

## Adapting to the consequences of climate change



Istanbul - Turkey - March 2009 - 5<sup>th</sup> WWF



Stockholm - Sweden - August 2009 - Europe-INBO



Zhengzhou - China - October 2009 - 4<sup>th</sup> IYRF



Beirut - Lebanon - October 2009 - MENBO

**Global warming now seems to be unavoidable.**

**One of the first consequences will be a change in the hydrological cycles.**

Freshwater resources will be directly affected in the coming years, with for consequences, in particular and according to the regions:

- changes in the intensity and frequency of floods and droughts;
- modification of the flows of rivers coming from mountains, because of the melting of glaciers and reduction of the snow cover;
- increased erosion caused by the modification of plant and soil cover;
- higher plant evapotranspiration leading to changes in agricultural production, regarding irrigation in particular;
- changes in the flows to the river mouths, as well as salt water intrusion inland and in coastal aquifers, because of the increase of sea and ocean level...

The demographic, economic and ecological consequences are likely to be very important and require a worldwide mobilization to quickly prepare the adaptation programs necessary in each river basin.

**This necessary adaptation to the effects of climate change on the hydrological cycles will be at the core of the work of the next 8<sup>th</sup> World General Assembly of INBO, which will be held in Dakar (Senegal) from 20 to 23 January 2010, at the invitation of the Organization for the Development of the Senegal River (OMVS).**

**Register now to participate!**

## Official session 3.1: "Basin Management and Transboundary Cooperation"

### Analysis of the tangible progress made in basin management and transboundary cooperation



The topic of basin management and transboundary cooperation was widely discussed during the recent World Water Forum of Istanbul.

**The International Network of Basin Organizations (INBO) and UNESCO were entrusted with the task of coordinating the five official sessions of Topic 3.1 entirely devoted to this issue and which has been the subject of a broad preparatory mobilization for more than one year:**

- Several regional meetings were organized in 2008 with our partners, in Solo-Surakarta (Indonesia), Venice (Italy), Moscow (Russia), Saragossa (Spain), Sibiu (Romania), Rio (Brazil), etc..., as well as a side event during CSD 16 in New York,
- More than 200 papers were received on the Forum website or directly by the coordinators.

These five sessions, which took place on 20 and 21 March 2009, allowed hearing 63 speeches of very diverse organizations, representing the main streams of opinion and the various parts of the World, including a high proportion of basin organizations presenting their field experience.

The sessions, which were held in a packed room where more than 450 participants stayed during almost the 12 hours planned in the official program of the Forum, left a broad place to debate and rich and lively discussions, sometimes heated, impassioned even!

Such questions as the "international" statute or not of transboundary waters, the methods for financing and implementing common infrastructures, the ratification of the United Nations Convention of 1997 or the management of transboundary aquifers saw divergent positions clashing, sometimes vehemently expressed, especially from our numerous Turkish colleagues, showing that it is still difficult to achieve real consensus.

But a vast majority of the participants converged on the advantage of national and transboundary basin approaches to face the great global challenges of water resources management.

Taking account of these many contributions and apart from the most radical positions, **the findings and recommendations can be summarized as follows:**

- **Strong political will and long-term commitment are** prerequisites for basin management and transboundary cooperation in the face of future changes,
- Significant progress has already been made since the 1990s with reforms undertaken in many regions and countries around the world. **The gained experience allows now saying that integrated water resources management at the level of river and aquifer basins is a real advantage.** These experiences allow proposing guidance to countries which want to implement efficient basin management and reinforce their transboundary cooperation.

**The progress made so far is however insufficient to meet the requirements of a globally changing world.**

Adaptive strategies, focused on maintaining the integrity of river basins and aquifer systems, should become the norm in national and international policy.

This will require:

- ① **Surface water to be managed in river and lake basin units and groundwater to be managed in aquifer systems units** - where the two resources are used together, they should be jointly managed conjunctively;
- ② **Essential quantitative and qualitative information** on resources, their uses, polluting pressures, ecosystems and their functions, the follow-up of their evolution, risk assessment and financial challenges of the sector **should be obtained and made accessible.** This information should be used as the objective basis for dialogue, negotiation, decision-making and evaluation of undertaken actions, as well as coordination of financing from the various donors;
- ③ The participation in decision-making of the concerned Governmental Administrations and local Authorities, the representatives of different categories of users and associations for environmental protection or of public interest. **This participation would be better organized in Basin Committees or Councils;**
- ④ **Basin management plans or master plans clearly stating the long-term objectives** to be achieved to guarantee water resource integrity;
- ⑤ **Significant increase in training and educational programs for responding to the adaptation needs in cooperation building and basin management;**

5<sup>th</sup> WORLD WATER FORUM  
I S T A N B U L 2 0 0 9



[www.inbo-news.org](http://www.inbo-news.org)

[www.unesco.org](http://www.unesco.org)



# - 22 March 2009



Large and enthusiast audience

⑥ Mobilization of financial resources to meet the needs of countries in this field, taking account of their socioeconomic, cultural, and geopolitical specificity. **It is necessary to set up everywhere complementary funding systems that are based on the participation and common cause of the users.** Water charges mechanisms established for basin management can enable the use of the polluter-pays and user-pays principles and may have an interactive effect on consumption reduction and pollution control.

As global inventories of transboundary basins and aquifer systems and their technical and socioeconomic peculiarities are now completed, through the global programs supported by PCCP, World Water Assessment Program, ISARM, EU-WFD, EUWI, INBO-AP, the GEF and others, available **conventions and agreements should be ratified by the riparian States concerned.**

Furthermore cooperation agreements need to be drafted at global, basin and aquifer levels to achieve necessary and sound cooperation.

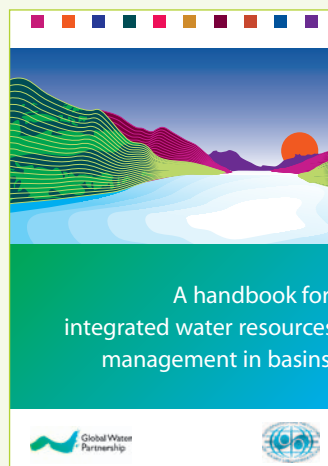
**In the same manner, institutions such as basin organizations should be created to nurture transboundary cooperation and strengthen communication and dialogue among partners.**

Existing or developing legal instruments as well as adapted technical tools and gained experiences should be further disseminated through efforts of agencies and networks of basin organizations to promote transboundary water resources management.

**In parallel to the official sessions of the Forum, several side events allowed presenting a broad range of field experiments and direct exchanges between managers of basin organizations:** the meeting organized between Chinese and European managers and experts within the "China - European Union Program for basin management" and the meeting between the people in charge of the Po Basin Authority in Italy and their counterparts of several large rivers in other continents, in particular.

**The regional "Europe" session allowed presenting the implementation of the European Water Framework Directive and the UNECE Convention of 1992, called Helsinki Convention.**

**During the Forum, the joint publication by the Global Water Partnership - GWP and the International Network of Basin Organizations - INBO of the "Handbook on integrated water resources management in basins", which presents 84 examples of practical actions, allows confirming the realism of the recommendations made:**



**The ministerial declaration of the Forum supports "the implementation of Integrated Water Resources Management (IWRM) at the level of river basins and groundwater systems, within each country, and, where appropriate, through international cooperation, to equitably meet economic, social and environmental demands and, inter alia, to address the impact of global change, taking into account the interests of all the partners, using participatory process in decision-making and planning, while creating links between relevant sectors to achieve solutions that benefit all parties".**

The ministers also declared that they will "strengthen the prevention of pollution from all sectors in surface and ground water, appropriately applying the "polluter-pays principle"... that they resolve to develop, implement and further strengthen

transnational, national or/and local plans and programs to anticipate and address the possible impacts of global changes,... that they will strive to improve water related monitoring systems and ensure that useful information is made freely available to all concerned populations, including neighboring countries".

Finally, they also declared "that they will take, as appropriate, tangible and concrete steps to improve and promote cooperation on sustainable use and protection of transboundary water resources through coordinated actions of riparian States, in conformity with existing agreements and/or other relevant arrangements, taking into account the interests of all riparian countries concerned.

They will work to strengthen existing institutions and develop new ones, as appropriate and if needed, and implement instruments for improved management of transboundary waters".

Of course, some people will point out that these formulations can be subject to interpretation and obviously all the problems will not be miraculously solved, as some positions still remain too different, **but unmistakably basin management and transboundary cooperation have scored during the World Water Forum of Istanbul!**

All the papers and photographs of these events, organized during the last World Water Forum held in Istanbul from 15 to 22 March 2009, may be consulted and downloaded on INBO website.



The final synthesis session

[www.inbo-news.org](http://www.inbo-news.org)

[www.worldwaterforum5.org](http://www.worldwaterforum5.org)

## INBO - EWP: the European Regional Session



The European Regional Session, coordinated by the European Water Partnership (EWP), took place on 17 March 2009 at the World Water Forum of Istanbul.

The second part of this European session was devoted to the role of Europe in the world and INBO was entrusted with the organization of a round table on basin management and transboundary cooperation.

INBO also drafted the chapter on integrated management at basin level and the European Water Framework Directive (WFD) of the European Regional Document.

The aim of this round table was to show how the experience gained in Europe could benefit to other regions in the world.



The WFD session organized by INBO

The discussions highlighted the structuring nature of the European Water Framework Directive (WFD) of 23 October 2000, which gives operational tools for basin management, as recalled in the speech of Jean-François Donzier, INBO Permanent Technical Secretary. The added value of the WFD was underlined through the case of the Danube Transboundary River Basin shared by 19 countries, presented by Philip Weller, Executive Secretary of the International Commission for the Protection of the Danube River.

The UNECE Convention (United Nations Economic Commission for Europe) on the protection and use of transboundary water courses and international lakes signed in 1992, called the Helsinki Convention, presented by Francesca Bernardini, allows developing the key principles of basin management to a broader geographical extent. The inputs of the Helsinki Convention outside the European Union were illustrated in Central Asia where it allowed developing dialogue between the riparian States concerned.

The significance of developing experience sharing between Europe and other areas in the world was particularly highlighted, especially with the examples of projects developed in China and Africa.

Finally, this round table led to the following conclusions:

- the river basin is the relevant scale for water resources management;
- the WFD is a significant progress;
- the great principles of the WFD and Helsinki Convention are transferable in other areas over the world;
- it is necessary to strengthen cooperation between Europe and other regions.



## "EU-China Cooperation on Basin Management"

The Yellow River Commission, INBO and the EU - China Cooperation Program for Basin Management organized one day of exchanges between the Basin Authorities of China and Europe.

Andras Szollosi-Nagy of UNESCO presented an introductory report on the impact of climate change.

The session dedicated to China was jointly chaired by Messrs. Friedrich

Barth, Vice-president of EWP and Shang Hongqi, Director of International Cooperation at the Yellow River Commission. The European session was jointly chaired by Jean-François Donzier and Yang Xiaoliu, Professor at the University of Beijing.

Messrs. Van Alphen, Jacky Cottet, Jose Smitz, Pierre Roussel presented the situation in the Netherlands, in France and Wallonia.

10 case studies were presented around two topics: climate change and benchmarking of integrated management policies in river basins. The project led by INBO and the African Network of Basin Organizations on the application of performance indicators to the African Transboundary Basin Organizations, presented by Messrs. Alain Bernard (IOWater) and Tamsir Ndiaye (OMVS) showed that transferring the European "acquis" to very different contexts is possible.

A round table then gathered 10 great witnesses representing: the UE-Turkey twinning, the International Commission of the Rhine, the National Institute of Hydrology of Romania, the Emilia-Romagna Region in Italy, the Ministries of Water of Hungary and Spain, the Yellow River Commission, the EU - China Cooperation Program, the Asian Development Bank.

## "THE PO RIVER BASIN AND OTHER LARGE BASINS IN THE WORLD"

The objective of this session organized with the regional Authorities of the Po Valley, was to share experience between several large basins of the world.

This side event allowed comparing the practices used in very different contexts: the St. Lawrence Basin, the Congo-Ubangui-Sangha Basin, the Scheldt Basin, the Rhone-Mediterranean Basin and the Po Basin.

As a conclusion, Giuseppe Bortone, Director General for the Environment of the Emilia-Romagna Region, underlined the role of local institutions in water policies.



Day of exchanges between the Basin Authorities of China and Europe

# Water and Climate Change

## The Stockholm Statement

The participants of the 2009 World Water Week in Stockholm unanimously said that water must be included in the COP-15 climate negotiations in Copenhagen in December 2009.

Climate change is happening and adding complexity to existing global challenges. An agreement on climate change measures - both mitigation and adaptation - is crucial in order to secure future water resource availability.

The negotiations towards a Copenhagen Agreement are therefore of great concern to the global water community.

The importance of water must be properly and adequately reflected within the COP-15 agreement.

As a conclusion of the Water Week the following messages are conveyed from Stockholm to Copenhagen:

- Climate change impacts will be mainly felt on water;

- Managing the resource effectively is central to successful adaptation of communities, countries and regions;
- This adaptation is a prerequisite for sustainable development and poverty reduction;
- Integrated water, land and forest management is a key to effective adaptation;
- Ecosystem protection is fundamental to human development;
- Higher-quality information, that is more effectively shared, is indispensable;
- Vulnerability and risk assessments are needed for sound adaptation practice. Knowing where and how the impacts of climate change are most likely to affect the water cycle, populations and ecosystems, will help in the identification of areas for early intervention on 'hot spots';
- New funds are essential. It is imperative that additional funding be allocated in support of developing adaptive strategies; there

is also a need for mobilization of finance to assist vulnerable, low income countries already affected by climate change.

It is necessary to work to strengthen mechanisms that can enhance collective action on water, especially through better sharing of knowledge and technology with developing countries and through active support for capacity building.

Finally, the water community expressed its commitment to strengthening institutional cooperation at all levels to work more collectively to address the immense development challenges ahead.

**Michael McWilliams**

SIWI

Tel.: +46 (0)8 522 139 89

michael.mcwilliams@siwi.org

[www.siw.org](http://www.siw.org)

[www.worldwaterweek.org](http://www.worldwaterweek.org)



## 8<sup>TH</sup> World General Assembly of INBO Dakar - Senegal - 20 - 23 January 2010

### "Adapting to the consequences of climate change in basins: tools for action"

#### ► Thursday 21 January 2010



- 09:00 **FIRST OFFICIAL DAY**  
09:00 **Official opening of the Assembly**  
10:45 **Presentation of water issues and institutions in the Senegal River Basin**  
11:30 **First statutory session of INBO General Assembly**  
14:30 **First topical round table:** Institutional frameworks for action of Basin Organizations  
16:45 **Second topical round table:** Prevention and management of extreme climate phenomena such as floods and droughts  
20:30 **Official dinner**

#### ► Friday 22 January 2010



- SECOND OFFICIAL DAY**  
08:45 **Third topical round table:** Monitoring, water information and warning systems  
11:00 **Fourth topical round table:** Drafting of Basin Management and Action Plans and their financing, funding of Basin Organizations  
14:30 **Fifth topical round table:** Participation of Local Authorities, water users and of the general public  
16:15 **Forum of International Cooperation Organizations**  
17:00 **Second statutory session of INBO General Assembly**  
● **Dakar Declaration** ● **Final resolutions**  
18:30 **Closing of the General Assembly**  
20:30 **Hungarian evening**

#### ► Saturday 23 January 2010

- 07:00 **THIRD OFFICIAL DAY**  
**Technical Visit at the mouth of the Senegal River**

To participate,  
Please register!

[www.inbo-news.org](http://www.inbo-news.org)

# Transboundary Ri

## A guidebook on transboundary aquifer management

Groundwater accounts for 98 to 99% of the total volume of freshwater on Earth. It runs in aquifer systems which can extend over tens, hundreds or even thousands of kilometers.

**More than half of the population in the world currently depends on groundwater.**

On a worldwide scale, 65% of the abstracted groundwater is used to meet the needs for agriculture, 25% for domestic uses, and 10% for industry, mining and energy activities. However, this distribution varies from one area to another: in many developed countries, groundwater represents a significant resource used for drinking water, as in Europe where it covers 70% of the needs. In arid areas, it also represents the main drinking water resource, as in Saudi Arabia and Libya, in Yemen, Pakistan and Chad, in India or in Algeria and in Niger.

This strategic resource, necessary for socioeconomic development, must require special attention and its sustainable management must be a target to aim for.

**This is even more the case when the aquifers are transboundary.**

The management of transboundary water resources shared by various sovereign States remains indeed a delicate problem.

Nowadays, many efforts have already been made with regard to the management of transboundary surface water, which allowed, on the one hand, the establishment of Transboundary River Basin Organizations and, on the other hand, launching thoughts and experience sharing, as carried out within INBO.

On the contrary, relatively few actions related to transboundary aquifers have been yet carried out, except for those implemented in a restricted number of projects for some large aquifers. The fact that groundwater is invisible and has complex operating modes, undoubtedly does not allow the decision-making authorities to take fully into account their vulnerability, their real potential and the true stakes they represent for the society.

**And yet, to date more than 270 transboundary aquifers worldwide have been assessed by the ISARM program of UNESCO/IHP.**

These aquifer systems undergo increasing pressures, linked to the development of human activities, agriculture in particular, and to climate change. In addition, in most arid and semi-arid zones, these groundwater resources are "fossil", i.e. non-renewable or hardly renewable.

**Their rational use is indeed crucial.**

To avoid the degradation of these aquifers and not to deprive future generations of an heritage to which they have the right to claim, and also to prevent conflicts between States over the shared exploitation of these resources, **it is of great importance to establish lasting dialogue and collaboration between all interested parties.**

This requires the definition of common objectives and adapted strategies, but also, more specifically, the establishment of management bodies with transboundary responsibilities. Good knowledge of the characteristics and functioning of the aquifer systems is also imperative, without it, no sound decision can be made.

This was acknowledged in the United Nations General Assembly Resolution of December 2008.

In order to contribute to the suitable management of transboundary aquifers, the French Development Agency with its partners, BRGM, UNESCO, IOWater, INBO and the Water Academy, launched a methodological study which aims at drafting **an operational guide book for the management of shared groundwater, intended for the political and administrative authorities concerned.**

This guidebook will especially highlight the problems linked to the management of these resources, will give a progress report on the state of the art and ongoing practices, will present examples of transboundary aquifers on several continents and the stakes they represent, and will suggest a set of recommendations to set effective management of transboundary groundwater. **The guidebook will be presented at the INBO General Assembly planned in Dakar from 20 to 23 January 2010.**

**AFD - French Development Agency**  
frouink@afd.fr - parent@afd.fr

**www.afd.fr**

**UNESCO**  
a.aureli@unesco.org - r.stephan@unesco.org

**www.unesco.org**

**BRGM**  
d.pennequin@brgm.fr - h.machard@brgm.fr

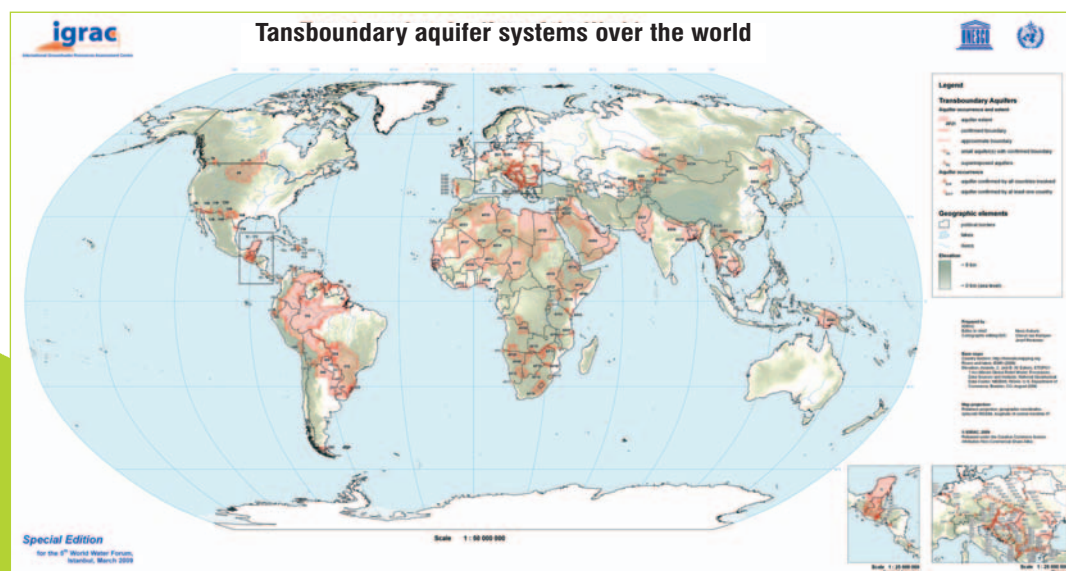
**www.brgm.fr**

**IOWater / INBO**  
dg@oieau.fr - c.noel@oieau.fr

**www.oieau.org**

**Water Academy**  
academie@oieau.fr - rama.martina@aesn.fr

**www.academie-eau.org**



## Facilitating the participation of the users and the civil society

For Transboundary Basin Organizations, the stakes were firstly political and technical. They focused lately on the civil society and the users, thus creating poor dialogue and communication with these partners, who often felt this as an exclusion from governance or as a lack of interest for the local level.

Aware of these weaknesses and of the advantages of increasing the involvement of the civil society and the users for more harmonious development, some basin organizations are working for changing this situation.

**It is the case of the Mekong River Commission which plans to widen before 2011 the circle of the observers representing the civil society in its higher decisional bodies, the Council of Ministers in particular.**

A thought process began in 2008 with the civil society.

The stakes of this work are to make sure of:

- ➔ the representativeness of the stakeholders of the civil society,
- ➔ a shared responsibility in achieving the objectives of regional cooperation,
- ➔ the effectiveness and coherence of the implemented mechanism with the national policy of the Member States.

The Commission wishes to make sure that the parties involved in its decision-making processes are bearing the message of the greatest number. It wishes that through them an effective exchange between the populations, the users of the Mekong and the decision makers is established.

This objective thus implies to clearly define who these partners are and have legitimacy to represent the civil society and a mechanism allowing electing its representatives.

France supports this process with the provision of a technical assistant.

**In the Organization for the Development of the Senegal River (OMVS), the users' participation was initiated at the beginning of the 2000s with the creation of Local Coordination Committees, following the negative impacts of the dams and electric power lines.**

The thought process started thereafter, during the drafting of the Water Charter in 2002, with in particular the opening of the permanent water Commission to the users and NGOs, led to now consider the creation of a Basin Committee.

OMVS, which has just started the implementation of a Master Plan for Water Development and Management (SDAGE), took an original step of consulting the populations.

The objective is to have a coherent SDAGE which all the riparian populations and users can adopt.

This work should lead to a better identification of the users' groups and of their representatives. The French Development Agency granted M€2,000 for this operation.

**Charlotte Gobin**

Mekong River Commission  
gobin@mrcmekong.org

[www.mrcmekong.org](http://www.mrcmekong.org)

**Jean-Paul Lecomte**

Technical Adviser to OMVS High Commission  
OMVS

jp.lecomte@omvs-soe.org

**Tamsir Ndiaye**

Chief of OMVS Environmental Observatory

OMVS

ndiayetamsir2002@yahoo.fr

[www.omvs-soe.org](http://www.omvs-soe.org)



## West African Dialogue on Infrastructures

West Africa is characterized by very great hydrological systems which originate from the wet tropical areas and bring significant water volumes to arid or semi-arid areas.

The transboundary water resources account for 80% of surface water. This results in a very high sub-regional interdependence.

**The transboundary basin organizations provide a framework for water resources management beyond the national borders.**

The projects for building dams and irrigation infrastructures often involve several countries and can be sources of conflicts, but they can contribute to regional integration if they are carried out with dialogue.

**The Economic Community of West African States (ECOWAS) has a permanent system for coordination and follow-up of Integrated Water Resources Management.**

A Center for Coordination of Water Resources was created in 2004.

The strategic action lines are as follows:

- providing support to transboundary basins,
- accompanying the IWRM processes in the basins,
- advancing regional integration of the water sector.

The project currently developed aims at providing tools for dialogue to basin organizations to accompany the development of their investment programs within a dialogue for:

- identifying the main existing and planned infrastructures on ECOWAS territory;
- examining the mechanisms for dialogue set up at the level of the basin organizations;
- analyzing the decision-making processes on a sample of infrastructures: Bui (Ghana) on the Volta River, Kandadji (Niger) on the Niger and Manantali (Mali) on the Senegal;

- making recommendations on mechanisms for dialogue.

**ECOWAS**

Tel.: (234) (9) 31 47 647-9,

Fax: (234) (9) 31 43 005

info@ecowas.int

[www.ecowas.int](http://www.ecowas.int)



# Africa

## AWIS: Access to the information, a challenge for the development of the African water sector



A great quantity of information on water is produced and regularly updated on the African continent but all the authors have not a systematized practice of information management and dissemination.

**The African Water Information System (AWIS)** is a network of African organizations which wish to communicate on their practices and to share their information with the greatest number, according to three major lines:

- ◆ Building a network of **AWIS Focal Points** which produce information on water,
- ◆ Referencing high quality information on the Africa water sector,
- ◆ Proposing free access to this information via an Internet portal.

Thanks to this network of Focal Points, **AWIS** allows information enhancement and contributes to knowledge dissemination.

**AWIS** provides assistance to its partners, with training in particular,

for the acquisition of new competences in information management and availability via the Internet.

About twenty professionals thus benefited from a training program on the use of **AWIS** tools, during a workshop organized in Ouagadougou in October 2008 and directed by IOWater: content management, RSS flow management, management of the knowledge base...

The network mobilizes knowledge and the experience of its members to produce specific information: topical bulletins, technical sheets, etc.

The core of **AWIS** strategy is its Internet portal: [www.african-wis.org](http://www.african-wis.org), operational since January 2009.

This portal proposes:

- ❖ a search engine which identifies the information available at the various partners,
- ❖ electronic conferences,
- ❖ forums of exchanges,
- ❖ current events of the sector,
- ❖ a directory of the African water stakeholders,
- ❖ **AWIS** products: news bulletin, bibliographical syntheses, technical sheets...



Today, the portal has entered about 60 current events, 174 referenced documents, 93 websites indexed by the Focal Points.

[www.african-wis.org](http://www.african-wis.org)



## Performance Indicators for the African Basin Organizations

**INBO** launched a project aiming at the development, testing and comparison of Performance Indicators for the African Transboundary Basin Organizations.

Various interactive workshops, held in Ouagadougou (Burkina Faso) in November 2007, Kinshasa (Democratic Republic of Congo) in October 2008 and Istanbul (Turkey) in March 2009, associated the representatives of the main transboundary basin organizations to define the sought objectives, to refine the

selected indicators and to report on the testing phases.

The initial table of indicators was tested in 2008 in the Niger, Congo, Senegal, Lake Victoria and Orange Basins in order to analyze the relevance, feasibility and usefulness of these indicators.

This table thus could be refined for better describing:

- **the governance and operation of the organizations in charge of integrated management on a transboundary basin scale,**

- **the status, pressures and evolution of transboundary river basins.**

The last testing phase has been carried out at the end of 2009 and at the beginning of 2010 in 10 transboundary basins to refine the results and to lead to a final list of performance indicators.

It will then be advisable to make this experiment and this tool known in other African basins and worldwide. **INBO General Assembly** in Dakar in January 2010 will be an opportunity for disseminating the results.

**INBO** Permanent Technical Secretariat is coordinating this project, in partnership with the **African Network of Basin Organizations (ANBO)** and Ecologic. The project is financed by the European Water Facility (ACP Water Facility) and the French Ministry for Foreign Affairs for a 3-year duration.

**More information on:**

<http://aquacoope.org/PITB>





## Volta Basin Authority

### Towards transboundary water resources management

The Volta is a transboundary river, which is shared by six countries in West Africa: Benin, Burkina Faso, Cote d'Ivoire, Ghana, Mali and Togo. It stretches from north to south over a distance of 1,850 km.

The basin surface area is approximately 400,000 km<sup>2</sup>.

During the past decades, the Volta basin encountered rapid population growth and large development of infrastructures, which have raised concerns on the sustainability of the quantity and quality of water resources.

These problems have been exacerbated by climate change and variability that have led to periods of drought or flooding with devastating consequences.

In spite of its importance for socio-economic development, the Volta had for many years remained one of the large transboundary river basins in Africa without formal legal and institutional agreement among the riparian countries for managing its water resources until the recent establishment of **the Volta Basin Authority (VBA)**.

The Ministers responsible for the water resources of the riparian countries formed the Volta Basin Technical Committee (VBTC) in July 2004 with the mandate to prepare towards the establishment of a Volta Basin Organization.

This led to the approval by the Ministers in July 2006 in Lomé, of a draft Convention and Statutes of the **VBA**.

**The Heads of State of the riparian countries formally established the VBA during their 1<sup>st</sup> Assembly in Ouagadougou on 19 January 2007.**

After ratification by four out of the six riparian countries (Togo, Mali, Ghana and Burkina Faso), the Convention came into force on 14 August 2009. The **VBA** has a mission to promote permanent consultation and sustainable development of the water and related resources of the Volta Basin for equitable distribution of benefits towards poverty alleviation and better socioeconomic integration.

Whilst consolidating its institutional arrangements, the **VBA** has undertaken priority technical activities which include the creation of an Information System, the development of a Strategic Plan, conducting Pre-investment studies, awareness activities and coordination of various projects and programs.

The achievements within a relatively short time of 5 years have been possible because of the willingness of all parties to cooperate.

Many challenges however remain: need to strengthen or establish corresponding national institutions, stakeholder involvement and improving knowledge of the basin's characteristics.



### The VBA Web Portal

**The Volta Basin Authority (VBA)** committed itself in April 2007 to create an information system in order to guarantee communication within the cooperation framework of the technical and financial partners.

For this purpose, the **VBA** requested in 2009 IOWater to prepare and design the **VBA** multilingual French / English Web portal and the catalogue of the data sources of the basin.

The **VBA** portal allows disseminating information to the public and sharing working papers between the various **VBA** partners, each partner being able to consult and/or feed and update the various headings of the portal according to the rights of access.

The catalogue of the information sources, accessible via the portal facilitates the identification of the existing data while allowing each data producer/manager of the basin to present the data available at his level.

Following this first phase, it is now planned to install the portal on a server directly managed by the **VBA** personnel, and to provide them training on the administration and maintenance of these tools.

**Charles A. Biney**  
Volta Basin Authority  
Fax: + 226 50376486  
cbiney@gmail.com

[www.abv-volta.org](http://www.abv-volta.org)



## Organization for the Development of the Senegal River (OMVS)

### An original approach for involving the users

The good operation of IWRM in a river basin requires the participation of the users/stakeholders at all levels and at all stages of its implementation.

“How to do it” in the field very quickly leads to compare the respective advantages of a bottom-up or top-down step. Either the central administration make decisions and come to explain them in the field or dynamic individuals join in to successfully carry out actions at the local level and regroup to gradually give a regional or even national dimension to their action. The purely top-down method, usually practiced, has for a long time shown its limits and led to outstanding failures. The purely bottom-up method is quickly leading to failure by the strength and/or inertia of the State systems.

The challenge to face, true key to success, consists in finding the meeting point of the two steps to offer all the guarantees of perennality, especially when confronted, as it is the case in the Senegal River Basin, to the adverse effects of some developments on the environment.

In a pilot program, jointly financed by the Netherlands and the World Bank, coming in support to the OMVS GEF/BFS project for safeguarding the environment of the Senegal River, an original step is being experimented in three zones in Mali, Mauritania and in Senegal.

Starting from the involvement of the local populations in the management of the water resources and natural resources at their disposal, it aims at naturally leading them to become full stakeholders able to control these resources, to defend their specific interests and to involve themselves in dialogue and decision-making bodies through their adhesion to “**Users’ Associations**” and “**Local Water Committees**”, the creation of which results as much from the will of the riparian populations and local stakeholders as from the institutional policy decided at State level for the structuring of IWRM on a basin scale.

The first results obtained in the involvement of users’ associations and in their understanding of the stakes are very encouraging. The widening of the action and support method on a regional scale is being studied.

**Marie-Christine Rouvière**

**Dominique Fougeirol**

BURGEAP

Fax: +33(0)1 46 10 25 49

d.fougeirol@burgeap.fr

[www.burgeap.fr](http://www.burgeap.fr)

### An institutional reform to face the future challenges

OMVS is an outstanding tool for cooperation, having a tested and stable legal and institutional framework, with practical results, benefiting from a strong political commitment. It especially developed two common infrastructures:

- ◆ **The anti-salt Diama dam** to allow the development of irrigated crops in the valley;
- ◆ **The Manantali Dam** for flood management, flow regulation downstream, for energy production, irrigated crops and waterway navigation.

OMVS has proven its capacity to mobilize its partners to design and carry out projects on a great scale that no State could have implemented alone.

But it has also a potential to do more and must face new challenges such as the integration of Guinea, the implementation of the Declaration of Nouakchott, of the Water Charter and of true Integrated Water Resources Management (IWRM), as well as the development of navigation and new hydropower projects of second generation.



With financing from the World Bank and on OMVS's request, the International Office for Water (IOWater) is making recommendations for an institutional reform, starting from a complete functional analysis. The proposal focuses on:

- ❖ increasing the governance of the **OMVS** System, at the level of the High Commission and of the Dam Management Companies;
- ❖ the search for a better institutional, organizational and economic consistency;
- ❖ improving human resources management.

The proposed reform allows:

- better adequacy between resources and the tasks to be carried out;
- reducing the costs and loads for decreasing the pressure on the Public Treasuries of the States;
- self-capacity building for investment in the priority sectors defined by the States;
- transparent and coherent management of the financial resources of the Organization.

In addition, the reform complies with the constitutive texts of the Organization and can be quickly and easily applicable and potentially implemented in 12 months with an entirely acceptable economic and social cost and with an evolution according to the technical, economic and institutional developments of the coming years.

**Mohamed S. MERZOUQ**

OMVS

mohamed.merzoug@omvs.org

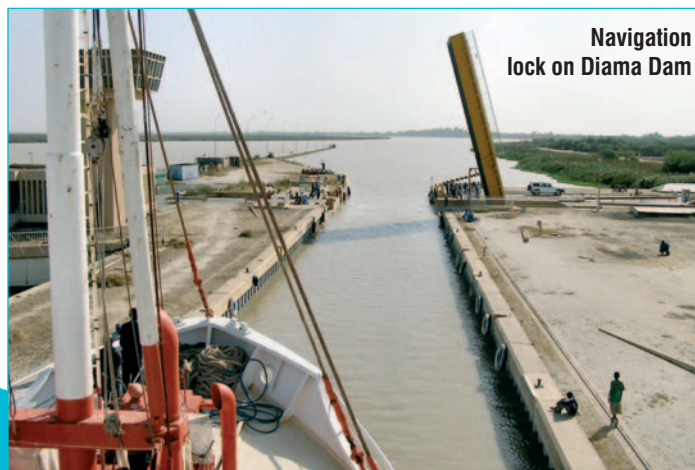
[www.omvs.org](http://www.omvs.org)

**Alain BERNARD**

IOWater

a.bernard@oieau.fr

[www.oieau.org](http://www.oieau.org)



## International Commission of the Congo-Ubangui-Sangha Basin (CICOS)

### Institutional Audit

The International Commission of the Congo-Ubangui-Sangha Basin (CICOS) requested the International Office for Water (IOWater) to prepare the Terms of Reference of an institutional audit, which is a priority for both the CICOS Secretariat General and the Member States.

The study will propose ad hoc modifications for this purpose so that the institutional framework and institutions are operational and long-term performing, with an orientation towards the sustainable development of the basin for the wellbeing of the riparian populations.

The Terms of Reference, which were validated at the session of the Ministers' Committee in November 2009,

define the framework of the study and the specific objectives:

- ◆ Analyzing the primary causes of the institutional difficulties encountered by CICOS during its last two fiscal years;
- ◆ Identifying several scenarios related to the links with the Economic and Monetary Community of Central Africa (CEMAC), of which CICOS is a specialized agency;
- ◆ Proposing a sustainable financial mechanism for the entry into force of the new reform of the CEMAC in 2013;
- ◆ Examining the possibilities of linking CICOS to the Economic Community of Central African States (ECCAS) due to the pre-

sence of the Democratic Republic of Congo and possible accession of new countries;

- ◆ Allowing the operational implementation of the Additive to CICOS mandate extending its responsibilities to IWRM (Integrated Water Resources Management), including institutional development and capacity building;
- ◆ Identifying the appropriateness and place of a Basin Information System;
- ◆ Proposing an increasing and responsible involvement of all the basin stakeholders (public authorities, private operators and socio-professional organizations, users, NGOs, organizations of the civil society).

The results of this study are expected in the first half of 2010.

**CICOS**

cicos\_inst@cicos.info

[www.cicos.info](http://www.cicos.info)



### Lake Chad Basin

#### New prospects for the Lake Chad Basin Commission (LCBC)

The Lake Chad Basin Commission (LCBC) has now a new Executive Secretary, trained and experienced manager, Dr Abdullahi Umar Ganduje, appointed in May 2009, and a Director General of Operations, a Director General of Administration and Finance and a Basin Information System.

A contract for the feasibility study of the project for water transfer from Ubangui to Lake Chad was signed with the consultant of CIMA International on July 16<sup>th</sup> 2009.

The studies will last 23 months in close collaboration with the International Commission of the Congo-Ubangui-Sangha Basin (CICOS) to meet the environmental concerns of this sister organization.

The Program for Sustainable Development of Lake Chad Basin (PRODEBALT), with a total amount of 60 million Units of Account, also started with 50% of the amount provided by ADF.

The Lake Chad Basin Initiative to reduce vulnerability and the risks of STI/HIV/AIDS, which was initiated in 2005, is also out of administrative bottle-necking and has been implemented in the field since June 2009.

With the effective admission of Libya as 6<sup>th</sup> Member State, we at LCBC have started having sweet dreams that things will never be as before.

And even when one is tempted to think that Lake Chad's former extension is not a thing of tomorrow, the future is surely one of hope.

**Alex Blériot MOMHA**

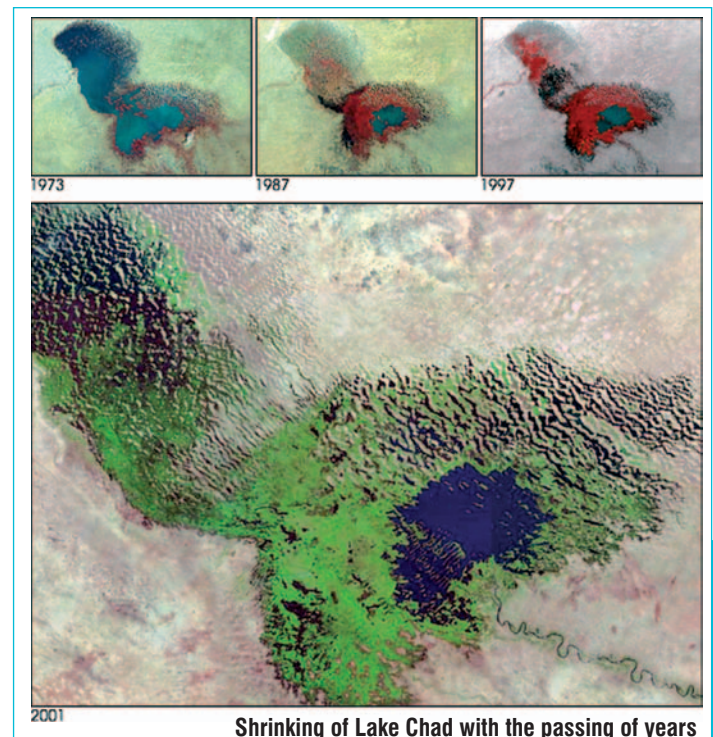
Lake Chad Basin Commission

Fax: (+235) 252 41 37

amomha@yahoo.fr - lcbbc@intnet.td



[www.lakechadbc.org](http://www.lakechadbc.org)



Shrinking of Lake Chad with the passing of years

## Mali

### The Terekole - Kolimbine - Lake Magui program for long term management of water resources

Since 2007, the French Artois-Picardy Water Agency has been financially and technically supporting a four-year project (2007-2010), developed by the NGO "Rural Development and Research Grouping" (GRDR) in the Kayes region of Mali. This program is aiming at assisting local Malian stakeholders in a global and integrated approach for the management of their natural resources in the catchment area of Terekole - Kolimbine - Lake Magui (TKLM).

This 850,000€ program is headed by the GRDR with the support of the European Union, the "Ensemble" Foundation, the Association of Municipalities for the Restoration of Rivers (SIARCE) and three of the pilot municipalities (Sandaré, Marintoumania and Koussané).

The TKLM catchment area is a vast cross-border territory between Mauritania and Mali.

Climate change and the pressure of human activity limit water resources availability and are leaning towards degrading the productive potential of the region (erosion, desertification).

The living conditions of the rural population are more and more jeopardized.

This is why the GRDR, with the participation of local populations, has developed a concerted management program focused on the control of surface water so as to exploit, all year long, water resources coming from precipitation concentrated over short periods.

Bodies for dialogue first at the town, then at the village and inter-village level, made up by representatives of the civil society, have been set up to participate fully in implementing the program. Decisions on hydraulic works are made at town meetings.

The continued involvement of all the local stakeholders at all stages of the program has led to the creation of a strong synergy between the GRDR, town council and the population.

The Malian elected representatives and the local consultation bodies have been trained in the management and local governance of water.

The Artois-Picardy Water Agency also provides assistance to the organization of exchange missions between elected officials from the North and South.

**Géraldine AUBERT**

Artois Picardy Water Agency

G.AUBERT@eau-artois-picardie.fr

[www.eau-artois-picardie.fr](http://www.eau-artois-picardie.fr)



Village mapping of the resources

### Signing of a cooperation agreement between the Niger River Basin Agency (Mali) and the Loire-Brittany Water Agency (France)

The Niger River Basin Agency in Mali and the Loire-Brittany Water Agency in France have maintained for years regular and profitable exchanges especially within the UNESCO Loire-Niger project.

Both agencies wished to consolidate their partnership by signing a co-operation agreement for the development of joint actions in the field of integrated water resources management and decentralized cooperation.

This signing took place on 16 July 2009 in Bamako (Mali) under the presidency of Professor Tiémoko SANGARE, Minister for the Environment and Sanitation of Mali, and in the presence of Mr. Bruno DETANGER, Vice President of the Loire-Brittany Basin Committee, and His Excellency the Ambassador of France in Mali.

This protocol signed by Messrs. Hamadou DIAKITE and Noël MATHIEU, Directors of the 2 Agencies, defines the practical provisions of this cooperation (field of competences, actions considered, follow-up of the protocol...) on the basis of a principle of equality and mutual benefit.

A Malian Director was received in Orleans in autumn 2009 to familiarize himself with the French basin tax system, a French expert will carry out a mission in Bamako for dealing with the problem of treating dyeing liquid waste and the Angers-Metropolis will finance the water supply project in Moribabougou.

An evaluation of the commitments and actions of this partnership will be made at the end of the first 2 years.

**Michel STEIN**

In charge of International Affairs

Loire-Brittany Water Agency

michel.stein@eau-loire-bretagne.fr

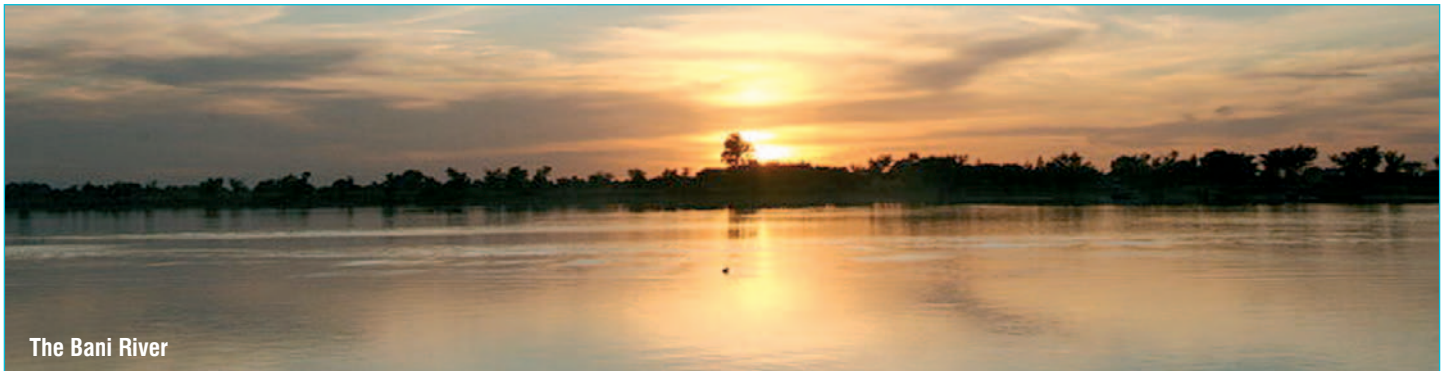
[www.eau-loire-bretagne.fr](http://www.eau-loire-bretagne.fr)



Signing of the agreement

## Niger River Basin Agency (ABFN)

### Middle Bani Basin



The Bani River

The Niger River and its hydrographic system are an exceptional natural heritage in Mali. The Niger River and its tributaries, the main one being the Bani, completely or partially supply water to eight administrative areas of Mali and to the District of Bamako.

For safeguarding the Niger River and its tributaries and for Integrated Water Resources Management in its catchment area, **Mali created in 2002 the Niger River Basin Agency (ABFN), supervised by the Ministry for the Environment and Sanitation.**

For this reason, the Agency is responsible for:

- protecting the banks and slopes against erosion and silting,
- preserving the terrestrial and aquatic ecosystems,
- building capacities for the management of the river resources,
- promoting the improvement and management of water resources for the various uses,
- contributing in the prevention of natural hazards (floods, erosion, drought), in the control of pollution and harmful effects and in the maintenance of navigation on the river,
- maintaining cooperation relations with similar technical organizations of the riparian countries concerned,
- organizing a financial mechanism for levying taxes from the organizations withdrawing and polluting water.

Mali adopted the Law n°02-006 of 31 January 2002, or water code.

The IWRM Action plan (PAGIRE) is the national reference document for planning priority actions and for solving any water-related problem.

The Bani, main tributary of the Niger, with its 900 km length, covers 106,800 km<sup>2</sup> of the Niger basin.

Its basin involves four Malian administrative areas including the whole Sikasso area.

The ABFN Office for the Middle Bani was opened in June 2009. It launched the assessment of the threats to the Middle Bani sub-basin and of its resources.

The overall objectives of this project are:

- ➔ Having a decision-making and planning supporting tool for the sub-basin;
- ➔ Initiating an active and participative process for integrated water resources management through:
  - the gathering of data on the status of the Bani river bed, tributaries and banks,
  - the organization of a Sub-Basin Committee with the local partners of the water sector,

- ➔ the information of the population on the significance of integrated water resources management at basin level,
- ➔ the provision of documents on priority projects.

The conservation and integrated management of the Bani water resources are of strategic significance for achieving the Millennium

Development Goals (MDGs) and fighting against poverty in Mali.

**Soumaïla BERTHE**

Head of the ABFN Middle Bani Office  
Niger River Basin Agency (ABFN)  
soumaberthe@hotmail.com

[www.environnement.gov.ml](http://www.environnement.gov.ml)



### "APID-Burkina"

Farmers Action for Inclusion and Development, "APID", is an association based in Burkina Faso.

Its mission is to promote sustainable development through projects on agriculture, water, environment and education.

"APID" initiated a project for the creation of cooperative gardens for agricultural bio-intensive production with the use of drip irrigation.

**APID-Burkina**

Farmers Action for Inclusion and Development  
act.paysanne07@gmail.com



# North America

## USA

### Universities Partnership for Transboundary Waters

The **Universities Partnership for Transboundary Waters (UPTW)**, established in 2001 with Oregon

State University (OSU) as its administrative hub, is an international consortium of water expertise, including several institutions on five continents, seeking to promote a global water governance culture that incorporates peace, environmental protection, and human security.

This Partnership brings both theoretical expertise and practical experience applied to the management of shared waters and encompasses substantial knowledge of social, legal, economic and ecological systems at multiple spatial scales.

The **UPTW** contributes to peace, poverty alleviation, and sustainable management in transboundary water basins.

The **UPTW** develops workshops tailored towards water management capacity building.

One of this partnership's most recent publications is a five-part series of continental reports, entitled, "Hydropolitical Vulnerability and Resilience along International Waters."

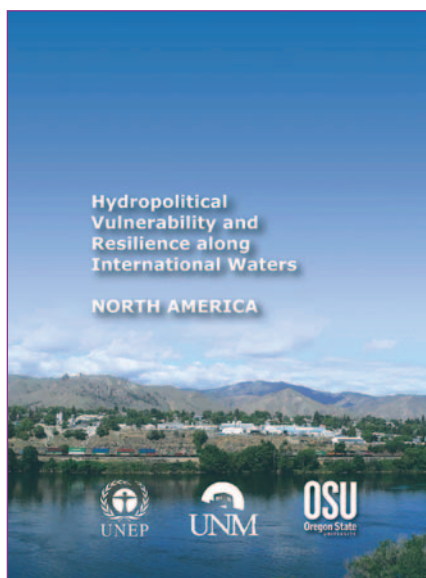
This series was compiled with the United Nations Environment Program, Division of Early Warning and Assessment (UNEP-DEWA).

Electronic versions of the series are accessible on **UPTW** website.

**Lynette de Silva**

Program in Water Conflict Management and Transformation  
Oregon State University  
Fax: (541) 737-1200  
desilval@geo.oregonstate.edu

<http://waterpartners.geo.orst.edu>



## Canada

### International Meeting on Integrated Water Management Sherbrooke, Canada - 1 - 3 June 2009

550 participants attended the "International Meeting on Integrated Water Management" which took place from 1 to 3 June 2009. The event was jointly organized by the Council of Water Governance of the St-François River Basins (COGESAF) and the Environ-

mental Training Center of the University of Sherbrooke (CUFE). 30 workshops gathered 95 lecturers on topics related to planning and governance tools, the great stakes of water management, action in agriculture, tools for characterization and diagnosis and information and dialogue.

18 voluntary facilitators took care of the good organization of the workshops.

Mr. Riccardo Petrella presented a conference on the importance of access to water everywhere on the Earth.

Mr. Jean-François Donzier, Permanent Secretary of the **International Network of Basin Organizations**, presented at a plenary session an introduction to Integrated Basin Management over the world and participated in a round table on the management of the world transboundary rivers in the closing session, with Mr. Oscar Cordeiro, Secretary of the **Latin-American Network of Basin Organizations** and Director of the National Water Agency (ANA) of Brazil and Mr. Normand Cazalais, prefigurator of the **North-American Network of Basin Organizations (NANBO)**.

**Jacinthe Caron**

Coordinator of the International Meeting on Integrated Water Management  
COGESAF  
Tél. : 819-864-1033

[www.cogesaf.qc.ca](http://www.cogesaf.qc.ca)



Plenary session about Integrated Basin Management over the world

[www.inbo-news.org](http://www.inbo-news.org)

All information  
is available  
on the Web



[www.inbo-news.org](http://www.inbo-news.org)

## The new Water Law of Quebec

Water is one of the greatest wealth of Quebec which, with its 4,500 rivers and half a million lakes, has more than 3% of the world freshwater reserves.

There are many concerns as regards the effect of climate change on the availability of the resource, in the Great Lakes and St. Lawrence River Basin in particular, and which could have significant impacts at the environmental, economic (water intakes, navigation, hydroelectricity, etc.) and social level.

In this context, the strategic importance of the "water" resource will be increasing.

**The National Assembly of Quebec adopted, on 11 June 2009, the Law affirming the collective character of water resources and aiming at increasing their protection and necessary for sustainable water management in order to ensure the conservation, the safeguarding and the restoration of aquatic environments.**

The Law confirms:

- the legal statute of surface and ground water resources as collective resources;
- the role of the State as "guardian" and "manager" of water resources, to the benefit of the present and future generations;
- integrated and joint water resources management and the importance of managing them in catchment areas;

The Law created the Water Knowledge Office.

It takes measures for the management of abstractions in the hydrographic limits laid down by the **Agreement on the sustainable water resources of the Great Lakes and St. Lawrence River Basin** and aiming at prohibiting diversions outside these limits in order to protect and preserve the water of this large catchment area.

This agreement was signed on 13 December 2005 by the Prime Ministers of Quebec and Ontario and the Governors of the Great Lakes States (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin).

The Law allows the Attorney General to take, in the name of the community, legal action of a civil nature against the person responsible for environmental damage caused to aquatic environments to obtain repair.

It subordinates all the current and future water abstractions to an authorization and limits the validity period of all the water abstractions to 10 years, exceptions not included.

The Law gives priority to drinking water supply, healthiness and fire protection and reconciles the needs for the other uses including aquatic ecosystems for maintaining their balance.

It allows limiting or stopping any abstraction of water for reasons of public interest or environmental reasons.

**Yvon Maranda, Ph.D.**

Ministry of Sustainable Development, Environment and Natural Reserves  
Fax: (418) 644-2003  
yvon.maranda@mddep.gouv.qc.ca

[www.mddep.gouv.qc.ca](http://www.mddep.gouv.qc.ca)

## The Basin Organizations of Quebec are pleased with the new Law

**The Regrouping of the Basin Organizations of Quebec (ROBVQ)** learned with great satisfaction the passing of the Law 27, affirming the collective nature of the water resources of Quebec.

**This law finally recognizes integrated water management at the level of river basins and its participative governance, but also the Basin Organizations as being in charge of the overall planning of water uses through the drafting of the Water Master Plan, its implementation and follow-up.**

This law widely paves the way to dialogue between the various authorities which work on Quebec territory towards an integration of the Water Master Plans into the MRC's development and urban planning schemes and into the regional Plans for integrated development of resources and lands (PRDIRT).

The Law also plans the St. Lawrence River integrated management. The **ROBVQ** and **RBOs** also hope to work in close cooperation with the organizations which will be responsible for the management of the St. Lawrence River on their part of the territory.

The **ROBVQ** President underlined that "Quebec is privileged, the guardian of very large quantities of water resources. This first Water Law, adopted by the Government, complies with the first recommendation of the Beauchamp Report presented in 2000. The Basin Organizations have thus seen their legitimacy confirmed by the whole Provincial Government, which is, without any doubt, the result of the hard work of the basin organizations since their creation".

The **ROBVQ** and the Basin Organizations continue working for the implementation of the territorial redistricting announced in March 2009, which will allow Quebec to manage all its water resources, for the first time in its history, in an integrated and concerted way on the entire southern territory.

**Mathieu Gingras**

In charge of development

ROBVQ

mathieu.gingras@robvq.qc.ca

[www.robvq.qc.ca](http://www.robvq.qc.ca)



The St. Lawrence River in Montreal



Québec 



# North America

## IDEaux

**For the integration of development, water management and town planning policies in favor of aquatic environments**

Coordinated by the National Center for Scientific Research (CNRS) and SOGREAH, in France, and the University Laval and the Gatineau River Watershed Committee (COMGA) in Quebec, IDEAUX is one of the eleven projects selected under the "Water and Territories -Eaux et Territoires" research program of the French Ministry of Ecology, Cemagref and CNRS. It associates a public-private partnership between France and Quebec.

Local authorities compete vigorously to attract new families and businesses on their territories and urban

development is a key objective for all of them. Since the 1960s this has resulted in the extensive construction of roads and railways and the creation of residential, commercial and industrial areas on the outskirts of towns and cities and in flood-prone areas in particular.

**In France, nearly 100,000 homes were built in flood-prone areas of 424 large towns between 1999 and 2006.**

Urbanization is predicted to continue in the coming decades, notably at the expense of flood plains.

In the long term, these changes in land use are likely to impede urban development (water shortages, increased vulnerability to flooding, etc.), as is already the case in some parts of southern France.

The initial results of surveys conducted simultaneously in France (Bourbre, Reysouze, etc.) and Quebec (Saint-Charles, Gatineau, etc.) validate the hypothesis that developers' practices are only very slowly changing.

The "IDEAUX" project calls into question the utility of current water management and protection measures.

**Christine SIMOENS**  
Fax: 33 (0)4 76 33 43 32  
christine.simoens@sogreah.fr

[www.sogreah.fr](http://www.sogreah.fr)



# NANBO

## Birth of the North-American Network of Basin Organizations

**Within the "International Conference on Water Governance in the Americas" in Quebec (Canada), the Constitutive Assembly of the North-American Network of Basin Organizations (NANBO) was held on 15 October 2009.**

Affiliated to INBO, **NANBO** intends to promote basin management by gathering the greatest possible number of organizations which work in this part of the world, from

Panama to Alaska and Greenland, including the Antilles.

In Debrecen (Hungary), during the last General Assembly of INBO in June 2007, representatives of the Committee for Dialogue and Development of the Richelieu River Basin (COVABAR), Messrs. Normand Cazalais and Hubert Chamberland, received the mandate to carry out this extremely important operation in the life of **INBO**, since, hitherto, North America had no regional network.

On 15 October, Mr. Normand Cazalais, coordinator of the provisional committee set up with representatives of Canada, France (St. Pierre and Miquelon), the United States, Mexico and Quebec to ensure the creation of **NANBO**, declared that this Constitutive Assembly was a "historical event".

On this occasion, **NANBO** officially adopted its statutes and elected its administrators.

**Mr. Hubert Chamberland became the first President of NANBO.**

Operating with three official languages, English, Spanish and French, **NANBO** is also called Réseau Nord-Américain des Organisations de Bassin (ROBAN) and Red de Organizaciones de Cuenca de America del Norte (ROCAN).

Its secretariat is located in the city of Quebec.



An official presentation of **NANBO** will be made during the next General Assembly of **INBO** in Dakar (Senegal) from 20 to 23 January 2010.

**Normand CAZALAIS**  
NANBO  
caznor@videotron.ca

[www.monroban.org](http://www.monroban.org)





# Latin America

## Latin American Network of Basin Organizations (LANBO)

**"Meeting of Basin Organizations from Latin America and the Caribbean"**  
**Foz do Iguaçu - Paraná - Brazil - 18-21 November 2009**



2.500 Delegates participated in the Opening Ceremony!

**The Latin American Network of Basin Organizations (LANBO)** was established in August 1998 in Bogotá, Colombia. It is one of the regional networks of the International Network of Basin Organizations (INBO). It gathers administrations and institutions in charge of water resources management in watersheds and multilateral cooperation agencies involved in water resource management.

At the initiative of the National Water Agency (ANA) of Brazil, the last **LANBO** General Assembly took place in Rio de Janeiro in November 2008 and brought together 106 delegates representing 67 institutions from 21 countries.

**The Meeting of Basin Organizations from Latin America and the Caribbean, organized by LANBO, took place in Foz do Iguaçu (Paraná - Brazil), on November 18 - 21, 2009.**

It was supported by Itaipu Binacional, the State Government of Paraná, the State Secretariat for Environment and Water Resources (SEMARH), COPEL, SANEPAR, the National Water Agency (ANA), the International Network of Basin Organizations (INBO), the Brazilian Network of Basin Organizations (REBOB), the National Forum of River Basin Committees (FNCBH) and IUCN.

This Meeting was held at the same time than the 6<sup>th</sup> Cultivating Good Water "Cultivando Agua Buena" and the 7<sup>th</sup> Iberoamerican Meeting on Sustainable Development (EIMA).

This event contributed to strengthening Integrated Water Resources Management in Latin America and the Caribbean through the knowledge and exchange of national and international experiences of river basin agencies.

The 1<sup>st</sup> Meeting of the Governing Board of LANBO also took place on this occasion to draft a proposed work schedule of the Network for the coming years.

**Edgar Bejarano Méndez**

President of LANBO  
direccion\_general@car.gov.co

**Matilde Somarriba**

Vice President of LANBO  
matilde.somarriba@una.edu.ni

**Daño Favero Brochi**

Technical Secretary of LANBO  
dalto.favero@agua.org.br

[www.ana.gov.br/relob](http://www.ana.gov.br/relob)



## Regional river basin management strategy in Central America

**In 2006-2010, the Regional Program for the Reduction of Environmental Vulnerability and Degradation (PREVDA) is implementing a strategy to reduce the risks related to water, based on land planning and river basin management (IWRM - Environmental Management - Risk Management).**

Three regional agencies of the Central American Integration System are directly involved: the Coordination Center for the Prevention of Natural Disasters in Central America (CEPRE-DENAC), the Central American Commission on Environment and Development (CCAD) and the Regional Committee on Hydraulics (CRRH). In this context, the CRRH, dealing with water and climate-related issues, is supported by the French Ministry for Foreign and European Affairs (MAEE),

which, since 2007, has seconded a technical assistant to the institution to work in particular on the development of IWRM.

The four main lines of activity are:

- 1 Regional integration and institutional capacity building;
- 2 Harmonization of normative and regulatory tools for regional integration;
- 3 Knowledge management, training, communication and information systems;
- 4 Local river basin management initiatives in the region.

The program benefits from a total funding of 24,299 MEuros, of which 20 MEuros come from the European Union's Regional Cooperation Fund.

The projects underway have targeted the improvement of the biophysical conditions of river basins and institutional capacity building.

The PREVDA's strategy is based on active stakeholder participation, the strengthening of existing civil society organizations, the priority reorientation of financial resources to the poorest rural families, the prioritization of productive community-based projects and on the setting up of training activities, while encouraging shared responsibility, co-funding, the adoption of conflict resolution and stakeholder negotiation methods and the application of a vision of gender equity and multiculturalism.

The direct beneficiaries of this program are local governments, with the support of expert NGOs working in this line. The municipalities are demonstrating their commitment and a strong capacity to assume a leading role and functions, which, in this part of the world, are traditionally the exclusivity of the relevant Ministries and Non-Governmental Organizations.

**Guillaume Paquet**

Adviser to the CRRH  
Fax: +506 2296 0047  
gpaquet.coopfr@gmail.com



# Latin America

## Mexico

### ANEAS 23<sup>rd</sup> Annual Convention

The National Association of Water and Sanitation Utilities of Mexico (ANEAS), created in 1992, is linking nearly 1,200 members, comprising municipal, public or private, water and sanitation service providers or operators, State Water Commissions, trading firms, service, equipment and supplies providers, etc. It maintains cooperative relations with many institutions at various levels.

Sensing the need to integrate water issues in the national, regional and international agenda, the Association has been organizing for the past 23 years, the most significant event of the drinking water, sewerage and sanitation sub-sector in the country and the region.

The ANEAS Annual Convention brings together Authorities of the three levels of Government, academics, exhibitors of products, goods



Inauguration of the Convention 2009 by the President of the Republic of Mexico

and services as well as water and sanitation experts, from the country's water companies, which provide service to about 90% of the national population.

It is attended by the President of Mexico and representatives of the Ministries concerned by the sector and of the international institutions related with ANEAS.

The Convention is held every year in a different State of Mexico, in 2009 it took place in Leon, Guanajuato.

The program addresses on each occasion the most pressing issues of the drinking water, sewerage and sanitation sub-sector of the Americas Region. This year, the themes covered were: the role of associations, prospective of services, legislation, regulation, water financial

system, relevance of local governments and integrated management of services.

The EXPO ANEAS-2009 included more than 400 stands, making it a platform to showcase cutting edge products and techniques.

ANEAS joins the work of organizations like the International Network of Basin Organizations (INBO), which it supports in Latin America and wishes it all the success in its next World General Assembly to take place in Dakar, Senegal in 2010.

#### ANEAS

National Association of Water and Sanitation Utilities of Mexico  
Fax: (52) (55) 5543 6605  
aneas@aneas.com.mx

[www.aneas.com.mx](http://www.aneas.com.mx)



## Chile

### Basin Companies in the Atacama area

In the Atacama Area, 800 km to the north of Santiago, the valleys made by the Copiapó and Huasco rivers are close to the extreme aridity of the desert.

These rivers are fed by the few available water resources. The special climatic conditions allow however effective agriculture for export which, with mining and fishing, is the driving force for growth in the area.

This situation has allowed, until now, the development of the area and the establishment of big urban centers such as Copiapó and Vallenar among others.

The continuity of this development is however subjected to the consolidation of a suitable water management system to face the reduction in groundwater reserves and the continuous increase in the water demand.

The water restrictions are a serious potential threat for the production and mining activities and for the supply to the populations.

**The low availability of water as compared to the increasing demand leads to situations of strong competition and conflict on access to this resource.**

The Water Directorate General (DGA) of the Ministry of Public Works, the National Environment Commission (CONAMA) and the Regional Government of Atacama are promoting the implementation of the National Strategy for Basin Management in Chile. **Three pilot basins (Baker, Rapel and Copiapó) were selected for the creation of Basin Organizations. Organizations called Water Companies already exist in the Copiapó Basin.**

An Interministerial Committee for Water Policy was also recently created.

As there is a need for initiating a regional strategy coordinated with the local stakeholders to achieve these goals, the Environmental Innovation Center of Atacama (CTA), pertaining to the Foundation of Chile and being financed by the Regional Government of Atacama, is recommending in a first step the creation or the reinforcement of the Water Companies in the Copiapó and Huasco Basin. These companies are the bases which will allow the creation of true Basin Organizations.

It is a significant progress in Chile.

#### Axel C. Dourojeanni

Adviser in Integrated Water Resources Management  
Foundation of Chile  
axeldouro@hotmail.com



The Atacama desert

## Argentina

### Río Carcarañá Upper Basin

#### Method for determining environmental flow

For determining environmental flow requirements to bring an adequate flow regime that guarantees the sus-

tainability of water resources, in terms of both quality and quantity, the pilot Carcarañá River Basin,

located in Córdoba and Santa Fé provinces, was selected by the Secretariat of Environment and Sustainable Development, as it presents a complex typology of human intervention as far as the use of water resources is concerned.

The main goals of this interdisciplinary approach can be summarized as follows:

- establish guidelines and criteria to include environmental flow into the national legal framework,
- highlight its relevance in water resources planning,

- integrate the basin's public and private institutions into a water resources management and conservation system.

The Carcarañá River



**Dra. Ing. Nora Pouey**

CURIHAM  
Rosario National University  
Fax: 54 341 4808541  
nora@fceia.unr.edu.ar

[www.fceia.unr.edu.ar](http://www.fceia.unr.edu.ar)



### Creation of the Matanza Riachuelo River Basin Authority

**In August 2006, the Environment and Sustainable Development Secretariat presented a Comprehensive Plan for Environmental Recovery for the Matanza Riachuelo River Basin. One of the pillars of this plan is the creation of a River Basin Authority.**

The Law that establishes the River Basin Authority is a "national" law based on a scheme of agreements with the jurisdictions concerned, without "federal action", in order to help set up and implement an environmental regulatory mechanism for a territorial area based on the principle of integrated management of the river basin

It means establishing effective coordination by applying the principle of subsidiarity

There is no intention of substituting local powers in the river basin, but rather of strengthening them, in accordance with the existing legislation, for restoring the river basin.

The River Basin Authority will not be empowered to apply penalties that

pertain to the existing jurisdictions, nor will it receive any financial resources generated by local taxes, charges or fines. The River Basin Authority may, however, require preventive measures to be taken in order to avoid worsening damage to human and environmental health, providing these are scientifically justified.

The model created for the River Basin Authority implies cooperation for overcoming the hurdles that have made it difficult to deal with the causes and consequences of pollution in the past.

The River Basin Authority has a budget of public funds, along with the right to levy charges for services provided. The Authority is also the executor for international loans, such as the US\$ 250 million credit provided by the Inter-American Development Bank (IDB), and is currently negotiating the first part of a credit line of about US\$ 700 million from the World Bank.

The Law N° 26.168 also establishes the "Environmental Compensation Fund", which will be administered by the River Basin Authority and will deal with the effects of pollution along with conservation and recovery projects.

The Environment and Sustainable Development Secretariat has designed a strategy for pollution control in the Matanza Riachuelo river basin.

This has been communicated to the Supreme Court and must now be implemented: this is the challenge for the Matanza Riachuelo River Basin Authority.

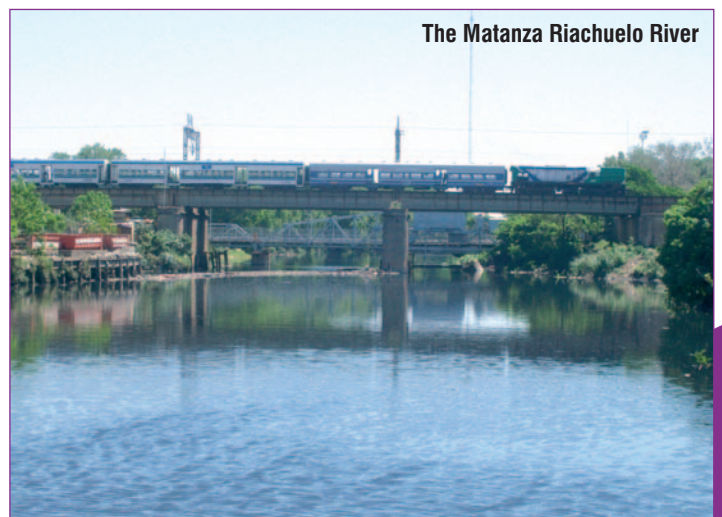
**Dr. Alejandro Rossi**

Matanza Riachuelo River Basin Authority (ACUMAR)

[www.acumar.gov.ar](http://www.acumar.gov.ar)

**acumar**  
Autoridad de Cuenca Matanza-Riachuelo

The Matanza Riachuelo River



# Latin America

## Brazil

### REBOB Brazilian Network of Basin Organizations

The Brazilian Network of Basin Organizations (REBOB), established on July 1, 1998, is a regional association of watershed organizations.

Its main objectives are to represent its members in matters of common interest and promoting the exchange of experiences among them.

It is also supporting cost recovery for water use and the creation of truly decentralized systems of water resources management.

In 1998, the National Water Resources Council (NWRC) was created in Brazil, and REBOB took a seat as representative of the River Basin Agencies.

The goals proposed by REBOB were achieved: the system for Water Resources Management in Brazil has existed since 1997; the creation of REBOB motivated the Basin Committees to organize nationally in 1999, in Ribeirão Preto city, São Paulo State, Brazil. With the full support of REBOB, the National Forum of River Basin Committees was created, and the partnership between the two organizations has been strengthening over the years.

The institution is a member of the International Network of Basin Organizations (INBO) and of the Latin American Network of Basin Organizations (LANBO).

Since its foundation REBOB has participated in national and international events and has sponsored regional meetings for strengthening existing organizations and the creation of new ones in the States of São Paulo, Rio de Janeiro, Minas Gerais, Santa Catarina, Bahia, Rio Grande do Sul and the Federal District.

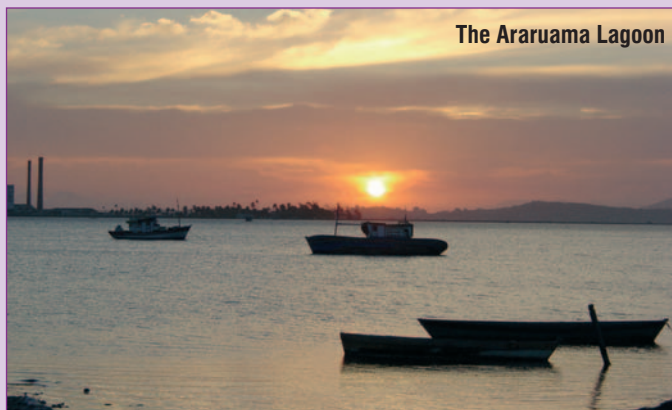
It participated in Expo Zaragoza, which was held in 2008 in Spain.

In 2009, REBOB worked to strengthen the networks (REBOB, LANBO, INBO) and help promote Integrated Water Resources Management to the civil society to lead to the constitution of new River Basin Committees.

**Francisco Carlos Castro Lahóz**

President of REBOB  
francisco@agua.org.br

[www.rebob.org.br](http://www.rebob.org.br)



The Araruama Lagoon

### PCJ Consortium: 20 years of struggle



This year, the Inter-municipal Basin Consortium of the Piracicaba, Capivari and Jundiá rivers (PCJ Consortium) is 20 years old: with a history of work and achievements for its region, mainly in the management of water resources.

Nowadays, the PCJ basins have a complex and operational water resources management system with three united and strong River Basin Committees and operative management tools. PCJ Consortium had a very important role in this process by performing functions of Water Agency as the Entity delegated by the PCJ Committees.

Charging for water use, one of the main management tools, is a reality in the region since 2006, turning it into a source of financial resources, mainly for the sanitation sector. In twenty years, the rate of domestic wastewater treatment has jumped from 3% to 45% with prospects to reach 70% over the next five years.

One of the concerns is about water supply, with the prospects of increased domestic demand and because the PCJ basins already supply about 50% of the metropolitan area of São Paulo and it is expected that the results of the Water Resources Master Plan studies will solve the problem for São Paulo Macro-metropolis and the whole region.

The basis for PCJ Consortium's action is Integrated Water Resources Management.

Local governments, sanitation services and conceded companies are working together to increase

wastewater treatment, reduce water losses in distribution systems and increase water reuse. PCJ Consortium also promotes the protection of springs, environmental education, solid waste projects, among other actions.

The PCJ Consortium has turned into one of the most respected Brazilian basin organizations, even with international recognition.

The work of the PCJ Consortium in the past twenty years shows that it can also perform Water Agency functions for the PCJ Federal Committee. Member of the National Council of Water Resources (CNRH), it represents the River Basin Inter-municipal Associations and Consortia, has the Presidency of the Brazilian Network of Basin Organizations (REBOB) and takes care of the Technical Secretariat of the Latin American Network of Basin Organizations (LANBO).

**Dalto Favero Brochi**

Executive Secretary - PCJ Consortium  
Tel./Fax: (19) 3406-4043  
dalto.favero@agua.org.br

[www.agua.org.br](http://www.agua.org.br)



## Brazil

### The Rio das Balsas and Rio São Valério Basins

The Rio das Balsas and Rio São Valério basins are located in very little populated areas of the Brazilian Cerrado, whose main asset is a still preserved nature. The Rio das Balsas basin is in the Jalapão Natural Reserve, which is the main tourist attraction of the area and where ecological tourism is strongly growing.

In 2001, the Serra Geral do Jalapão Ecological Reserve was created by presidential decree. It is one of the largest in the country with a surface area of 716,306 hectares. Access is entirely forbidden to human beings, except for scientific research pro-

grams authorized by the Federal Government, which considers this area as a priority for safeguarding Brazilian biodiversity.

#### **There are thirteen projects for building hydropower stations in the Rio das Balsas Basin.**

At this stage of the preliminary studies and land purchase for building, the population of the area, very little informed but aware of the problems involved in this kind of project, is very concerned.

At the initiative of the Center for Support to Family Agriculture and Solidarity Economy of the Jalapão terri-

tory, a petition was written against any construction of hydropower station in the area.

The motto of the campaign is “**energy in Jalapão is different**”: it refers to the dynamism of the population to seek new development methods which are respectful of the environment: craft industry, ecological agriculture, bee-keeping, ecological tourism, etc. According to some people, hydropower is part of it. According to others, the building of power stations on the Rio das Balsas and its tributaries is entirely incompatible with ecological tourism.

A project study is underway to promote dialogue between all the parties involved in this conflict in order to define the priorities of the Basin Master Plan. This Plan will be submitted to the population for approval before being given to the Secretariat of State in charge of Water Resources and Environmental Management of Tocantins State.

#### **Belizario Franco Neto**

Director for Water Resources  
Secretariat for Water Resources and Environment

[www.recursoshidricos.to.gov.br](http://www.recursoshidricos.to.gov.br)

## Ecuador

### FONAG

#### **A trust fund for water conservation and protection**

The inter-Andean area of Pichincha Province (Hoya de Quito) is one of Ecuador's most densely populated areas and faces serious problems of water shortage, competition and pollution.

The aquifers surrounding Quito were used to supply much of the population's drinking water. However, the deterioration of wells led to water transfers from river basins in the Amazonian region for supplying Quito with drinking water coming from the Antisana, Oyacachi and Papallacta rivers and for the irrigation of Tabacundo and Cangagua. The situation has been worsened by a deep crisis in national water resources management.

The “Preliminary report of the program to monitor water quality in the Guayllabamba River Basin”, issued by the Metropolitan District of Quito, Environmental Department, in 1999, concluded that levels of bacteria in all the sub-basins made unadvisable human consumption of untreated water under any circumstances.

**The Water Protection Fund (FONAG) was created to resolve these problems:** it is a permanent and stable economic and financial mechanism based on a trust fund, so that returns on capital can be used to fund the conservation of water springs that supply human and productive needs in the Metropolitan District of Quito.

The objectives of **FONAG** are to conserve water springs through the control of polluting activities, protection of surrounding biodiversity and conservation and recovery of plant cover, as well as reforestation around river springs and riparian areas in high mountain river basins, within social policies to support and promote poverty reduction and build firm linkages between conservation and development.

**FONAG** provides donations to local specialized agencies for formulating and implementing projects and programs conducive to its objectives.

Investment loans will be made available in a second stage.

**FONAG** is fed through payment for the environmental services produced in the river basins supplying the city, and through specific contributions from electricity and water bills.

Now **FONAG** has to:

- ❖ Keep up the technical implementation of programs and projects;
- ❖ Establish indicators to show, in a clear and comprehensible manner, the benefits of water conservation.
- ❖ Ensure accountability to water users of the funds use.
- ❖ Provide an explicit account of water user's contribution to the growth of the fund.

**The financial resources of FONAG are provided by the water users and are not dependent on foreign or government capital.**

On the long-term, the Fund guarantees that interventions and programs to protect water springs will last.

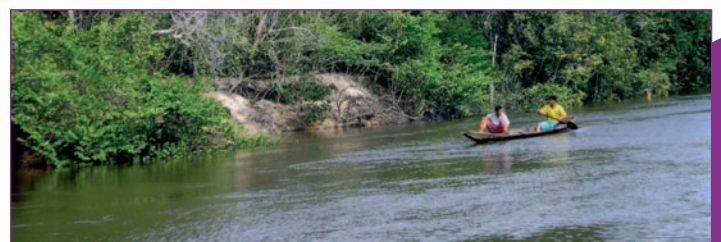
The Fund's action plans are developed in a participative way with a strong stakeholders' commitment.

**FONAG** only intervenes as a complement to other local financing.

#### **Pablo Lloret**

Technical Secretary of FONAG  
plloret@hotmail.com

[www.fonag.org](http://www.fonag.org)



# Pacific - Asia

## Australia



The 12<sup>th</sup> International Rivers Symposium, running from 21 - 24 September 2009 at the Brisbane Exhibition and Convention Center, focused on the theme "Rivers from Source to Sea".

The 2009 program featured presentations on innovative practices and case studies from all over the world and a wide range of perspectives on river management for both people and ecosystem health. With drought and flood having major impacts on the Australian landscape in recent years, there was also a strong national focus and an emphasis on the many issues facing South East Queensland.

Case studies were presented on the Han River in Korea, the Amur River in Russia and the Rhine River in Europe.

Approximately 150 presentations were delivered over the 4 days of discussions with thematic focuses on:

- Environmental flows;
- Upstream effects on downstream communities;
- Urban waters;
- Estuarine health;
- Water quality - maintenance and monitoring;

- Governance and institutional arrangements;
- Water markets;
- Community engagement;
- Agriculture and water;
- Industry and rivers;
- Climate change and rivers - dealing with droughts, floods and uncertainties.

The 12<sup>th</sup> International Rivers Symposium was held concurrently with the 7<sup>th</sup> IWA World Congress on Water Reclamation and Reuse.

Four prizes were awarded during the Riversymposium: the Thies International Riverprize for an example of successful river management globally; the National Riverprize recognizes outstanding work within Australia; the Young Water Scientist Award is awarded for postgraduate work on water and a new award for senior high school students is the Seqwater Future Leaders School Challenge.

### Carla Mathisen

Riversymposium Coordinator  
Tel.: +61 7 3123 7766 ext 202  
carla@riversymposium.com

[www.riversymposium.com](http://www.riversymposium.com)

[www.riverfoundation.org.au](http://www.riverfoundation.org.au)



Mr. Mike Walters,  
Lake Simcoe Region Conversation Authority

## Mekong River Commission

### Forum of the MRC partners Chiang Rai 15-16 October 2009



For the second time, this initiative of the Mekong River Commission (MRC) gathered, in Chiang Rai, Thailand, a hundred participants coming from the four Member States: Cambodia, Laos, Thailand and Vietnam.

A very reactive Chinese delegation also participated.

INBO Technical Secretary was represented by IOWater's Director of International Cooperation, Mr. Jean-Louis Millo.

**The objectives of this meeting were to ensure transparency on the preparation of the 2011-2015 development programs.**

Three topics were dealt with:

- impact of hydropower,
- development of irrigation,
- climate change.

The exchanges alternated between technical presentations and participative workshops, including:

- MRC presentations of its comprehensive and structured planning methods,
- many very relevant addresses of local groups, in particular on environmental and social issues and about fishing,

- a request for increased collaboration, presented by the Chinese delegation.

Some figures give the extent of the challenges: in Laos, 70 dams are planned to produce electricity and in Thailand projects are planned to transfer water towards the North-Eastern areas.

The current water storage capacity upstream (China) is 25 km<sup>3</sup>; downstream in the 4 MRC Countries, the projects relate to 23 km<sup>3</sup> in new reservoirs.

It is planned to increase irrigated lands by 500,000 ha, i.e. 36% of the current surface area.

Fishing accounts for 15% of the world production out of fresh waters, i.e. 2.6 million tons each year.

The Commission insisted on two of its current concerns: necessary inter-State coordination and impact of climate change, on the Mekong delta in particular.

### Jeremy Bird

Executive Secretary  
Mekong River Commission Secretariat  
mrcs@mrcmekong.org

[www.mrcmekong.org](http://www.mrcmekong.org)

## China

### European Union - Yangtze Dialogue on River Basin Management in Shanghai



Organized by Changjiang (Yangtze) Water Resources Commission (CWRC), EU-China River Basin Management Program (RMBMP) and WWF, a high-level dialogue on river basin management was held in Shanghai, China, on April 19, 2009, the day before **the third International Yangtze Forum**, which has been an important step in promoting integrated river basin management (IRBM) in the Yangtze River Basin and in China.

High-level experts and officials from EU and China attended the conference, coming from CWRC, YRWCC, Pearl River Water Resources Commission, Taihu Lake Authority, International Commission for the Protec-

tion of the Danube River and Rhine River Commission.

The Secretaries of **INBO**, Mr. Jean-Francois Donzier, and of **GWP**, Mr. Martin Walshe, were invited to address this conference.

This Dialogue Conference placed emphasis on sharing experience and lessons gained in promoting IRBM both in EU and China and in implementing the Water Framework Directive (WFD) in European Union Member States.

A consensus was been reached in this conference to declare that IRBM is a vital approach to ensure water security, ecosystem security and the sustainable economic and social development in the world, and that



its implementation requires political will, high-level commitment, cooperation between economic sectors, participation by all stakeholders and support with legal framework.

All the participants of the conference also appealed to strengthen international cooperation to promote River Basin Management and to address climate change.

**Dr. Yang, Guowei**

Institutional Specialist of EU-China RBMP (RBMP)  
yanggw1117@hotmail.com

[www.euchinarivers.org](http://www.euchinarivers.org)



### 4<sup>th</sup> International Yellow River Forum (IYRF)

The 4<sup>th</sup> International Yellow River Forum took place in Zhengzhou, China, from 20 to 23 October 2009, on the theme: "Ecological Civilization and River Ethics".

The Forum was organized around technical sessions on the following topics:

- social and environmental impact of climate change; sustainable water resources management;
- watershed rehabilitation;

- scientific meanings of ecological civilization; modern river basin management and restoration;
- river ethics and sanitation;
- application of experiences and new technologies of water resources management;
- sediment management of high silt-laden rivers and reservoirs;
- water right transfer, water safety, water environment, water market and water saving.

**The International Network of Basin Organizations (INBO) was invited to organize an "official session" on IWRM implementation in the River Basins of the world**, with two topics:

- role of Regions/Provinces, Local Authorities and users in basin management;
- financing of the Basin Management Plans, of their Investment Plans and Programs of Measures.

At the closing ceremony of the Forum, **a partnership agreement was signed by Mr. Laszlo Khotay, World President of INBO, and Mr. Li Guoying, Commissioner of the Yellow River Conservancy Commission (YRCC).**

The papers of the special session of **INBO** and the photographs of the Forum are available on the website:

[www.riob.org](http://www.riob.org)

**Yellow River Commission**

iyrf@yellowriver.gov.cn

[www.yellowriver.gov.cn](http://www.yellowriver.gov.cn)



Signing of INBO / YRCC partnership agreement



## Vietnam

### Launching of the pilot project of Dong Nai River Basin

Vietnam experiences a fast economic development which implies significant environmental challenges.

In such a context, a cooperation memorandum was signed in June 2007 by the French and Vietnamese Ministers in charge of sustainable development.

**Year 2009 allowed the materialization of an ambitious bilateral cooperation project on Integrated Water Resources Management (IWRM), which deals with the Dong Nai pilot Basin.**

It aims at providing:

- 1 An institutional assistance to the National Authorities in charge of IWRM coordination, financed by the French Loire-Brittany and

Seine-Normandie Water Agencies (€ 400,000) according to the "Oudin-Santini" Law on decentralized cooperation.

- 2 A technical assistance financed by the French Ministry of Economy, Finance and Employment for the development of surface water monitoring in the Dong Nai pilot basin (€ 800,000). It will be implemented by SCE consulting firm and ASCONIT Consultants at the beginning of 2010.

**The first step of the project was the kick-off seminar held on 20 and 21 October 2009 in Hanoi,** which allowed an exchange on the application of integrated water management in both countries.



Opening of the Kick-off Seminar

The concepts of the European Water Framework Directive are used as reference for the analysis of Decree 120, new Vietnamese legislation directing IWRM since its publication in December 2008.

The project implementation is planned over two years and will be

the subject of many papers, on the "institutional assistance" part in particular.

**Michel STEIN**

In charge of International Affairs  
Loire-Brittany Water Agency  
michel.stein@eau-loire-bretagne.fr

[www.eau-loire-bretagne.fr](http://www.eau-loire-bretagne.fr)

## India

### Climate Change and Rice Production

#### Stakeholders' involvement in the Cauvery River Basin

An important aim of the **CLIMARICE** project is to contribute towards better dialogue between stakeholders for addressing the impacts of climate change on rice farming in the Cauvery Basin in Tamil Nadu.

This project aims to identify stakeholder interests and priorities and provide guidelines to develop adaptation measures to sustain rice production, through an understanding of institutional structures and enhancement of the dialogue between policy-makers, scientists and farmers.

The first stakeholder workshop was organized at TNAU on 12 December, 2008. The participants discussed scenarios, identified the main impacts, the adaptation measures and type of responses necessary to address the risks from climate change.

The farmers have observed a shift in night temperatures, erratic monsoons and new pests and diseases. Their suggestions to address extreme weather events included introducing new crop varieties, changing crop-

ping patterns, improving water use efficiency, improved water allocation routines, rotational irrigation, training and awareness workshops and financial support to farmers.

The following measures suggested by the stakeholders will be carefully assessed to frame adaptation strategies, including:

- construction of rain water storage tanks and dam reservoirs that would also result in effective recharging of ground water;
- use of green manures and bio-fertilizers to increase the physical properties of the soil;
- construction of farm ponds to save and reuse the excess water effectively;
- development of rice nurseries to minimize water use and other inputs;

- alternative cropping (Maize, Sesame and Sunflower crops) that require less water;
- early planting to escape from the unseasonal rainfall and flooding during the maturity phase.

Stakeholders expressed a strong need for cooperation at the regional and local level.

**CLIMARICE** project will focus on testing these measures on farmers' fields in collaboration with local research institutes.

**Udaya Sekhar Nagothu, PhD**

Bioforsk - Norwegian Institute for Agriculture and Environmental Research  
Nagothu.udaya.sekhar@bioforsk.no

[www.bioforsk.no](http://www.bioforsk.no)

[www.tnau.ac.in/climarice](http://www.tnau.ac.in/climarice)



Women laborers in Paddy field, Thanjavur district, Cauvery Basin, India (Photo: Ragnar V Pedersen)



# Eastern Europe - Caucasus - Central Asia

## UNECE: United Nations Convention of 1992

### Management of data on transboundary water resources

With more than 50% of their territory covered by transboundary basins, the countries of Eastern Europe, Caucasus and Central Asia strongly depend on shared water resources: it is thus of prime importance to develop effective management policies in these basins for managing these resources while respecting natural water balances, more especially as regards climate change.

The implementation of these policies implies above all having a complete and detailed assessment of the water resources, based on homogeneous and consistent information.

However, apart from some specific cases, access to the information necessary for water resources management remains often problematic in the area as in many other areas of the World.

In such a context, the Secretariat of "the UN Convention on Protection and Use of Transboundary Rivers and International Lakes" carries out water resources assessments in this area.

**A pilot project could be implemented in 2010 in 2 pilot transboundary basins.** It will include:

- A component aiming at building the data administration and sharing capacities of the national and local Authorities involved in each of the 2 basins, by using methodologies that can be replicated in other transboundary basins of the region.
- Regional actions aiming at using the results obtained in these 2 pilot basins and at disseminating the defined methodologies in the other transboundary basins and countries of the region.

For each pilot basin, the project proposed:

- Characterization of the existing data sources with joint production of catalogues;
- Development of "Water Data Master Plans" at basin level;
- Recommendations on rules for sharing data among the competent authorities;
- Specification of the needs for strengthening the data producers and managers' abilities;
- Capacity building for the production of synthetic information (maps, indicators) on priority topics.



UNECE

[www.unece.org](http://www.unece.org)

## Moldova



### A Basin Council and Management Plan for the Cubolta River

The protection of water resources is a priority of the legislative acts and national environmental policies elaborated and implemented in the Republic of Moldova, where however a lot remains to be done.

Therefore, the Regional Environmental Center - Moldova (REC Moldova) has launched a project for implementing the EU Water Initiative and promoting Integrated Water Resources Management (IWRM), financially supported by the European Commission.

The main objectives of the project were to facilitate the optimization of water management by promoting and implementing IWRM, and by establishing partnerships between the local beneficiaries in the Prut and Dniester river basins.

For management to be fully effective and operational there is the need for sufficient information and qualified staff, drilled and trained: REC Moldova organized a number of seminars on the elaboration of the legal base in the water field, best practices, including EU IWRM experience, as well as on drinking water quality.

The seminars were addressed to representatives of central environmental protection bodies, especially those responsible for water resources management, Local Public Authorities in particular.

One of the most important results of REC Moldova project is **the creation of the Cubolta River Basin Council and the development of the Cubolta River Basin Management**

**Plan**, which can be considered as the first step in promoting adequate water resources management in Moldova. The Council will be responsible for implementing the integrated river management plan, which includes priority activities on environmental protection and rehabilitation of Cubolta River. Also, a Guide on Integrated Water Resources Management was published and disseminated to all interested environmental organizations and state institutions. The pilot project launched by REC Moldova will contribute to the river rehabilitation due to an adequate Management Plan developed and implemented in accordance to the EU standards, with the support of Central and Local Authorities and NGOs.

After being approved at the governmental level, the gained experience and the documents developed in this Plan were broadly disseminated and could be used as model for other river basins in the country and will be proposed to be applied for the transboundary Prut River Basin shared by Moldova, Romania and Ukraine.

**Andrei Isac**

Executive Director - REC Moldova  
andrei@rec.md

[www.rec.md](http://www.rec.md)



# Eastern Europe - Caucasus - Central Asia

## "EECCA - NBOs"

### Creation of the Network of Russian-speaking Basin Organizations

#### Development of Water Information Systems



During a workshop, held on 11-12 December 2008 in Moscow, Russia, the participants were familiarized with INBO activities, the experience of information system development in the water sector - in Central Asia (regional system), Russia, Ukraine, Belarus, Azerbaijan, Kazakhstan, and Armenia - as well as with the activities of water management organizations in these countries.

Several communications were presented at the workshop.

Mr. N.I. Tupikin, Director of the Center of Scientific-and-Engineering Information of "Meliovodstroy" at the Ministry of Agriculture, Russian Federation, presented the results of the Congress of Russian hydrologists and irrigation engineers, as well as an interesting proposal on the organization of periodical irrigation, which combines and plans regular irrigation and rainfed farming, depending on precipitations in the steppe zone.

Mr. S.Ye. Bednaruk, Director of the Registry of Hydraulic Structures at the Russian Federal Water Agency, presented the systematic monitoring and forecasting of water availability in Russia. The Center's website gives free access to information products, such as the Russian registry of hydraulic structures, the Information System on "Russia's rivers", the hydroeconomic zoning in the Russian Federation.

Mr. V.A. Omel'yanenko, Deputy Director of the Information Center "NIA Prirody", which publishes the Nature and Resource Gazette, opened a discussion on the opportunity of creating a transboundary system between the Caspian Sea and the Black Sea, which was strongly supported by the President of Kazakhstan.

The initiative was proposed because of insufficient capacity of the **Volga-Don canal**. A navigation canal project is put forward against the alternative of the "Volga-Don-2" canal, which would pass parallel to the existing canal.

Opinions are divided and a fight, which is as strong as the previous one regarding the canal connecting Siberia and Central Asia, is taking place. Heated disputes on the Eurasian canal are continuing

A.P. Demin of the Water Institute summarized the report presented to the Academy of Sciences on water availability in agriculture in Russia. The water quantity used in agriculture decreased by half from 1980 to 2004. Since 1970, irrigated areas in Russia have extended from 1.9 Mha to 6.1 Mha but in 2000, according to official data, the irrigated area was reduced to 4.5 Mha. Actually, irrigated land area decreased to 2.4 Mha.

In recent years, the water use efficiency indicator has improved slightly and agricultural output increased from 1.8 roubles/m<sup>3</sup> in 1995 to 3.5 roubles/m<sup>3</sup> in 2005 per 1 m<sup>3</sup> of water used. Production on irrigated land remains 3-5 times higher than in rainfed areas. Moreover, the reconstruction of irrigated lands concerned 110 thousand ha in 2002 - 2005, and 160 thousand ha are planned in 2006-2010.

**Ukraine has kept specialized water management under the responsibility of the State Committee for Water Resources headed by V.A. Stashuk.**

The Deputy Head of the Committee, Mr. O. Lisyuk, presented the "Basin geo-information system for water management and monitoring along large rivers in the Ukraine" as well as the activity of the Severско-Donetsk Basin Water Management Authority.

The development of an information system in the Ukraine, as well as in Belarus, runs according to the provisions of the European Water Framework Directive.

**The main result of the workshop was the agreement of all concerned parties on the establishment of a Network of Russian-speaking Basin Organizations under the umbrella of INBO.** Membership in this network is voluntary. It is based on professional community and mutual understanding and aims at organizing exchanges of opinions, experience, and information on various aspects of water management, without requesting any financial contribution.

**Prof. V. Dukhovny**

SIC ICWC Director  
dukh@icwc-aral.uz

<http://sic.icwc-aral.uz>



# Eastern Europe - Caucasus - Central Asia

## Free speech: Saving the Western Aral Sea



Amu Darya Delta

### Can the Aral Sea downstream of the Amu Darya River be restored?

At the beginning of 1960s, the Aral Sea had a surface area of more than 66,000 km<sup>2</sup>, now the total area of the 3 units makes less than 20,000 km<sup>2</sup>.

After the construction of Kokaral dam, only the Northern Aral Sea (NAS), fed by the Syr Darya in Kazakhstan, has real chances for survival. Any of the previous projects has not given the answer to the question: how to save the Eastern and Western Aral Seas (EAS and WAS)?

There is widely popular opinion that they should disappear in 15-20 years.

**However, there is a proposal for saving the Western Aral Sea (WAS) which has deep depth and smaller area.**

The idea includes complex measures, including the construction of:

- a canal for collection-drainage of water from the Amu Darya Delta to WAS.
- a dam for separating EAS from WAS.
- a canal "NAS-WAS", which will allow reducing the increasing mineralization of sea water, improving living conditions for fish and stopping the discharge of freshwater from the Syr Darya River into EAS.

If the problem of WAS preservation is not solved, the parameters of Amu Darya Delta's ecosystems will sharply vary depending on water input. The Delta and its wetlands do not always receive water in quantities which are sufficient for its steady existence, especially in dry years.

Tens millions US dollars are spent by Uzbekistan for the creation of temporary aquatic ecosystems in the coastal zone and on the dried up area of the former Aral Sea and Amudarya River Delta. However, these aquatic ecosystems will remain unstable if a uniformly flowing "DELTA-SEA" ecosystem is not created.

**Yu. Khai. RYSBEKOV**

Scientific-Information Center of Interstate Coordination Water Commission (SIC ICWC) of Central Asia  
yusuprysbekov@icwc-aral.uz

## IWRM Implementation in Syr Darya River Basin

As it is known, the Syr Darya River Basin is shared by four countries of Central Asia - Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan.

In recent years the concept of Integrated Water Resources Management (IWRM) became popular in the countries of region, and the appropriate normative-legal provisions are accepted both at national and transboundary level. International institutes and agencies assist the countries in implementing IWRM principles, especially at an inter-state level for maintaining water safety in the region.

It is necessary to note the efforts of the Asian Development Bank (ADB) for strengthening interstate water cooperation in the Syr Darya River Basin.

Soon will start the interesting project "Supporting Investments in Water Security in River Basins", which is financed by the Japan Special Fund.

In March 2006, ADB announced its Water Financing Program (WFP) for 2006-2010 to double water investments and apply IWRM in 25 river basins, including the Syr Darya River basin.

River basins have already been chosen to be twins:

- **Bengawan Solo River Basin (Indonesia).** This basin is characterized by frequent floods, deterioration of water quality, and disputes about water distribution between the domestic and agricultural sectors in the irrigation period.
- **Bagmati River Basin (Nepal),** whose upper reach includes Kathmandu valley, faces serious problems in terms of water shortage, water and land pollution, degradation of watersheds, etc.

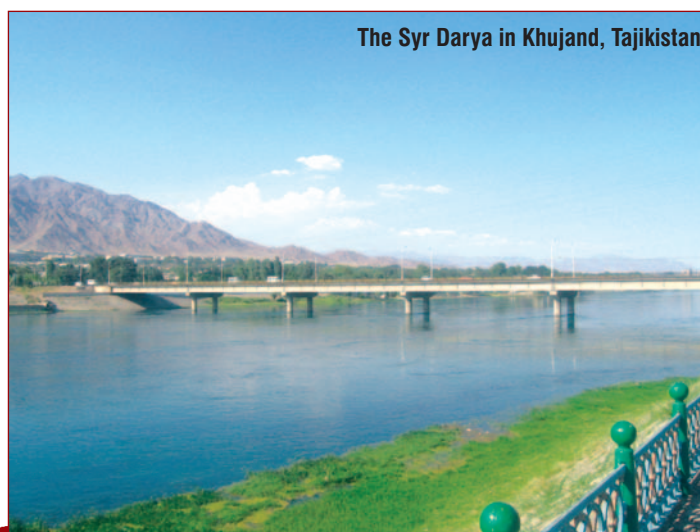
- **Transboundary Syr Darya River Basin (Central Asia),** where Kyrgyzstan, located upstream, uses the water of the Toktogul reservoir for power generation in winter and spring time that causes floods in downstream countries (Uzbekistan, Kazakhstan), and water shortage during the irrigation season in summer.

It should be hoped that this new project will allow solving urgent problems in the river basins through the introduction of the IWRM principles.

**Yu. Khai. RYSBEKOV**

Scientific-Information Center of Interstate Coordination Water Commission (SIC ICWC) of Central Asia  
yusuprysbekov@icwc-aral.uz

<http://sic.icwc-aral.uz>



The Syr Darya in Khujand, Tajikistan



# European Union

## 7<sup>th</sup> EUROPE-INBO Group Conference

19 - 21 August 2009 - Stockholm - Sweden



EUROPE-INBO

**This year, the yearly EUROPE-INBO Group conference took place within the World Water Week of Stockholm and was part of the official events of the Swedish Presidency of the European Union.**

Jointly organized by INBO and the Swedish District Authorities, it gathered 131 participants from 24 countries during 3 days, with the presence of the European Commission.

The conference was opened by Mr. Björn Sjöberg (Sweden), Director of the "Skagerrak and Kattegat" District Authority, and by Mr. Ovidiu Gabor (Romania), President of EUROPE-INBO 2008.

**The conference dealt with three topics: Management Plans, Climate Change and Programs of Measures.**

The District Authorities are indeed currently facing the same stakes in all the European countries: imple-

menting the very first cycle of the Management Plans and Programs of Measures which must be adopted before the end of the year and integrating climate change into water resources management.

In addition to the introductory speeches, a significant part of the program was dedicated to exchanges in round tables.

### MANAGEMENT PLANS AND PUBLIC CONSULTATION

Mr. Patrick Weingertner (Rhine-Meuse Water Agency, France) introduced the topic and presented the French participative approach and more particularly that used in his Basin, with the sending of one questionnaire to all the French families, accompanied by a communication campaign (local TV, radio, newspapers), local information meetings and a Website dedicated to the consultation.

The rate of reply however remains relatively low and it is thus still necessary to increase awareness. The public consultation led however to modify the draft Management Plans and the results were communicated to the public.

Messrs. Kálmán Papp (Hungary), Håvard Hornnæs (Norway) and Anthony Mc Nally (Ireland) then presented the approach used in their basins.

Work in round tables, reported by Mr. Bo Sundström, Sweden, underlined that public participation requires time and resources which should not be underestimated. The French approach was often quoted as a very good practice but also as too expensive for some countries. Some limit themselves to the use of Internet to inform and consult the public, but the participants agreed to saying that this is not enough: it is necessary to use the local newspapers and to organize public debates.

For Transboundary International Districts, the added value of International Commissions was underlined. But it is still necessary to increase the coordination of the measures by the riparian countries and to agree on the same economic model (disproportionate costs, exemptions, ...).

### CLIMATE CHANGE: CHALLENGES FOR WATER MANAGEMENT

After a scientific introduction by Professor Sten Bergström (Swedish Meteorological and Hydrological Institute), three basin experiments were presented: Mrs. Wanda Zevenboom (Netherlands), Mr. Juan Jose Moragues (Spain) and Mr. Jean-Marie Wauthier (Wallonia, Belgium).

The round tables led to the following conclusions, reported by Mrs. Daniela Radulescu, Romania: the costs of the adaptation to climate change will be lower than those of non-adaptation and it is important to act as soon as the Program of Measures 2009-2015; the Marine Strategy, the Floods Directive and the Framework Directive would gain from better

coordination especially between the responsible administrations and at the European level (CIS); expertise is lacking for taking into account climate change in planning; it is necessary to develop meteorological modelling, specify orientations and carry out case studies. Europe should be a leader in this approach.

### ECONOMIC ASPECTS OF THE PROGRAMS OF MEASURES

Mrs. Maria Brättemark of the European Commission estimated that the economic analyses presented by the Member States remain rather disappointing: many draft Management Plans do not refer to the cost-effectiveness analysis and only 60% of them tackle the subject of pricing.

Three district experiments were presented by Mr. Peter Pollard (Scotland), Mr. Hans Christian Karsten (Denmark) and Mrs. Geraldine Aubert (France).

The discussions, reported by Mr. Mario Cerutti (Maas International Commission) underlined the difficulty in finding the best combination of measures, for non-point pollution in particular.

Exemptions are often needed and not only when there is disproportionate cost. The polluter-pays principle should be better applied in agriculture and hydropower. Measures should be initiated at governmental level.

Many Basin Organizations estimate that their financing instruments are not suitable and that it would be necessary to develop case studies on this matter on the European scale.

They fear that there is not sufficient stakeholders' appropriation at local level, that the effects of the measures are insufficient, that there are interferences with other European programs (renewable energies, ...):

131 participants coming from 24 countries





Mrs. Ann-Louise Månsson, Swedish Water Director, new President of EUROPE-INBO 2009

it is necessary to find a good balance with the other environmental objectives and to put the Programs of Measures on the political agenda in order to solve controversies.

**On the whole, 17 papers were presented.**

The exchanges continued in a more informal way during a dinner-cruise in Stockholm archipelago, offered by the Swedish District Authorities.

During the closing ceremony, Romania transmitted the Presidency of **EUROPE-INBO Group** to Sweden for the year to come.

Mrs. Ann-Louise Månsson, Water Director of the Swedish Ministry of the Environment was handed **the EUROPE-INBO symbol** by Mr. Vasile Pintilie and Mr. Ovidiu Gabor, respectively Director General and Deputy Director General of Apele Romane (National Water Administration of Romania).

**During the official conclusion of work, Mr. Jean-François Donzier, INBO Permanent Technical Secretary, underlined the stakes for the European Basin Organizations.**

He reminded that huge work has been done since 2000, but important challenges are remaining to achieve the objectives of the Framework Directive.

110 River Basin Districts have being established across the European Union, Switzerland and Norway.

40 are Transboundary River Basin Districts which cover more than 60% of the territory of the EU, making international coordination one of the most significant issue and challenge for the WFD implementation.

To conclude his speech, he declared: "The gained experience shows that this new basin approach has real advantages! From now on, it is possible to progress towards better basin management in the European Union: we will to do it!"

Mrs. Maria Brättemark reminded the expectations of the European Commission and Mrs. Ann-Louise Månsson, Swedish Water Director, presented the priorities of the Swedish Presidency of the European Union (climate, marine environment, biodiversity, eco-efficient economy, Strategy for the Baltic Sea).

The conclusions of the conference will be reported to the Strategic Coordination Group and to the European Water Directors.

The participants thanked our Swedish partners for their very good organization and their warm welcome.

This conference took place at a key moment of the development of Management Plans by the European Basin Organizations.

**You can find all the documents on INBO website.**

### THE 5 SWEDISH RIVER BASIN DISTRICTS



Sweden is divided into 21 counties ("Länsstyrelsen"), each one directed by a Prefect representing the State. Before the WFD, water was managed on a county scale. In 2004, Sweden adopted basin management and subdivided its territory in 5 River Basin Districts ("Vattendistrikt").

In each district, a county was designated as the authority responsible for the WFD, in charge of formulating the Management Plan and Program of Measures.

The District Authorities ("Vattenmyndigheterna") are coordinated by the Swedish Ministry of the Environment.

Public participation is organized through the Water Council ("Vattenråd") gathering the municipalities, farmers, industries, associations for environmental protection, organizations of fishermen.

Sweden shares 3 transboundary districts with Norway and Finland.

The Baltic Sea is much polluted especially by eutrophication. The implementation of the Strategy for the Baltic Sea presented by the European Commission in June 2009 is one of the priorities of the Swedish Presidency of the EU. Sweden hopes that this step can be used as a model for other regional seas, such as the Mediterranean or the Black Sea.



Mrs. Maria Brättemark of the European Commission



# European Union



## Transnational research on IWRM is progressing in Europe!



During the last three years, the European project **IWRM-NET**, coordinated by the International Office for Water, gradually achieved the goals that the 20 managers of public research programs of the network had defined in 2006.

The first joint research program dealing with the topics: "hydro-morphological pressures and impacts on good ecological status of water resources and aquatic ecosystems" and "water governance", allowed financing five research projects for a total amount of 2 million euros.

Following this pilot project, the partners undertook the preparation and launching of a second call for joint projects.

Three large topics were included in this program: "impacts of climate change and adaptation of water management", "water scarcity", "economics of integrated water resources management" and "social and environmental assessment for decision-making and incentive measures for regulating uses".

During the next and last 15 months of the project, the **IWRM-Net** partners

will particularly intensify their efforts for consolidating the relations with the other European water-related initiatives (WssTP, ICPDR, other water ERA-Nets, etc.) and finalizing the research agenda on water, for a strategic vision on the European scale.

New communication tools will be used to achieve a true "**IWRM-Net community**" and many events will be organized.

**N. Amorsi**

International Office for Water  
n.amorsi@oieau.fr

[www.iwrM-net.eu](http://www.iwrM-net.eu)

## Water supply and sanitation Technology Platform - WssTP

### Promoting integrated basin management through European competitive and innovating research

Integrated basin management requires water resources management beyond administrative borders.

To promote competitive and innovating research, the European Commission created, in 2004, **the European Technological Platforms (EPT)**, which aim at applying the conclusions of the Lisbon Agenda to develop a competitive market based on innovation and knowledge.

**The WssTP (European Water supply and sanitation Technology Platform)** contributes to achieve these objectives in order to promote integrated water research. The main assignment of **WssTP** is to propose strategic recommendations and a vision for the water sector before 2030.



It identified four great future stakes for the water RTD sector: increase in the water stress and water price, growing urbanization, extreme climatic events and water service in the rural and isolated areas.

To concretize its approach and to find solutions to these stakes, **WssTP** initiated six research "pilot" programs, in which Integrated Water

Resources Management (IWRM) is at the core of the activities.

Focusing on general and transverse topics, they articulate fundamental research and implementation of demonstration projects; several of these pilot projects directly concern integrated basin management.

The program related to coastal zones, for example, aims at addressing the problems of these areas subjected to seasonal pressures and characterized by a multitude of interested parties.

One of the priorities of this pilot project is to consolidate a network representative of the various stakeholders in order to develop inter-sectoral case studies on critical geographical areas.

The program on deteriorated water zones proposes a research focusing on the development of techniques to support cooperation between the border countries and all the parties involved in their management in order to meet the expectations of the Ministries, Agencies, Municipalities, Industries, etc.

Through these activities, **WssTP** seeks to promote solutions to apply an integrated approach to consult the various water stakeholders. To develop this strategic vision, the basin-related approach is fundamental.

**Céline Hervé-Bazin**

**Diane D'Arras**

WssTP

Fax: +32 27 06 40 81

wssTP@wssTP.eu

[www.wssTP.eu](http://www.wssTP.eu)

## "INTEGRATOR - AquaTerra"

### Tools to improve environmental and socioeconomic management in river basins

For implementing the Water Framework Directive (WFD) and its daughter directives on groundwater and floods, river basin managers have a growing need to understand contaminants behavior and fate in the environment. In this context, the BRGM (the French Geological Survey), in charge of the "INTEGRATOR" sub-project of the European research project "AquaTerra", financed by the 6<sup>th</sup> Framework Program for Research and Development (June 2004 - May 2009), developed tools which enable to take into account environmental and socioeconomic parameters in river basin management.

One of the objectives of "INTEGRATOR" was to couple socioeconomic analyses and modelling of the soil-water-sediment system in three case studies:

- Diffuse pollution from agriculture of the Hesbaye aquifer, in the Geer catchment area,
- Heavy metal pollution in groundwater, in the Kempen region,
- Simulating future scenarios on water resource and their salinity in the Ebro basin.

These case studies integrated anthropogenic changes in decision making associated with natural resources management.

They implied a real multidisciplinary team work, whose objectives were defined in close collaboration with river basin stakeholders.

Another aim of "INTEGRATOR" was to develop a methodology to synthesize the main "AquaTerra" results in various European countries and to assess the relevance of these results with respect to river basin managers' demands.

This methodology enabled producing 93 key finding factsheets, 43 tool descriptive sheets and numerous recommendations on river basin management and to correlate them with key questions raised by the field stakeholders.

The "AquaTerra" project enabled to improve significantly the understanding of the soil-water-sediment-river system and to bring answers to water stakeholders thus facilitating daily river basin management.

**Corinne MERLY**

BRGM

Fax : 02 38 64 39 63

c.merly@brgm.fr

[www.aquaterra.uni-tuebingen.de](http://www.aquaterra.uni-tuebingen.de)



## Spain

### The Guadiana River and Rural Development

The Guadiana River Basin Authority (Confederación Hidrográfica del Guadiana) promotes new channels for social dialogue, active involvement and for environmental education thanks to a series of agreements signed with various Rural Development Associations of Extremadura (REDEX), Castilla la Mancha (CED-ERCAM) and Andalusia (ARA).

It is the first Spanish "River Basin" organization to take part in such initiatives, using social dialogue in rural development.

All rural development actions are basically carried out by the Spanish Autonomous Communities and channelled by Development Groups within frameworks established by the Ministry of the Environment and Rural and Marine Affairs and the FEADER of the European Union.

Under these agreements, the Development Groups recruit a territorial agent and a coordinator in each Regional Association thus fostering the creation of 30 new jobs.

They are working on education with organizations and other social agents in environmental matters.

This task is supplemented by gathering and disseminating good practices of water use, taking into account identity models and the traditional cultural heritage

These agents also support innovations on water and closely work together and help Development Groups with the planning and development of new inter-territorial initiatives.

This dialogue and active participation together with environmental education and awareness campaigns foster a new social and institutional network that helps improve the management of our river basins and will allow becoming more efficient with the population to carry out the transformation processes for sustainable development.

This support to rural areas and social action allows staving off depopulation in small rural municipalities, adapting to climate change and developing sustainable use of water and lands.

**Eduardo Alvarado Corrales**

Guadiana River Basin Authority

Fax: 924241852

presidente@chguadiana.es

[www.chguadiana.es](http://www.chguadiana.es)



# European Union

## France

### Development of the Middle Vienne Basin

The area of the Syndicate for the Development of the Middle Vienne Basin (SABVM) encompasses about thirty municipalities.

This sector is characterized by a dense river network with 2 main rivers, the Vienne and Glane, and many other small streams, all representing more than 400 km of waterways.

Recent studies underlined the alteration of the morphology of most small streams, because of very many ponds and small dams. They also evidenced problems of resource quantity and quality. The water intake feeding the town of Saint-Junien, the most populated of the Syndicate, thus became inoperative because of its silting by sediments...

To solve these problems, the SABVM conceived a unique and exemplary partnership with the Limousin Region, the Loire-Brittany Water Agency and the Regional Natural Limousin Landscapes Conservatory.

Since 2009 and for the five years to come, SABVM is being implementing a **"contract for restoration and maintenance"** on all the rivers to achieve "good ecological status", in order to protect wetlands and the biodiversity.

To achieve these goals, 5 main actions will be undertaken:

- restoring the natural conditions of water run-off (management of bank vegetation and log jams caused by recent storms),

- limiting the silting of river beds (watering places for cattle, fight against the coypu and restoration of areas with high erosion),
- making fish ways, cleaning spawning grounds and improving the management of the catchment areas,
- better knowing, preserving and managing wetlands,
- communicating with local population on water policies.

This last point is particularly significant as the implementation of work on the rivers can only be correctly



done if accompanied by information and awareness of the general public (public meetings, explanatory leaflets, training, etc.), as all the banks belong to private owners.

#### **Yoann BRIZARD**

Syndicate for the Development of the Middle Vienne Basine  
sabvm@wanadoo.fr

### The first water management plan for Mayotte

Mayotte, a French archipelago in the Indian Ocean, comprises two main islands and some thirty small ones. A 150 km long coral reef protects one of the largest lagoons in the world from the open sea. Mayotte is currently at a turning point, as it is to become a French Overseas Department by 2011, and due to the challenges of development sustainability.

The island's structural backwardness, due to its recent economic and demographic development, is now both an asset, because industrial and agricultural pollution is low, and a handicap since the organization of

the community and individual sewerage systems does not meet the major environmental challenges.

**Mayotte is a "River Basin District" (a basin island) under the terms of the European Water Framework Directive.**

The Mayotte Basin Committee was created recently (2005). It aims to set up the first Water Management Plan.

The French Rhine-Meuse and Mayotte Basin Committees signed a partnership agreement to help to implement the WFD in 2007.

Under its terms, the Rhine-Meuse Agency is providing technical and financial assistance to the Mayotte Basin Committee for drawing up the Master Plan for Water Development (SDAGE).

The Mayotte Agriculture and Forestry Directorate acts as the Basin Committee's secretariat and is overseeing the writing of the SDAGE.

In order to make consultation for the first Management Plan and the Program of Measures as broad as possible, the Basin Committee quickly adopted the participative approach advocated by the WFD and adapted it to the Mahoré socio-cultural context.

The public consultation and dialogue process, which took place between 15 December 2008 and 15 June 2009, involved local events.

Media campaigns are publicizing the key events.

Local associations and town halls are actively involved in organizing the events aiming at informing the public

on the situation, raising awareness on problems and seeking participants' opinions on water management.

Thematic commissions complete the consultation process and contribute to defining the Management Plan priorities. Thanks to the Basin Committee members' efforts, local stakeholders have substantially contributed to the meetings, seminars and study groups. Public participation has been high.

Keeping up this mobilization will be a key challenge for sustainable development in Mayotte.

#### **Agnès Cabal**

SOGREAH  
agnes.cabal@sogreah.fr;

#### **David Lombard**

Mayotte Agriculture and Forestry Directorate  
david.lombard@agriculture.gouv.fr

[www.hydro-mayotte.agriculture.gouv.fr](http://www.hydro-mayotte.agriculture.gouv.fr)

The small islands to the North of Mayotte







### Water Agencies: database on international actions

At the initiative of the Water and Biodiversity Directorate of the Ministry of Ecology, Energy, Sustainable Development and the Sea, the French Water Agencies created a database on their international cooperation projects in the fields of drinking water supply, sanitation and IWRM.

In 2008, IOWater structured this database, then organized the first information flows on the projects carried out in 2006/2007 by proposing procedures allowing homogeneous information between the agencies, and set up a first version of the

portal for consultation of this information. This portal allows consulting the data via a cartographic interface or specific menus.

After a first phase of validation of the base contents, the data on the projects were processed at the end of 2008 in order to produce various indicators for follow-up and evaluation of the international actions required by the Ministry, such as:

- Implementation Indicators: amount of the financial contributions of the agencies for each recipient country/year;

- Indicators for follow-up of the 9<sup>th</sup> Action Program of the Water Agencies regarding international cooperation;
- Indicators on the Official Development Aid (ODA) in the water sector according to OECD classifications of the countries.

These indicators presented in the form of graphic tables and maps are available on the Website.

In 2009, the gathering of information on the projects carried out in 2008 continued and, at the request of the

Agencies, the portal headings were supplemented with, in particular, an access to various "country" profiles produced by IOWater, by FAO in Aquastat, by the French Development Agency and by the French Ministry for Foreign and European Affairs.

[www.aquacoop.org/ACODIA](http://www.aquacoop.org/ACODIA)

[www.lesagencesdeleau.fr](http://www.lesagencesdeleau.fr)

## United Kingdom

### SNIFFER - UKTAG partnership

#### Supporting the development of the UK River Basin Management Plans

**UKTAG** is a partnership of experts from the UK environment and conservation agencies.

It provides technical advice to the UK Administrations, key stakeholders and Non-Government Organisations. The coordination of UKTAG activities is managed by **SNIFFER** (Scotland and Northern Ireland Forum For Environmental Research) chaired by the Environment Agency.

The EC Water Framework Directive (WFD) came into force in December 2000. It established a new, integrated approach to the protection, improvement and sustainable use of Europe's rivers, lakes, estuaries, coastal waters and groundwaters.

The Directive introduced two key changes in the management of European Union's River Basin Districts:

- The first relates to the environmental objectives that must be delivered to safeguard the sustainable use of the water resource.

- The second change relates to river basin management planning.

The WFD requires the competent authorities to set in place regulations and processes to manage river basins. In order to do this they are required to set objectives based upon the expected ecology for each "Water Body" and to put in place the measures to maintain or regain this objective.

The measures to be put in place to maintain or improve the catchment have to be laid out in a River Basin Management Plan (RBMP) by 2009. All existing or new regulatory processes must be WFD compliant and the Directive lays out the timeline for carrying out this process.

**UKTAG** was established in 2001 to provide coordinated advice on technical aspects of the implementation of the WFD to the UK administrations.

It also aimed to assist in developing a coordinated approach to the WFD implementation in the river basins shared between Great Britain and Northern Ireland and the Republic of Ireland.

**SNIFFER** has supported **UKTAG** and the agencies in co-ordinating the identification, prioritisation and delivery of WFD research.



**Janet Cowden**  
UKTAG coordinator  
wfduktag@sniffer.org.uk

[www.sniffer.org.uk](http://www.sniffer.org.uk)



#### ACHIEVEMENTS OF SNIFFER - UKTAG PARTNERSHIP:

**Characterisation and risk assessment:** 18 projects have been managed.

**Classification:** 28 projects in developing appropriate tools.

**Environmental Objectives:** 14 projects have supported the development and validation of standards and 3 projects developed environmental quality standards across a range of chemical parameters.

**Programme of Measures and River Basin Management Plans:** 12 projects have supported the identification of measures or developed decision support tools to assess the effectiveness of measures.

In addition SNIFFER worked for identifying possible conflicts between RBMPs and local development plans within Scotland.

**Communication and Public Participation:** SNIFFER assisted in the mapping of the river basins of the United Kingdom and Ireland. It also cooperated in the design of tools for popularisation of the processes to a non specialised public.

# European Union

## Poland

### IMGW's role in promoting IWRM notions

The **Institute of Meteorology and Water Management (IMGW)** plays an important role in Poland regarding the implementation of Integrated Water Resources Management, focusing on the Water Framework Directive and the Flood Directive.

The **Center for Hydrological and Meteorological Education in IMGW** was created in 2006. Its main tasks are: organizing workshops and conferences for the administration and other entities on hydrology,

meteorology, water management issues, databases and GIS applications (for example flood risk maps), crisis management and public participation.

The **Office for Local Government Collaboration in IMGW** was created in 2004 with the following tasks:

- Improving collaboration on flood issues between the Polish NMHS (National Meteorological and Hydrological Service) and local Authorities;

- Organizing meetings for exchanging experiences;
- Collaborating with other IMGW units in preparing informational materials for local governments;
- Stimulating the creation of local warning systems.

Special sessions are also organized by **IMGW** each year on risk and water management.

**IMGW** is also active in dam monitoring and safety and is responsible for organizing conferences on that topic, as well as on flood protection, hydropower engineering and liquid waste storage.

**Tomasz Walczykiewicz**

IMGW

Tomasz.walczykiewicz@imgw.pl

[www.imgw.pl](http://www.imgw.pl)



## Hungary

### French-Hungarian twinning between Basin Organizations

Cooperation between France and Hungary is flourishing along the Danube. The first agreement signed in 1994 was renewed several times and a multi-party agreement was signed on 8 December 2008 between 2 French Water Agencies (Seine-Normandy and Loire-Brittany) and 5 Hungarian Water Directorates (Central Directorate, Middle Danube, Upper Tisza, Trans Tisza, Western Transdanubian).

Among the priority actions there are topics related to the WFD implementation. **A workshop devoted to the Economic Analysis** was thus held on past 25 and 26 May in Budapest, with the presence of Laszlo Khotay, State Secretary in charge of Water and World President of INBO.

It gathered about 40 people: on the Hungarian side, the Ministry for the Environment was represented as well as 11 of the Regional Directorates; on the French side, economists of the Seine-Normandy and Loire-Brittany Agencies took care of the technical proceedings of this workshop.

The 2 French Agencies had also asked Pierre Strosser and Arnaud Courtecuisse, European experts, for having a view of the economic problems in the other countries of the European Union.

The seminar was divided into 5 topics:

- cost recovery through the water utilities;
- impact of the social, economic and environmental situations on the costs;

- the economic justification of exemptions;
- incentive pricing for the application of the development plans;
- financing of the WFD Program of Measures.

These two days highlighted the challenges that Hungary must face to achieve "good status".

19 countries share the Danube River Basin, 14 of which are Members of the International Commission for the Protection of the Danube River (ICPDR). This specificity makes the development of a Management Plan rather complex.

The main problems encountered in the basin are associated with organic pressures, with the difficulties related to wastewater treatment, with flood and irrigation. In Hungary as in France, there is real integration of the tools for economic analysis in the development of Management Plans and yet the insufficiency of their use as decision-making supporting tools is striking. It thus appears necessary to better integrate economics into the other disciplines to meet the WFD requirements!

In Hungary, the **"environment month"** traditionally takes place in May. Taking the opportunity of French experts' presence, the French Cultural Center of Budapest had organized a meeting in the morning devoted to **"environment vs. crisis"**. In front of an amphitheatre of a hundred people, the Seine-Normandy Water Agency proposed thinking about 3 possible scenarios on the topic: "Has the financial crisis an impact on water management in France"?

Finally, this French-Hungarian collaboration leads to exchanges of young professionals eager to widen their horizons and to see other practices on same topics. The Seine-Normandy and Loire-Brittany Agencies will thus receive two young Hungarians from the Western Transdanubian while two young French people will go to Hungary...English language being a must!

**Myriam CALLE**

Seine-Normandy Water Agency  
calle.myriam@aesn.fr

[www.eau-seine-normandie.fr](http://www.eau-seine-normandie.fr)

**Michel STEIN**

Loire-Brittany Water Agency  
michel.stein@eau-loire-bretagne.fr

[www.eau-loire-bretagne.fr](http://www.eau-loire-bretagne.fr)



The workshop in Budapest in May 2009



### An institutional twinning in Bulgaria: Programs of Measures and economic instruments of the WFD

The twinning agreement signed by the Bulgarian Ministry of Water and the Environment and the French Ministry of Ecology (MEESDS) started in March 2009.

Seconded for 18 months by the Artois-Picardy Water Agency, Arnaud Courtecuisse took his position of Resident Adviser of the twinning in Sofia, at the Bulgarian Water Directorate.

This project is led by IOWater, mandated by the MEESDS for following up the twinning arrangements in the field of water.

#### A launching phase to adapt the work plan to the local context

The beginning of the project was marked by exchanges with the Bulgarian partners to take into account the work started by the Basin Directorates on the development of Programs of Measures; indeed to be in conformity with the WFD timetable, a first version of these documents had been presented for public consultation at the end of 2008.

**A kick-off seminar for the project was held on 7 April 2009;** it was opened by Mrs. Lubka Katchakova, Bulgarian Vice-Minister in charge of water, Mr. Etienne de Poncins, French Ambassador, and Mr. Jean-Paul Rivaud representing the French Water and Biodiversity Directorate.

Mrs. Mongellaz, project leader, as well as experts of the Rhone-Mediterranean & Corsica, Rhine-Meuse Agencies and of IOWater also participated in this seminar.

#### Assistance to the Bulgarian Basin Directorates for the preparation of the Programs of Measures and Management Plans

The important capacity building program for the Bulgarian Water Management Authorities began with the creation of the Technical Coordination Group. Composed of experts from the Ministry and each Basin Directorate, this group participates in all the training activities; it is in charge of coordinating the project activities with work for drafting the Basin Management Plans.

#### A delegation of 12 Bulgarian executives of the Ministry and of the 4 Basin Directorates was received in Lyons in July 2009.

The Rhone-Mediterranean & Corsica Water Agency organized meetings for experience sharing on the preparation of the Programs of Measures and water tax systems, as well as field visits. The Bulgarian delegation also particularly appreciated being invited to a session of the Rhone Basin Committee on 2 July 2009.



Several assignments were carried out by French experts of the Water Agencies (Artois-Picardy, Rhone-Mediterranean & Corsica, Rhine-Meuse and Seine-Normandie), BRGM and IOWater for:

- jointly analyzing with the Bulgarian experts the progress report on the Programs of Measures of the 4 basins and identifying additional needs;
- reminding the expectations of the European Commission as regards reporting;
- presenting the methods that can be used for estimating the effectiveness of measures, identifying and justifying exemptions, mitigating the lack of data;
- refocusing the work to be carried out on the priorities.

#### Development of economic instruments

The second objective of the project aims at helping with the revision of the water tax calculation system, to make it coherent with the recent modifications of the Bulgarian Water Law.

The interventions of French experts (François Guerber of the Rhone-Mediterranean and Corsica Agency, Delphine Passé of the Artois-Picardy Agency and Paul Haener of IOWater) dealt with the definition of the taxes (pollution parameters, rate), and with the improvement of the information system linked to the recovery of these taxes.

Today these taxes are recovered by the Basin Directorates and transferred to the National Environment Fund; the use of the product of these taxes for financing the Programs of Measures of the WFD is also at the core of the discussions.

Mrs. Lubka Katchakova, who left her functions after ministerial reorganization, played an important part throughout the implementation of this French-Bulgarian twinning.

The Bulgarian Project Leader is now Mrs. Zvetanka Dimitrova, Director of the Water Management Department.

**Zvetanka Dimitrova**  
Ministry of Water and the Environment  
bd\_dr@moev.government.bg

[www.moew.government.bg](http://www.moew.government.bg)

The kick-off seminar of the project



# The Mediterranean

## 7<sup>th</sup> General Assembly of the Mediterranean Network of Basin Org

### International Conference on River Basin Management and Cooperation in the Euro-Mediterranean Region

110 delegates coming from 26 countries met in Beirut (Lebanon), on the occasion of the **International Seminar on River Basin Management and Cooperation in the Euro-Mediterranean Region and the 7<sup>th</sup> General Assembly of the Mediterranean Network of Basin Organizations (MENBO)**, to define the most suitable actions needed for achieving the objectives of integrated and participatory management of inland surface and ground water resources and of related coastal zones in the Mediterranean area.

This event took place at the invitation of the Lebanese Ministry of Energy and Water (Directorate General for Hydraulic and Electric Resources) and of the Litani River Authority (LRA).

**Mr. Fadi Comair**, General Director for Water, Energy and Electric Resources (Lebanon), was elected new President of **MENBO**. The General Assembly expressed its high gratitude to **Mr. Walter Mazzitti** (Italy), MENBO President 2007-2009, for his very successful Presidency of the network.

**Mr. Laszlo Kothay**, INBO World President, concluded the work with **Mr. Selim Catafago**, LAR President.

**MENBO has now 34 members from 17 different Mediterranean countries.**

The Seminar was structured around three main thematic round tables: Water and Agriculture in the Management Plans of the Mediterranean Basin, Adaptation to Climate Change and Water Saving and Usefulness of the Tools of the WFD in Mediterranean non-EU Countries.

During this Seminar, the conclusions of the Euro-Mediterranean Ministerial Conference on Water (December 2008, Dead Sea, Jordan) were recalled as well as the undergoing process of preparation of a Long Term Strategy for Water in the Mediterranean, that should be approved on the occasion of the next Euro-Mediterranean Ministerial Conference on Water (April 2010 in Barcelona, Spain).

The delegates of the General Assembly requested the former Italian President and the new Lebanese President of **MENBO**, with the support of the Spanish Permanent Technical Secretariat, to report the "Declaration of Beirut" to the Water Experts Group of the Union for the Mediterranean, in charge of elaborating the Strategy for Water in the Mediterranean.

#### DECLARATION OF BEIRUT

The delegates reaffirmed that freshwater resources are limited and threatened all over the Mediterranean and that their better governance is one of the main keys to sustainable development.

The Millennium Goals for drinking water supply and sanitation can only be achieved with significant and simultaneous progress made to introduce Integrated Water Resources Management (IWRM), organized on the relevant scale of river basins.

In particular, more cooperation agreements have to be initiated, signed or reinforced between the riparian countries of transboundary river basins.

When they are in place, International Commissions or similar organizations allow better dialogue, the exchange of useful information, the solving of conflicts and the sharing of benefits from better joint management and the strengthening of transboundary cooperation.

#### WATER AND AGRICULTURE IN THE MANAGEMENT PLANS OF THE MEDITERRANEAN BASINS

Mediterranean agriculture is subject to strong constraints which are not limited to the arid and semi-arid areas of the Southern and Eastern Countries. Low availability of water resources, arable land loss and decrease in soil fertility compromise the capacities of this agriculture to meet the stakes of food security and quick demographic growth.

**The Mediterranean basin is also one of the areas most vulnerable to the announced impacts of climate change.**

**Agriculture will be one of the most affected economic sectors.**

It is thus imperative to integrate rain-fed and irrigated agriculture in the Management Plans of the Mediterranean basins. It is necessary to produce better and more while using less water.

#### SAVING WATER

It is necessary to identify less water consuming solutions: water demand management, better efficiency, mobilization of non-conventional water and water reuse are priorities.

Synergies between water and energy are to be promoted.

**INBO** recommends creating a system for modernizing agricultural practices allowing water saving by sound dissemination of innovations, thanks to education, training, research and development.

#### IMPROVING WATER GOVERNANCE AND FINANCING

Transfer of the management of irrigated lands to irrigators' Groups allows improving irrigation and drainage facilities mainly their operation & maintenance functions, as well as adapting the allocated water to the real needs.

It is necessary to support the development of participative methods for dialogue and multiple uses of water, the reinforcement of the management bodies for collective irrigation systems and the organization of farmers in users association.

It is imperative to create national and local financing and equalization mechanisms recognizing the principle of common cause between the water users in each basin. It is also as important to facilitate the farmers' access to micro-financing.



# The Mediterranean

Basin Organizations (MENBO) - Beirut - Lebanon - 6 - 9 October 2009



## PROTECTING NATURAL RESOURCES: WATER, LANDS AND ECOSYSTEMS

INBO recommends that agricultural practices be adapted to limit pollution hazards in fertilizing and in using phytosanitary products. In the Mediterranean area, arable lands are limited and have to be maintained.

## ADAPTING WATER MANAGEMENT TO CLIMATE CHANGE

It is now clear that climate change will have effects such as increase in the frequency and intensity of extreme hydrological phenomena (floods, drought, ...), with strong consequences in the Mediterranean.

As the Mediterranean region is one of the areas most vulnerable, it is essential to adapt water resources management policies and to quickly assess the hydrological and agronomic consequences of this change, according to various scenarios.

**Flood/Drought Risk Management Plans have to be elaborated in the basins**, to anticipate climate change and integrate coordinated measures in River Basin Management Plans.

Thinking at all levels about risk management should be launched.

## USEFULNESS OF THE TOOLS OF THE WFD IN MEDITERRANEAN NON EU-COUNTRIES

For the first time in history, 29 countries in Europe were committed to jointly manage their water resources at the level of national or transboundary basins.

**The Water Framework Directive (WFD) can inspire other areas in the world as it introduces the principles of good governance that can be applied everywhere.**

It cannot be exported as it is, but its approach, principles and tools are transferable: characterization of initial status and development of monitoring, formulation of Management and action Plans at basin level, defi-

inition of indicators and common reference frames for data management, introduction of the cost recovery principle, participation of the interested parties and of the public...

In the Mediterranean Region, additional human and financial resources will be necessary for implementing the WFD principles in the pilot basins.

## KNOWLEDGE OF THE RESOURCE AND INVESTMENTS: TWO PRIORITIES

The initiative of a group of Mediterranean Countries to **strengthen their National Water Information Systems**, harmonized at regional level for supporting the implementation of the Strategy for Water in the Mediterranean, meets an overall need of the decision makers.

**The investment needs of the water sector are significant.**

Financing of the sector will require the right mix of taxes, tariffs and transfers, and a persistent effort for sustainable financing strategies.

Realistic cost recovery is to be looked for. Tariffs should be differentiated reflecting local conditions and affordability considerations.

Economic, fiscal as well as legal issues related to non-conventional water resources should be addressed in a systematic and forward looking way.

## INCREASING ACTION AND SUPPORTING THE CREATION OF BASIN ORGANIZATIONS IN THE MEDITERRANEAN AREA!

The delegates requested that Official bi or multilateral Development Aid and the water-related programs of International Cooperation Organizations should be refocused to support projects aiming at implementing real concerted actions, which meet the above principles, in each basin, and experimentations, evaluations and exchanges of know-how in these areas.

**They also underlined the advantages of twinning agreements between Mediterranean and European Basin Organizations as an effective means for disseminating gained field experience.**

Katharina Kober  
MENBO  
Katharina.Kober@chj.es



[www.remoc.org](http://www.remoc.org)

# The Mediterranean

## Union for the Mediterranean - UfM

### The water sector

Officially launched during the Paris Summit for the Mediterranean on 13 July 2008, **the Union for the Mediterranean (UfM) opens a new regional cooperation era.**

UfM gathers 43 European Union and Mediterranean countries for revitalizing the Euro-Mediterranean Partnership around real projects of general interest.

The water sector, which is one of the main components of this process, led to one of the first Ministerial topical Conferences of UfM on 22 December 2008 on the shore of the Dead Sea in Jordan, under the joint chairmanship of France, Egypt and Jordan. This conference concretized the efforts made for years by EMWIS, MENBO and the Mediterranean water community so that this sector is better recognized in the regional cooperation policy of the European Union.

During this conference, the Ministers adopted the orientations for **the Mediterranean Water Strategy** as well as its development timetable leading to a new Ministerial Conference on 13 and 14 April 2010 in Spain then to a presentation to the Heads of States and Governments of UfM at the end of 2010.

The identification of projects consistent with this strategy was also launched.

In June 2009, during the Ministerial Conference on Sustainable Development projects held in Paris, more than 120 projects had already been referenced for the water sector!

The preparation of this strategy and the criteria for project certification was entrusted by the Ministers to an Expert Water Group, made up of decision makers of the public sector designated by the countries (usually the Water Directors). A broad consultation was also launched involving the civil society, the donors and the local and regional authorities.

Four topical components were proposed for the strategy which will be followed by an Action Plan for its implementation:

- effective governance for water resources, drinking water supply and sanitation;
- adaptation of water management to climate change;
- optimization of financing and suitable instruments;
- management of the demand for water and non-conventional water resources.

The Ministers also proposed increased coordination and reinforced synergies between the initiatives and the existing Mediterranean information and experts' networks.

To meet this demand, EMWIS, IOWater and the Blue Plan defined, in cooperation with ten countries (Algeria, Morocco, Tunisia, Palestinian Territories, Jordan, Lebanon, Turkey, France, Italy and Spain), the method for the implementation of **the information aspect of the Mediterranean Water Strategy.**

It is based on:

- ◆ **the development of National Water Information Systems;**
- ◆ **the implementation at the Mediterranean level of a mechanism for exchanging water information and monitoring** in cooperation with the existing initiatives in this sector (the Mediterranean Action Plan - MAP, UN-Water and the Water Information System for Europe - WISE, in particular);
- ◆ **supporting actions for countries** (exchanges of good practices, drafting of specifications, organization, training, etc).

First informal exchanges took place during the 1<sup>st</sup> semester of 2009, in particular within the World Water Forum in Istanbul.

During the 1<sup>st</sup> meeting of the Water Experts' Group in Athens in September 2009, Italy proposed to lead a working group on the creation of a Mediterranean Information and Resource Network in the water sector equivalent to the Anglo-Saxon "water knowledge hub", covering, in addition to information systems (data, documentation), the following aspects:

- Partnership of water stakeholders;
- Professional training on water;
- Research in the water sector;
- Pilot demonstration projects;
- Prospective...

## MELIA



### Synthesis of the Mediterranean water policies

On the occasion of the World Water Forum of Istanbul, the MELIA project partners organized a workshop in which were presented the main results.

**MELIA (Mediterranean dialogue for integrated water management)** is a program selected by the European Union within its 6<sup>th</sup> FPRD. Started in 2006 for 4 years, it gathers 45 participants (public authorities, international organizations, NGOs, universities, etc.) from 16 Member and non-Member States of the European Union.

Within the **"Mediterranean Water Policies"** topic, led by IOWater, the project allowed the identification of the main problems related to water policies application in the region: pricing policies, groundwater management, water scarcity or development of non-conventional water resources...

Good practices and exemplary experiments were then identified. They were summarized in the document: "conceptual analysis of the water policies in the Mediterranean area".

These elements will support one of the objectives of MELIA project: the formulation of recommendations to support the application of the principles of the Water Framework Directive in the Mediterranean area.

Gaëlle NION - IOWater  
g.nion@oieau.fr

[www.meliaproject.eu](http://www.meliaproject.eu)

[www.ufm-water.net](http://www.ufm-water.net)

Conférence Ministérielle sur l'**EAU**  
Ministerial Conference on **WATER**  
المؤتمر الوزاري عن **البيـا**

JORDANIE JORDAN الأردن 22 12 2008

Processus de Barcelone: une Union pour la Méditerranée  
Barcelona Process: Union for the Mediterranean  
عملية برشلونة: اتحاد من أجل البحر المتوسط

# The Mediterranean

## EMWIS

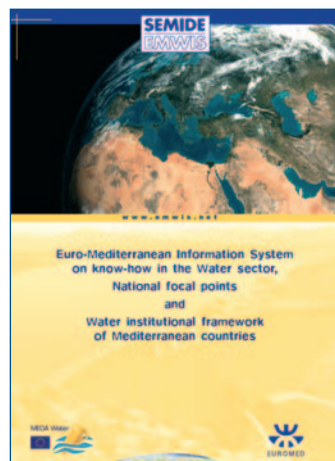
### The Mediterranean countries organize access to water information



Thanks to the support reiterated in 2009 by the DG Environment of the European Commission, two series of actions were carried out by **EMWIS - Euro-Mediterranean Water Information System** - to help the Mediterranean Partner Countries organize their water data, to facilitate their access and to acquire the knowledge necessary for good management.

**This project is based on the good practices resulting from the Water Information System for Europe (WISE).**

First of all a generic model at three levels (entity, variables, attributes) was defined to represent and manage information on water. This model supplements the technical recommendations of the **WISE** system to guarantee communication possibilities with the **National Information Systems** and the comparison of data.



A drafted technical guidance document based on this model was presented to **EMWIS National Focal Points** and is available for the countries to build their own system.

A prototype catalogue of the sources of water information in the Mediterranean area was then implemented after analysis of the existing experiments, of the tools available in open source software, of the requirements of the European **INSPIRE** Directive on spatial information and of the **WISE** system.

This catalogue is a kind of inventory which allows easy search by key words or on a map and gives access to descriptive sheets of the data sources (maps, data bases, reports, online services), and even direct access to the data when the owner allows it.

The use of international standards and common rules by all the interested parties will allow an automatic collection of these sheets.

**More recently, a pilot project for harmonizing data for the implementation of the Tunisian National Water Information System (SINEAU) began in June 2009.** It is based on the System of Economic and Environmental Accounting for Water - **SEEAW** - defined by the United Nations, and on the work undertaken in this field in the **MEDTSAT II** project with the Statistic Institutes of each country.

This action prepares the implementation of **"SINEAU"** which will start at the beginning of 2010 thanks to a financial support from the African Water Facility. It allowed preparing a draft-agreement between the stakeholders to identify the basic data to be integrated into **"SINEAU"** to feed the "Water Accounts" and to use the data produced by the various Tunisian parties. A second pilot activity is being analyzed in Lebanon.

Two working groups, led by **EMWIS** within the **EU Water Initiative in the Mediterranean and Water Framework Directive (MED-EUWI) joint process**, are sharing experience and gathering information on:

- ◆ **Water monitoring networks and programs**, for which a survey-based inventory was prepared and discussed during a workshop organized as a side event of **MENBO General Assembly** in Beirut in October 2009. This inventory contributes to the work of the monitoring sub-group of **Horizon 2020 Initiative** aiming at removing pollution in the Mediterranean Sea and of the Experts' Group on water of the Union for the Mediterranean;

- ◆ **Drought and water scarcity**, for which a workshop was organized in November 2009 in Spain to evaluate the indicators used by the Partner Countries and those proposed at the European level and to analyze case studies on the mitigation measures planned by the countries. This work will result in a regional synthesis in 2010.

These actions will be supplemented in 2010 by the **updating of the Water Thesaurus, accessible online in 7 languages (English, Arabic, Spanish, French, Italian, Greek and Turkish) on EMWIS website**, in order to take into account the vocabulary specific to water accounts, the Horizon 2020 Initiative and some concepts suitable for water management in Arab countries.

# SEMIDE EMWIS



[www.emwis.net](http://www.emwis.net)



# The Mediterranean

## Lebanon

### 2<sup>nd</sup> BEIRUT WATER WEEK 4-7 FEBRUARY 2009

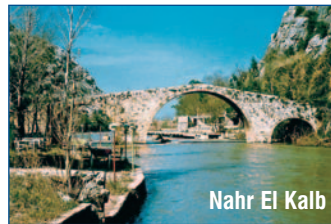
The 2<sup>nd</sup> Beirut Water Week was organized by the Directorate General of Hydraulic and Electric Resources in cooperation with the Global Water Partnership-Mediterranean (GWP-Med).

This 2<sup>nd</sup> Beirut Water Week focused on:

- discussions on priority themes of the Mediterranean water agenda, including water governance, climate change adaptation, water demand management, water financing, education and transboundary water resources management;
- elaboration of the "Mediterranean Message to the 5<sup>th</sup> World Water Forum", which was presented in Istanbul, on 19 March 2009;
- presentation of the outcomes of the on-going MED EUWI activities in Lebanon (Phase I).

The Water Week 2009 gathered 200 participants, including Mr. Walter Mazzitti, **MENBO** President, who chaired a round table on the financing of water management in the Mediterranean area, and Mr. Jean-François Donzier, **INBO** Secretary, who presented a progress report on transboundary river and aquifer management over the world.

### Study of Nahr El Kalb Watershed



The study on the pressures and impacts in Nahr El Kalb River Basin was financed by the Lombardy Region in Italy and the Municipality of Milan. It was executed by two Italian NGOs, AVSI and ICU, in close partnership with the Ministry of Energy and Water (General Directorate of Hydraulic and Electric Resources, the Water Energy Environment Research Center and the Faculty of Engineering and Environment).

During the closing seminar of the study, that was attended by various public and private stakeholders of the basin, the three studies, conducted on pollution, urban planning and agriculture, and the Geographical Information System on the overall basin were presented by the various experts.

These outcomes of the project could contribute to the preservation of the water of Nahr El Kalb and Jeita Acquifer as the study analyzes pressures and impacts and proposes solutions in light of the European Water Framework Directive.

### MED-EUWI IN LEBANON

A seminar was organized as part of the National Policy Dialogue on Integrated Water Resources Management in Lebanon with the aim to present the current work for the review of the 10-Year Strategy on Water and the activities towards promoting dialogue among the water stakeholders, as well as to identify the priority themes that should be further elaborated in the future work of MED-EUWI for challenging the main difficulties that the Lebanese water sector presently encounters.

Existing best practices at the International and National levels were presented to help illustrating the importance of promoting Integrated Water Resources Management (IWRM) approaches and enhancing the collaboration between the concerned water stakeholders.

#### Dr. Fadi Comair

General Director of Hydraulic  
and Electric Resources  
Ministry of Energy and Water  
gdher@terra.net.lb



Audience of the President of the Lebanese Republic  
to the participants of the 2<sup>nd</sup> Beirut Water Week

## Malta Twinning on the WFD

Malta has to provide, like the other Member States of the European Union, its first Management Plan under the Water Framework Directive at the beginning of 2010.

Under the aegis of the French Ministry of Ecology, the International Office for Water and the French Rhone-Mediterranean & Corsica, Rhine-Meuse, Loire-Brittany and Adour-Garonne Water Agencies and also the French Water Agencies Bureau in Brussels, have conducted, with European financing, a 6-month Twinning with two Maltese institutions to prepare the documents necessary for the Management Plan of Malta. In fact, Malta has the originality to have two competent Authorities: the Malta Resources Authority (MRA) for groundwater and the Malta Environment and Planning Authority (MEPA) for surface water.

Close work with these two institutions has been carried out to produce a common Management Plan which is dealing with all issues of the Directive, the drafting of a strategy for the participation of the public and partners, and the creation of a website.

Two study visits from Maltese experts in France were organized with the French Rhone-Mediterranean & Corsica Water Agency to illustrate the proposed solutions in the management of groundwater and coastal waters. All the Maltese personnel have been trained in using the tools and instruments produced during the twinning.

The further implementation of the Directive seems thus on a good path in Malta.

#### Jean FAURE-BRAC

Rhone-Mediterranean Corsica Water Agency  
Fax: 33 (0)4 72 71 26 06  
Jean.FAUREBRAC@eaurmc.fr

[www.eaurmc.fr](http://www.eaurmc.fr)



# The Mediterranean

## Egypt



### Twinning on water quality - Management Plan for Lake Nasser

The European twinning on water quality management in Egypt, led by Italy and developed with the Egyptian Ministry of Water Resources and Irrigation, started in 2009.

France is responsible for the IWRM component of this 2-year project.

This activity includes a test for the formulation of a Management Plan for Lake Nasser and institutional assistance for the control of accidental pollution.

Lake Nasser, created by the construction of Aswan Dam between

1958 and 1970, is a fragile environment and an increasingly strategic water resource for Egypt due to its fast population growth that now exceed 81 million inhabitants.

From a qualitative view point, the lake water remains today of good quality because the development of activities was strictly limited on its banks. However, a question is increasingly arising, that of development and regional planning in the surroundings of the lake with tourism as a promising line of activity.

The stakes of integrated management are thus focused on the future with an underlying question: what activities can be compatible with lake quality conservation and with which supporting and control measures?

The twinning thus helps the Egyptian Authorities in their efforts and thinking related to knowledge of water quality in the lake (monitoring), the organization of the planning process and its corollaries related to data management and the organization of a dialogue between the public services.

**Paul HAENER**

International Office for Water  
p.haener@oieau.fr

The French-Egyptian project team in front of Lake Nasser



## Turkey

### European twinning on the implementation of the Nitrates Directive

Concerned with the mitigation of the impact of agricultural pollution on water resources, Turkey signed with the European Union a twinning agreement on the implementation of the Nitrates Directive.

This twinning associates Austria, the Netherlands, Great Britain and France. In Turkey, the main recipient is the Ministry of Agriculture and Rural Affairs, the Ministry for the

Environment being also associated to the work. Started in April 2009, this twinning should be completed at the end of 2009.

Each of the four Member Countries of the European Union was led to present the way used for dealing with this Directive during the Nineties, regarding the delimitation of vulnerable zones and the development of successive Action Plans.

France acts differently by delimiting the areas with proven pollution problems or with the risk of eutrophication and by organizing at the same time Action Plans in the basins, with strong implication of the Water Agencies, and in the Departments to respond to specific local problems.

It is clear that the implementation of the Nitrates Directive in Turkey requires better knowledge of the farmers' practices and a broad awareness campaign for the farmers on the problem of agricultural pollution.

One of the first problems which the authorities will have to face is the uncontrolled dumping of manure at the roadside or in ditches.

This is a widespread practice in Turkey, manure being seldom used as fertilizer by the farmers.

A great effort will have to be made so that the stock breeding farms of very small size invest in installations for the storage of manure and liquid effluents.

The development of a water quality monitoring network should also be tackled with.

**Daniel VALESUELA**

International Office for Water  
d.valensuela@oieau.fr

Working meeting for the twinning in Turkey



[www.inbo-news.org](http://www.inbo-news.org)

All information  
is available  
on the Web



[www.inbo-news.org](http://www.inbo-news.org)



# The Mediterranean

## Algeria

### Case study of the Seybouse basin

The Seybouse River



The global population estimate in this River basin is more than 1,300,000 inhabitants and urban population tripled in the space of ten years. This has compelled the Government to carry out construction in disregard of environmental standards.

Urban wastewater discharges became very worrying: the town of Annaba alone discharges 3,300 l/s of wastewater.

Industrial activities are very important (fertilizer factory, dairy, bicycles factory, metallurgy, ceramic, sugar, etc.); they exert strong pressures on water.

Agriculture consumes more than 95% of the available water, while the domestic and industrial sectors use the remaining 5%.

Regarding groundwater, 2/3 is used for irrigation and 1/3 for drinking and industrial water supply.

Several administrations are involved in water management in the Seybouse River Basin: the General Directorate of Hydraulics (DHW), Algerienne des Eaux (ADE), the Rhumel, Seybouse and Medjerda Basin Agency (ABH CSM), the National Agency on Dams and the Agriculture Directorate.

The river basin is highly vulnerable to climate change. Several floods and drought events have been reported in the last decades. Therefore, there is a need for developing an early warning system for flood and drought management and for adapting agriculture by growing the appropriate crops and implementing water conservation techniques

Land degradation is becoming a serious problem and has been the main cause of the silting up of the dam reservoirs.

Water degradation is caused by the discharges of heavily polluted wastewater from the towns (Berriche, Guelma, Bouchegouf, Dreaan...) and from several factories and this water can no more be used for irrigation and drinking.

Increased urbanization development, particularly around Annaba, Guelma and Bouchegouf areas is exerting a lot of pressures on water supply, mainly in summer, when the water level is the lowest.

To mitigate the effects of climate change and the risk of water shortages, and to meet the increasing needs of the population, it is imperative to build new dams and explore new aquifers.

**However, the most important measure should be the rational use of water resources.** This implies groundwater resources assessment, developing alternative water sources and solutions (water reuse, desalinization, etc.) and effective pollution control.

It is also necessary to improve communication and coordination between the institutions involved in water management and strengthen the mandate of the **Rhumel-Seybouse and Medjerda Basin Agency**.

**Pr Larbi DJABRI**

Dean of the Faculty of Earth Science  
University of Annaba  
djabri\_larbi@yahoo.fr

### Free speech: An obvious lack of know-how

Water, a quite invaluable good, is becoming increasingly scarce in Africa and is at the core of the challenges of the future at the demographic level as well as in the fields of public health and economic development.

It is true that the entire continent has not been prepared to face the great periods of drought and the management of the available resources suffers from an obvious lack of know-how which leads to shortages, wastage, domestic, agricultural and industrial water pollution, malfunction of hydraulic installations, etc.

Water resources are low as compared to the water needs which are constantly increasing. Drought considerably reduced the reserves of the dam-reservoirs and aquifers.

These are realities which require better water management before it is not too late.

Water abstractions broadly exceed the volume of available resources. The situation is worsened by over-exploitation and degradation of the resources. Water shortages will increase and worsen in the next decades. They are caused by drought (20%), high increase of water demands (10%) and especially by the lack of know-how (70%).

In Africa, water management requires capacity building.

**Abderrahmane AYADI**

ENSH Blida  
Fax: 00-212-25-39-94-46  
ayadiabder@ensh.dz

[www.ensh.dz](http://www.ensh.dz)

### World General Assembly of INBO

Dakar - Senegal  
20 - 23 January 2010

Register now to participate!



[www.inbo-news.org](http://www.inbo-news.org)



# The Mediterranean

## Algeria

### Impact of climate change on water resources in Northern Algeria

Algeria has always been confronted with shortages of fresh water, a resource that is becoming increasingly scarce as demand increases.

This situation, aggravated since the beginning of the 1970s by highly irregular rainfall, has now become critical: in order to give the Ministry for Water the means of anticipating and better managing the resource for sustainable development, the National Water Resources Agency (ANRH) appointed SOGREAH Consultants in October 2006 to perform a study of the impact of climate change on the water resources.

All the available rainfall data series were collected, processed, corrected

and analyzed. The analysis of these series clearly reveals a reduction in precipitation since the mid-1970s, from 10% in the East of the country up to 35% in the West. A map comparing annual rainfall before and after the mid-1970s was drawn up.

A probabilistic analysis was also conducted to determine, for various return periods, the annual rainfall before and after the break that occurred in the 1970s.

The analysis of inflow data series shows that the percentage of reduction in inflows is even higher.

By comparing the cumulative annual rainfall series with inflows, a rainfall / inflow ratio was defined and used to

determine the annual inflows to be expected under different annual precipitation variation scenarios.

The levels of most of Algeria's aquifers have dropped substantially, under the combined effects of increasing abstraction and decreasing precipitation. By using the ANRH's groundwater models, the study pinpointed the influence of climate change on falling groundwater levels (several metres).

On the basis of the probabilistic distribution of the observed monthly rainfall, monthly series of inflows at dams and aquifers were drawn up under different climate change scenarios, which can be used for the

purposes of resource allocation modelling to meet the different water demands.

**Khier Bouguerra, ANRH**  
**Anne-Sophie Jardin, SOGREAH**  
**Jean-Luc Rahuel, SOGREAH**  
anrh@anrh.dz  
jean.luc.rahuel@sogreah.fr

[www.sogreah.fr](http://www.sogreah.fr)

[www.anrh.dz](http://www.anrh.dz)



## Seminar of the African Water Facility

### Transboundary Water Management - Tunis - 26 - 30 October 2009

From 26 to 30 October 2009, the International Network of Basin Organizations (INBO) facilitated, through Mr. Daniel Valensuela, a seminar in Tunis addressed to African and Mediterranean executives of Basin Organizations and Ministries for Water and organized by the Multilateral Institute of Africa, the African Water Facility and the African Development Bank (AfDB).

It aimed to build the capacities of the executives of the national and regional Administrations and Basin Organizations as regards **Transboundary Water Resources Management (TWRM)**.

Africa, from the Mediterranean to the Cape of Good Hope, is indeed characterized by a great number of transboundary basins of aquifers and surface water; almost all the countries are sharing part of their water resources with at least a nearby country. Most countries share transboundary river basins or aquifers: the

aquifers of the Sahara and Nubia involve all the North African Countries, the Nile or Congo River Basin, for example, involves ten countries, while Guinea shares twelve rivers basins with its neighbors.

**Transboundary Water Resources Management seems one of the keys to improve governance of water resources on the continent and the condition for the populations to have access to water for meeting both human needs and sustainable economic development.**

Gathering about twenty countries and regional organizations such as the Economic Commission for Central African States or the Sahara and Sahel Observatory, and several representatives of Basin Organizations (OMVS, OMVG, NBA, VBA, CICOS, LCBC, NBI), the seminar allowed broad experience sharing on topics such as: harmonization and coordination of national, regional and

basin policies; sharing of information on a transboundary scale; role of the civil society and water stakeholders in **TWRM**; joint management of surface and ground water; impact of climate change on water resources and adaptations to be considered.

Many speeches led to discussions and group work during the five days of the seminar, which was closed by the speeches of Jean-François Donzier, INBO Secretary, on the

management of transboundary water throughout the world, and of Jean-Michel Ossete of the African Water Facility on the opportunities for financing **TWRM**.

**Daniel VALENSUELA**  
INBO PTS  
d.valensuela@oieau.fr

[www.afdb.org](http://www.afdb.org)



The participants were received by the Directors of the AWI, AWF and AfDB



**The Event in 2010:  
INBO World General Assembly  
Dakar - Senegal - 20 - 23 January 2010  
Please register!**

# [www.inbo-news.org](http://www.inbo-news.org)



## **The website of basin management over the world**

- **The International Network of Basin Organizations**
- **INBO World General Assembly  
Dakar - Senegal - 20 - 23 January 2010**
- **The Regional Networks of Basin Organizations:**
  - **Africa - ANBO**
  - **Asia - NARBO**
  - **Latin America - LANBO**
  - **North America - NANBO**
  - **Brazil - REBOB**
  - **Central Europe – CEENBO**
  - **Eastern Europe, Caucasus, Central Asia - EECCA - RBO**
  - **The Mediterranean – MENBO**
- **"EUROPE-INBO":  
European Water Framework Directive implementation**
- **The Network of International Commissions  
and Transboundary Basin Organizations**

**Privileged links with websites:**  
[worldwaterforum5.org](http://worldwaterforum5.org) / [worldwatercouncil.org](http://worldwatercouncil.org)  
[gwpforum.org](http://gwpforum.org) / [iowater.org](http://iowater.org) / [emwis.net](http://emwis.net)  
[unesco.org](http://unesco.org) / [water.europa.eu](http://water.europa.eu)



Secretariat: International Office for Water  
21, rue de Madrid - 75008 PARIS - FRANCE  
Tel.: +33 1 44 90 88 60 - Fax: +33 1 40 08 01 45  
Mail: [inbo@wanadoo.fr](mailto:inbo@wanadoo.fr)  
N° ISSN : 1265-4027

"INBO Newsletter" is published with the support of the Water Agencies,  
the French Ministries of Ecology, Energy, Sustainable Development and the Sea,  
and for Foreign and European Affairs

Publishing Director: Christiane RUNEL  
Editing - Translation: Gisèle SINE  
Production: Frédéric RANSONNETTE  
Printing: GDS Imprimeurs - Limoges