'s "CEMEAU" plans for a third phase. During the final project restitution meeting, various scenarios for strengthening "CEMEAU" were presented for this prospect.

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Central African Republic

IOWater is working for the ICRC

As part of the process of recovering the drinking water supply system and securing the facilities of the **Central African Water Supply Company (SODECA)** in Bangui, and following the recent events, the **International Committee of the Red Cross (ICRC)** asked **IOWater** to organize in 2015 a training session on the "maintenance of water production plants and pumping stations".

The assistance provided by the **ICRC** in Central Africa is split into several components:

- Reinforcing the water supply system in some areas by launching projects for laying out strategic pipes;
- Maintaining and securing the water production plants and pumping stations by training workers and providing them with tools and consumables;
- Replacing, from time to time, the machines in "critical" condition, when signs of ageing appear.

The training session took place over two periods a month apart and covered **centrifugal pumps** (hydraulics of pumps and systems, conducting pumping stations) and mechanical maintenance (compressors, boosters, power delivery, technical repair and primary routine maintenance).

The group was made up of 14 technicians and engineers working in Bangui facilities for most of them.

Practical work was done in-situ: performance measurements for raw water pumps, inflating an anti-hammer tank, disassembly and reassembly of a surface pump.

An important number of ICRC-provided tools and spare parts were delivered to "SODECA" shortly after the course.

Through effective collaboration between the **GOURDIN Company and IOWater,** an important preparatory work was made possible with the trainees before the overhaul of the raw water pumps by the manufacturer.

ICRC's trainees

The visit of repair shops, the inventory of spare parts in stock, detailed study of the machine design and description of the different phases of the overhaul enabled the trainees to assimilate the nature of the work that would be carried out a few weeks later.

If the basics of maintenance and hydraulics were acquired, it remained to **improve knowledge of the system** to correctly interpret malfunctions and take appropriate corrective action. It was the subject of further training also provided in 2015 by **IOWater.**

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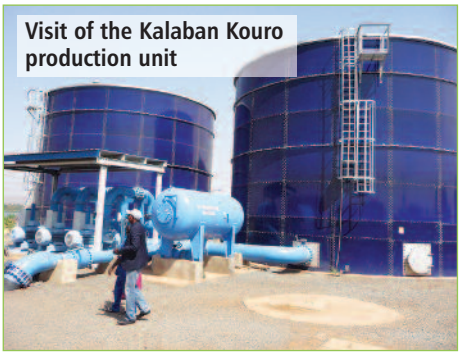
Mali

Partnership with "SOMAGEP"



Visit of the Kalaban Kouro production unit

The Malian Water Supply Management Company (SOMAGEP) is in charge of drinking water supply in urban areas of over 10,000 inhabitants.

"SOMAGEP", as part of its capacity building policy for its staff, initiated an ambitious program to increase its different skills: in this context, Messrs Abdul Aziz Traore, Director of the Center Supports and Boubacar Idrissa Maiga, Director of **"SOMAGEP"** Distribution, visited the **IOWater's National Water Training Center (NWTC)** in August 2014 in France.

As a continuation, **"SOMAGEP"** asked **IOWater** to actively contribute to its program.

Thus, training sessions were already carried out in 2014 in Bamako on the topics of the laying out of pipes and work control and, at La Souterraine, on the automation of water production plants.

An **IOWaer** expert also undertook a mission to Bamako to accompany **"SOMAGEP"** in structuring its 2015 training plan.

In 2015, this partnership was confirmed with the implementation of many training sessions: maintaining the quality of water being distributed, operating drinking water systems, drinking water production, water analysis and laboratory management, supervision of a construction site, water quality sensor, laying out of drinking water pipes, basics of hydraulics, cleaning and disinfection of drinking water works, etc.

Several **"SOMAGEP"** engineers have also been trained in Limoges, especially on the management of meters, improving the efficiency of water supply systems, the choice and installation of pumps, operation and maintenance of starters, sensors and gauging, design of pumping stations, bacteriological analyzes, etc.

In total, 15 training courses were carried out under this partnership that enabled the training of over 200 people from "SOMAGEP".

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LATIN AMERICA AND THE CARRIBEAN

Haiti

IOWater technical support is continuing

In 2015, IOWater continued the sector's training to ensure the dissemination and application of the good practices given in the National Technical Reference Frame developed and implemented in 2013 and 2014.

The years 2015 and 2016 are crucial for the training of the sector in Haiti with the announcement by "AFD" of its support to the National Vocational Training Institute in Port au Prince.

In 2015, **IOWater** also intervened, with funds provided by the Inter-American Development Bank, for assessing the current situation and drafting a 5-year Strategic Sector Plan (SSP) to guide and organize the actions of "DINEPA" and of its decentralized services.

Many NGOs continue their "Water Sanitation And Hygiene" (WASH) programs in underprivileged neighborhoods of Port au Prince.

In the Desprez district, where access to sanitation is very low, "OXFAM" and "GRET" have entrusted a study to the Haitian Association "CRESFED" to assess the behavior of people towards waste and excreta, in which **IOWater** participated.

This study should allow the drafting of sanitation programs better suited to uses.

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Latrines in the Desprez district

"EcoCuencas"

Economic mechanisms to facilitate adaptation to climate change

Over the past 25 years, great progress was made in Integrated Water Resources Management Policy (IWRM) in Latin American basins. However, the theme of adaptation to climate change is worth pursuing, while the countries in the region already know its effects. Continuing the baseline scenario would lead to serious consequences, with high economic, social and environmental costs.

Faced with these challenges and to enable the use of a widest range of possible resources, it is necessary to especially develop economic management tools in basins. Indeed, building resilience to climate change goes through securing the financing of Management Plans, and thus the establishment of financial redistribution mechanisms.

In such a context and under its WATER-CLIMA LAC program, the European Commission selected the "EcoCuencas" project, coordinated by IOWater, in December 2014.

Activities are planned over 3 years and have a budget of € 2.5 million financed at about 75% by the European Union and by counterparts from the nine European and Latin American partners, to promote the development of financial mechanisms for climate change adaptation.

The project plans to design and develop financial tools (fees, payments for environmental services, etc.) in three strategic pilot basins that illustrate the diversity of cases encountered on the continent:

- **The Brazilian "Piracicaba Capivari Jundiaí" basin (PCJ),** in the States of São Paulo and Minas Gerais, which are experiencing a historic drought;
- **The "Chira-Catamayo" Basin,** located between Peru and Ecuador, underlines the challenges of managing shared resources in a transboundary context;
- **The Colombian Basin of the "Rio Grande II" dam reservoir,** that supplies drinking water to Medellin.

The project includes four steps:

1. An inventory of the effects of climate change on basin water resources is underway, taking into account existing institutional responses;
2. The publication of a guide of good practices;
3. The implementation of measures recommended in the three pilot basins;
4. The dissemination of the lessons learned during these stages.

This project is based on the logic of experience sharing from the local level to the intercontinental level, with a concern of appropriation and sustainability.

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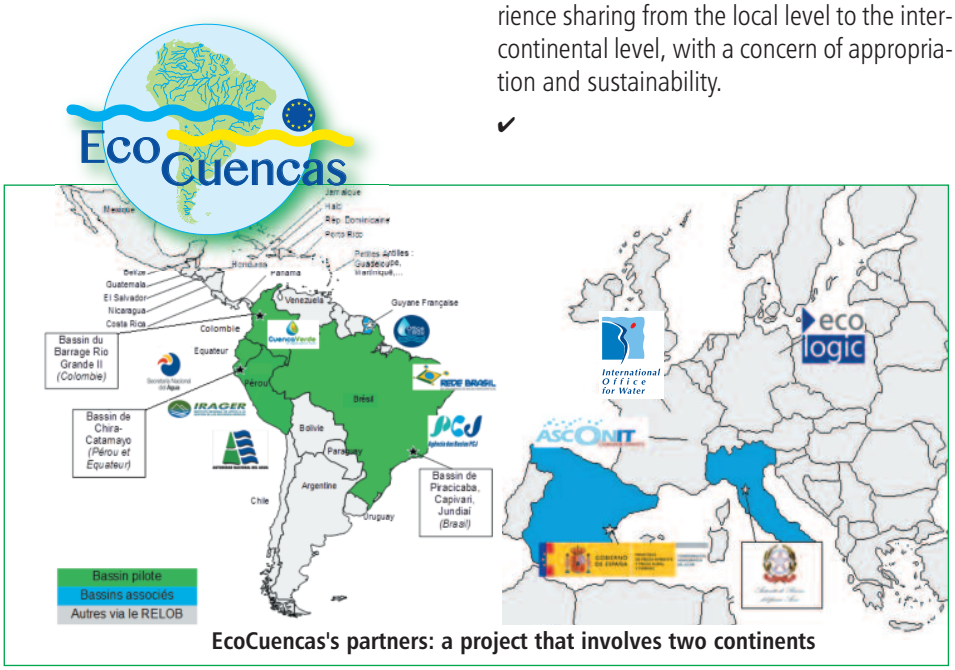

EcoCuencas's partners: a project that involves two continents

Peru

National Water Authority (ANA)

In recent years, the **National Water Authority (ANA)** has developed an ambitious river basin management policy, supported since late 2012 by a new method for calculating fees for water use and wastewater discharge.

As part of a project funded by the World Bank and then by the Artois-Picardy Water Agency, IOWater advised "ANA" for the implementation of these financial mechanisms.

Thus, pragmatic elements were proposed for the implementation of the user-pays and polluter-pays principles: How to calculate fees ("economic fees")? What economic basis to justify them to future taxpayers?

The amounts levied at national level thus increased by over 100% between 2012 and 2014.

However this method for calculating fees remains perfectible and should be extended to a wider range of uses. Especially, adjustments are now needed to answer the following questions: What destination for the levied amounts? In which financial circuits and what are the eligibility criteria?

For such a purpose **IOWater** will provide in 2016, with support from the Artois-Picardy Water Agency, assistance to "ANA" for answering these new questions.

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ANA
Autoridad Nacional del Agua

International Office for Water

AGENCE DE L'EAU ARTOIS PICARDIE

LATIN AMERICA

Brazil

Constitution of the "HYDRUS-BRAZIL" Association in partnership with IOWater


Signing of the agreement at WWF7

According to official statistics, the total number of jobs in the water and sanitation sector in Brazil is 726,586, including about 238,000 people for the State of São Paulo alone.

Brazil is making huge investments for developing this sector, according to data from "PLANSAB", nearly 100 billion Euros of investments are planned over the 2014-2033 period, mainly in urban sanitation.

In this very driving context, the **"SERT"** (Secretariat of Employment and Labor of the State of São Paulo) decided to launch a major staff training pilot project, based on the outcomes of the feasibility study made for the establishment of a Vocational Water Training Center (WTC) in São Paulo, in which **IOWater** contributed in late 2013 and early 2014. The HYDRUS Association will be the contracting authority of this project.

The establishment of the **"HYDRUS-BRAZIL"** Association, in which **IOWater** is a founding member, was officially announced during the 7th World Water Forum in Daegu.

The Constitutive Assembly of the Association was held in Brazil in July 2015 and the statutes were officially filed.

Many activities are being developed by the team of the **"HYDRUS"** Association to support and strengthen the creation of the future Water Training Center in São Paulo and of a branch in Brasilia for training on the governance of resources and water utilities.

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Hydrus
FORMAÇÃO CAPACITAÇÃO E QUALIFICAÇÃO EM ÁGUA


Hearing of the Governor of Brasilia Federal District

Triangular cooperation in Brazil

The triangular cooperation program, facilitated by **IOWater,** between the basin committees of the State of Rio Grande do Sul in the far south of Brazil, the Basin Committee of the Loire-Brittany Water Agency and the Inter-Municipal Consortium of Piracicaba, Capivari and Jundiaí Basins (PCJ) in the State of São Paulo allowed the realization of many activities in 2015.

A reference document comparing the current situation of water management in the three regions concerned was drafted in French and Portuguese. It will be made available online to the public in the form of sheets.

Exchange workshops enabled members of the Rio Grande do Sul Basin Committees to think, using the experience of the Loire Brittany Water Agency, about the challenges of articulating different planning scales with the organization of stakeholders to ensure the effective implementation of the planned actions.

They participated in a technical visit in the "PCJ" Basins and in the Rio de Janeiro State in order to know about the experiments of establishing Brazilian Basin Agencies and tax-aid mechanisms in these two contrasting contexts.


Technical visit to the rice grower cooperative at the São Marcos dam

This first phase of the triangular cooperation was completed in December 2015 with a working seminar on the establishment of Basin Agencies in the Rio Grande do Sul. The region, regrouping the Uruguay River tributaries is candidate for a pilot experiment for establishing a Basin Agency in this State.

The presentation of detailed data on the early years of operation of the French Agencies, in the 1970s, strongly interested Brazilian stakeholders facing similar issues to those encountered by the pioneers of the French basin water management system fifty years ago.

Following these positive results, a new phase of the triangular cooperation program has just started. Comparison of experiences in the development of Basin Agencies in different Brazilian States and in the Loire-Brittany Basin will be made more thoroughly.

✔

agence de l'eau Loire-Bretagne

International Office for Water

CONSÓRCIO PCJ

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LATIN AMERICA

Colombia

IWRM Assessment and prospects

IOWater, with the support of the **Adour-Garonne Water Agency,** assisted the Colombian Government during the 2013-2015 period in 3 large lines of work:

1. **Support to the implementation of the National Policy on Integrated Water Resources Management (NPIWRM)** and to the establishment of **the first Strategic Plan for the Magdalena River Basin,** the largest river basin of the country. It also contributed to the organization of a **"Regional Environmental Council"** in the macro-basin. Financial tools were also dealt with to facilitate the operational implementation of the NPIWRM.
2. **Consolidation of the National Water Information System,** of which the Institute of Hydrology, Meteorology and Environmental Studies of Colombia (IDEAM) is a leading technical member. The assistance given by **IOWater** highlighted the importance of the interoperability of databases, and of the development of a language common to all data producers.


Lake Tota - Corpoboyaca Region

3. **Pollution control,** and more particularly the consolidation of the decrees on taxes for water use and sanitation and the organization of industrial pollution control, topics that are respectively developed with the Ministry of the Environment and the Regional Environmental Authority, the "CAR" of Cundinamarca.

Many working sessions led to technical presentations on IWRM tools in line with the Colombian context, to training courses, to the production of reference documents supporting the proposed guidelines.

These sessions involved nearly 140 officials coming from 17 Colombian organizations.

During the assessment made in March 2015, the Vice-Minister of the Environment expressed his interest in continuing this cooperation project, in the very particular context of a possible Colombia's integration into OECD.

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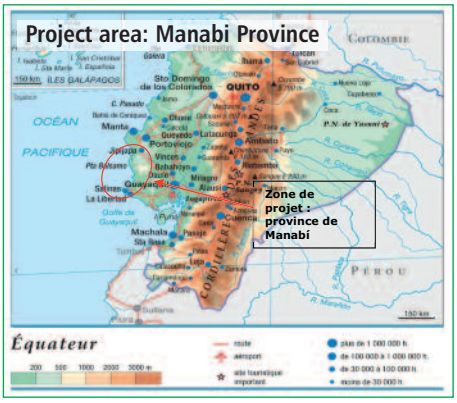
MinAmbiente Ministerio de Ambiente y Desarrollo Sostenible — CAR

Ecuador

Manabí pilot River Basin District



The recent Constitution declares "a right to water for all", in which water is a strategic national heritage, for public use, unalienable, indefeasible, imperceptible and essential for life. It also establishes a single "water authority" for water resources planning and management: the **"SENAGUA"** (National Secretariat for Water) is thus responsible for the implementation of integrated water management policies.

The new water law, enacted on 6 August 2014, structures the territory into 9 River Basin Districts and plans the establishment of Basin Councils. Each district is managed by a decentralized division of **"SENAGUA".**

On the occasion of the French-Ecuadorian Water Days in October 2014, the **Adour-Garonne Water Agency (AEAG)** and **IOWater** were asked to provide support to the Ecuadorian Water Policy.

A cooperation protocol was devised for:

- Establishment and functioning of a pilot Basin Council - and organization of an inter-ministerial technical secretariat of this Basin Council;
- Methodological support to the drafting of the Basin Management Plan;
- Participatory Review of the program funding mechanisms;
- Development of an information and data management system.

The assignments carried out in this context allowed:

- Interactive work with all partners of the "National Strategic Water System" to facilitate data exchange and organize participatory work.
- Providing operational proposals for the training of stakeholders, widening the consultation circle, organizing commissions and working groups and communication at different levels, working closely with **"SENAGUA"** teams.

The strong political will and clear population support are major assets for the country and will facilitate achieving the objectives of this cooperation.

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Secretaría Nacional del Agua

LATIN AMERICA

Mexico

35th anniversary of "ANAES"

Speech by Mr. Donzier at the Forum's official opening Ceremony

The Mexican National Association of Water and Sanitation Utilities (Asociación Nacional de Empresas de Agua y Saneamiento - ANEAS) celebrated its 35th anniversary on 14 August 2015 in Mexico City.

On this occasion "ANEAS" organized a Forum on sustainable management of water and sanitation utilities.

Mr. Jean-François Donzier, **IOWater** General Manager, was invited to deliver one of the speeches at the Forum's opening ceremony and he participated in the focus group of session 3, where he was able to present the management of major metropolitan basins with the example of Greater Paris.

The topics discussed at the Forum were organized in four sessions on:

- How to understand sustainable management of water and sanitation utilities?
- Water quality in sustainable management of services;
- How to build sustainable management of water and sanitation utilities?
- Prospect of sustainability of water and sanitation services for 2030.

Meeting the challenge of sustainable water and sanitation services will require better management of available resources in the basins, efficient resource use, wastewater reuse and pollution prevention.

It will be necessary to study: how to finance the investments needed to improve productivity, interdependencies between sectors, how to reduce the risk of natural disasters (floods and droughts), how to involve vulnerable populations in integrated resource management, and how to benefit from the potential of policy reforms induced by growing scarcity.

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FORO ANEAS 35
LA GESTIÓN SOSTENIBLE DE LOS SERVICIOS DE AGUA Y SANEAMIENTO

French-Mexican seminar at the CONAGUA

A "French-Mexican dialogue" seminar took place on 30 June 2015 in Mexico-DF.

It dealt with technologies for drinking water, drainage, sanitation and meteorology and was jointly organized by the National Water Commission (CONAGUA), "ANEAS" and services of the French Embassy in Mexico and BUSINESS France.

On this occasion, the major building work implemented with the French Development Agency (AFD) support, to improve the efficiency of water services in the city of San Luis Potosi, was presented in particular.

IOWater was invited to present to Mexican stakeholders the French policy on the reduction of water losses, including in particular the recent operational recommendations and procedures for the development of a strategic plan to reduce losses, relying on the decrees from the French law for the protection of the receiving environment.

BUSINESS France is supporting the Mexican entrepreneurs participating in the "SENSECUBE" Project, which aims to establish a business incubator for innovative companies in the water and sanitation sector.


IOWater speech during the seminar

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CONAGUA comisión nacional del agua

BUSINESSFRANCE

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Reunion Island

Tereos Indian Ocean

Bois Rouge wastewater treatment plant (Tereos Indian Ocean ownership)

Continuing a relationship that began in 2009, the **Tereos Indian Ocean Company (subsidiary of the global sugar group Tereos),** has again entrusted the **International Office for Water** with two training courses and two technical assistance assignments.

The first training course was intended for the operating staff of the wastewater treatment plant of the Bois Rouge sugar refinery (northeast of the island).

The objective was to use the best practices for the exploitation of their wastewater treatment plant in order to better manage its operation.

Following this technical training course, **IOWater** showed that some analytical practices and protocols, used in the supervision of the wastewater treatment plant, could be improved.

IOWater has thus carried out an assistance mission whose objective was to audit these practices for optimizing them and establishing a list of missing equipment.

On the same site, the second training course concerned the sugar production managers to raise their awareness of the interactions between production and the operation of the wastewater treatment plant and of the actions to carry out to limit pollutant outflows during the manufacturing process.

The second assistance mission concerned the Gol sugar refinery in the south of the island.

Since the start of the new biological unit, the expected results for reducing suspended solids were insufficient.

After its analysis **IOWater** drafted a list of recommendations and actions to achieve the expected results.

These missions allowed improving the operation of water treatment units and established relationships with the refineries teams.

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New Caledonia

"Calédonienne des Eaux" - Audit of maintenance

The maintenance of machinery and facilities and the repair of faulty equipment are essential tasks to ensure the continuity of the drinking water supply and sanitation utilities.

Following a training course conducted in Nouméa on the strategic organization of maintenance, the "Calédonienne des Eaux" asked the **International Office for Water** to analyze their organization in this field.

This audit analyzed the strengths and weaknesses of the structure and identified priority areas for improvement to achieve a maintenance adapted to the goals of the company.

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Site visit at the end of the training course

Tutorials on maintenance management

ASIA

Mekong River Basin

Evaluation of the sediment monitoring project

Sediment dynamics is an essential process of river balance, and therefore a key issue in the management of large rivers such as the Mekong.

A program for the measurement of flows and sediment transport (Discharge and Sediment Monitoring Project) was funded by the **French Fund for Global Environment (FFEM).**

This project has received funds amounting to €800,000 for a 3-year period (2012-2014) and is usually integrated into the "Information and Knowledge Management Program" of the **Mekong River Commission (MRC),** also supported by other partners.

The MRC asked two **IOWater** and **"IRSTEA"** experts to evaluate the project results.

This assessment was based on many project reports provided by the MRC and on a visit made to the main parties involved in this program: MRC centers in Vientiane, Phnom Penh, Ho Chi Minh City, and WWF.

The evaluation showed that this program has contributed much in terms of training of the field teams and quality of the measurements made, even if it appears that some national agencies still lack financial resources.

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Cambodia

Stung Sen Project - Significant advances


The dry Stung Chinit tributary bed

The second phase of this IOWater project aims to improve Water Resources Governance in the Stung Sen River Basin, main tributary of Lake Tonle Sap, with the support of the Loire-Brittany and Rhine-Meuse Water Agencies.

The results of the first phase (2012-2014) were very encouraging and helped the Cambodian Administration, including the Tonle Sap Authority (TSA) and the Ministry of Water Resources and Meteorology (MOWRAM), to make great progress in the field of Integrated Water Resources Management in the basin.

At national level, the sub-decree detailing procedures for the planning and implementation of a water resources management policy in basins was approved by the Council of Ministers in July 2015 and especially gives a framework for the official establishment of Basin Committees.

At the level of the Stung Sen River pilot Basin, the training of local representatives, selected to be part of the Stung Sen Basin Committee, and of the TSA and MOWRAM team continues in the stages of the planning process:

- **Definition of goals for the Basin Management Plan;**
- **Establishment of the first Program of Measures;**
- **Cost estimates and potential funding sources;**
- **Local institutional framework for IWRM;**
- **Articulation between different planning levels: local, river basin district and national;**
- **Role of the various stakeholders.**

Field trips are also organized, with local representatives from the entire basin, to raise their awareness of the various problems encountered in urban and rural areas.

The finalization of the planning process will lead, in late 2016, to the first version of the Basin Management Plan and Program of Measures to be implemented in the Stung Sen Basin.

As the first phase allowed collecting a large number of data and identifying various sources of information, regularly updated by the partner services, the TSA wants now to develop its internal capacity to manage and make the best use of these data to produce synthetic information needed for decision-making and public information.

Thus the development of new layers in the Geographic Information System and the integration of the existing data into the databases are under way.

This already allows:

- Facilitating statistical analysis and online visualization of hydrological data;
- Developing comparative analyses of data provided by radar imagery with field data;
- Studying possibilities of analysis for each sub basin.

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China

French-Chinese cooperation in the Hai River Basin

Meeting of the coordination group

China is facing many water management challenges.

To face those, the Chinese Government is developing many international cooperation activities, and, in particular, an agreement was signed on 21 December 2009 by the Chinese Ministry of Water Resources and the French Ministry of Ecology and Sustainable Development.

Under this agreement, **the Hai River Basin, which covers 318,000 km² and includes the municipalities of Beijing and Tianjin, was selected for the implementation of a pilot project:** It aims to test the application in China of some mechanisms for river basin management, water pollution control and ecosystem protection, which are used in France and in the European Union.

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, Sustainable Development and Energy (MEDDE), the Seine Normandy Water Agency (AESN), the Public Sanitation Utility of Greater Paris (SIAAP), the Interdepartmental Institution of the Seine Great Lakes and IOWater, the latter taking care of the technical coordination of the project.

The first phase (April 2011 / March 2012) contributed to a mutual understanding of the operation of basin institutions and procedures and means they use in France and China.

The pilot sub-basin of the Zhou River

The second phase of the project (October 2012 - December 2015) focused on the Zhou River Basin: 2,114 km², 1 million inhabitants and 80% of the drinking water supply of the 5th most populated city of the country, Tianjin.

It was developed in three steps:

- **Support to the completion of the basin inventory,**
- **Establishment of a coordination group,**
- **Support to the drafting of a Basin Management Plan and a Program of Measures.**

Since October 2012, French expert missions in China have allowed an in-depth presentation of a wide range of useful technical and institutional tools for the process. Emphasis was also placed on building the capacity of the Chinese partners, who thus benefited from training sessions on Basin Management, on ecological engineering and on water quality monitoring, etc.

Finally, study tours organized in France have shown to the Chinese partners the real practices of applying successfully basin policies in the entire European Union.

All activities carried out contributed to the quick progress of the project. Thus, the inventory and characterization of the Zhou River sub-basin were made and presented in September 2014 at the project steering committee.

Based on the conclusions drawn from the inventory, year 2015 allowed the drafting of a Management Plan and Program of Measures to meet the major challenges of the sub basin.

Thus, at the end of phase II in late 2015, the Chinese partners integrated all tools and processes useful to achieve the development of a true Basin Management Plan.

Given the success of this French-Chinese cooperation, the partners of both countries agreed to continue this cooperation for a three year period, starting in January 2016.

In the presence of the French Ministers for Ecology and International Cooperation, this agreement was signed in Paris on 2 December 2015 at the Water Day, organized during the COP21 on the topic of adaptation and resilience to climate change.

This new phase plans an expansion of these actions to the Luan River Basin (45,000 km², 1 million inhabitants), another bigger tributary of the Hai River.

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Signatories of the French-Chinese agreement at the COP 21 in Paris - © IOWater - C.Runel

ASIA

China

The China-Europe Water Platform

The **PIANO** (Policies, Innovation And Networks for enhancing Opportunities for China-Europe Water Cooperation) project won a call for proposals of the European Framework Program for Research for 2020 (2014-2020), which aimed at promoting strategic cooperation partnerships for research and innovation between Europe and the rest of the world.

It focuses on the development of business opportunities and cooperation in research and innovation between Europe and China.

The project inception workshop was held on 9 April 2015 in Brussels.

The six components of the project were presented on this occasion. The coordinators of each component are:

- **International Office for Water, (IOWater);**
- 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).

Among other project partners, there are the Atkins consulting firm, the National Laboratory of Civil Engineering (Portugal), the European Water Association (EWA) and the Chamber of Commerce of the European Union in China.

For its part, **IOWater** is implementing the activities of the first component aiming at building Research and Innovation in the network and China-Europe Water Platform (CEWP) by developing the mapping and analysis of stakeholders' networks and existing outstanding innovation projects. It also contributes to the facilitation of networks and to the visibility of the project by developing European and Chinese social and professional networks (Twitter, LinkedIn, Facebook, Weibo).

It also contributes to the third component by producing case studies of innovative European technologies in the water sector.

www.project-piano.net

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Myanmar

Launching of institutional cooperation

IOWater is starting, with the support of the **Loire-Brittany Water Agency,** a cooperation program in Myanmar with the Ministries of Environmental Conservation and Forestry (MOECAF) and Transport (MOT).

The Ministry of Transport takes care of the Secretariat of the National Water Resources Committee.

Strictly speaking, there is currently no water law, but a National Policy for Water Resources was promulgated in February 2014.

Basin management experiences involve studies and master plans, which mainly focused on the Irrawaddy River Basin and its navigability (MOT), and on the Inle Lake Basin and its environmental conservation (MOECAF).

Exchanges with both Ministries allowed confirming the willingness of strengthening Integrated Water Resources Management Policy, while experimenting control and incentive tools for water uses, the mobilization of ad hoc funding to carry out the action plan and the development of a genuine monitoring tool for following up public policy and of an indicator / management chart system.

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Fisherman on the Inlé Lake

ASIA

Laos

Transposition of the results from the Nam Ngum pilot Basin

"Workshop on Knowledge Management for river basin planning"
13 March 2015 - Vientiane

Phase 2 of the integrated Nam Ngum pilot basin management project was completed in October 2015.

This phase 2, coordinated by IOWater with the support of the Loire Brittany and Rhine-Meuse Water Agencies, consisted in drafting a guidance document recording information on the tools and methods acquired during the project and their application to the Laotian context.

The guidance document is composed of 9 "action sheets" that aim at the practical implementation of the National Strategy for Water Resources Management (2012 - 2020).

The technical missions organized in 2015 helped to develop the action sheets linked to three strategic lines of work for the completion of the project:

- Definition of the organizational framework for the drafting of a strategy for each basin;
- Development of an operational Water Information System;
- Organization of data management to supply information on the basin status.

These lines of work were discussed by a panel of national and regional stakeholders in seminars organized in March and September 2015 in Vientiane.

The third phase of the project (2016-2017) aims to continue supporting the Laotian Authorities in the extrapolation to the whole country of the basin management mechanisms, successfully tested in the Nam Ngum pilot Basin. The presence of an **IOWater's** International Volunteer, based in Vientiane (2016) then in Phnom Penh (2017), will ensure continuity of action through a permanent and direct follow-up of the project for the local and national beneficiaries.

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Vietnam

Towards the implementation of the new water policy

The development of the second phase (2013-2015) of the Dong Nai project, initiated by **IOWater** with the support of the **Loire-Brittany Water Agency,** has continued cooperation with the Vietnamese Authorities.

This Phase 2 focused on the training of stakeholders involved in sustainable water resources management and supported partners to build strong institutional and legal bases for the development of Integrated Water Resources Management in Vietnamese Basins.

A circular, dealing with the water resources planning method, was drafted by **DWRM** (Department of Water Resources Management) of the Ministry and **NAWAPI** (National Center for Water Resources Planning & Investigation).

It specifies the nature of basin planning and the strategy for the development of 10-year plans with revision every five years, jointly with the Socioeconomic Plan of the Ministry of Planning and Investment.

Training session

The new legislative context involves the drafting of River Basin Management Plans in 3 large areas of northern, central and southern Vietnam.

Eleven priority Basin Plans should be developed by 2020, including the Dong Nai.

This action should be accompanied by the strengthening and structuring of regional teams for water resources management. These teams have younger and proficient staffs.

A training session on "Water Resources Planning: Processes and Practices" was organized for them in October 2015 in Hanoi as part of VACI (Vietnam wAter Cooperation Initiative).

At the end of this 2-day training program, **IOWater** handed a training certificate to the 60 participants attesting the acquisition of specific skills in water resources planning.

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Kyrgyzstan / Kazakhstan

Chu Transboundary Basin

As a member of the iMoMo (Innovative Monitoring and Modeling) consortium, IOWater has, since 2014, collaborated in the Swiss Cooperation (SDC) funded activities to strengthen water data production and management in the Chu Basin in Central Asia.

The ongoing project includes three main components:

- Monitoring and processing of data by Irrigator Associations;
- Enhancing data, produced by various national and local institutions, on the status of water resources and on water abstractions for irrigation;
- Modeling for improving water availability forecasts based on a remote-sensing analysis of the snow cover.

The specific actions of the **IOWater**-led component allowed moving towards a situation where the public and the partners can now consult online data on the status of water resources and abstractions, that are regularly made available by 5 national and local institutions of both countries, this through:

- **Web mapping** with location of monitoring stations and access to data visualization diagrams;
- **Interactive diagrams** easily available on tablet computer, including to decision-makers, with automatic calculation of balance sheets or comparative analyses at key points;
- **Modules for downloading datasets** for data producing partners alone.

A first quarterly newsletter, summarizing the status of resources and abstractions for the April-June 2015 period, was produced and validated during the last meeting of the **Chu / Talas Transboundary Commission** that congratulated the project partners and thanked the SDC for its support.

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Chu river

Tajikistan

Study tour to Spain and France for a Tajik Delegation

In September 2015, **IOWater** and **"FIIAPP"** (Fundación Internacional y para Iberoamérica de Administración y Politicas Públicas) organized a study visit in Spain and France for a delegation from Tajikistan and two representatives of the **World Bank.**

The delegation met the key administrations and organizations in charge of integrated water resources management, irrigation and water information systems.

The visit allowed presenting the implementation of integrated basin management in the European Union, its legal and institutional bases, the methodology applied to work out Basin Management Plans, to outline the management of irrigation systems and the role of water users' associations as well as the use of economic mechanisms to ensure financing.

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Visit of the Carpentras Canal - France

Azerbaijan

"AZERSU"

Sample of a room equipped according to the NWTC recommendations

Vocational training is part of the issues identified as major ones by **"AZERSU"** (Azerbaijani national water supply and sanitation company). Its management board asked **"SUEZ"** to support the capacity building and professional training of its 12,000 employees.

In this context, **IOWater** was asked to propose solutions for the development of technical rooms and educational platforms, designed for **"AZERSU"** training center, located near Baku, for training in fields such as security, electricity, welding, metrology, laboratory analysis, leak detection, pipe laying out or sewerage networks.

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Information: Fax: +33 4 93 65 44 02 - E-mail: cooperation@iowater.org

13th International "EUROPE-INBO 2015" Conference

193 participant coming from 32 Countries - © IOWater - C.Runel

The 13th Conference of the "EUROPE-INBO" Group took place in Thessaloniki, Greece, from 21 to 24 October 2015, at the invitation of the Greek Ministry of Reconstruction, Production, Environment and Energy and the Special Secretariat for Water.

It gathered 193 participants, representatives of national administrations and basin organizations as well as of international and regional organizations and NGOs, coming from 32 countries.

The Conference allowed reaffirming that integrated water resources management in the basins of lakes, rivers and aquifers is unavoidable to ensure the preservation of this resource, face the multiple identified pressures, and to adapt to the effects of climate change.

The conference was organized around four roundtables:

❶ Measures for adaptation of water resources to the effects of climate change, "water" component of the COP21 in Paris in 2015 and preparation of the 2nd River Basin Management Plans (2016-2021):

Taking into account the effects of climate change requires efforts and additional resources for adaptation measures to be quickly developed and applied in national and transboundary basins.

Actions have already been undertaken for the preparation of the 2nd River Basin Management Plans and their Programs of Measures (2016-2021).

But it is clear that, for the preparation of the 3rd cycle (2022-2027) required by the WFD, it is necessary that adaptation measures be thought of when developing the River Basin Management Plan, so that they become an integral part of the latter.

Integration with other EU Directives, such as the Flood Risk Management and Marine Strategy Framework Directives, is to be entirely achieved as quickly as possible.

Natural Water Retention Measures should be introduced when taking into account the benefit that can be expected from them for the adaptation.

A multisectoral approach is essential and stronger harmonization between the Water-related Directives and the sectoral policies of the European Union should be looked for, especially regarding agriculture, energy and waterways transport.

It is also necessary to promote and formalize the signing, at the highest level of the represented Countries and Organizations, of **the "Paris Pact for adaptation to the effects of climate change in the basins of rivers, lakes and aquifers",** launched on INBO initiative on the occasion of the COP21 2015 of Paris and of the official day of December 2 dedicated to "water and climatic change".

Many experiments were undertaken for adaptation to climate change: the most significant are recorded in the publication **"Water and Climate Change Adaptation in Transboundary Basins: Lessons Learned and Good Practices"** published by the United Nations (UNECE) and INBO and now available in French and English.

❷ Water governance in Transboundary Basins:

To improve governance in transboundary basins, it is necessary to strengthen the International Commissions of corresponding Districts that have a key role in the implementation of the EU Directives, even beyond the EU borders, and we must go towards effective implementation of United Nations conventions: the 1992 Water Convention and 1997 Convention of New-York.

Cooperation agreements should be signed between riparian (EU or EU neighboring) countries if they do not already exist.

The already established Commissions should be privileged tools for achieving appropriate governance, based on mutual trust, common understanding of the basin issues and accurate, accessible and shared data, and on the field practitioners' involvement on both sides of the border.

The work conducted by INBO and UNESCO within the **OECD's Water Governance Initiative,** may also enable progress in the governance of national and transboundary basins inside the EU and beyond, including in EU neighboring countries.

❸ The financing of water policy and economic analyses:

The funding of Programs of Measures for the effective implementation of the WFD and its "daughter" Directives remains a concern for managers and is a condition for achieving the objectives.

The polluter-pays and user-pays principles and the need for cost recovery should guide the establishment of multi-year and stable financing systems that are up to the investment and operation needs in the basins.

EUROPE - REGIONAL

21 - 24 October 2015 - Thessaloniki - Greece

The 2nd and 3rd River Basin Management Plans should be based on a more comprehensive economic analysis of pressures on water resources and proper quantification of costs and impacts of the measures needed to comply with the WFD objectives.

This will determine the combinations of measures that have the best cost/efficiency ratio.

For such a purpose, clear and transparent methodologies should be established as well as economic research increased to better understand the cost of inaction, the disproportionate costs and have reliable cost / benefit analyses that are comparable between the Member States.

The participants underlined the need for action at European and national levels to increase the consistency of EU environmental objectives and sectoral policies, especially for agriculture and to better ensure synergy of available funding possibilities.

An effort should be made so that the financial resources available at European level and at other levels find greater use in the measures for water resources management.

The EU and Member States should also maintain a high level of financial support for solidarity with the Southern and Eastern neighboring countries, to promote better governance and the realization of investments and actions that are essential, especially in shared basins.

It is also necessary to support the development of solidarity financing for access to water and sanitation both for public health purpose and for preventing the degradation of water quality.

❹ Local processes for the application of the Directives, participation of local stakeholders and public involvement:

The involvement of stakeholders and the public is crucial to improve water resources management. Their participation since the beginning in decision-making processes need to be developed for greater appropriation of the measures of River Basin Management Plans, which implies that their access to the outcomes of monitoring and to knowledge on water should be facilitated.

It is also essential to ensure the active participation of local public and private contracting authorities and economic sectors in the WFD implementation process as they are mainly the ones in charge of applying the recommended measures.

The participants in the conference recommended that European basin organizations and decision makers promote the development of local approaches that lay out overall goals for use, development, quantitative and qualitative protection of water resources on a suitable local scale.

Cross-border local approaches can also help to ensure the consistency of actions undertaken on both sides of the borders in the same transboundary basin.

Information sharing and harmonization, including spatial information, must go beyond the EU territory and concern all the riparian countries of the same transboundary basin, thus promoting the emergence of coordination in the development of River Basin Management Plans.

The "EUROPE-INBO 2015" conference is a new important step not only for assessing the implementation of the first cycle of River Basin Management Plans (2010-2015), but also for formulating proposals to improve the implementation of the WFD and associated Directives and better take climate change into account in the next cycles, especially for the 2016-2021 period.

While welcoming the progress made in WFD implementation, as presented by **Mr. Pavel Misiga, Chief of the Water Department of the DG Environment,** in his speech at the Opening Ceremony of the Conference, the **"EUROPE-INBO"** Members consider that the efforts made in the implementation of measures should be markedly increased so that all Water Bodies achieve "Good Status" within a reasonable time.

The **"EUROPE-INBO"** Group thanked **Mrs. Daniela Radulescu** (Romania) for the effectiveness of her Presidency (2014 - 2015).

Professor Jacques Ganoulis, Special Secretary for Water in the Ministry of Environment & Energy of Greece, was elected President of the **"EUROPE-INBO"** Group for the year to come, until the next conference in October 2016.

The next two "EUROPE-INBO" meetings will be held respectively in Lourdes and Dublin in October 2016 and 2017.

www.inbo-news.org

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EURO-RIOB
EUROPE-INBO

Closing Ceremony - © IOWater - C.Runel

"For facilitating the implementation of the European Water Directives"

Information: Fax: +33 1 40 08 01 45 - E-mail: secretariat@inbo-news.org

Water Framework Directive

New Peer-Review Mechanism

The consortium formed by the International Office for Water (France-leader partner), the National Institute of Hydrology and Water Management (Romania) and the Mediterranean Network of Basin Organization Secretariat (Spain), is implementing the Peer Review Mechanism and taking care of its secretariat.

This project responds to the observations collected in the assessment made by the European Commission of the first 2009-2015 River Basin Management Plans across Europe. It has shown important differences between the EU Member States.

To better share the experience of the practitioners in charge of participative river basin management planning in their own country, the objective of the project is to set up and run a simple, voluntary and targeted system to allow mutual learning between peers about WFD implementation.

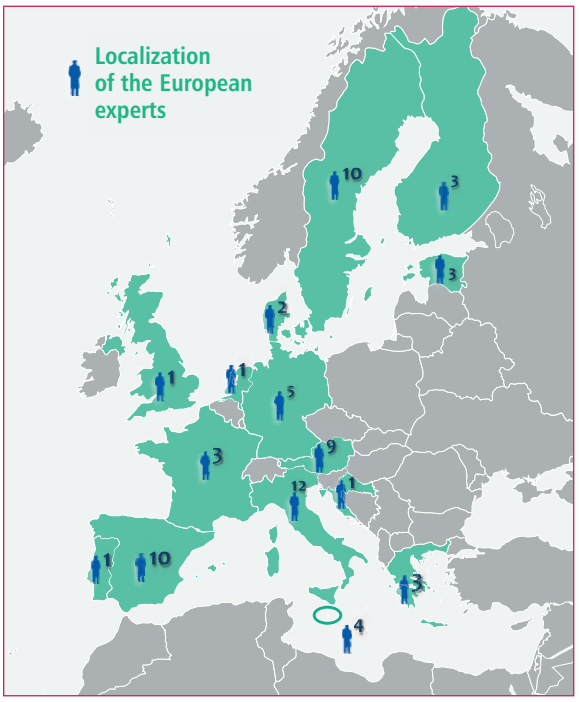
Following the first call launched at the beginning of 2015, **16 Receiving Competent Authorities (RCAs) from River Basin Districts located in 11 EU Countries** (Denmark, Estonia, Finland, France, Italy, Luxembourg, Malta, Norway, Poland, Spain and Sweden) expressed their interest in having answers to some problems encountered in the implementation of their River Basin Management Plan from their colleagues in other Member States.

The Peer Review missions started in August 2015 and will be held until spring 2016.

In parallel, **over 60 experts from 15 Member States** have registered so far as candidates to carry out reviews by sending their Europass CV and profile form to the secretariat.

To join the community for mutual support on WFD implementation, please contact us:

peer.review@oieau.fr



Consult the project website:

www.aquacoope.org/peer.review

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Water PiPP

Signing of an Agreement on innovative Procurement

The European **WaterPiPP** (Public Innovation Procurement Policies) project, coordinated by the **International Office for Water (IOWater),** aims to explore new methods for European public procurements policies focusing on innovation in the field of water, to identify and test best practices to facilitate Industrial R&DI commercialization.

On 22 September 2015, during an event jointly organized under EIP (Water - European Innovation Partnership), **a cooperation agreement was signed by the WaterPiPP project consortium, represented by IOWater, and Finnowater, coordinated and represented by ERRIN** (European Regions Research and Innovation Network) to draft strategic recommendations to be addressed to the European Commission.

Signing of the WaterPiPP-Finnowater Memorandum of Understanding

The project's recommendations are currently being tested through pilot actions carried out with more than five organizations in four Member States (Finland, Italy, Spain and the Netherlands).

Remote training sessions on innovative procurement, intended for public purchasers, are also organized.

All project actions are published on the European cooperation platform:

procurement-forum.eu

Project website:

www.waterpipp.eu

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Natural Water Retention Measures

The "gardened nature" at the service of water management

Natural Water Retention Measures

Following the "Blueprint" published in 2012 by the European Commission, the Natural Water Retention Measures (NWRM) imposed themselves as eco-engineering solutions, which are part of a sustainable development approach and resilience to climate change.

What are the "NWRM"?

The Natural Water Retention Measures are based on the capacities of natural or man-made ecosystems to ensure better water management.

Characterized by their multi-functionality, they may provide multiple benefits: reducing risks from floods and droughts, improving water quality, aquifer recharge and improving habitats.

A reference web platform

The project, coordinated by **IOWater** and completed in 2015, identifies the **53 recommended eco-engineering measures** and provides answers on their implementation, their economic aspects and their biophysical impacts.

All the knowledge is available on the project website, which is now the European Reference Platform on this topic.

Many technical illustrations and information, through case studies and synthesis, as well as operational tools for decision-makers and stakeholders, are proposed.

Practical guidelines, translated into 15 languages, explicit the NWRM implementation in a coherent and coordinated approach.

They highlight the multiple benefits provided by the measures identified in the following four major sectors: hydro-morphology of rivers, forest management, agricultural practices and urban development.

Example of green roofs

This project shows the relevance of eco-engineering in the European strategy including many Directives (Water Framework Directive, Flood Directive, Habitats Directive, etc.), and proposes an inflection towards "green infrastructure" in future local or regional planning.

www.nwrm.eu

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European Commission

Drinking water intakes and diffuse pollution

Comparative study of European practices used in protecting catchment areas

A study made in 2015 by the **International Office for Water (IOWater),** the National Agency for Water and Aquatic Environments (ONEMA) and the Water and Biodiversity Department (DEB) of the French Ministry of Ecology, Sustainable Development and Energy, identified and analyzed the practices of several European countries as regards diffuse pollution control to protect intakes of water intended for human consumption.

This work was motivated by the fact that diffuse pollution, mainly from agriculture, is a major current issue, as recently reminded by the European Commission in its report of March 2015 on the progress made in the implementation of the Water Framework Directive (WFD).

This compendium of good practices also contributes to the activities related to the Science and Policy Interface (SPI) led by **"ONEMA"** and **IOWater** for several years.

Four countries were studied: France, Spain, the United Kingdom and Germany.

The final report consists of a cross analysis of all collected information, in French and English, and appendices comprising a detailed profile sheet for each country.

The study was published in the **IOWater** collection of Technical Syntheses.

Each appended country profile includes a presentation of its direct catchment protection strategy and action plans that more specifically concern the control of diffuse pollution of raw water.

The study is available in English on:

http://documentation.oieau.org

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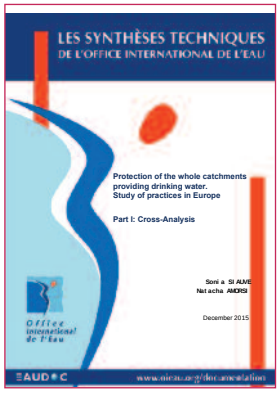
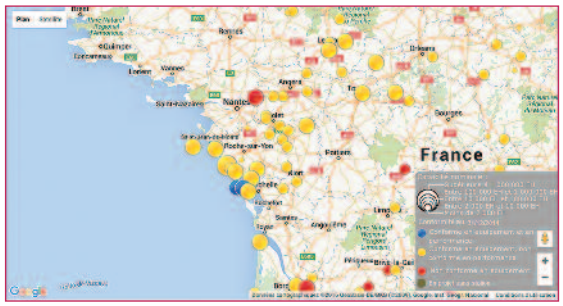


A SIIF for the Urban Waste Water Directive

Data on Sanitation in Europe

IOWater, in collaboration with UBA (Austria), is testing and applying the SIIF (Structured Implementation and Information Framework) to the Urban Waste Water Directive (91/271/EEC) for the European Commission.



Launched in 2013, this project has gradually involved Ireland, Cyprus, Slovenia and Lithuania, then Poland, Romania and Croatia.

The objective was to develop a generic website and an "open source" for a country to display the data it reports to the European Commission every two years, but also to make them readily accessible to all.

The system includes automatic calculations of compliance, a presentation on maps, data access and various printing functions, export or links to individual data sheet per city or wastewater treatment plant.

The website allows homogenously presenting the situation of sanitation in several countries.

Based on a user-friendly interface including maps and graphs, this site provides access to the latest information in a format compliant with standards set by the European Union.

The way it is organized allows for further developments.

Once the system is perfectly operational, the platform will be made available to all the Member States for generalized use.

http://uwwtd.oieau.fr

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European Commission

IOWater still at the core of innovative European Projects

In 2015, **IOWater** continued its activities for the transfer of research results to decision makers **(Science Policy Interface (SPI).** The experiment developed with the **City of Dublin** allowed formalizing the method to test its effectiveness in European river basins.

IOWater is playing an important part in the support of European projects, especially in the new projects launched in 2015 and which will start in the first half of 2016: **"Afri-alliance"** (water and climate change in Europe and Africa), **"Incover"** (reuse of wastewater) and **"Energy Water"** (energy effectiveness in the treatment of industrial process water).

Researchers, public policy decision-makers and managers of water resources and aquatic environments should work better together for better water management in Europe.

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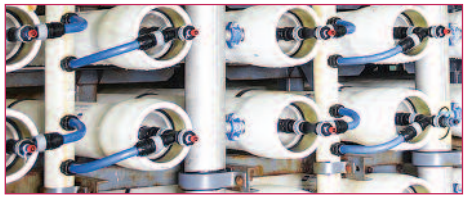
Energy Water



Energy Water, an European H2020 project (2016-2019) gathering 10 partners, aims to allow the European industry to improve energy efficiency in the treatment of industrial process water by reducing energy consumption by 20%.

In order to achieve this goal, good practices, already tested in companies of various sizes and in various industrial branches, will be collected and analyzed to allow sharing experiments between industrialists and mutual training among peers.

The project will especially develop **an Energy Management Self-Assessment (EMSA) collaborative web-tool for process water** and test it on forty industrial sites, it will also support the establishment of a network of auditors and experts (Energy Angels) to assist companies.

IOWater will especially be in charge of all tasks related to:

- The identification of resource persons (managers and auditors), specialists in energy effectiveness, and the training of 200 of them;
- Access to financial sources for the implementation of energy efficiency;
- The development of the business plan to sustain operations beyond the project duration.

Partners:

Castilla-Leon Institute of Technology-ITCL (SP) - Leader, Carbon Trust-CT (GBR) Socamex-Urbaser-SCMX (SP), Cyprus Energy Agency-CEA (CYP), International Office for Water, **IOWater (FRA),** Clean Technology Centre - Cork Institute of Technology-CTC / CIT (IRL), Wings ICT Solutions - WINGS (GR), Water supply and sanitation Technology Platform-WssTP (BEL), Smartfuture.EU-SM (ITA), Okavango-OK (FRA).

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EUROPE - REGIONAL

Eurostat

Improving European Statistics on Water

The statisticians, the representative of Eurostat and the trainers

Eurostat, the statistical service of the European Commission, disseminates water statistics, collected every two years from the Member States in a common format and made available, free of charge, on its website.

This collection is made by the national statistical institutes of the Member States.

To help the national statisticians better understand the main water concepts and the rules of data aggregation for having representative statistics, **Eurostat** offers them training sessions.

In this context, **IOWater received 12 statisticians from eight nationalities** for a three-day training course, from 24 to 26 June 2015. For better understanding of the main sanitation concepts, **a field visit was organized at the Downstream Seine wastewater treatment plant at the invitation of "SIAAP".**

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Materials in contact with drinking water

Study for the Directorate-General for Environment

The Drinking Water Directive (98/83/EC) requires from Member States that they take the necessary steps to ensure that materials in contact with drinking water (pipes, fittings, etc.) cannot cause pollution or contamination of the supplied water.

The 28 Member States use, however, different practices.

The European Commission wants to better understand the materials used by the Member States, their practices for the approval of new materials, their standards and their possible compatibility.

In cooperation with Umweltbundesamt GmbH (Austria), WRc (England), Institute for Water of the Republic of Slovenia (Slovenia) and KWR (Germany), **IOWater** is participating in this study by drafting a handbook on the use of materials for the public and professionals in the sector.

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Belgium

IOWater is confirming its partnerships in Belgium

SBGE wastewater treatment plant

For many years, **IOWater** has been carrying out intra-company training sessions in Belgium, for public and private clients, such as **Veolia Water** at the Brussels wastewater treatment plant, **Igretec** (Charleroi Intercommunity), **BWI** (Intercommunity of the Walloon Brabant), **Lhoist** on correcting aggressive and scaling waters, **SODRAEP** on the exploitation of wastewater treatment plants with activated sludge and **Solvay** on the exploitation of physico-chemical and biological wastewater treatment plants.

Specifically, in 2015, **IOWater** carried out a training course in Dutch on the operation of wastewater treatment plants for the staff of the **Brussels Water Management Company (SBGE-BMWB)** which takes care of the public urban wastewater sewerage system in the Brussels Region.

Moreover, the **IOWater** Training Center is receiving more and more participants from Belgium on its facilities in Limoges and La Souterraine for attending courses listed in its catalogue of training sessions because of the attractiveness of its training offer and educational units, unique in Europe.

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Switzerland

A presence always stronger in Switzerland

IOWater is participating in all the training courses organized by the **Regrouping for the Training of Operators of Wastewater Treatment Plants (FES).**

This 10-week training program is validated by a final written and oral exam chaired by a jury including **IOWater** experts.

This federal Wastewater Treatment Plant Operator diploma was created in 2002 with the first graduates in 2005, and is recognized by the Swiss Confederation.

From 2012 to 2015, **IOWater** especially developed its training activities in Switzerland for industries, such as:

- The Tamoil company at Collombey;
- The CIMO company at Monthey;
- The Merck Serono company at Vevey.

In 2015, like every year, the **Industrial Department of the City of Geneva** asked **IOWater** to train its personnel on the topics of sewerage systems and wastewater treatment plants.

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FES Groupe romand pour la formation des exploitants de station d'épuration

Information: Fax: +33 5 55 11 47 48 - E-mail: nwic@iowater.org

The French National Water Training Center: Capacity building for better water management

Climate change is today at the core of the concerns of all stakeholders in the world of water, waste and the environment.

These same stakeholders are faced with the economic reality of recent years: budgets for training are affected.

The **International Office for Water (IOWater)** integrated these two facts to design its 2016 training offer.

Thus its tariffs remain unchanged as compared to 2015, its offer is expanding with **34 new training courses,** especially on issues directly related to climate change, the impacts of discharges from treatment plants, water efficiency, ecological continuity, etc.

It was the same as concerns the conception of the program of the **IOWater's Days and Regional meetings,** in which the renewed topics will include in 2016 the reuse of treated wastewater, patrimonial management of water supply systems, storm water management, etc.

The whole training offer provided by the **IOWater's French National Water Training Center (FNWTC)** is presented in its catalogues under the headings:

- **"Water",** this catalogue presents all the training courses dedicated to the large water cycle and urban water cycle, and all support functions (service management, safety, maintenance, metrology ...).
- **"Waste - Environment",** this catalogue contains a range of training courses focusing on the collection, sorting, management, organization of services and waste recycling.
- **"Water - Irrigation - Agriculture"** is intended for the farming community and irrigators.
- **"Water and adaptation to climate change",** especially published for the COP21 in Paris.

In 2015, more than 6,000 professionals were trained in **IOWater's French National Water Training Center,** either on its facilities in Limoges and La Souterraine, or directly on the premises of its clients in France, Europe and in the World.

Coming from both public services and the private sector, these field workers, technicians, engineers, department heads, elected officials ... acquired from **IOWater** trainers the know-how, skills and methods necessary for the good control and evolution of their jobs or functions in everyday life. This learning can be measured by the acquired knowledge assessment tools proposed by the **FNWTC.**

To support the development of vocational training in France, in Europe and in the World, **IOWater has developed training certification and "professional" curricula.** Each module provides the knowledge base and essential skills needed in a profession related to water, waste and the environment. Evaluated by a jury of professionals, the participants in these courses can obtain the **"International Office for Water qualification".**

The FNWTC is certified ISO 9001, Version 2008. ✔

Upon request, all these IOWater training courses may be carried out in English for groups of trainees.

2016 Training on "Water - Irrigation and Agriculture"

Since 2013, the FNWTC has been proposing a catalogue specifically addressed to professionals in irrigation and agriculture, with 16 training modules, divided into 18 sessions on the topics:

- **Design and sizing of irrigation systems,**
- **Management and operation of irrigation systems,**
- **Water resources for agriculture,**
- **Treatment and recovery of agricultural effluents.**

Precise management of water resources, reuse of agricultural effluents, control of land application ... are matters that require specialized skills and well trained and qualified professionals.

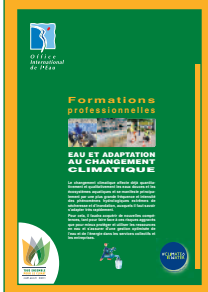
In 2016, **IOWater** is developing its offer for farmers and project managers of the Chambers of Agriculture and proposes **3 new training courses in its catalogue:**

- **Wastewater reuse for irrigation,**
- **Methanization at the farm,**
- **Profitability calculation of methanization at the farm.**

✔

The NWTC at La Souterraine

"Water and adaptation to climate change" Catalogue



On the occasion of the COP 21, IOWater published a training catalogue on the theme of water and adaptation to climate change.

Indeed, climate change affects the quantity and quality of water resources and aquatic ecosystems through the increased frequency and intensity of extreme hydrological phenomena of drought and floods.

To contribute to the acquisition of new skills to deal with these risks, to better protect and use water resources, **IOWater** is proposing to water and sanitation services and to all water stakeholders training courses meeting these needs. ✔

EUROPE – FRANCE

The French National Water Training Center

The "Water" Catalogue for 2016

The "Water" catalogue for 2016 regroups 338 training programs divided into 418 training courses with a new division into 19 major main headings:

- **Discovery of the profession,**
- **Regulation and service management,**
- **Personal safety,**
- **Metrology and analysis,**
- **Drilling and pumping,**
- **Drinking water production,**
- **Drinking water supply,**
- **Domestic systems, health protection and rainwater,**
- **On-site sanitation,**
- **Sewerage and stormwater drainage,**
- **Urban wastewater treatment,**
- **Treatment of sludge and odors,**
- **Maintenance, energy, automation and remote management,**
- **Swimming pool and bathing waters,**
- **Rivers and water bodies,**
- **Groundwater,**
- **Water in agriculture,**
- **Water in industry,**
- **Decentralized cooperation.**

In 2016, 33 new courses are proposed in the catalogue.

24 qualifying training programs and about 15 IOWater qualifying courses, distributed into different sections are also proposed this year.

Completely redesigned and adapted, these programs can, upon request, be adjusted to make a customized training program according to the needs, lasting several months or even a year or two.

IOWater also made an effort to digitize its training offer on:

- **"Water purification-module 1: conventional processes",** to offer participants a larger content, remotely accessible and updated over time according to new evolutions,
- **Training in webinars (1h:30mn) is proposed on topics such as "Water social tariffs" and "Biodiversity notions".**

The current events being also focusing on the administrative, legislative and regulatory consequences of the legislation in the field of water, about twelve training modules related to this topic are specifically identified.


Practical work for pipe detection

Willing to propose effective and modern teaching facilities, **IOWater** fully rehabilitated and expanded its educational platform on **"detection of buried pipes and leaks"** in its center of Limoges. This new multi-material space (cast iron, PE - polyethylene, HDPE - High-Density Polyethylene) 800 meters long is equipped with the latest performance-enhancing technologies: RFID (Radio Frequency IDentification) chips, pressure modulation, sectoring, prior location of a fixed station ... This facility will train and assess the participants' skills in different situations with various equipment representing the daily reality of their jobs.

✔

2016 Training program "Waste, Environment, Sustainable Development"

In its catalogue "Waste - Environment" 2016, the FNWTC proposes 58 training programs organized in 67 training courses on the topics:

- **Discovery of the "Waste" sector,**
- **Management of a "Waste" utility,**
- **Technical management of waste,**
- **Treatment and recovery,**
- **Maintenance and automation,**
- **Safety at work,**
- **Environment: air, noise, sites and soils, transportation,**
- **Sustainable development.**

Four new courses are proposed in the catalogue, as well as **two IOWater qualifying courses,** which can, upon request, be adjusted to make a customized training program according to the needs, lasting several months or even a year or two.

Two components of our training offer were expanded and updated:

- **Bio-waste management and biogas,**
- **Communication and participatory facilitation.**

✔

Upon request, all these IOWater training courses may be carried out in English for groups of trainees.

IOWater-FNWTC's complete training offer can be consulted on the website:
www.iowater.org/nwtc

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EUROPE – FRANCE

The French National Water Training Center

Asbestos-cement networks

The employees of operators and public works companies are daily intervening on asbestos cement pipes, which have been laid in the soil for years before being banned.

The French regulations on asbestos have been strengthened, especially with Orders, defining the modalities for the training of workers on the prevention of risks related to asbestos.

These texts helped to have a new approach of the work to be done and to develop the training of employees in charge of this work in terms of safety, knowledge, skills and duration.

The actions on Asbestos-Containing Materials (ACM) have been governed by new prevention rules based on the dust levels that may be encountered.

Dust levels and a new exposure limit for the staff were fixed.

For the different types of projects, the French Labor Code established provisions in terms of risk analysis, definition of intervention procedure, use of personal protective equipment, waste management, but also for the employers monitoring the employees' exposure and enhanced medical supervision.

"Aerial sewerage" platform at La Souterraine

Given this technical and regulatory development for the protection of employees as well as for bids to which the companies answer, the **FNWTC** offers, from 2016 onwards, training on its "catalogue" and intra-enterprises training.

In addition to these courses, **IOWater** will build a new **"Asbestos"** educational platform in 2016.

This new tool will help to provide practical training on the implementation of predefined protocols and on interventions in accordance with the regulations in force.

✔

Lebanon

Project to establish a Water Training Center

In June 2015, IOWater carried out an expert mission in Lebanon, on request from the French Development Agency (AFD), to optimize the project for the establishment of a Water Training Center in Beirut, as part of the "Water Information and Training Center" (CIFME), initiated in 2008 by the **Ministry of Energy and Wate**r (Directorate General of Water and Electric Resources - DGRHE), **a project that was approved by the Union for the Mediterranean (UfM) on 7 April 2014.**

The main recommendations made by IOWater deal with the necessary implementation of a Training Development Plan for the staffs of the water sector in Lebanon, the need to include training in human resources management practices in the sector and with the recognized advantage of the training center planned for in this global strategy.

✔

Platform on leak detection and improvement of systems performance

Reducing losses in water supply systems is a national challenge regarding the quantitative preservation of resources for drinking water use.

Repair of the leak detection platform

In France, the Law of July 2010 and its application decrees give the drinking water supply utilities a performance target based on the performance of the supply system. Utilities that do not meet this target are required to establish an action plan including a multi-year system improvement work plan.

IOWater has taken these recommendations into account through:

- **Training courses** on patrimonial management of drinking water supply systems, management of meters, improvement of the system performance, detection of leaks and buried pipes...;
- **Technical leaflets:** leak detection and metering;
- **Educational facilities:** buried system for the detection of leaks and pipes, flow measurement bench, counting equipment,...

As the techniques and technologies for the detection of leaks and pipes have evolved in the past years, **IOWater** decided to modernize the buried system for leak detection of its center in Limoges.

Thus, nearly 800 m of multi-material pipes were laid out in the summer of 2015, for reconstituting an urban drinking water system on a small scale.

All the latest performance-enhancing technologies have been integrated (RFID chips, pressure modulation, sectoring, prelocation of a fixed station...) to enable immediate implementation of the action recommended by the regulations. ✔

EUROPE – FRANCE

Audits and Studies

"QUÉBEC'EAU"

The "QUÉBEC'EAU" stand at the AMERICANA exhibition

"QUÉBEC'EAU", a new Non-Profit Organization (NPO) under Canadian Law, was launched during the great AMERICANA exhibition in March 2015 in Montreal.

It relies on a partnership between **"Réseau Environnement",** which is the reference organization in the field of environment in Quebec, and the **International Office for Water (IOWater),** with its experience of nearly 40 years in professional training in the field of water.

"QUÉBEC'EAU" pools continuing training materials, working together with all the Quebec stakeholders, to provide a range as wide as possible of educational products.

www.quebec-eau.org

✔

Québec eau

Sociological survey

What happens to your medicines?

As part of the European Nopills research project, **IOWater,** in collaboration with "GRESE", a research unit of the University of Limoges, completed in late 2014 and early 2015 a sociological study on the perceptions of drug residues in the waters of Limoges Metropolis.

The study took place in several steps.

After a documentary search, a typology of the different stakeholders of the medicine cycle has been developed, which helped to identify the stakeholder involved and achieve a qualitative survey (22 semi-structured interviews with health and water professionals, regulators and pharmaceutical companies) and a quantitative survey (Questionnaires for inhabitants-users and prescriber).

An evening discussion closed the study.


Closing evening discussion

The results are available on the site:

medicaments.oieau.fr

✔

Université de Limoges

Large metropolitan areas: Resizing the drinking water supply, sanitation and urban drainage services

When the agglomeration includes many suburban municipalities around the central town, there is particularly a need to incorporate water services into a coherent and integrated system.

While maintaining municipalities as authorities at the very local level, one of the key measures is to strengthen inter-municipalities with the transfer of these responsibilities.

Of course, the transfer of responsibilities remains a period of doubt and uncertainty for municipalities and services: What organization to establish to improve the efficiency of services? How to size the future service? How new investments will be selected? What are the modalities of transfer and integration of municipal staff? How to harmonize management methods and pricing? How to manage the relationship with customers? ... These questions will have to find solutions suited to the local constraints and contexts.

IOWater has developed a recognized expertise in many French municipalities (Perpignan, Blois, Voiron, Limoges, ...) to help to meet some big challenges, such as:

Optimizing the new organization of the water and sanitation services

The extension of the scope of action of the water and sanitation utilities will inevitably raise organizational questions about human and material resources and the need to design a new efficient organization.

Adapting human resources

The transfer of responsibilities usually goes with the transfer of staff from the former local authorities. It is necessary to develop skills and a Human Resources Adaptation Strategy in the short or medium term.

Establishing a pricing strategy

Today, many utilities are facing significant investment needs. A good pricing strategy, well applied in the short to medium term, can give unsuspected flexibility.

Establishing social pricing

The increase in the number of households in precarious situations, the growing pressure on water resources, with climate changes coming ... require water and sanitation services to consider new forms of pricing to preserve their financial capacities.

Improving the recovery rate of bills

This is a greater reason to be efficient in managing the relations with customers. Powerful software does exist with multiple features covering all needs. But the right choice in selecting the right tools must be made while taking into account the context and constraints of the service.

✔

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EUROPE – FRANCE

Audits and Studies

Management of community sanitation systems

Performance indicators

As part of its Multi-Year Target Agreement with "ONEMA", **IOWater** proposed an approach using performance indicators and variables to help with the operational management of community sanitation systems.

It means assessing the community sanitation and wastewater treatment systems to define actions for improving their operation and management.

In a first step, a limited list of the most relevant indicators and variables was established to monitor the status of public sanitation and wastewater treatment systems.

Then operating support tables were developed for the Service: one of them shows the defects and / or major malfunctions that can be identified by these indicators.

Another highlights the causes and consequences of malfunction, and defines the main corrective or preventive actions to maintain or restore performance at a good level.

With good indicators, integrated management of community sanitation systems and their patrimonial management can then be dealt with in a pragmatic manner.

✔

"SIAAP"

Educational audit

Aerial view of the Downstream Seine wastewater treatment plant

Upon the request of the Interdepartmental Syndicate for Sanitation of Greater Paris (SIAAP), an educational audit was carried out at the Downstream Seine Wastewater Treatment Plant (WWTP) from September 2015 to February 2016.

The downstream Seine plant is being renovated for increased performance and better environmental protection.

This audit follows a first one that **IOWater** carried out in 2013-2014 with the workers assigned to pretreatment at the plant.

This time, **nearly a hundred agents of the biological production unit are concerned.**

As in 2013-2014, the audit took place progressively in stages, in close and continuing consultation with "SIAAP" representatives.

This audit was deemed necessary so that the agents could optimally operate the new facilities.

The audit shall lead to a training plan for these agents that includes various modules to be implemented in the process, before the workers operate the new facilities.

The conclusions of the first audit had been particularly well received.

This work on jobs and skills is crucial for an organization like "SIAAP" and for a plant as huge as the downstream Seine one.

With this audit, **IOWater** is widening its know-how and shows its capacity to help water stakeholders in the management and improvement of their skills.

✔

SIAAP

Service public de l'assainissement francilien

Energy optimization and audit

The "La Folie" wastewater treatment plant

In 2014 and 2015, **IOWater** contributed to a study on energy optimization of the wastewater treatment plant of Poitiers (La Folie), representing 160,000 pop.eq.

This study was to analyze the water treatment process and seek for global ways to optimize energy consumption. The technical data were provided by the Greater Poitiers Agglomeration.

Using energy consumptions and possibilities for improvement of the processing steps, **IOWater** proposed several scenarios and tracks for energy savings. Among these, we may mention:

- Closer monitoring of energy consumption and validation of energy meters;
- Rational use of variable speed drives on some equipment;
- The possibility of reusing the sludge produced by using digesters and producing biogas.

The relevance of some solutions was studied, such as the use of turbines or heat recovery on the collectors or at the wastewater treatment plant.

This study was presented by the **Greater Poitiers Agglomeration** during a technical day organized by **IOWater,** whose topic was **"Energy saving and production in the water and sanitation sector".**

✔

EUROPE – FRANCE

Audits and Studies

The National Agency for Radioactive Waste Management (ANDRA)

Preliminary study for the emptying and cleaning of two storm water basins

Aerial view of the Haute-Marne Meuse Center (storm water basins)

The National Agency for Radioactive Waste Management (ANDRA) has, in its Haute-Marne Meuse Center, an underground laboratory that allows the in situ study of the clay layer.

The Laboratory site consists of surface facilities (administrative buildings, workshops, laboratories and public reception building) over an area of about 17 hectares, and underground facilities located directly in the clay layer.

Waste water, storm water and drilling water are collected and directed to a dual-purpose retention basin.

The monthly analyses performed at the outlet of the site and in these basins showed an increase in nitrogenous and phosphorous organic loads, a significant growth of algae and the presence of fine suspended particles.

After a bathymetric survey, "ANDRA" decided to empty and clean these basins in operation since 2001.

Upon ANDRA's request and after integrating various constraints, **IOWater:**

- Proposed the best techniques to use for the emptying, cleaning, drying of the extracted sludge and its removal (loading, transport and possible outlets);
- Described the developments to be made in the facilities that were proven necessary for the success of the operation;
- Performed a timing of the operation with a provisional schedule;
- Estimated the costs per operator station;
- Completed the review of regulatory requirements and administrative procedures needed to start such an operation;
- Proposed management rules and additional equipment to improve the water quality at the outlet of these basins after emptying.

✔

Construction of a measuring bench for the water distribution of irrigation sprinklers

"IRSTEA" (Institute for Research in Science and Technology for the Environment and Agriculture), requested the I**nternational Office for Water** to develop 4 mobile measurement modules equipped each with 40 regularly spaced collection tubes for measuring the water distribution of irrigation sprinklers.

Measuring module being assembled

At the end of the tests, the water levels in each tube are automatically collected and recorded through a program developed under the Labview environment.

This pilot test allows to compare objectively different irrigation equipments and determine which, under defined conditions, will yield the best results.

✔

Water Agriculture Diffuse pollution

Since 2002, **IOWater** has built its skills in agronomy and hydrology to participate in programs for controlling diffuse agricultural pollution in aquatic environments.

With the support of the Ministries of Ecology and Agriculture and "ONEMA", **IOWater** analyzed water quality data, eutrophication data and agricultural data.

In 2015, **IOWater** worked on:

- The preparation of the quadrennial report on the Nitrates Directive for the European Commission, regarding the 2014-2015 measurement campaign,
- The updating of the Environmental Assessment of the National Nitrates Action Plan,
- The establishment of a platform for data on the pressures (including agricultural) exerted on the environments.

✔

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EUROPE – FRANCE

Audits and Studies

Adour-Garonne Water Agency

Audit and evaluation of the Quality Charter for laying out sewerage pipes

IOWater is helping the Adour-Garonne Water Agency in assessing the implementation of the Quality Charter for laying out sewerage pipes.

Step by step, from operating decision through design and monitoring of the work up to acceptance of the latter, the audit analysis identifies the key blocking points as well as the major successes.

The results, based on a panel of operations representative of the worksites that were undertaken over the last three years, will propose, in order to make best use of public funds, adaptations and tools enhancing the effectiveness of the Charter and therefore the quality of the work.

✔

AGENCE DE L'EAU ADOUR-GARONNE

Technical support to drinking water production

Intermunicipal Syndicate for Drinking Water Supply (SIAEP) at La Saunière

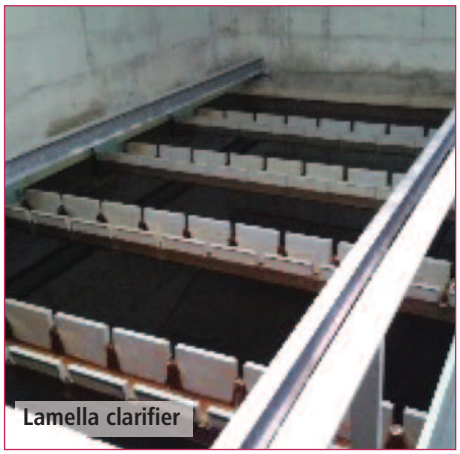
For over 20 years, the **International Office for Water (IOWater)** has carried out many audits for local authorities and industry to enable them to better manage their facilities.

In 2015, the **Intermunicipal Syndicate for Drinking Water Supply (SIAEP) at La Saunière** asked **IOWater** to carry out an assessment of the operation of the Beaumont plant which was rehabilitated in 2009.

The raw surface water feeding this plant contains high load of organic matter from soil leaching and also iron and cyanobacteria.

Recurring TOC excesses (organic matter) are observed in the treated water analyses carried out by the Regional Health Agency (ARS) at the plant outlet.

Closed sand filtration



Lamella clarifier

After tests carried out on site, several recommendations were made, including the need for optimization of the plant automation to reduce water losses.

Some small investments were also suggested and many operating advices were given.

These recommendations should allow for reagent savings and significantly reduce water losses and therefore substantially reduce operating cost.

✔

EUROPE – FRANCE

Information – Documentation – Data Management

The documentary Portal on water and aquatic environments

IOWater, with "ONEMA"'s support, is developing "The technical documents on water" Portal, which provides access to over 75,000 documentary notes, made available by 21 contributor Organizations: Ministry of Ecology, ONEMA, Water Agencies, IOWater, Research Organizations (IRSTEA, IFREMER, INRA, BRGM), 4 relay centers for wetlands, the Water Offices of the Martinique and Reunion and two scientific journals: Aquatic Living Resources (ALR) and Knowledge Management of Aquatic Ecosystems (KMAE).

This portal meets the requirements of transparency and access to environmental information demanded by the International Aarhus Convention.

A network of water-related documentary skills has been built around this portal, a true partnership between the various water stakeholders who share common interests: the pooling of services and products, the use of common tools.

www.documentation.eaufrance.fr

✔

"GEST'EAU"

Promoting sound and sustainable water resources management

IOWater is now developing the community of French Water Development and Management Plans (SAGE) and Environment Contracts (rivers, bays, aquifers), with "ONEMA"'s support.

Its goal: to promote the sharing of knowledge between the stakeholders involved in local procedures for integrated water management.

The "Gest'eau" website recorded more than 1.3 million visits in 2015.

www.gesteau.fr

✔

A glossary on water and aquatic environments

The glossary on water and aquatic environments is a collaborative tool, made by **IOWater** with "ONEMA"'s support, that results from the pooling of fifty glossaries since 2010, in order to develop a semantic data model.

It includes about **1,340 terms** currently available in English, French and Spanish. This is a "collaborative" website, which means that any user can propose to amend it, delete some words or add others. Proposals are evaluated by a group of users. **The website content is entirely free and reusable.**

Current efforts are based on the linking of the glossary terms with "SANDRE" concepts, Water Thesaurus©, Wikipedia articles (DBpedia) and the GEMET thesaurus of the European Environment Agency.

www.glossaire.eaufrance.fr

✔

Loire River Basin

Implementation of a management chart on Research-Development-Innovation

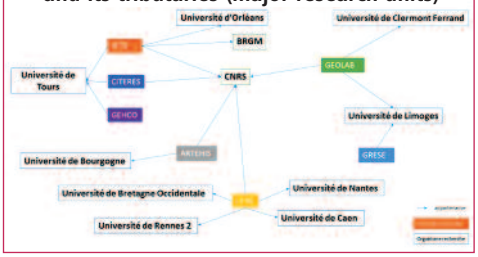
The "2014 management chart on Research-Development-Innovation (RDI) on integrated management of the Loire Basin and its tributaries" was implemented by **IOWater** on behalf of the **Loire Public Body.**

It provides an analysis of the RDI status regarding the river and its tributaries.

The study focused on the structuring of research especially through the stakeholders and donors involved.

Research capacity indicators compared with bibliometric analysis indicators have shown the importance of European ERDF and basin funding (Loire Public Body and Loire-Brittany Water Agency). ✔

Structuring research in the Loire Basin and its tributaries (major research units)



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EUROPE – FRANCE

Data Management

"SANDRE" Technical Secretariat

French National Service for Water Data and Common Reference Frames Management

Establishing a common language

Given the proliferation of the information systems used and the growing need for data, the **"SANDRE"** was created in 1992 to simplify the exchange of these data between the various French 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 more than 20,000 pages of technical specifications. It establishes compliance labels for over 15,000 files per year and more than 30,000 interventions (taxons, substances, etc.). Its website receives more than 817,000 visitors a year.

IOWater has been entrusted with "SANDRE" Technical Secretariat since it establishment in 1992 and, now, with the support of the National Agency for Water and Aquatic Environments (ONEMA).

As **"SANDRE"** Technical Secretariat, **IOWater** especially intervene for:

➥ INSPIRE

Under the European INSPIRE Directive, IOWater is a contributing member to the writing of specifications on the interchange of water data.

An approximating of **"SANDRE"** and **INSPIRE** models is updated on the "SANDRE" website.

The new **"SANDRE"** data dictionaries related to the administrative repository and to sections for flood monitoring are now compatible with this European Directive.

The result of this **"SANDRE" / INSPIRE** approximation is materialized by a new **"SANDRE"** product. This is a new specification document named **"SANDRE" -> INSPIRE transformation scenario.**

➥ Interoperability

IOWater participated in the "Hydrology" Sub-Working Group of the **Open Geospatial Consortium (OGC).** This international subgroup is interested in describing and sharing geographic data on hydrology. It produces OGC standards that IOWater uses for the dissemination of **"SANDRE"** reference frames.

The working subgroup "hydrology" of the OGC

As part of the implementation of a "data Web", IOWater has established a catalogue of **"SANDRE"** resources: as a bar code of a product, each **"SANDRE"** resource is identified by a URI (Uniform Resource Identifier) and is accessible through the address id.eaufrance.fr.

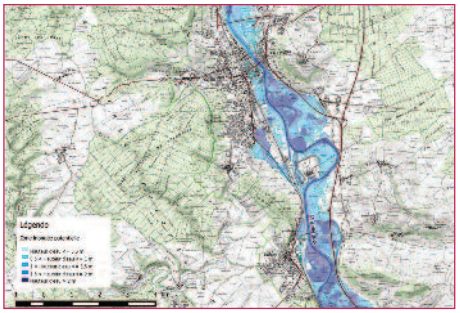
As a logical continuation, IOWater developed its Master Data Management (MDM) to manage and disseminate **"SANDRE"** reference frames, according to this new semantic model. Very soon, the whole web will be able to link almost automatically to **"SANDRE"** references frames.

➥ Data quality

About 12,000 **"SANDRE"** certificates were issued to stakeholders producing data on **"Self-monitoring of wastewater treatment plants and collection systems".**

A **"SANDRE"** scenario defines the modalities of exchanging self-monitoring data between the different stakeholders involved. Contracting Authorities and operators of wastewater collection and treatment systems, Water Agencies, technical assistance services, Water Police Services, etc.

➥ Flood forecasting



With the French **Central Hydrometeorology and Flood Forecasting Support Service (Schapi), IOWater** modeled the flood forecasting data that are based on the notion of potential flood-prone area.

The latter represents the flooded surface or the possible flooding area with a water depth measured on a limnimetric scale at the nearest or most representative gauging station.

➥ Monitoring Stations for inland surface water quality

The repository of the French stations monitoring inland surface water quality, administered by the Water Agencies for continental France and the Water Offices for Overseas, currently consists of nearly 23,000 monitoring stations and of their 73,000 sampling points.

Constituting the reference information for many WIS applications, this repository is regularly updated by IOWater on "SANDRE" website.

✔

http://sandre.eaufrance.fr

Croatia

Medjimurske Vode d.o.o.: Financial and Operational Performance Improvement Program (FOPIP)

The Regional Medjimurje County Water and Sewerage Company (138 employees), **Medjimurske Vode d.o.o. (MV),** obtained a loan from the **European Bank for Reconstruction and Development (EBRD)** in December 2012 to finance the construction of new sewage drains and a wastewater treatment facility for the municipality of Novo Selo na Dravi.

In order to ensure that the new investments will be fully integrated and result in the highest level of operational and financial efficiency, **EBRD is also financing a Financial and Operational Performance Improvement Program (FOPIP) for technical assistance.**

The Program aims to:

- Reduce the discharge of untreated wastewaters into the rivers in Medimurska County;
- Improve the financial and operational performance of the Company and its environmental and social management practices;
- Create a contractual relationship between the City and the Company and, if needed, with other Shareholders.

The **BRL/International Office for Water** consortium has been selected by MV to implement the FOPIP project that will last 24 months.

A contract was signed on the 18th of December 2014 and the project officially started the 15th of February 2015.

A detailed assessment of the company organization and performance was implemented in the first 3 months of the project where opportunities for improvement were identified.

In a second step, strategic actions were defined in close collaboration with MV management and a Performance Improvement Program was elaborated.

✔

Macedonia

Institutional capacity building and improvement of legislation for water resources management

IOWater implemented, in partnership with Ramboll, a technical assistance project for capacity building of the Ministry for the Environment of Macedonia, for the development of legislation on water.

The project, with a 2-year duration (2014 - 2015), was funded by the European Union.

IOWater carried out 2 of the 3 project activities concerning:

- The improvement of the legislative framework for water resources management in Macedonia;
- The development of the first elements of a Basin Management Plan for the Vardar River.

A thorough analysis of the Macedonian legislation on water management was carried out to identify disparities with the obligations of the various European water-related Directives.

Recommendations for amending existing laws were proposed and the missing texts in secondary legislation were drafted.

Before their adoption by the Parliament, the Ministry for the Environment required a regulatory impact assessment of the proposed new texts.

The four initial elements developed by the project for **the Vardar River Basin Management Plan include:**

- Establishment of an official list of the Basin Water Bodies with definition of their typology;
- Characterization of the identified Water Bodies;
- Identification of pressures on Water Bodies and identification of those at risk;
- Inventory and mapping of protected areas;
- Development of a new Monitoring Plan.

One of the project priorities was the training and capacity building of the Ministry's water department staff.

Final project meeting

Many training courses of short duration were carried out, as well as training handbooks presenting the methodology used at the different stages of the preparation of the Vardar River Basin Management Plan.

✔

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EMWIS

SEMIDE
EMWIS

Better management of knowledge on water in the Mediterranean


Workshop on spatial hydrology - Frascati - Italy - September 2015

Earth observation and information sharing

The Earth observation satellite programs allow considering new possibilities for knowledge of water resources and environments.

Operational services are being developed.

The recent **Hydrospace 2015** workshop, organized in September 2015 at the **European Space Agency,** helped to make an assessment.

Such operational applications will be validated by the SWOS project as regards wetlands or river basins.

EMWIS is participating in this wetlands observation satellite system project to incorporate the needs of water resource managers in connection with the EU Water Directives.

At the same time, the European neighborhood countries are preparing the implementation of **Shared Environment Information Systems (SEIS).**

In coordination with the European Environment Agency, **EMWIS** provides technical support, to Morocco in particular, for interoperability and common reference frames, to Algeria for the architecture of the information system, to Israel for environmental accounting of polluting emissions into water.

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Technological innovations to meet the Mediterranean challenges

EMWIS is getting mobilized in several European projects to develop technological solutions to respond to the challenges of sustainable water management in the Mediterranean.

The **OpIRIS** project is working to improve irrigation efficiency thanks to online expert systems to help irrigation planning.

The **WEAM4i** projects aim to develop automated irrigation management systems for farms.

Given the scarcity of the resource, the reuse of treated wastewater is becoming mandatory, but it is necessary to make use of efficient and economically viable processes, tested by the **demEAUmed** project for the tourist sector, in particular.

The **SAID** project proposes a homogenous decision-making support system that integrates all the necessary parameters for optimizing the management of large hydraulic structures to meet all needs in a river basin.

The **ANADRY** project proposes a cheap and effective process for treating the sludge of wastewater treatment plants for its reuse as fertilizer without any health risk or for energy production.

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Improving water knowledge for adaptation to climate change

The Mediterranean region is particularly vulnerable to the effects of climate change on water resources.

The preparation of adaptation plans requires good knowledge and regular monitoring of water resources and of their uses.

In such a context, **the project of a Mediterranean Water Knowledge Platform was retained as a solution at the MedCop21** and presented as a Mediterranean proposal for the climate conference of Paris in December 2015 (COP21).

This platform, which was **certified by the Union for the Mediterranean in 2014,** is also a key element of the Water Strategy Action Plan for the Western Mediterranean region, adopted at ministerial level in March 2015.

http://upm-eau.net

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Fourth workshop of the expert group for the Water Strategy for the Western Mediterranean (5 + 5)
Madrid - September 2015

Union pour la Méditerranée
Union for the Mediterranean

www.emwis.net

THE MEDITERRANEAN

"MED3R"

For better management of urban solid waste in the Mediterranean

The final seminar of the **MED-3R** project for a Euro-Med Strategic Platform for proper waste management, took place in Genoa from 7 to 9 October 2015.

For three years, eight Mediterranean cities (Nice-Riviera Metropolis, Hyeres, Genoa, Sfax, Sousse, Blat, Biblos and Aqaba) have developed solid waste management plans and a set of pilot actions.

Training was provided by **IOWater** to the Southern partners' staff.

Eleven other towns in Albania, Bosnia and Herzegovina, France, Lebanon, Malta, Tunisia and Turkey joined the platform.

The main technical and organizational innovations are identified in a vademecum prepared by **EMWIS** and **IOWater** to facilitate transfer to other territories.


Med-3R Closing Seminar
Genoa - October 2015

www.med-3r.eu

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Algeria

Support to the National Observatory of the Environment and Sustainable Development (ONEDD)

The National Observatory of the Environment and Sustainable Development (ONEDD) is an element of the system implemented by the Algerian State to assess environmental policy as part of the National Environmental Strategy (NES) and the National Action Plan for the Environment and Sustainable Development (PNAEDD).

France was chosen for the implementation of an institutional twinning project to support "ONEDD", in partnership with Austria and with funds from the European Union.

IOWater provides its expertise in shared information system architecture and interoperability to its Algerian partners.

Indeed, the Environmental Information System of Algeria (EIS) is primarily a pooling system for consistent management of environmental data.

To launch the system, the twining project covers a few pilot areas for sustainable management of water resources, industrial pollution, coastal and marine environments, natural resources and solid waste.

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Morocco

Royaume Du Maroc
Ministère délégué auprès du Ministre
de l'Energie des Mines de l'Eau et de l'Environnement
chargé de l'Eau

An ambitious project for Governance and Integrated Water Resources Management


Ourika Valley in Morocco

The **"Governance and Integrated Water Resources Management in Morocco"** project was prepared by the Water Department of the Delegate Ministry in charge of Water at the **Ministry of Energy, Mines, Water and the Environment (MEMEE)** of the Kingdom of Morocco, to benefit from the European experience in order to advance its mission of water resources management and coordination of River Basin Agencies.

France was chosen as the leader of this twinning project in partnership with Spain and Romania and Austrian experts.

Since 1995, Morocco has had a Water Law that constitutes the legal basis for water policy and that allowed, firstly, to establish the principles of Integrated Water Resources Management and, secondly, to institutionalize water resources management at river basin level and the "user pays" principles.

Under the "Achieving Advanced Status" program, the country wants to continue its convergence with the European Community "Acquis". A new water law is being prepared and will benefit from the experience acquired in the implementation of the Water Framework Directive in the three EU Member States.

The project will allow:

- Improving River Basin Management Plans through a pilot experiment in the Sebou Basin;
- Establishing a national program for regulatory convergence in the water sector.

This project of great importance for the entire Moroccan water sector has been implemented by **IOWater** on behalf of the French Ministry of Ecology (MEDDE) since October 2015 for 2 years, with the support of the French Water Agencies, "BRGM" and the main Spanish and Romanian public institutions working on the WFD in their respective countries.

✔

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Tunisia

Support to public policies on water resources management for agriculture and rural development in Tunisia

IOWater is participating in the Program for Support to Public Policies on water resources management for agricultural and rural development (PAPS-Water) in Tunisia, funded by the European Union.

IOWater is part of the **Louis Berger / IOWater / SCET / CCM Consulting** consortium, led by Louis Berger, which was selected to implement the project.

A long-term expert is mobilized by **IOWater** for 2 years on the topic of capacity building for Tunisian stakeholders in the field of IWRM.

12 organizations under the responsibility of the Ministry of the Environment and the Ministry of Agriculture are involved.

The project activities are:

- Development of training plans for the capacity building of the Ministry's staffs working in the water sector;
- Mobilization of research - development in support to the PAPS-Water;
- Dissemination through seminars targeting the staffs of the Regional Agricultural Development Agencies (CRDA) and private experts.
- Training and skills transfer in the field of communication, including the development of a communication strategy and a communication campaign for the **National Water Supply Company (SONEDE) and the Agricultural Training and Popularization Agency (AVFA).**

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Water saving at the plot in Tunisia: where are we now?

It is time to take stock of the situation for the Tunisian Ministry of Agriculture, which launched the first **National Water-Saving Program (PNEE)** for irrigation 20 years ago, in order to control the agricultural water demand and increase economic profit in irrigated agriculture.

Since December 2014, **IOWater** has worked with **Louis Berger** and **SCET-Tunisia** to assess the program as part of PAPS-Water funded by the European Commission.

7 Governorates were concerned: Jendouba, Kairouan, Kasserine, Monastir, Nabeul, Sfax and Sidi Bou Zid.

This study should allow, in one year time, to evaluate the projects of water saving at the plot, assess the "PNEE" impact, identify constraints to its implementation and to make recommendations for improving the performance of the irrigated sector as a whole.

An important complementary arrangement for collecting technical, agronomic and financial data was established with the participation of more than 350 farmers and dozens of Agricultural Development Groups (GDA) in particular.

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Drip irrigation was gradually used in Tunisia instead of other water-saving equipment for irrigation

Palestine

Training sessions for the PWA

Practical work on sludge treatment at the La Souterraine center

As part of the decentralized cooperation activities of the Adour Garonne Water Agency and projects of the French HAMAP NGO, **the National Water Training Center (NWTC) of IOWater had already carried out a two-week training session in 2014,** in its Limoges and La Souterraine centers, on the exploitation of wastewater treatment plants to enhance the skills of the **Palestinian Water Authority (PWA)** and Palestinian municipalities.

As a continuation of this training, the NWTC conducted in August 2015, a one-week training session in Ramallah on the diagnostic of wastewater treatment plants (processes using activated sludge, biological disks, membrane biological reactors, etc.)..

The PWA uses the IOWater toolboxes for the self-monitoring of wastewater treatment plants, which allowed making a quick assessment of several treatment plants in Palestine and optimizing nitrogen treatment.

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Turkey

End of the twinning project on the European Bathing Water Directive

Launched in January 2013, the bathing waters twinning project with Turkey was completed in June 2015.

It was coordinated by IOWater on behalf of the French Ministry of Social Affairs and Health, in collaboration with the Italian Minoprio Foundation, mandated by the Regional Council of Lombardy, and GIP Inter.

The overall objective was to reduce bathing-related risks to public health, through the integration of the provisions of the new European Directive 2006/7/EC into Turkish legislation and introducing innovations to increase monitoring.

This twinning project involved 35 specialists from French and Italian administrations and institutions that carried out more than 170 assignments on all the health and environmental aspects of bathing.

Capacity building of the Ministry of Health and Turkish Public Health Institution as well as of provincial laboratories and other Ministries and partners was developed and their assignments updated according to the innovations introduced by the new European Directive. The twining project especially helped to:

- **Prepare a new classification system** for bathing areas;
- **Develop bathing areas profiles of their vulnerability to pollution,** and an action plan to improve water quality;
- **Collect health and environmental data;**
- **Globally monitor bathing areas,** including the implementation of monitoring programs, public information and crisis management, especially in case of the development of **cyanobacteria and toxic algae;**
- **Improve the technical capacity of test laboratories.**

A major training program was conducted for executives from the Ministry of Health, Public Health Institution, Provincial Health Departments and partner Ministries and Institutions.

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Training of trainers on WFD implementation and development of River Basin Management Plans in Turkey

The General Directorate for Water Management at the Ministry of Forestry and Water Affairs prepared 25 Action Plans for Basin Protection that, by 2023, should be converted into WFD-compliant **River Basin Management Plans.**

Turkey has established Basin Management Committees for its 25 river basins.

In this context, an EU technical assistance project, in which **IOWater** contributed to support the **Turkish Leader WYG** due to its former long cooperation with the Turkish authorities on water management, was undertaken to:

- **Train the future Turkish trainers on WFD implementation and the development of River Basin Management Plans;**
- **Build capacities and ensure the proper operation of the Basin Management Committees.**

The training courses were held from October 2014 to May 2015 with the participation of 57 representatives of various public authorities, universities and NGOs.

Training of trainers

During the training, 9 international training experts, including **IOWater** staff, provided more than 80 hours of training on the WFD and River Basin Management Plans for a total of 177 men-days.

In this training program, more than 30 hours of interactive "role play" sessions were also carried and 30 presentations on the EU's experiences in WFD implementation and development of Management Plans were provided as well as 30 hours of exchanges between trainers and participants in plenary sessions. Some field visits were also organized in Turkey.

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Jordan

Study tour to France

giz

The Jordanian delegation was received at the French Ministry of Ecology

Upon the request of the Jordanian Ministry of Water Resources and Irrigation (MWI), IOWater organized a study tour, in France from 17 to 22 May 2015, on the system used for managing water and its scarcity, for a delegation of senior officials, led by the Secretary General of the MWI, H.E. Basem TELFAH.

The delegation went to Orleans to examine the methods used for the participatory and operational management of the Beauce aquifer.

The study tour is part of a program established with the MWI, thanks to funding from **German Cooperation Agency, GIZ.**

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