

Please meet us in Debrecen, Hungary - 7 - 9 June 2007, for the 7th General Assembly of INBO



The 7th World General Assembly of the International Network of Basin Organizations (INBO) will take place in Debrecen in Hungary from 7 to 9 June 2007, at the invitation of the Hungarian Ministry of the Environment and Regional Water Directorates.

The World General Assembly of Debrecen will be organized around four large strategic topics for the good implementation of river, lake and aquifer basin management:

- Prevention and management of the extreme climate phenomena of floods and droughts,
- Transboundary basin management,
- Monitoring, monitoring networks, reporting, inter-calibration,
- Preparation of action plans for basin organizations and their financing, etc.



A special session will deal with **public and water users' participation**.

There will be simultaneous translation into English, Spanish, French and Hungarian.

Registration to the World General Assembly of INBO is free of charge.

The meeting is open to all INBO Member Organizations and Permanent Observers, and also to all the water Administrations and organizations, interested in Integrated Water Resources Management at the level of river basins over the world. You are invited to come and present a paper on your field experience.

Any useful information, programs and proposed papers will be continuously available on the website: www.inbo-news.org

Debrecen is the second largest town in Hungary. It is rich of an interesting historical past and is located in the Tisza river basin, in the middle of the Hortobagy National Park, classified World Heritage by UNESCO, and near the famous Tokay vineyard.



4 INBO Official Sessions for Integrated Water Resources M

Huge success for the four Official Sessions organized by INBO in the IWRM day on 18 March 2006 in Mexico City:

- **African river basin management,**
- **The European Water Framework Directive,**
- **Public participation in basin management,**
- **The transboundary basins.**

These sessions received more than 1,200 participants in the entire day.

INBO RECOMMENDATIONS

In many countries, the seriousness of the situation requires the implementation of a comprehensive, integrated and consistent management of water resources, aquatic ecosystems and territories.

The International Network of Basin Organizations (INBO) aims at improving the management of water resources and aquatic environments over the world. It regroups 158 member organizations or permanent observers in 52 countries.

INBO called its members and observers to come to Mexico City to present their field experiences, to exchange and discuss in order to develop and improve basin management over the world.

What progress has been made since the 1990s!

Management at the level of basins of rivers, lakes or aquifers experienced a quick development in many countries, which made it the basis of their national legislation on water or experimented it in pilot basins.

The European Water Framework Directive sets an objective of good ecological status in the national or international river basin districts of the 27 current Member States and the Countries applying for accession to the European Union.

Lastly, the management of **the transboundary basins of the 263 rivers and hundreds of aquifers** is taken more and more into account within Commissions, "Authorities" or international Organizations.

This gained experience allows today to affirm that: "management at the basin level works!" ... when there is a continued political will to establish it and make it work!

Based on this observation:

INBO recommends that water resources management be organized:

- **on the relevant scale of the local, national or transboundary basins** of rivers, lakes and aquifers;
- **with 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;

- **based on Management Plans** or master plans that define the medium and long-term objectives;
- through the development of **Programs of Measures** and successive multiyear **priority investments**;
- **with the mobilization of specific financial resources**, based on the "polluter-pays" principle and "user-pays" systems.

INBO recommends the establishment of appropriate legal frameworks that take into account these five global principles.

"Users' participation should be organized within official bodies for dialogue and a real mobilization of partners".

INBO recommends that this participation be organized in Basin Committees or Councils.

These Basin Committees should be involved in the decision-making related to water policy in the basin, using procedures that clearly define their role.

In particular, they should be associated to the formulation of long-term objectives and to the preparation of Management Plans, to the selection of development and equipment priorities and to the implementation of Programs of Measures and multiyear priority investment programs, as well as to the setting of financing principles and to the calculation of water taxes that concern them.

"Information on water resources and the environments should be improved".

Their role should be facilitated by the set-up of integrated **Water Information Systems**. This information should include objective elements enabling dialogue and negotiation.

Finally, significant means should be devoted to raise awareness among the public, and especially women and youth, and enable their participation, and to the training of their representatives regarding decision-making.

"Users' funding is the basis of their participation".

The investments necessary for the sustainable management, conservation and control of water resources and ecosystems and for the exploitation, maintenance and rehabilitation of public utilities require huge financial resources.

All analyses converge to show that traditional centralized public budgets (subsidies) have reached their limit to meet alone the financial needs of the water sector.

Therefore, it is necessary to set up everywhere complementary funding systems that are based on the participation and common cause of the users.

INBO recommends the establishment of basin water taxes, which have shown their efficiency everywhere they have been applied.

Such water taxes enable the mobilization of significant funds to finance the sector, while ensuring common cause between the upstream and downstream parts of basins and between the categories of users with an interactive effect on consumption reduction and pollution control.

INBO recommends that the use of water taxes be gradual in order to adapt these modern systems to the proper situation of each country and to the solvency of local populations.

It is advisable that these water taxes be defined by consensus in Basin Committees and be managed at this level by a specialized organization with the approval of the public authorities.



Management at the Basin Level



"Water has no boundary"

There are 263 transboundary rivers over the world, the basins of which cover an area of about 50% of the emerged lands.

Water has no national or administrative boundary. Managing resources, shared between several neighboring Countries, should take into account all the transboundary basins concerned.

INBO recommends that, for transboundary rivers, lakes or aquifers, cooperation agreements be concluded or signed by the riparian Countries and that Management Plans be designed at the level of all their basins, in particular within international Commissions, basin Authorities or suitable international or transboundary Organizations.

INBO recommends that these international agreements for transboundary river management plan for the participation of local Authorities and users of water and the environments, while respecting national sovereignty.

The creation of international commissions, that would frequently and regularly meet and would associate, at the level of the entire basin, all the administrations concerned, local authorities and users of the riparian countries, should enable better dialogue,

the exchange of useful information, the solving of possible conflicts and the sharing of benefits from better joint management and the strengthening of transboundary co-operation.

INBO also recommends that the concerned multilateral institutions and national Authorities take into account the specificity of water and environmental management in insular environments. Cooperation between the islands in relation to this matter should be strengthened, using the above-mentioned general principles.

INBO recommends that Official bi- and multilateral Development Aid be especially mobilized to support such projects for creating local, national or transboundary basin organizations, in accordance with the above principles.

It is advisable that International Development Aid reserves sufficient resources for creating conditions suitable for dialogue between the people in charge in the countries concerned by the same transboundary basin and for financing studies preliminary to the formulation of essential international agreements and to the establishment of institutional and technical tools for their application.

ANBO - AMCOW session on "Management of African Basins"

The session on the Management of African River Basins, jointly organized by AMCOW and ANBO, gathered more than 250 participants who appealed to the African countries, AMCOW, African Basin Organizations and partners in development:

- To support the IWRM process in shared basins and in each country;
- To support the setting up of new Transboundary Basin Organizations;
- To strengthen capacity building at the level of existing Basin Organizations, namely within the framework of NEPAD and AMCOW water components, of the European Union Water Facility and to facilitate their access to financial resources;
- To organize in each basin, integrated, reliable and harmonized systems for observation and monitoring purposes as well as for the exchange of information based on transparency and user-friendly access;
- To organize, at continent level, a system for the monitoring of transboundary water resources, based on systems set up at the level of the various basins;
- To elaborate and implement, in a concerted and transparent way, Master Plans or Basin management plans designed to set the objectives to be achieved in the

medium and long terms; these plans shall be accompanied by practical multi-annual action programs and dynamic systems for the follow-up of their implementation;

- To improve the systems of education, information and awareness for the benefit of populations and to foster the evolution of behaviors regarding water resources use and management;
- As the key to a successful approach in Africa, to further involve users, especially women and the poorest populations, in the management of their own water resources;
- In close cooperation with AMCOW, to support the **African Network of Basin Organizations** in its capacity as a federating agency and framework of permanent consultation, exchange of field experience, monitoring and dissemination of good practices;
- To think over the opportunity to elaborate an "International African Water Charter".

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Achievements since 2003 and prospects

In September 2001, GWP and the International Network of Basin Organizations - which now gathers 153 permanent Member Organizations or Observers from 52 countries, as well as a majority of the International Commissions or Transboundary Basin Organizations - agreed to launch an "Associated Program for the creation and strengthening of basin organizations of rivers, lakes and aquifers around the world".

It was decided to formalize this cooperation by the signing of a Memorandum of Understanding (MoU) between GWP and INBO in May 2003.

This MoU lays down the basic principles and the arrangements for future cooperation between both parties, by specifying the areas of activity in which they will collaborate.

Three years after the real coming into force of the MoU, one should now outline the first achievements and the general lessons learned about the 4 objectives of the Associated Program.

The specificity of INBO is indeed to gather the Governmental Administrations and Basin Organizations, which are really in charge of defining and implementing water policy in their respective countries and basins: far from academic speeches, INBO Members are directly responsible for water management and have to face the daily realities that it implies and the preparation of the future.

Objective 1: Twinning of Basin Organizations

In order to build the capacity of Basin Organizations for managing water resources, INBO is promoting bilateral twinning agreements between these Organizations. Indeed, direct exchanges seem to be the more reliable way of disseminating good practices and strengthening the human resources of Basin Organizations.



The **TWINBASIN[™]** project aims at facilitating these twinning agreements, by defining a framework for action, by enabling the move of staffs between twin agencies.

The tool thus developed will focus on the capitalization of the acquired know-how to share it on the widest scale possible.

The project is funded within the framework of the "Global change and ecosystems" priority of the 6th Framework Program for Research of the European Union.

The project Mobility Committee has approved 37 eligible twinning agreements, involving more than 50 Basin Organizations from 41 different countries and diverse geopolitical areas.

Objective 2: Mobilization of the expertise of Basin Organizations

The topics, which are the commonest, are "participatory management", integrated monitoring systems, long-term planning (20 years), with notion of "Masterplan or Management Plan", operational planning or investment plans (5/6 years), the means and methods for financing these priority plans.

This expertise mobilized within the INBO members should allow pilot projects to be implemented, such as:

- Transboundary management of Irtysh River (Kazakhstan & Russia),
- Drafting of a provisional action plan (2005-2006) for the transboundary management of the Körös/Crisuri Basin (Hungary & Romania), in collaboration with the International Commission for the Protection of the Danube River (ICPDR),
- Assistance to the Algerian Basin Agencies,
- Preparation of Masterplans in two Mexican pilot river basins, twinned with French Water Agencies,
- First step towards the creation of the Mexican Water Information Network,

- Audit, entrusted by the World Bank, of the Niger Basin Authority and the Mahawelli Authority in Sri Lanka,
- Support to the creation of the Volta International Commission and also now to the CICOS for the Congo Basin, etc.

Important work has been undertaken under the aegis of **the European Water Initiative**, and specifically its component focusing on IWRM in transboundary basins of Africa. INBO set the indicators for selection of the five pilot basins.

A new project for the test of performance indicators for African Basin Organizations has just been financed by **the European Water Facility for Africa**.

Objective 3: Synthesis of knowledge and know-how

This objective of the Associated Program arises from the fact that there are different types or models of Basin Organization.

The synthesis of knowledge and know-how, which aims to identify successes ("best practices") but also gaps, is still a relatively new concept as there were before few lessons learned.

INBO members are involved in the HELP program of UNESCO, the following World Bank survey or many European research projects:

■ The World Bank Survey (2003-2004):

INBO has carried out a survey of 100 river Basin Organizations among its Members and was invited to participate into the "Workshop on River basin Management at the Lowest Appropriate Level" which the World Bank organized in Poland from 22 to 25 May 2005.

ciated Program

■ IWRM.Net project (2006-2010):

It aims to identify the impact of the **European Framework Directive (WFD)** on the methods of programming research in the field of IWRM, at a European scale with a further possible opening to other countries within the **European Water Initiative (EUWI)** and within the **6th Programme for Research of the European Commission**.

IWRM.Net was accepted by the European Commission: the first actions were launched in 2006.

17 European partners are involved in **IWRM.Net** in 14 European countries and are managing 20 research programs.

■ WFD Community, (Virtual Community for the training of water professionals):

The project consists in testing an Internet device for the continuous training of professionals, based on collaboration between counterparts, and on the remote management of a community for the training of professionals (CVA), working together within the European Union on the implementation of the Water Framework Directive (WFD). The financing of the project is borne at about 75% by the **European Leonardo da Vinci Program**.

■ Other activities of Objective 3:

The International Network of Basin Organizations (**INBO**) was a dynamic partner in the **4th World Water Forum**, which took place in Mexico City, from 16 to 22 March 2006. Of course, it is on the topic of **Integrated Water Resource Management (IWRM)** on the scale of the basins of rivers, lakes and aquifers, that **INBO** has shared

the practical experience acquired by its Members in the field.

INBO was selected by the WWF Secretariat to organize four sessions on Basin Management, on 18 March 2006 in Mexico City, within the "IWRM" topic of the Forum.

More than 1,250 participants actively involved themselves in these 4 INBO sessions during the entire day!

From 2004 to 2006, **INBO** organized or was partner to many other conferences or workshops on IWRM at basin level in Belgium, Canada, Greece, Italy, Morocco, Mexico, Poland, South Africa, Thailand, Tajikistan, etc.

■ Strengthening Regional Networks:

Within **INBO**, the partners have organized themselves at the regional level, either African, American, Asian, European or Mediterranean, in order to strengthen neighborhood relations and to take into account all the diversities of local and regional situations.

INBO Regional networks are working as closely as possible with the RWP of GWP in particular in West Africa, the Mediterranean and Central and Eastern Europe.

In Europe, the **Water Framework Directive (WFD)** is obviously the big endeavor that mobilizes, within the **"EUROPE-INBO GROUP"**, our Members of the States of the European Union and of the Candidate or associated Countries, as it includes the main management principles that have been formalized by our Network for a decade.

A Russian-speaking Regional Network is being created.

Objective 4: Networking of documentation systems

This networking has already started within the Associated Program with:

- ❖ **AQUADOC-INTER** in Eastern Europe (Poland, Romania, Czech Republic and Hungary),
- ❖ Its Mediterranean counterpart, **EMWIS** now regrouping 35 Euro-Mediterranean Partner Countries.

It will be extended shortly to Africa with **AWIS, The African Water Information System**, with the aim of beco-

ming the information exchange system of the **African Network of Basin Organizations (ANBO)**, with a funding of the **European Water facility for Africa** and of the French Cooperation.

These projects, which aim to gather the written information (documents) and useful information ("who does what and where"), are open projects, i.e. non competitive projects, on what goes on elsewhere on the Internet.

Our ideas are progressing, let's get mobilized to make our results known all around the World!

GWP 10 years of action for IWRM!

In 1996, the Global Water Partnership (GWP) was jointly initiated by the World Bank, the United Nations Development Program (UNDP) and Swedish Cooperation (SIDA), which offered to host the new organization. They were quickly followed by other donors, such as Germany, the United Kingdom, the Netherlands and France in particular.

The first decade of **GWP** has been marked by gradually replacing harmful sectoral practices by **Integrated Water Resources Management (IWRM)**.

Water needs careful management, which requires effective public policy and suitable legal frameworks. When decision-making is only confined to the water-consuming sectors (irrigation, power, transport, recreation purposes, drinking water supply), it indeed does not allow for the consistent approach needed to evaluate and deal with the impact of the actions of only one sector on the choices being offered to the others. It is then necessary to direct practices towards sustainable water management for all.

The **GWP** assignment is to support the emerging and developing countries towards **IWRM** implementation, which covers a broad range of activities successively taking place in time. One of the great strengths of **GWP** is its network of committed people working at all levels: global, national and local. This network consists of a partnership of stakeholders from 60 countries.

Thanks to the **Global Water Partnership, IWRM** has grown these last ten years. It is now admitted that sustainable water use is of prime importance for the future of the world society.

Mr. Jean-François Donzier, **INBO** Permanent Technical Secretary, has been member of the **GWP** Steering Committee since 2006.

To mark the 10 year anniversary of **GWP**, a book, entitled "The Boldness of Small Steps" was published. It can be downloaded in French, English, Spanish and Russian on the GWP website: www.gwpforum.org

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37 Twinning agreements between Basin Organizations to improve Integrated Water Resources Management

Since September 2004, the **TWINBASIN^{xn}** project, financed by the European Commission and directed by the International Office for Water and INBO, has significantly progressed in achieving its objectives.

37 twinning agreements are now active, involving more than 50 Basin Organizations from 41 different countries and very diverse geopolitical areas (France-Brazil, Spain-Romania, Kenya-Uganda, Australia-Philippines, Sweden-Uruguay-Nicaragua-Peru, Poland-Ukraine, etc.).

New rules were formulated in 2006 to facilitate access to the project with new twinned basins. Thus, for the first time, the Steering Committee, which met during the 4th World Water Forum in Mexico, approved a twinning agreement involving three Basin Organizations from Kenya, the United Kingdom and Poland.

The Water Forum offered an important platform for promoting the project and disseminating its results.

In particular, a Press Conference allowed an enhancement of the lessons learned by the twinning agreement between the Seine-Normandie Water Agency (France) and the Regional Water Directorate for Mexico Valley "Gerencia Regional del Agua del Valle de Mexico" (Mexico).

Owing to the good progress of many ongoing twinning agreements, several partners requested an extension of the project support, to continue their exchanges on the development of Integrated Water Resources Management. Several extensions of twinning agreements have already been approved.

The TWINBASIN^{xn} community has now more than 70 assignment reports.

In accordance with the recommendations of the last Steering Committee (Megève - France in September 2006), emphasis is currently given to the capitalization and dissemination of the obtained results: reports, general and topical syntheses, etc.

TWINBASIN^{xn} has also another aim: exchanging information with the "Cluster" projects, especially through webconferences.

This cluster gathers five other projects registered in **the 6th Framework Program for Research and Development of the European Union**: Wade, Rivertwin, Twinbas, Brahmatwin and Striver. All these research projects have the same objective to improve Integrated Water Resources Management by developing management models. Thus, **TWINBASIN^{xn}** contributed to the development of these models through three webconferences in 2006: "TWINBASIN^{xn}, a model for basin management"; "Creating a twinning with the TWINBASIN^{xn} project"; and "Economic instruments for IWRM and planning tools".

The project is beginning its 4th year: the doors are still open to potentially interested partners.

It is still time to join us!

For more information on the twinning agreements, project results and webconferences, please consult the website.



Congo - Amazon Twinning Agreement

TWINBASIN^{xn} brings closer the two largest river basins of the planet, the Amazon Basin (7.5 million km², 20% of the world freshwater reserves) and the Congo Basin (one of the richest ecosystems in the world, 3.8 million km²)!

Several countries share today these two basins and they have established inter-governmental Organizations in charge of promoting integrated management of their water resources.

On one side of the Atlantic, **the International Commission of the Congo-Ubangui-Sangha Basin (CICOS)** is an institution recently created by four concerned countries to manage a basin which practically has not been studied for the last forty years.

On the other side of the Atlantic, **the Amazon Cooperation Treaty Organization (OTCA)**, is an organization established by the eight Amazonian countries to promote the sustainable development of this area, by institutionalizing and increasing the work started in 1978 with the promulgation of the Amazon Cooperation Treaty.

Today the politicians of these two basins are aware of the importance of reconciling the strategies for the conservation and use of natural resources with the development objectives.

The **CICOS** and **OTCA** have endeavored to carry out regional integration.

These two Organizations are aware of the threats that anthropogenic activities may become on the ecosystems conservation and on the adequate allocation of renewable resources and of the serious poverty problems which exist in the two basins.

Through the European **TWINBASIN^{xn}** project, **OTCA** and **CICOS** are initiating joint actions on the institutional, technical, economic, financial and social aspects related to the use, management and protection of water resources: institutional organization, monitoring, sharing water between the various uses, planning, mechanisms for the users' participation, financing, prevention and mitigation of extreme phenomena, public awareness and finally ecotourism.



www.twinbasin.org

Júcar-Buzau twinning agreement



In 2004, during the 6th World General Assembly of **INBO** in the Martinique, a cooperation agreement was signed between **the Júcar River Basin Authority - CHJ (Spain) and Apele Romane / Buzau-Ialomita Basin Organization (Romania)**. Both River Basin Organizations present common characteristics and integrated water resources management (IWRM) objectives. They are linked to the Central and Eastern European Network of Basin Organizations (CEENBO), in the case of Romania, and to the Mediterranean Network of Basin Organizations (MENBO), for Spain.

In total, four missions were completed in 2006. They focused on technical topics specific to the economic aspects in water management (economic analysis and environmental costs) and to the adaptation of monitoring networks to the WFD requirements. They allowed an in-depth assessment of the work.

Two engineers of the Júcar CHJ have visited Buzau and Apele Romane (Bucharest). In February, an official delegation, led by Mr. Juan José Moragues, President of the Júcar CHJ, met with the Romanian Water State

Secretary, Ms. Lucia Ana Varga, and with the Director General of the Ministry of the Environment, Mr. Jorj Madalin Mihailovici.

Then, two representatives from the Buzau River Basin visited the Júcar head office, in Valencia, in July 2006.

The resulting progress reports of the "Júcar-Buzau" project will help in establishing practical guidelines that will promote IWRM practices by encouraging cooperation and exchange of expertise between River Basins over the world.

The "Júcar-Buzau" twinning agreement has had positive technical results and allowed a good exchange of practical experiences and a comparison of technical methodologies between the two countries within the WFD approach. This led to a stronger bilateral cooperation between the Ministries of the Environment of Romania and Spain.

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Rhone-Mediterranean Souss-Massa & Tensift twinning agreements



Within the framework of the Twinbasin program, a delegation of the Moroccan Basin Agencies of Tensift and Souss Massa came to the Rhone-Mediterranean & Corsica Water Agency (RM&C) in Lyons in April 2006.

The twinning agreements, signed in Marrakech in 2005 between these Agencies, planned mutual technical visits.

This visit mainly dealt with:

- ❖ **groundwater contracts**, with a trip to Montpellier to meet the specialists of the Agency Delegation and of the Hérault Department,
- ❖ **the operation of a SATESE (Service of Technical Assistance with the Maintenance of wastewater treatment plants)** with a visit to the SATESE of the Ain,
- ❖ **the management of data and taxes,**

- ❖ **pollution removal in tanneries,**
- ❖ **communication policy,**
- ❖ **the functioning of documentation and storage.**

The delegation also attended a session of the Commission for the approval of river contracts of the Rhone-Mediterranean Basin Committee.

Regarded as very advantageous by the various parties, and to benefit from the POLLUTEC exhibition, which was held in Lyons, a new Moroccan delegation was received by the RM&C Water Agency in November 2006, until the travel of a RM&C delegation to Morocco in 2007.

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The 2 Moroccan delegations at the home office of the RM&C Water Agency in Lyons



APFM

Implementation of Integrated Flood Management in the field

Traditionally, flood management had focused largely on reactive and ad-hoc approaches and continues to do so, which add to the upward trends in the losses due to flooding.

For the last few years, it has been widely realized that a paradigm shift was required **to move from flood control to flood management**, from a merely defensive to a proactive action, while preserving ecosystems and their associated biodiversity.

The Associated Program on Flood Management (APFM), supported by the World Meteorological Organization (WMO) and GWP, aims at promoting the concept of integrated flood management (IFM) and paving the way for transferring the concept into practice.

The first phase of this program was launched in August 2001 and established the principles of integrated flood management, outlined in the IFM Concept Paper. The latter deals with the legal, environmental, social and economic aspects of this kind of management.

APFM relies on the lessons learned in the implementation of pilot projects in different countries such as Kenya, Zambia, India, Nepal, Bangladesh, Brazil, Uruguay, Slovakia, Poland and Romania. A website offers a variety of information including various products, as well as a set of databases on flood management.

Phase II of the program will focus on the implementation of the IFM concept in the field by developing capacities in the countries and by supporting local and regional actions that advocate, support or apply these principles.

IFM Tools for decision making will be developed, as well as training activities and awareness building campaigns.

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Global Water
Partnership



"From Potential Conflict to Cooperation Potential" (PCCP)

As a contribution of UNESCO's **International Hydrological Program to the World Water Assessment Program (WWAP)**, **PCCP** aims to create a new generation of decision makers, experts, and trainers, who will help make cooperation around water resources management a reality.

In July 2005, in Beirut, **PCCP** gathered fifteen experts from Arab countries for three days to outline and prepare water conflict and cooperation courses that would later be offered to Iraqi water managers.

It also conducted similar meetings in Spring 2006 to prepare a core group of instructors from South East Europe. The training course, "Water, Conflicts and Cooperation in South East Europe (SEE)", took place in October 2006 in Thessaloniki, Greece, at Aristotle University.

PCCP also offered a six-day educational course in Guayaquil (Ecuador) at Escuela Politecnica de Litoral in January 2006. The participants came from Argentina, Brazil, Ecuador, Mexico, and Venezuela.

At its 2nd International Conference in Zaragoza, Spain (October 2004), **PCCP** created an interactive platform for participants to role-play and engage

in activities to sharpen management and negotiation skills, using different transboundary river basins as models.

More recently, at the 4th World Water Forum in Mexico City (March 2006), **PCCP** and the Government of Tajikistan co-convened a special session on Central Asia's transboundary water challenges.

PCCP also organized two partnership events that focused on the Tigris Euphrates Initiative for Cooperation and brought together official delegation members from each riparian country.

PCCP recently released a computer software program (CRSS) to serve as a tool to promote cooperation for stakeholders to have greater capacity to understand and engage with decision-making.

PCCP recently published a collaborative study of Lake Titicaca, compiled by experts and technicians of both Bolivia and Peru.

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LAW OF TRANSBOUNDARY AQUIFERS

In 2002, the **UN International Law Commission (ILC)** introduced in its program of work the topic of "Shared Natural Resources", including transboundary groundwaters, oil and gas.

Four years later, in June 2006, the ILC adopted at first reading nineteen draft articles on the law of transboundary aquifers and decided to transmit them to the States, Members of the UN for comments and observations by 1st January 2008 latest.

The **IHP-UNESCO** coordinated the contributions of international experts, international and national institutions, including specialized centers on groundwater resources.

The draft articles are composed of five parts. The introduction includes an article on the scope and an article on definitions of the words used: aquifer, aquifer system, recharge zone and discharge zone.

The second part includes the principles of international water law adapted to the case of aquifers: equitable and reasonable use, obligation not to cause significant harm, obligation to cooperate with its practical implication, regular exchange of data.

The third part includes more technical provisions such as the protection and preservation of ecosystems, or related to recharge and discharge zones, to the prevention, reduction and control of pollution, to monitoring and to management, encouraging States to establish joint management mechanisms.

The fourth and fifth parts encourage scientific and technical cooperation with developing States.

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JRBM

International Journal of River Basin Management celebrates its Third Birthday!



The International Journal of River Basin Management (JRBM) is now three years old.

INBO is partner to this journal.

JRBM promotes a cross-sectoral approach encompassing all aspects of river and floodplain management, with a truly global perspective. It is a response by the scientific and professional community to calls for an integrated approach to Water Resources Management.

River basin management is a field where intellectual development is occurring rapidly and part of the remit of the journal is to shape this development and underpin the scientific basis of the discipline.

The journal will be supplemented over the next 18 months with publication of a number of special editions including issues on: Ecohydraulics, River Basin Management and Environmental Hydraulics.

Only 30-40% of the proposed articles are published, which shows our commitment to publishing only the very highest quality output.

For more information, please contact Cristina Moreno at : **mail@jrbm.net**

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Connecting people to living rivers

To coordinate action for living rivers worldwide, **the World Conservation Union (IUCN)**, Delft Hydraulics, DHI Water and Environment, The Nature Conservancy (TNC), Center for Ecology and Hydrology (CEH), the International Water Management Institute (IWMI), Stockholm International Water Institute (SIWI) and Swedish Water House launched an **"Environmental Flows Network"** at the World Water Week on 20 August 2006 in Stockholm.

"Environmental Flows means that water in rivers is managed in such a way that downstream users and ecosystems receive enough water to remain "in business", said Dr. Ger Bergkamp, who is leading **IUCN's** water work globally. The Environmental Flows work entails negotiation between water users, based on an understanding of the impacts their water use has on

other uses, and on their natural environment, to leave enough water in rivers.

The network is focused on integrating environmental flows into daily management in rivers, as well as on supporting the restoration and management of watersheds in ways that serve environmental needs alongside livelihoods.

The Environmental Flow Network will be a communication tool in spreading knowledge: interactive website with case studies, discussion forums, partnership development opportunities, a newsletter, workshops and conferences.

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Implementing environmental flows will help in sustaining fisheries. Tacana Basin, Guatemala. © Taco Anema/IUCN

REGIONAL WORKSHOPS ON RIVER BASIN MANAGEMENT

IUCN, in partnership with **IW.Learn** (the Global Environment Facility's (GEF) International Waters Learning Exchange and Resource Network), is organizing a series of three regional workshops in Ouagadougou, Burkina Faso from November 6th to 8th 2006, then in Asia and Latin America/Caribbean in 2007.

A river basin session, structured to help understand and implement these concepts in river basin management, will be held at the international Conference in Cape Town in 2007. It will deal with:

- Economic valuation and water-related decision-making;
- Environmental flows - managing river flows for shared and multiple benefits;
- Incentives for river basin management - application of cost recovery for ecosystem services.

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Thiess Riverprize

The Thiess Riverprize is an award presented annually for outstanding achievements in river repair and management, with a combination of education, management and scientific initiatives. The prize of AUD 225,000 and the Thiess Riverprize trophy are funded by the International River Foundation, which was established to advocate protecting and restoring the world's rivers and waterways.

The award ceremony took place during the International River Symposium, held in Brisbane (Australia) in September 2006 during the River Festival.

The four 2006 finalists were:

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

The Kissimmee River-Okeechobee-Everglades Restoration Project is restoring more than 60 sq km of river and floodplain ecosystems. The government-community partnership has filled in drainage canals, removed dams and navigation lock structures, and reconnected historic river channels.

Kissimmee River

jkoebel@sfwmd.gov

www.sfwmd.gov

OFFICE OF THE LAKE MACQUARIE AND CATCHMENT COORDINATOR

Lake Macquarie is part of a large estuary system in northern New South Wales (NSW), Australia. The Integrated Catchment and Estuary Management Project began in 1998 as a joint initiative of Lake Macquarie City Council,

Wyong Shire Council and the New South Wales government, with a strong emphasis on community involvement.

Macquarie Lake

jjansson@lakemac.nsw.gov.au

www.livinglakemacquarie.org

MEEWASIN VALLEY AUTHORITY

The South Saskatchewan River, Canada, runs for over 60 km and is managed by the Meewasin Valley Authority. Since 1979, many conservation projects have enhanced the river valley: major clean-up, development of the Meewasin Valley Trail which extends for 40 km, former rubble sites have been transformed into parks, damaged areas restored, conservation areas protected, and interpretive centers built.

South Saskatchewan River

meewasin@meewasin.com

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CHENGDU MUNICIPAL GOVERNMENT

The Sha River is part of the Minjiang Tributary system in China, a primary catchment for the Yangtze River.

The Sha River Restoration Project has improved water quality, controlled flooding, cleaned up pollution, landscaped parks, constructed drainage systems, and enhanced public use and understanding of the catchment.

Sha River

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The Sha River

"Citizens of the Earth" - Paris Conference

For a worldwide ecological governance

« Citoyens de la Terre »

On proposal from the President of the French Republic, Mr. Jacques Chirac, an international Conference on the environment was held in Paris on last 2 and 3 February.

In Johannesburg, in 2002, the President had already appealed to the

nations to get mobilized to face the ecological disaster which threatens our planet and pleads for the creation of a **United Nations Environment Organization (UNEO)**.

Increasing mobilization was the objective of this international Conference, which means, on the one hand, making a joint report on the situation of the environment and its worrying degradation, and, on the other, making some proposals for priority actions at the international level.

The **INBO** Permanent Technical Secretary, Mr. Jean-François Donzier, was among the invited experts.

The program of these two days included workshops: fighting against climate change, acting together to protect biodiversity, controlling pollution and preserving health, inventing ecological growth (change in mentalities, in production and consumption methods), strengthening international governance of the environment, etc.

The sixth workshop was entitled:

"Making water a shared challenge"

Every year, 2 million children die of water-related diseases.

5% of the GDP of sub-Saharan Africa are lost each year because of water-related problems.

1 Euro invested in water has an economic profitability of 8 Euros.

It is necessary to reduce by half the number of people having no access to drinking water. This means supplying drinking water to an additional 260,000 people each day and basic sanitation to an additional 370,000 people each day before 2015! Can this be done?

The international debate must also focus on integrated and efficient management of the resource in the "big

water cycle" (water in the natural environment), which is a condition for achieving the other objectives.

The workshop was organized around the three following topics:

- **Sanitation: access to and conservation of water resources;**
- **Necessary adaptation of water management to climate change;**
- **Water governance, of shared water in particular.**

The need for the riparian States to sign cooperation agreements for **integrated basin management of trans-boundary rivers, lakes and aquifers** was unanimously underlined, as well as the benefit of international commissions, basin authorities or equivalent organizations, and to strengthen those which already exist at the level of these shared basins.

Conference Website:

www.citoyensdelaterre.fr



International Secretariat for Water - ISW

Having the Right to Water for all recognized!

Since its creation, ISW has committed itself to applying the principles of the Montreal Charter on access of the populations to drinking water and sanitation, adopted in 1990 in New Delhi during the closing work of the United Nations Decade. For ISW:

- **Access to drinking water and sanitation is, above all, a political issue:** the lack of respect for all of this right reflects, beyond geographical disparities, the inequalities in the distribution of social and economic power, which

therefore necessitates sustained international solidarity to ensure that this essential right is respected.

It is then necessary to:

- **Conceive all actions in support to the populations concerned,** starting from the premise that the failure of development models is, for the most part, due to the fact that the populations, especially women, have been excluded from the important decisions concerning the development process, it follows that in the area of drinking

water, more than in any other area, we have to develop consultation and participation practices.

- **Integrate water into a global approach to development,** starting from the belief that the right to water cannot be dissociated from other human rights linked to global development; it is essential that we rely on a vision of integrated management.
- **Focus on education and training of the populations,** starting from the premise that purely technical solutions cannot, by them-

selves, ensure people a better quality of life, all water-supply projects and programs must include equal training for men, women and young people.

ISW endeavors to have this Right to Water for all formally recognized.

Raymond JOST

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2007 General Assembly in South Africa

The 3rd General Assembly of the African Network of Basin Organizations (ANBO) was held this year, from 4 to 7 March 2007, in Johannesburg in South Africa, at the invitation of the South-African Ministry of Water and Forestry and the Basin Organizations of Southern Africa.

Several workshops were organized around five large strategic topics for the good management of basins of transboundary rivers, lakes and aquifers in Africa:

- Integrated water resources management in Africa: case studies,
- International Initiatives and Facilities for water in Africa,
- Statutes, responsibilities and processes for the creation of Transboundary Basin Organizations,
- Development of management and action plans for Transboundary Basin Organizations and their financing,
- Monitoring, monitoring networks and information systems for transboundary basin management.

ANBO is particularly getting mobilized for better management of African transboundary rivers,

lakes and aquifers: 59 African rivers have transboundary basins, which cover 62% of the surface area of the continent.

ANBO statutes are being changed to strengthen its relations with the African Union, AMCOV and regional economic cooperation Institutions, the Organization for the Development of the Senegal River (OMVS), and especially Ms. Amayelle Ka NDIAYE, who has been in charge of ANBO Permanent Technical Secretariat since its creation in DAKAR.

According to ANBO statutes, **ORASECOM (Orange-Senqu River Commission) will take care of the Network Presidency up to its next Plenary Assembly.**

All INBO and ANBO friends particularly thank Mr. Oumar OULD ALY, of the Niger Basin Authority, for his very effective Presidency of ANBO since its creation in 2002 in Dakar and for his continuous efforts to develop the Network in Africa and on the international scene, especially within INBO.

A. NDIAYE

African Network of Basin Organizations
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www.omvs-see.org/raob.htm



Mr. Oumar OULD ALY, ANBO President from 2002 to 2007, with Mrs. Madeleine JOUYE de GRANDMAISON, INBO President

Senegal : CODESEN

The Civil Society is getting organized



Delegates at the Constitutive General Assembly

Since the study day on 20 September 2002 in Dakar, the CODESEN (Coordination of Organizations of the Civil Society for the Defense of the Environment and the Development of the Senegal River Basin) had included the organization of a Constitutive General Assembly in its agenda to consolidate its institutional framework, to build its technical and operational capacities, then to improve its organizational development.

From August to December 2004, the CODESEN Permanent Secretariat decentralized its activities by installing Focal Points in the seven administrative departments of the Senegal River Basin (Louga, Saint-Louis, Dagana, Podor, Matam, Kanel and Bakel) and drafted an Institutional Support Project and an Action Plan (2005-2008), financed by the Swedish Society for Nature Conservation (SSNC).

The aim of this step is to build the capacities of NGOs, basic community organizations, local authorities and private operators working in the Basin, so that they get actively involved in the sustainable management of water resources and the environment of the Senegal River. A first stage of information and exchanges was necessary, as it enabled the various stakeholders to know of the objectives of the GEF/BFS

project of the OMVS, to determine the stakes and opportunities of their participation, by establishing suitable collaboration mechanisms.

From 20 April to 20 May 2006, sectoral General Assemblies were organized in the seven Focal Points, to designate two delegates, a man and a woman, for each and to prepare their draft sectoral Action Plan to be integrated into the overall Action Plan of the CODESEN (2005-2008).

The Constitutive General Assembly of the CODESEN was then held, including two-day workshops, chaired by Mr. Babacar DIOP, President of the Socioeconomic, Sport and Cultural Alliance of the Walo Farmers (ASESECAW), Focal Point of the Dagana Department.

The organization and operation of the CODESEN will be reinforced by action plans, aiming to promote, protect and defend the rights of the riparian communities of the Senegal River Basin.

Food, education, health, sanitation and hygiene could also become the core of the CODESEN future activities.

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The Volta River Basin

Process for the creation of the Volta Basin Authority (VBA)

Six countries share the Volta Basin: Benin, Burkina Faso, Ivory Coast, Ghana, Mali and Togo.

A political process was initiated in 2004 and included several big steps:

- Creation of a **"Volta Basin Technical Committee" (VBTC)** in 2004;
 - The signing, in Ouagadougou on 6 December 2005, of a Draft-agreement for the creation of the **Volta Basin Authority (VBA)**;
 - The mandate entrusted to the VBTC of drafting the Convention for creating the VBA;
 - The mobilization of financial resources to carry out this process.
- The African Water Facility (AWF)** granted 108 million FCFA on 7 April 2006.

This financing allowed completing the following activities:

- ❖ The drawing up, between January and March 2006, of a draft convention with French support;
- ❖ The venue, in each riparian country between 25 April and 11 May 2006, of a national workshop for validating the draft statutes and Convention;

- ❖ The venue, in Ouagadougou on 8 and 9 June 2006, of a regional workshop for the validation of these constitutive texts.

It was the first time in West Africa that draft constitutive texts of a basin organization were submitted to representatives of field stakeholders.

The ministerial meeting, in Lome on 17 July 2006, made the following decisions as the last preparatory stage:

- Approval of the draft convention and adoption of the draft statutes;
- Designation of the acting Executive Director and of his Assistant;
- Nomination of the acting President of the Ministers' Council;
- Definition of a roadmap for the installation of BVA.

In January 2007, the Conference of the six Heads of States signed the Convention and nominated the people in charge of the Authority.

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Guinea

PROJECT ON INTEGRATED MANAGEMENT OF ECOSYSTEMS (PGIE)

The Gambia River



The Project on Integrated Management of Ecosystems (PGIE) aims to:

- ❖ Improve knowledge for the reclamation and sustainable management of degraded lands;
- ❖ Build the scientific, technical and management capacities of the various stakeholders;
- ❖ Increase the production capacity of marginal lands and to reduce the population's poverty.

The selection of pilot river sub-basins enabled an analysis of the status of the environment, the identification of vulnerable zones and the selection of sites of priority interest for the hydrological and ecological monitoring network, using an integrated approach that will be a model on a national and sub-regional scale.

The selected basins:

The Fataala Basin

The Fataala is a coastal river originating in the Fouta-Djalon.

The degradation of the plant cover in the upper Fataala basin leads to significant erosion caused by bad land management practices, deforestation and overgrazing. The sediment flows cause the filling of the bed of rivers and estuaries.

The Cogon Basin

The Cogon River is born in the high Fouta table-lands and flows into the ocean through a large estuary invaded by mangrove.

The threats are mainly related to the mining of bauxite in the Sangaredi area.

The Gambia Basin

Gambia is born at Hooredimma and crosses Guinea, Senegal and Gambia.

In the whole upper Gambia basin, environmental degradation leads, in some places, to desertification.

Increasing farm lands is done through bush fires. The soils are exploited to total depletion and then abandoned.

The Bafing Basin / Senegal

The Senegal River is born at Mamou in the Fouta-Djalon and crosses Guinea, Mali, Mauritania and Senegal.

In this basin, vegetation consists of savannah, degraded forests and above all of "bowés". The cultivation practices used have a huge impact on soil degradation and highly contribute to increasing desertification in the area.

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**All information
is available
on the Web**



www.inbo-news.org

The Niger River Basin

Shared vision of the future



The various meetings of the bodies of the **Niger Basin Authority (NBA)** confirmed the will of the nine Member States (Benin, Burkina Faso, Cameroon, Ivory Coast, Guinea, Mali, Niger, Nigeria and Chad) to make this organization a tool for regional cooperation and economic development.

Thus, it was required that a **"clear and shared Vision"** of the NBA be developed with the support of the World Bank and other development partners, in order to create a "favorable environment" for cooperation and to formulate a **"Sustainable Development Action Plan (SDAP)"**, accepted by all the basin stakeholders.

A regional synthesis of the national multisectoral studies defined the strategic orientations and identified the common development priorities between the riparian countries of the basin with a choice of three priority fields: conservation of the basin ecosystems, development of socioeconomic infrastructures, capacity building and participation of the stakeholders.

"The Niger Basin is defined as a common space for sustainable development with integrated management of water resources and related ecosystems, for the improvement of living conditions and prosperity of the populations by 2025".

The macro-economic studies for optimizing development opportunities, supplying an economic model and hydraulic model for allocating and managing the water resources of the Niger Basin have started in order to produce the decision-making supporting tools needed for preparing the SDAP.

The availability and distribution of water resources and induced benefits will be given by the results of various scenarios up to 2015 and 2025.

The big steps or activities still to be implemented are the following: formulation of the SDAP, preparation of the Investment Program and Projects, Summit of the Heads of State and finally a round table of the donors.

The technical studies will be completed before the end of 2007, the Heads of States and the donors are to meet at the beginning of 2008.

The SDAP is the keystone of the Shared Vision process. It will constitute a strategic document of reference which will determine and orientate the process of joint development of the Niger basin countries up to 2025.

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Mali

THE NIGER RIVER BASIN AGENCY

The Niger River is influenced by an irrigated agriculture, which wastes water and contributes to its quality degradation with badly controlled use of fertilizers and pesticides, by the dunes advancing in the floodplain and low-water channel of the river, by pollution caused by urbanization increase and demographic growth, etc.

How to reconcile the will "to produce more" with the requirements of environmental conservation of the river and of its aquatic and land-based ecosystems?

Thus, the Malian Government created the Niger River Basin Agency (ABFN), on 29 March 2002, entrusting it with the conservation of the river, of its tributaries and their watersheds on the territory of the Malian Republic.

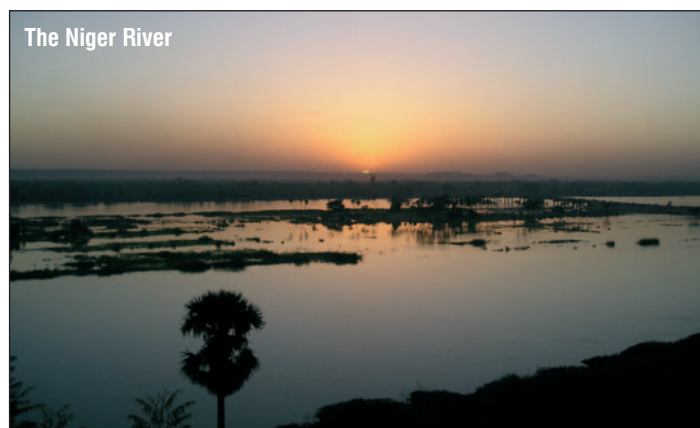
ABFN aims to build its institutional capacities with all the parties concerned by Malian environmental policy, through rules governing peaceful coexistence between communities and complementarity between all the communities sharing the basin resources.

ABFN aims at meeting the needs for:

- protection against the effects of the various water uses, against bad uses and various aggressions affecting the river basin;
- operational planning of priority uses and actions with regard to the sharing of water resources.

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The Niger River

Ethiopia

An institutional framework for the Abbay River Basin on the Ethiopian Nile

The "Institutional Setup Studies of the Ethiopian Nile Basin (Abbay Basin) Project", led by the Ministry of Water Resources of the Federal Republic of Ethiopia, with the support of BRL Engineering, successful tenderer of a general bid, and of the International Office for Water, enabled the drafting of a Law on Basin Organizations, which was approved by the Ethiopian Authorities concerned, and raising the Ethiopian partners' awareness to the operating of French and international Basin Organizations and to their activities related to Integrated Water Resources Management at the level of river basins.



Asia-Pacific Water Forum

Harnessing and disseminating knowledge



The Asia-Pacific Water Forum (APWF) was officially launched in Manila (Philippines) on 27 September 2006, on the occasion of the Asian Development Bank's Conference on Water Financing.

The ceremony was attended by more than 160 representatives from over 30 organizations from across the region.

During the regional preparatory process leading up to the 4th World Water Forum in Mexico, it became apparent that there were already a large number of stakeholders who were spearheading important activities throughout the Asia-Pacific region.

A Joint Declaration issued by the Water Ministers of the Asia-Pacific Region called for stakeholders to "work in complete solidarity to identify and adopt solutions to water issues in the region".

To contribute to sustainable water management in order to achieve the targets of the MDGs in Asia and the Pacific, the APWF shall champion efforts aimed at boosting investments, building capacity and enhancing cooperation in the water sector.

Mr. Kotaro Takemura, Secretary General of the Japan Water Forum, announced that the First Asia-Pacific Water Summit will be held in the fall of 2007 in Beppu City, Oita Prefecture, Japan.

These Summits are scheduled to be held every two or three years.

A small secretariat is hosted by the Japan Water Forum.

A new website has been created to serve as the main portal for the APWF.

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Mekong River Commission - MRC

Strategy approval

Endorsement of the final draft of the **Mekong River Commission's Strategic Plan 2006-2010** by the 24th meeting of the MRC Joint Committee in Vientiane will set the path for the MRC's work for the next five years.

This Strategic Plan had been formulated with input from Member States (Cambodia, Lao PDR, Thailand and Viet Nam), donors and stakeholders and reflected their joint views.

The Water Utilization Program (WUP) allowed the member countries to agree on many shared procedures and guidelines concerning data exchange, notification and water monitoring.

In June 2006, an agreement was signed on the Procedures for the Maintenance of Flows on the Mainstream.

The Mekong River Commission has moved toward a more integrated approach in accordance with the Millennium Development Goals.

The Navigation Program and the Flood Management and Mitigation Program were also implemented in 2006.

Dr Olivier Cogels, Chief Executive Officer of the MRC Secretariat, said: "We now have a very good consensus to support our work over the next five years. Now we have to get to work on implementing our integrated program in order to bring benefits to the people of the Mekong Basin".

The MRC Joint Committee consists of one member from each country. It is responsible for the implementation of the policies and decisions of the MRC Council and supervises the activities of the Secretariat.

Representatives from Myanmar, the Asian Development Bank (ADB), ASEAN, IUCN, UNDP, the World Bank and WWF attended the meeting.

MRC, China and Myanmar cooperate

In April 2002, China and the MRC signed an agreement on the exchange of hydrological information on the Lancang/Mekong River in flood season.

Since June 2004, 24-hourly water level and 12-hourly rainfall data have been sent daily from China to the MRC for flood forecasting purposes.

In January 2006, the MRC commenced supplying China with monthly flow data from hydrological stations in Chiang Saen, Thailand, and Stung Treng, Cambodia.

The MRC and China have made good progress under the AusAID-funded Appropriate Hydrological Network Improvement Project (AHNIP) in the improvement of the two hydrological stations at Jinghong and Man'An, and the establishment of the Data Center at

the Provincial Bureau of Hydrology and Water Resources in Kunming.

In June 2006, the MRC organized a technical mission to make necessary arrangements for the provision of data for the flood season 2006 and to consolidate the capacity of local technical staff in using automatic equipment.

The supply of regular data commenced successfully from 15 June 2006 onward.

Representatives of the People's Republic of China and the Union of Myanmar attended the MRC's 11th Dialogue Meeting.

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India

SAVE DIMINISHING WULAR

Wular Lake is considered to be one of the largest freshwater lakes in Asia. The rampant siltation and extensive farming are the key causes for the devastation of the lake, human encroachments have further worsened the environment. Contamination is high.

The Wular Lake is from fluvial origin, formed from ox-bows of the Jehlum River. It plays an important role in the hydrological system of the Kashmir valley, which acts as an absorption basin for floodwater.

The lake is host to numerous migratory birds coming from all over the world, such as the Marbled Teal, Pallas's Fish-eagle, Coot, European Roller and many others.

There is a threat of losing the natural diversity counting loss of some important endemic and endangered species due to human encroachment, increase in pollution level and heavy siltation.

The maximum depth of the lake currently is about 14 meters but the depth has got reduced to about 2 meters at some places.

It is high time for the Government to think of involving local and international NGOs and inhabitants of that area for the conservation and shrewd use of Wular Lake.

Bilal Ahmad PANDOW
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WATER SUPPLY IN SLUM AREAS

Integrated water resources and watershed management efforts cannot ignore the needs of the poor communities regarding water and sanitation requirements and the necessity to provide low-cost solutions.

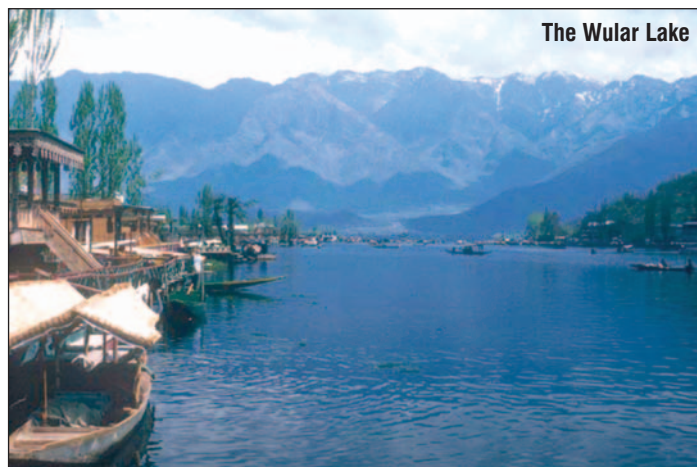
Safe and secure water supply is necessary for preventing diseases and improving the health of the community. This will engender the recipient populations' readiness to meeting the costs to the extent possible.

A proactive participatory approach needs to be developed. The statutory bodies should concentrate on data collection and information generation to facilitate stakeholders' involvement.

Community leaders, NGOs, Government bodies need to partake in the process to reduce the cost of implementation and work out a pattern for longer-term pay-in to recover these costs.

With adequate source protection by the community, it is possible to ensure utilization of groundwater and rain water. Low-cost water purification, on-site application kits and decentralized sanitation devices for discharge recycling for gardening purposes should be implemented and improved.

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The Wular Lake

Cambodia

INTRODUCTION TO IWRM IN THE NORTH WEST PROVINCES

In spite of the regular and beneficial high water levels of the Mekong, competition for water starts to be felt in Cambodia, due to the increase in population and urban consumption. Water resources are still not well known... This is why the Cambodian Government wished to set up the bases of **Integrated Water Resources Management (IWRM)** and most of the necessary legal texts had already been written.

It is now necessary to implement this new policy in the field.

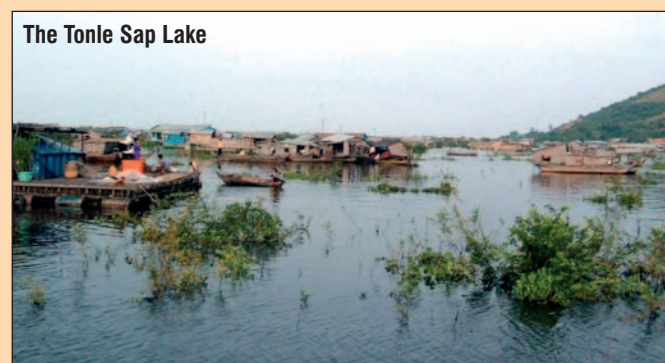
Implementation started within the North West Irrigation Sector Project of Cambodia, led by BCEOM and financed by the Asian Development Bank and the French Development Agency.

IOWater, INBO Permanent Technical Secretariat, was responsible for introducing the IWRM concepts, by "coaching" the people in charge of water in the Cambodian Administration, especially at the local level, in the concerned Provinces of Battambang, Banteay Meanchey and Pursat and in the sub-basins of tributaries of the Tonle Sap Lake in the Western North of the Country.

This pragmatic approach allowed the development of an embryo of a future sub-basin organization with its composition and operating mode.

Cases of conflict on uses were jointly identified with the local partners. The needs for knowledge and new responsibilities were underlined.

The first analyses, which should lead to the joint management of water resources, were started.



The Tonle Sap Lake

**Please meet us in Debrecen,
Hungary - 7 - 9 June 2007,
for the 7th General Assembly
of INBO**



Information - Invitation - Program:

www.inbo-news.org



Central Asia

≈rivertwin

The RIVERTWIN project is implemented by an international Consortium of researchers from a number of European, Central Asian and African countries. It is coordinated by Hohenheim University (Germany).

It aims to develop an integrated regional model for strategic planning of water resources management in three twinned river basins: the Neckar River Basin (Germany), the Queme (Benin, Africa) and the Chirchik-Akhangaran-Keles River Basin (Central Asia). The project started in 2004 and will be completed at the beginning of 2007.

The Scientific-Information Center of the Interstate Coordination Water Commission (SIC ICWC) of Central Asia carries out research in the trans-boundary Chirchik-Akhangaran-Keles (ChAK) and Chatkal river basins, which are shared among Kazakhstan, Kyrgyzstan and Uzbekistan.

The first stage (2004 - 2005) allowed developing a concept of work performance, creating the project's database, discussing about approaches to the project's realization with the stakeholders, identifying key problems and tendencies of water development, etc.

The second stage (2005 - 2006) allowed:

- Establishing a database;
- Defining ecological areas and risk zones;
- Creating thematic maps;
- Analyzing water resources management and setting long-term water management objectives, identifying criteria for water status and for the development of an effective management mechanism, etc., and
- **Socio-economic development scenarios.**

The analysis of current trends and possible developments enabled the definition of indicators of probable changes in socioeconomic characteristics of the

The Chirchik river



basin till 2030 (rural and urban populations' growth, energy demand, etc.), which are used for developing scenarios.

The data from weather stations are used for model adaptation and for the production of climatic scenarios.

Modeling will also use a group of indicators for sustainable water development and appropriate indicators for visualization of the ecological challenges.

The Tashkent Province Committee for Nature Conservation and Municipality, Chirchik Basin Irrigation System

Administration, Tashkent Province Agricultural and Water Authority, Uzgidromet Hydrometeorological Research Institute, "Syrdarya" Interstate Basin Water Organization, etc. were involved in discussions about the future basin development scenarios.

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Kazakhstan - Kyrgyzstan - China

ECOSYSTEM MANAGEMENT IN THE ILI-BALKHASH BASIN

The European Commission supports CAREC (Regional Environmental Center for Central Asia) in developing the Ili-Balkhash Basin Integrated Management Plan, the first example of such an approach in the countries of the former Soviet Union. The project includes the following:

- development of a long-term Basin Development Program;
- signing of a multilateral basin agreement between Kazakhstan, China and Kyrgyzstan;
- creation of a favorable investment partnership;
- establishment of an International Commission and fully-fledged Basin Authority.

To tackle this issue, CAREC assessed aquatic and littoral ecosystems through biotesting, which enabled to:

- set more realistic water pollution and abstraction limits;
- keep record of the ecosystems;
- use the best available techniques;
- prevent possible conflicts by creating Basin Councils;
- develop water standards in the Central Asian region, based on the European Water Directive (WFD).

Practical outcomes, obtained through field studies using a simplified mathematical model, demonstrated that it is possible to set more realistic limits for the discharge of pollutants and limits for water abstraction for industrial, drinking water and community needs.

CAREC

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"IWRM-FERGANA"

Public management of irrigation canals

The Fergana canal



The "Integrated Water Management in the Fergana Valley" (IWRM-FERGANA) Project is carried out by a Consortium gathering the Scientific-Information Center of the Interstate Coordination Water Commission (SIC ICWC) of Central Asia and the International Water Management Institute (IWMI).

The Project is sponsored by Swiss Development Cooperation and coordinated by SIC ICWC. It is carried out in Uzbekistan (Andijan and Fergana provinces), Kyrgyzstan (Osh province) and Tajikistan (Sogd province). The Project activities are basically carried out along three main irrigation canals: the South Fergana Canal (SFC) in

Uzbekistan, the Aravan-Ak-Bura Canal (AABC) in Kyrgyzstan, and the Khodja-Bakirgan in Tajikistan. The practical activities of the Project are implemented at three (Irrigation canal, Water Users Association, and farm) levels.

The IWRM principle was introduced to the public and Unions of Canal Water Users (UCWUs), made up of representatives of the main stakeholders, were created.

The question of transferring water resources management from Governmental Administration to a public institute was raised. Such a transfer should be carried out on the basis of contracts, according to the national legislation of each country of the Project.

Practice of drawing up these contracts shows that achieving a consensus is most difficult on the issues of sharing competences, financing and the Parties' responsibilities. To date, a Contract on joint governance of AABC has been signed between the Osh Basin Water Resources Administration (Ministry of Agriculture and Water Resources of the Kyrgyz Republic) and the UCWU.

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**Meet us in Debrecen
in Hungary, from 7 to 9 June 2007,
for the 7th General Assembly of INBO**



Saturday 9 June 2007: Technical Visit

Tisza transboundary River Basin

Hortobagy National Park (classified World Heritage by UNESCO)

Memorial of Tiszadob - Developing works of Andrassy-dyke

Visit of the famous Tokay vineyard

Information - Invitation - Program:

www.inbo-news.org



North America

Quebec

For participative water management

Since the adoption of the **National Water Policy (NWP)** by the **National Assembly of Quebec on 26 November 2002**, 33 rivers have been identified as a priority to start raising awareness to integrated basin management.

For Quebec, it is a new way of thinking, which implies an original manner to do things.

Each of these new territories thus becomes decisive for water resource protection and development in Quebec.

This is why the Government of Quebec committed itself to financially and technically support the creation of

33 Basin Organizations, including that of the Richelieu River, represented by the **"Committee for Dialogue and Development of the Richelieu River Basin (COVABAR)"**.

The financial resources released by the Government of Quebec consist of a symbolic kick-off support of 65,000 CAN \$, granted primarily for allowing the population of each basin to organize itself in forum for dialogue, ideally representing all the driving forces of the civil society.

The innovative and mobilizing aspects of this project are based on a will to have the Quebec society participate in a great debate on water resources and

The Richelieu River



to incite the political and economic decision-makers to change their behavior as concerns their uses of this resource, the quality of which is essential for the health of the natural ecosystems and of the human beings who live there.

The question which arises: "How come this so abundant water of very good quality could so quickly degrade in so little time?"

Immediately, all the cultural components become important and inevitably lead us to consider what happens elsewhere.

It is thus necessary, at the same time, to take our past into consideration and what the other citizens of the Planet live in their communities.

In such a context, **COVABAR** is open to the approach to twinning with other Basin Organizations: knowing the ways of thinking and the manners of doing things of other cultures to have a better glance on our own future as regards water.

Following the example of the Amerindians of North America, who gathered in bivouacs to dance around fires during several days before the

big fight against the invader to raise courage and ensure common cause among the troops, we wish to mobilize the civil societies of the basins to participate in a contemporary **"dance of thirst"**, making profitable their cultural diversities in the search for courage and common cause, necessary for protecting and developing the water resources of the Planet.

COVABAR aims to create a network of water allies, by proposing the twinning of river basins, which is already well started with the ongoing project involving **"EPTB-Charente"** in France and **COVABAR-Richelieu** in Quebec.

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The "MÉANDRES" project

A press conference took place, on 19 June 2006 at the Godefroy de Bécancour Inn, for the signing of a collaboration agreement aiming at improving the quality of water and ecosystems of four sub-basins of Central Quebec.

This three-year project, namely "MÉANDRES", is regrouping four Ministries, four Basin Organizations, the Regional Conference of Elected Officials (CRÉ) and the UPA in particular.

The Corporation for the Promotion of the Environment of the Nicolet River (**COPERNIC**) chose the Saint-Zéphirin River sub-basin for this project.

This river shows the most negative impacts from non-point pollution, according to the last analyses carried out, as mentioned in the Report 2006 on the Environment of the Nicolet River. The basin soil is particularly sensitive to erosion, and this leads to a lot of organic matters in raw water.

COPERNIC is involved in this project as financial partner and will collaborate in the restoration of the ecosystems of this sub-basin. Its role will also be to raise the owners' awareness and involve them in practices respectful of the ecosystems in order to reduce point and non-point pollution.

COPERNIC will make information available to the professionals, to the follow-up committee and to the technical committee, for allowing them to carry out the activities planned in the project.

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North America

USA

Towards Performance Indicators of River Basin Organizations

The role of River Basin Organizations has changed over time, from mere development driven organizations to organizations with a comprehensive approach of their basin to implement integrated water resources management.

The aims of the study of the Southern Illinois University were to:

- **Develop general performance indicators of river basin management organizations;**
- **Apply the general indicators to selected US river basins and recommend their application to others.**

Based on the concepts of IWRM, integrated river basin management and performance assessment, performance indicators were developed from a suite

of good governance factors, assembled from the reviews of consultants' practical experiences in river basin management, peer-reviewed literature, government reports and policy statements, and reports of river basin management practice.

Several applications of the performance indicators were undertaken by: river basin commissions, Corps of Engineers strategic directions such as in the Civil Works Strategic Plan 2004-2009 and basin treaties/compacts.

The outcome of the study was a template for measuring the effectiveness of River Basin Organizations to implement integrated water resources management.

The study provides a suite of 115 performance indicators.

These were grouped into ten categories:

- coordinated decision-making,
- responsive decision-making,
- goals, goal shift and goal completion,
- financial sustainability,
- organizational design,
- role of law,
- training and capacity building,
- information and research,
- accountability and monitoring,
- private and public sector roles.

The study includes a method to identify the stage of adaptiveness of a River Basin Organization, a method for river basin commissions to apply the general indicators to their own organization

and a scorecard for Corps of Engineers projects and UNESCO HELP basin projects.

The study includes a discussion on suggested policy reforms required to enhance integrated water resources management and basin management in the USA.

The study concludes with recommendations on the next steps required to use the performance indicators.

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Latin America

ECLAC

WATER GOVERNANCE FOR DEVELOPMENT AND SUSTAINABILITY

This document (LC/L.2556-P, June 2006, Series Natural Resources and Infrastructures No. 111) aims to identify characteristics of water institutions which promote the integration of water management into socioeconomic development.

This does not depend only on formal institutional factors, such as legislation and organizational structure.

The concept of governance should be understood as the capability of a social system to mobilize energies, in a coherent manner, for the sustainable development of water resources.

As human society becomes ever more complex and the intensity of human impact on natural resources becomes more severe, the need to integrate the different elements of water management becomes imperative.

The specific objectives of this paper are:

- to contribute to focusing the regional debate on those aspects of water institutions and macroeconomic policies, which are particularly critical for Latin American and Caribbean countries;
- to promote the formulation of a regional position that genuinely reflects its situation, visions, aspirations and problems;
- to promote a critical and balanced analysis of legislation, regulatory frameworks and public policies for water resources management and provision of related public services;
- to make available in English a summary of the water-related research carried out by the Division of Natural Resources and Infrastructure of the Economic Commission for Latin America and the Caribbean (ECLAC).

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NATIONS UNIES

CEPAL



Latin America

Mexico

The SINA and SIRAs

The Mexican Water Law of 29 April 2004 (Ley de Aguas Nacionales) stipulates that "planning and national programming of water resources will be based on a **National System (SINA), and Regional Water Information Systems (SIRAs)**".

The **CONAGUA** became in charge of creating and developing this National Water Information System of Mexico (**SINA**) and of supporting the new "Basin Organizations" in the creation of Regional Water Information Systems (**SIRAs**).

Within its partnership with the International Office for Water, **CONAGUA** and the Mexican institutions concerned by this project carried out a detailed analysis of the legislative, institutional and technical context of water data and information management in Mexico, in order to define:

- ◆ a vision of the **SINA** and **SIRAs** in the medium term (main tasks, targeted public, types and fields of data and information to be managed, etc.);
- ◆ the organizational and inter-institutional tools to be developed and the various essential technical aspects of the project;

- ◆ a multiyear action program and a detailed plan for the first two years.

In 2005, the **"SINA/SIRA project"** started its implementation phase.

At the inter-institutional level, a Water Topical Group was officially created as well as specialized sub-groups from the main institutions concerned at the federal level: **CONAGUA**, **SEMARNAT** (Governmental Secretariat in charge of the Environment), **"INEGI"** (Cartographic and Statistical Institute responsible, in particular, for standardizing the Mexican sectoral information systems), etc.

The Planning Department of the **CONAGUA** is coordinating these topical groups and developing common tools for the system:

- the **SINA** website for presenting ongoing actions, enhancing already existing products (SUIBA, etc.), making available the elements of the common language, etc.;
- the catalogue of Mexican water stakeholders ("yellow pages").

Reform of planning processes

With a view to progressively evolve from a single multiyear planning of hydraulic infrastructures to a true integrated planning in the medium and long term, experts of the French Water Agencies wrote, together with their Mexican colleagues, a series of recommendations, dealing with:

- consistency between federal and regional levels;
- adequacy between "water management" and "regional planning";
- the definition of clear, transparent and quantified objectives;
- a progressive decentralization of decision-making;

- an evolution of sectoral policies towards comprehensive management.

The French and European experiences were also presented and adapted to the Mexican context for proposals related to:

- the participative nature of decision-making processes;
- the integration of environmental aspects, by introducing objectives related to the natural environments;
- equity between users.

Creation of the national documentation system

With financing from the French Ministry for Foreign Affairs and WMO (World Meteorological Organization), the **CONAGUA** has analyzed its production of documents in order to propose architecture for the organization and installation of a modern and effective documentary information supporting tool in Mexico.

The **CONAGUA** thus wished to benefit from the experience of the International Office for Water in water-related documentation.

With its home office in Mexico City and 33 branches on the territory (20 federal agencies and 13 regional agencies), the **CONAGUA** and its 20,000 employees produce a lot of information each year.

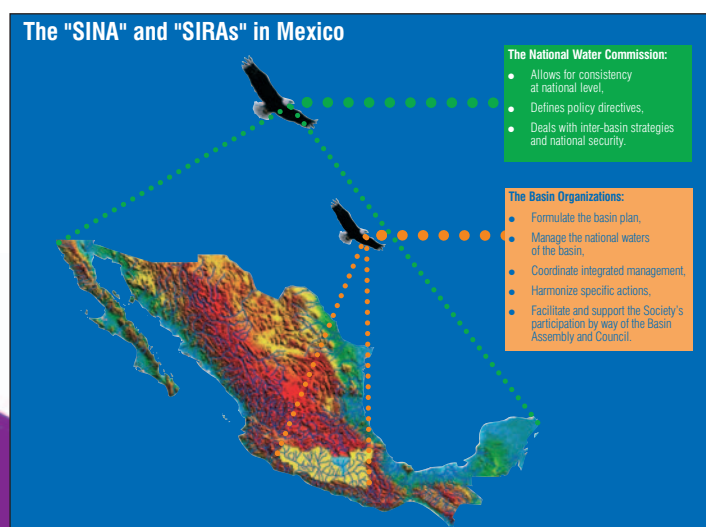
In addition to the measurements carried out in the field (meteorology, hydro-

lics, quality follow-up, etc.), reports, evaluations and studies are produced and stored at the Library of Studies and Projects, which unfortunately, has no modern tool for information management.

A complete sequence for document processing was proposed, starting with the definition of a method for information processing, staff training and recommendations for choosing a documentary software and premises for the storage of documents, continuing with office automation equipment for the management of documents, and ending with their on-line consultation on the **CONAGUA** website.

A circuit of the documents, making the Library of Studies and Projects the custodian of all internal documents of the **CONAGUA**, will complete its operation, making it the resource center of

the institution know-how. Over 15 months, the evolution of the library will equip the **CONAGUA** with a modern information tool, adapted to the Mexican needs.



Meeting of the "water" topical group (February 2006)



Mexico

Agreement on surface water sharing in the Lerma-Chapala Basin

During the second half of last century, demographic growth in Mexico and the need to achieve economic and social development led to privilege natural resources development rather than conservation.

Water was particularly overexploited.

Programs for building large irrigated areas were implemented at the national level.

Groundwater overexploitation began for the supply of the increasing population and industry. In addition, climate variability and the periods of droughts that occurred, as well as low surface water availability in the Central, Northern and Western regions of the country, also caused high groundwater demand for irrigation.

But the lack of sustainability of this resource development has caused serious impacts on the environment.

In the Lerma-Chapala Basin in particular, in addition to the mentioned periods of rain shortage, water development in the basin, whose outlet is the Chapala Lake, caused high lowering of its levels as early as 1980, as well as conflicts between the users.

In 1989, the CONAGUA initiated, with the help of the States interested in the economic and social development of the river basin, the formulation of an agreement for water distribution, looking for hydrological balance. Thus, in August 1991, the Federation and the State Governments signed an agreement to normalize the development and distribution of surface waters in the basin, with two objectives:

- ◆ Improving the distribution of waters between the users,
- ◆ Rehabilitating Lake Chapala and other water bodies.

The first one focuses on the production aspects and economic benefits and the second on the conservation of water bodies and related ecosystems and on the river basin in general.

Nevertheless, adverse climatic conditions prevented the achievement of both objectives.

In February 2001, the **Lerma-Chapala Basin Council** initiated some work to review and update the calculation of the flows and the policy for water distribution in the basin.

A Group for Development and Distribution (GDD) was created, in which participated technicians of the State Governments, users and **CONAGUA** staffs, with the support of research institutions such as IMTA and the Metropolitan Independent University.

This led, almost four years later, to the signing of an Agreement for the distribution of the basin's surface waters, which replaced the Agreement of 1991.

This Agreement aims at implementing a program of coordination, distribution and use of surface waters of the national domain in the Lerma-Chapala geographical area.

More than 50 meetings and 30,000 working hours and the test of more than 50 alternatives, for which optimization and simulation models were developed, led to a new algorithm, called **Joint Optimal Policy**, for the distribution of surface waters. This algorithm is a set of rules, that determine the distribution and control of surface water volumes, based on the optimization of the supply of water for irrigation and of drinking water to Guadalajara and on minimum levels in Lake Chapala, as compared to the supplies of the previous period.

It should be underlined that several original and innovating concepts were taken into account in this work and in the Distribution Agreement itself:

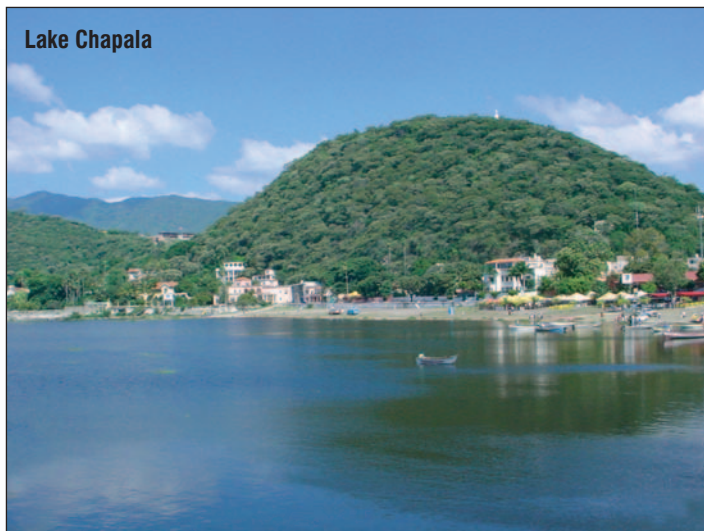
- The different distribution alternatives developed were evaluated from the hydrological, economic, social and environmental viewpoints;
- The developed policies had to alleviate the deficiencies of the 1991 agreement, mainly with respect to the non-assigned waters, which caused an important conflict;
- In addition to simple and clear rules, the Agreement comprises commitments and tangible actions to achieve its objectives.

The Agreement on Surface Water Distribution of the Lerma-Chapala Basin is the sole of this kind in the country and has obtained a consensus between the Governments and the users, and allowed achieving a fair and equitable distribution of water in the basin.

Now, the challenge for the **CONAGUA** is to establish similar agreements in the other Mexican river basins.

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Lake Chapala



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CONAGUA
COMISION NACIONAL
DEL AGUA



Latin America

Mexico

Study of water availability in the Rio Bravo Basin

In Mexico, the National Water Law allows the granting of authorizations and concessions in which the annual average water availability is taken into account. It stipulates that this availability must be calculated according to a Mexican Official Norm, and establishes specifications to determine it with a consistent methodology at national level.

The hydrological region n° 24 of the Rio Bravo covers a surface area of about 226,300 km², which represents 49.5% of the inputs from the Bravo/Grande River up to its mouth in the Gulf of Mexico. The remaining area, of about 230,400 km², belongs to the United States of America, where the Rio Bravo is born with the name of Rio Grande in the Rocky Mountains, in the State of Colorado, and crosses part of the States of New Mexico and Texas, up to the city of El Paso, from which it becomes the border between the two countries.

The Mexican part has three of the main tributaries: the Conchos, Salado and San Juan rivers.

For the availability study, the region was divided into river basins defined by points that allowed the control of the flows that enter and/or leave them. The hydrometric stations and the main dams of the region adopt this function.

Thus it was possible to define 37 river basins on the Mexican side and include the 6 stations on the American tributaries that flow into the main channel.

The information deals with a period of analysis from 1950 to 2004.

The discharges of the basin's large urban centers were evaluated, especially those of the Chihuahua State and of Monterrey Metropolitan Area, with data from the operator organizations.

As regards historical extractions, data on the uses of the Rio Bravo surface waters were found, especially on the Irrigation Districts (ID), from 1980 to date, and on the City of Monterrey. It was necessary to estimate the historical water uses in the main urban settlements, and to complete them with all the IDs of the river basin for the period of analysis and to estimate the other uses, taking into account the historical evolution trend for each sub-region with an annual adjustment to represent the variations of annual availability of the resource.

The international Treaty of 1944 on the distribution of surface waters stipulates, among other things, that a third of the volumes that the Conchos, San Diego, San Rodrigo, Escondido, Salado and Vacas rivers discharge into the main channel of the Bravo/Grande River belongs to the USA and that these

volumes cannot be smaller, altogether in average and during a cycle of five consecutive years, than 431.7 hm³ per year.

The availability study of the Rio Bravo hydrological area N° 24 shows that there is no volume available after taking into account the current authorized and conceded volumes, except a small volume in the last section, which can be used with some difficulty as it includes discharges close to the mouth towards the sea.

In addition, there are deficits in several parts of the basin, i.e., the water offer, once the normal losses are taken into account, is insufficient to meet the demand, including the commitments of the treaty of 1944.

Indeed, under the conditions of the availability study, it would only be possible to provide 284 hm³ per year, which would lead to a debt of 147.7 hm³, and that, according to the conditions of the treaty, a third of the discharges to the main channel of the six mentioned rivers, would actually represent an additional contribution to that calculated in the study of 443.3 hm³. The remaining two thirds of these volumes, 295.6 hm³, which continue to belong to Mexico, are not sufficient to cover the deficit of 357.6 hm³ calculated at the outlet of the last sub-basin.

These calculations do not include the deficit of 479.6 hm³ in the flow of the San Juan River towards the Rio Bravo, or the deficits which exist in certain points of the sub-regions of the Conchos and San Juan. Consequently, there is no availability in the remaining basins, and therefore the granting of more concessions or authorizations is not possible.

To summarize, it is necessary to reduce the existing concessions and/or authorizations by 1.031 hm³, to achieve the minimum value indicated in the treaty of 1944 and, at the same time, to reduce to zero the deficits in the region.

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The Rio Bravo



Brazil

DEVELOPMENT OF THE BRAZILIAN WATER RESOURCES PLAN

The Secretariat of Water Resources of the Ministry of Environment (SRH/MMA) is promoting long- and medium-term planning processes.

The Brazilian National Water Resources Plan (PNRH) is founded on the principles, objectives and guidelines provided by the National Water Resources Policy (Law 9.433/97) that highlights the following:

- the public domain character of water resources;
- human consumption and watering animals are priority uses in cases of scarcity;
- the river basin is the territorial unit for the implementation of the water policy and programs;

The law further recommends:

- the promotion of multi-purpose and integrated water resources management;
- the recognition of the water resource as a public good endowed with ecological, social and economic values;

- decentralization and public participation in the management process;
- the sustainable and integrated use of water resources;
- the concepts of articulation and integration of social-environmental, political, and institutional processes.

The National Water Resources Plan was approved by the **National Water Resources Council** - the highest deliberative authority in the National Water Resources System, through Resolution No. 58, dated January 30, 2006.

The PNRH is composed of four volumes:

- ◆ Overview and Status of Brazilian Water Resources;
- ◆ Waters for the Future: Scenarios for 2020;
- ◆ PNRH Guidelines;
- ◆ and National Programs and Objectives.

Given the country's continental dimensions, and due to the physical, biological, socioeconomic, and cultural diversity of the Brazilian hydrographical regions, two analytical perspectives were adopted: national and regional, which are integrated and interdependent.

Through the national perspective, the PNRH orientates the strategic topics and issues of national relevance towards the effective and integrated management of water resources with three approaches:

- **Vertically:** giving particular attention to the topics and issues of national significance and especially to the water problems related to land use and the pressures on the ecosystems;
- **Horizontally:** dealing with the relations with other neighboring countries as regards transboundary basins and articulating the water resources policy with other public policies and priority sectors;
- **Cross-cutting:** providing the elements needed for the effective involvement of Municipalities (local governments) in the water management process, given the need to articulate municipal planning instruments (urban master plans, land use and zoning, environmental zoning) with water resource planning.

This prospective enabled the establishment of regional priorities in the twelve hydrographical regions of Brazil.

Particular attention was paid to public participation and to the establishment of a sound and consistent technical basis. The participatory and decentralized development of the National Plan extends and widens the participants' universe beyond the National Water Resources Council and respective Technical Chambers.

More than 7,000 people were involved in the PNRH development.

The mandate of the National Water Resources Council was widened thus enabling it to approve and follow up the implementation of the Plan in all its development phases.

The PNRH was developed by using the Baseline Reference Document SRH/ANA, 2005, ten national studies carried out by the National Water Agency (ANA), twelve regional water resources assessment documents developed in close cooperation with the twelve Regional Executive Commissions (CERs), five sector assessment documents of the main sectors users of water resources, reports of four Thematic Workshops, three User Workshops, and the National Seminar on PNRH Programs and Guidelines, that were held between March 2004 and November 2005.

The PNRH used a prospective methodology with the development of scenarios. This enabled the PNRH team to describe possible alternative futures for the national water resources, for the 2005-2020 time period.

The Plan is integrated into the **National Water Management System (SINGREH)**. The PNRH will be updated every four years, and will be monitored by the **Results-Oriented Management System (SIGEOR)**.

All this was done taking as a basis the principles of subsidiarity and respect of the federative system.

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The 2nd International Congress of Megève on "water in mountains" gathered, on last 20, 21 and 22 September:

- ◆ a scientific and technical conference on "integrated management of upper basins",
- ◆ "the Meeting of Elected Representatives from Mountainous areas", on their responsibilities in water management,
- ◆ and the 4th European Conference "EUROPE-INBO 2006" of the European Group of the International Network of Basin Organizations, for a better implementation of the Water Framework Directive (WFD).

More than 400 participants, including 250 elected representatives, scientists and technicians of the water sector, as well as 165 representatives of Governmental Administrations responsible for water resource management, of Basin Organizations or District Authorities, coming from 33 Countries, met on this occasion.

During the "EUROPE-INBO 2006" Conference, directed by the International Network of Basin Organization (INBO), the participants discussed about four main current topics for the implementation of the Water Framework Directive in the European River Basin Districts:

- Compatibility between WFD and large infrastructures (hydropower, protection against erosion and floods, inland waterways, etc.), Heavily Modified Water Bodies,
- The taking into account of quantitative problems (droughts, water sharing, water transfers and reservoirs, specificity of the Mediterranean climate, etc.),
- Monitoring, monitoring networks and reporting, comparisons between Water Bodies of various countries, inter-calibration,
- Preparation of future action plans, their cost, the economic studies and financing, etc.

Special attention was paid, of course, to the characteristics of hydrological and ecological regions and Water Bodies in the European mountains, basin heads, and to the specific actions, which are to be considered, for achieving their good ecological status in 2015.



The French Minister for Ecology participated in the Congress opening ceremony



More than 400 participants

Generally, the representatives of Basin Organizations favorably considered the first stages of implementation of the Framework Directive, which introduced new methods for very positive analysis and work.

Many recommendations were issued and especially deal with:

FLOODS:

- It is, above all, necessary to make the "upstream-downstream common cause" a main item of consistent management on the scale of basins and sub-basins,
- In the transboundary basins, in particular, cooperation between riparian States for jointly looking for coordinated solutions and for sharing responsibilities should be promoted,
- Protection against floods must pass through a coordinated approach, combining the protection of people and properties, the reduction of vulnerabilities, the restoration of the open flows of rivers, the conservation and the re-building of the natural flood storage areas, the forecasting of events, the identification of zones at risk, the publication of "atlases" of floodplains, the control of urbanization, warning and education.

HYDROPOWER:

- The hydropower infrastructures change the ecosystems but produce renewable energy. On the one hand, the Water Framework Directive strengthens the protection of aquatic ecosystems, even their restoration, on the other, the "Renewable Energy" Directive aims at increasing the energy produced without greenhouse effect, including hydropower... (dams, micro power stations, etc.), how can we apply these two directives at the same time?
- The modernization and optimization of the existing hydropower installations are a priority.

QUANTITATIVE WATER MANAGEMENT:

- ❖ The availability of fresh water, in sufficient quantity and quality, may become, in a generation from now, one of the main limiting factors of the economic and social development in many European countries and not only in the Mediterranean area.
- ❖ It is necessary to increase the thinking about and prospective on the consequences of the climate change. A common approach is necessary to comply with the obligations of the WFD in critical situations.

THE EUROPEAN BASIN ORGANIZATIONS ARE GETTING MOBILIZED FOR THE FRAMEWORK DIRECTIVE!

- ❖ **The prevention of future droughts** can no more be done on a case-by-case basis but must be planned in the long term, by solving the structural problems which occur in order to prevent, in the best possible way, their effects and to avoid the total degradation of water resources.
- ❖ Mobilizing new resources should only be planned for when they are ecologically acceptable and economically reasonable.
- ❖ **Plans for the management of water scarcity** should prioritize drinking water supply as compared to the other uses, making sure that water is equitably and soundly shared between the various uses, ensuring a better optimization of water and avoiding wastages.
- ❖ **Water saving**, leak detection, recycling, the reuse of treated water, groundwater recharge, the desalination of sea water, research on low-consumption uses must become priorities.

THE OBLIGATIONS OF ESTABLISHING MONITORING NETWORKS AND CONTROL PROGRAMS:

- It is a **major concern** for the Basin Organizations, due to the close deadline given by the WFD,
- There is a **methodological step to make** to pass from the control of physico-chemistry to that of biology, planned for in the WFD,
- It is still difficult to **define the control networks**, because of the lack of benchmarks with the definition of what should precisely be the "Good Ecological Status",
- **Significant financial efforts are to be planned** to ensure the creation and operation of these control networks.

THE PREPARATION OF THE FUTURE "MANAGEMENT PLANS" AND "PROGRAMS OF MEASURES":

- **Efforts should be oriented towards the sewerage systems and wastewater treatment plants of small communities**, towards the on-site sanitation sector, the rearing houses, especially in sectors where small rivers have very low self-purification capacities.
- **A better coordination between water policy and the Common Agricultural Policy is essential.** It is necessary to better identify the areas in which agricultural pressures have a significant impact on water quality and to prioritize the means necessary for restoring quality.
- **It is necessary to raise the awareness and inform the general public**, to explain the stakes, so that the people can give their opinion: original approaches, based on the organization of local events or on the use of local communication supporting aids, are effective for mobilizing the citizens, the use of specialists in communication and public enquiries will be necessary, many suitable methods are still to be tested.
- These consultations will have a cost and **it is necessary to plan for significant budgets** to comply with the new obligations of the WFD in this field.
- It is necessary to strengthen co-operation programs with the neighboring countries of the enlarged European Union, **for the management of the International Districts of transboundary rivers**, in Eastern Europe and in the Balkans, and within the neighborhood policy in the Mediterranean and in the Caucasus,

The "EUROPE-INBO 2006" Conference



- **The European funds for regional cohesion** will have to support the efforts of the new Member States.
- It is important to find a suited scale for work, sometimes local, to develop the measures to be taken. **Plans for sub-basins and local programs of measures** (river contracts, etc.) should then be considered, in consistency with the District Management Plan, by mobilizing local participative structures either already existing or to be created.
- To meet the information needs, **it is necessary to capitalize and promote Trans-European exchanges of experience between the River Basin Districts**, by using more and more the new information technologies.

The participants also insisted on the need to increase dialogue between researchers and Basin Organizations to promote demonstration actions in particular.

It is also necessary to promote and develop local initiatives of partnership between the research world and the field experts (workshop areas for example).

Mr. Jacky COTTET, President of the French Rhone-Mediterranean & Corsica Water Agency, will chair the "EUROPE-INBO" group until next plenary assembly in Autumn 2007 in Italy.

The detailed final resolutions of the "EUROPE-INBO 2006" conference, as well as the papers and photographs of the sessions are available on INBO's website.

www.inbo-news.org

Mrs. Nelly Olin, French Minister for Ecology and Mrs. Madeleine Jouye de Grandmaison, INBO President



The European Water Framework Directive (WFD)

The implementation of the European Water Framework Directive (WFD) is an essential concern of the European Union Member States and pre-accession countries. It is interesting other countries of Eastern Europe, the Balkans and of the Mediterranean, which orientate themselves towards water management methods close to the Community concepts.

The Common Implementation Strategy (CIS) is defined by working groups led by the European Water Directors and the European Commission, who wrote many very interesting and useful orientation documents for a common understanding of the various aspects of the WFD; these guidance documents were also tested in about fifteen pilot basins, distributed on the entire territory of the European Union and in pre-accession countries.

The International Network of Basin Organizations (INBO) is a member of the Common Strategy Coordination Group for the WFD implementation process and participates in all its meetings.



IWRM-net

For better European research on Integrated Water Resources Management

Issues requiring new research are arising for a good implementation of the Water Framework Directive up to 2015 and beyond.

European Research has thus to provide responses allowing good water resources management (qualification of good ecological status, economic tools, pressure/impact models, participative management, control of discharges of priority substances, etc.). This requires thorough exchanges with the stakeholders involved in management and decision-making, and passes through:

- the identification and validation of research needs;
- the preparation and follow-up of research programs;
- the dissemination of research outcomes.

The European network **IWRM-net** (2006-2010) is an ERA-NET (European Research Area - NETWORKING) project, launched and coordinated by the International Office for Water (IOWater). Its aim is to create a European network of national and regional research programs on Integrated Water Resources Management (IWRM).

The 17 European partners, involved in 14 European countries, defined an action plan to launch transnational research activities in order to provide the Basin District managers with the means and knowledge suitable for implementing the Framework Directive.

IWRM-net is also the network, which will enable exchanges on good practices for the management of research programs (definition of needs, selection of projects, transfer of results, performance evaluation of the research programs, etc.), to create new spaces

for communication useful for better understanding between decision-makers/managers/researchers, and resulting in activities leading for example to:

- the development of new responsibilities,
- the "translation" of needs into scientific terms,
- the dissemination of research outcomes in terms "appropriate" by field operators,
- the definition and structure of joint research programs on local scales where research problems arise in the same way (same hydrological, economic, ecosystemic context, etc.),
- the starting of real interdisciplinary research programs (and not only multidisciplinary).

IWRM-net relies on 20 research programs, now represented by the project partners, to which can be added later new European programs or neighbor countries as observers.

The assessment of research needs in the short or long term, close relations with the CIS (Common Implementation Strategy) of the Framework Directive and also good complementarity with the other ERA-NET projects, related to the problems of sustainable development and environmental management (CIRCLE, SKEP, BIODIVERSA, SNOWMAN, etc.) are as many pillars on which **IWRM-net** relies.

It aims at increasing synergies between the organizers of public research on water in the Member States and strengthening their effectiveness for better water policy in Europe!

The topics needed for launching future joint activities, the choice of research programs to be jointly implemented, and the **IWRM-net** prospects in a supporting and innovative context for the WFD implementation were discussed during a conference, which took place in London on 10 and 11 January 2007, and to which all the interested European managers of public research programs had been invited.

www.iwrn-net.eu



Belgium

THINKING GLOBALLY, ACTING LOCALLY, THROUGH SUB-BASIN MANAGEMENT PLANS

"Thinking globally, acting locally", this well-known proverb is still true today when applied to water.

Europe understood it well through the Framework Directive for Community water management (WFD). This directive provides the basis of a true European model for IWRM.

The Union countries are getting mobilized for its implementation to achieve good water status in all the European Community by 2015.

The means implemented pass by the development and implementation of River Basin District Management Plans in which the influence of the French Masterplans for Water Development and Management (SDAGEs) is particularly felt.

But besides these plans on a large river basin scale, is it not necessary to plan management on a local scale? Article 13 of the WFD gives the Member States the possibility of supplementing the District Management Plans by the development of more detailed programs and management plans for a sub-basin, a sector or type of water, dealing with specific aspects of water management.

In the Belgian Walloon Region, management plans for 15 sub-basins of the Walloon territory are being prepared, while continuing the implementation of 17 river contracts.

This smaller area made up by the sub-basin has indeed various advantages:

- ◆ It is composed of a human-scale territory, with limits understood by the inhabitants;
- ◆ It is a space that allows a feeling of belonging;
- ◆ It has higher consistency as compared to vast territories;
- ◆ It allows better visibility of action, a traceability and transparency in terms of impact;
- ◆ It allows better knowledge regarding field realities, with easy identification of the stakeholders, challenges and problems.

Moreover, local water management favors greater participation and commitment of the local stakeholders. It incites the local communities and population to get mobilized through participation and dialogue structures.

In addition, the projects imbedded in daily realities also allow the mobilization of local experts to supplement scientific expertise.

As regards participation, the citizens' mobilization will be increased with public enquiries on projects directly related to daily realities.

The big public enquiries, made compulsory by the WFD on a River Basin District scale, have had mitigated success due to the difficulty for the citizens to admit being stakeholders in great management areas in which are deleted the local characteristics to which the inhabitants can identify themselves.

In addition to the large water management schemes and to the work of International Transboundary River Commissions, it seems also necessary to organize local water management, whichever the selected model (SAGE,

river contract, territorial contract, bay contract, etc.). It can also be of a trans-boundary nature, **such as the Semois-Semoy river contract, implemented within the Interreg III program between France and the Walloon-Flanders regions:**

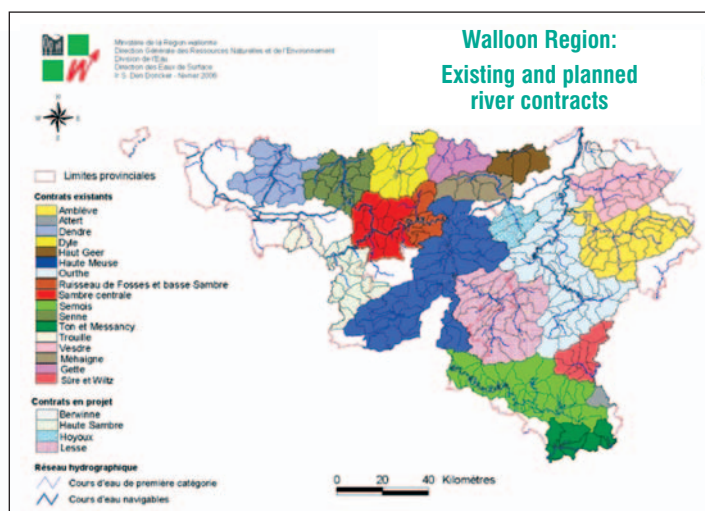
www.semois-semoy.org

The Member States should take the opportunity offered by the WFD for promoting local plans, as water-focused Europe will also build itself at the local level.

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ENMaR

EUROPEAN NETWORK OF MUNICIPALITIES AND RIVERS

The European Network of Municipalities and Rivers involves municipalities and local stakeholders in the implementation process of the European Water Framework Directive (WFD).

The main issues discussed within ENMaR are water services, spatial planning, tourism as well as agriculture and forestry, which serve both the WFD and the development of the regions.

The first half of the ENMaR project is already over. The project partners have organized a series of workshops, which were well attended. The partners had the feeling, that the given information was strongly needed and that the participants used this platform for an exchange of thoughts and experiences.

The ENMaR Interim Report has just been published. It has two audiences: the local level, including municipalities, which can compare their own situation with correspondents in other river basins, and the European decision making level, which is invited to receive a feedback from the local level.

The report delivers the first findings of the ENMaR project by giving an overview of the situation in the participating regions:

- Gauja River Basin, Latvia;
- Mersey River Basin, England;
- Miño River Basin, Spain;
- Weser River Basin, Germany;
- Eman River Basin, Sweden.

Equipe ENMaR

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Europe

Greece - Bulgaria

MODELING APPLIED TO IWRM: CASE OF THE TRANSBOUNDARY MESTA-NESTOS RIVER

The Mesta-Nestos Basin is shared between Bulgaria and Greece and is the subject of a bilateral treaty between both countries.

In the Bulgarian section, mountain agriculture is dominating with some urban areas and the development of tourism from winter sports. There are several dams and canals under project.

In the Greek section, the upper Nestos has some recently built hydropower dams. These dams are to be extended for the supply and development of the irrigation plains of Drama, Xanthi and of the Nestos Delta.

The project aims at creating a decision-making supporting tool to promote economic development of the area, which integrates sound water resources management. It is based, in particular, on combining remote sensing, GIS and a hydrogeological model. Work is carried out within the UNESCO-HELP program in which the Mesta-Nestos was selected as a European demonstration basin. One of the objectives is to promote the use of modeling as a tool for dialogue between the national organizations, water management agencies and water users (energy, agriculture, drinking water supply, NGOs and the public).

With regard to remote sensing and Geographic Information Systems (GIS), a variety of satellite data sources

(LANDSAT, CORONA and ERTS) have already been gathered and processed in order to develop a common cartography of land use on the whole Mesta-Nestos Basin. This information is combined with various types of socio-economic data on Bulgaria and Greece. Hydrological modeling aims to simulate the surface and groundwater flows in the basin by using the MODCOU-NEWSAM hydrogeological model, while combining it with a modeling of agricultural uses with the STICS agro-economic model. These tools will be associated with the various sources of geographic information gathered in the past. Lastly, the operation of the dams in the Greek section will be taken into account. These tools should be available through the Internet.

The real challenge is the homogenization of the national data sources between Bulgaria and Greece, and the use of the results of global climatological and agro-economic modeling where information is rare or non-existent. The ultimate objective is to estimate the operational and economic feasibility in the long term of the future irrigation dams planned for in the Greek section.

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The Mesta-Nestos River



Italy

THE ROLE OF RIVER RESTORATION IN SUSTAINABLE RIVER BASIN MANAGEMENT

What do we mean by "river restoration"?

This term involves physical interventions on riverbeds and floodplains to restore river morphology, habitats and ecological functions. In addition, regulatory and planning measures (on land use, water abstractions, etc.) may be of equal or greater importance to restore more natural conditions in a river basin.

It is a trans-disciplinary approach that gets to the roots of the "man-river cohabitation" (more nature, less flood risks, more fruition, less costs, etc.), through transparent, participatory, and negotiation processes. It is a powerful tool for the implementation of the European Water Framework Directive and Flood Directive.

CIRF (Centro Italiano per la Riquilificazione Fluviale - Italian Center for River Restoration) is a non profit, self-funded technical and scientific association founded in 1999 by a group of technicians with different backgrounds to promote the culture of river restoration and related know-how.

The main goals of CIRF are:

- increasing the awareness about the benefits of river restoration;
- coordinating pilot studies and innovative projects;
- fostering the involvement of all people interested in sustainable management of rivers and lands;
- providing interaction and coordination with other international centers.

CIRF is also a member of the European Center for River Restoration (ECRR), a non profit organization, whose mission is to enhance and promote river restoration and sustainable river management throughout Europe, disseminating information and technical knowledge and fostering the establishment of new national centers.

The main activities of ECRR are:

- disseminating good practices through the website and electronic newsletters;
- organizing conferences, study tours, workshops, training courses;
- promoting joint activities among national centers;
- interacting with extra-European networks;
- playing an observer/ representation role in international forums.

ECRR is managed by a Management Board, including nine members: RWS-RIZA (NL), Wetlands International (NL), Environment Agency (UK), The River Restoration Center - RRC (UK), Romanian Waters/Apele Romane (RO), Russian Research Institute for Integrated Water Management and Protection - RosNIIVKh (RU), the Italian Center for River Restoration (CIRF), **the International Network of Basin Organizations (INBO) (F)** and the Finnish Environment Institute - SYKE (FIN).

The 4th ECRR International Conference on River Restoration will take place in Italy in 2008.

CIRF

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Spain

Júcar River Basin Authority

DROUGHT MANAGEMENT

Droughts are recurrently occurring in the Mediterranean region and considerably increase the complexity of water resources management in the river basins.

Since 2004, one the most serious droughts of the last 65 years has occurred in the Júcar River Basin and has been persisting for three years.

The Royal Decree of 21 October 2005 adopts exceptional administrative measures for water resources management to alleviate the drought effects in the Júcar, Segura and Tagus River Basins and creates Permanent Commissions with special assignments for decision making and implementation of the necessary measures.

The Permanent Commission, constituted on 1 December 2005, has been meticulously following up the evolution of the drought in the Júcar River Basin, by meeting monthly and reaching strong consensus on the measures to take.

The actions were structured around four main topics: water saving, environmental protection, management and control and generation of additional resources.

The Júcar River Basin Authority relies on a system of drought indicators.

The Action Plan was approved on 13 February 2006. Its main objectives are the conservation of aquatic ecosystems and avoiding the drainage of the dam reservoirs.

It defines the objective to achieve in the hydrological year with a sufficient volume of reserves in the dam reservoirs to face the following hydrological year, in the probable case that the current drought would persist.

The measures for water saving imply that the supply of surface water for irrigation decreases from 45% to 60% as compared to a normal year.

A reduction of 15% in groundwater withdrawals from the Eastern Mancha aquifer favored groundwater input to the Júcar River.

These measures aim at ensuring a minimum volume in the middle section of the Júcar River in Eastern Mancha and at following up the status of the Albufera de Valencia, using a first pilot monitoring system

In addition, the Permanent Commission approved, during its meeting on 22 May 2006, the Agreement on the economic compensation to the farmers and users, who would not use water.

An increase in monitoring the use of the Public Water Domain was achieved with physicochemical analyses of the most conflicting points of the Júcar River

during drought, with the use of two movable equipment for analysis of water quality. A systematic monitoring of the evolution of the aquifer affected by drought is carried out, thanks to the collaboration with the Spanish Geological and Mining Institute (IGME).

Generating additional resources includes the use of alternative resources, particularly drought wells for irrigation.

The previous actions have required new emergency work, authorized by the Ministers' Council on 10 March 2006, amounting to more than 35 million euros, which will secure the supply and irrigation in the Júcar River Basin.

Júcar River Basin Authority

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Groundwater WG

PUBLIC PARTICIPATION AND WATER POLICY REFORM

The Water Directorate of the Spanish Ministry of the Environment has identified deficiencies in groundwater management and launched a special Working Group to evaluate the Water Law of 1985.

The Working Group was made of representatives from the Ministry of the Environment, Groundwater Users associations from different Spanish regions, the Mining and Geological Institute, the University of Madrid and external consultants.

The objective was to consult the greatest number of stakeholders in the groundwater field for:

- ❖ Analyzing groundwater management practices in Spain;
- ❖ Proposing measures for achieving better management;
- ❖ Elaborating a reform proposal with a social basis, including inputs from the different stakeholders involved;
- ❖ Formulating a formal law revision proposal.

A website was opened:

www.uam.es/aguasubterranea

Twelve open meetings were organized in different Spanish cities.

Some major legal changes were proposed:

- A new water policy that considers water resources as a service to which all people have access;
- Fostering groundwater users associations and their responsibility for controlling and managing resources;
- Strengthening conservation measures, taking into account the WFD and Groundwater Directive, and public access to water information;
- Simplification of administrative procedures and stronger participation of regional autonomous Governments;
- Professionalization of control and management of groundwater resources.

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The Júcar

Implementation of the European Water Framework Directive - WFD

The French law for transposing the European Water Framework Directive (WFD) entrusts the Basin Committees with the definition of environmental objectives within the revising of the Masterplans for Water Development and Management (SDAGEs).

The characterizations, made by the Basin Committees of the Metropolitan and Overseas Departments and which allowed identifying the Water Bodies likely not to achieve "good status" in 2015, are now completed. They allowed identifying the sectors where measures, which have already started, enabled to achieve the objective and those for which additional actions are to be developed.

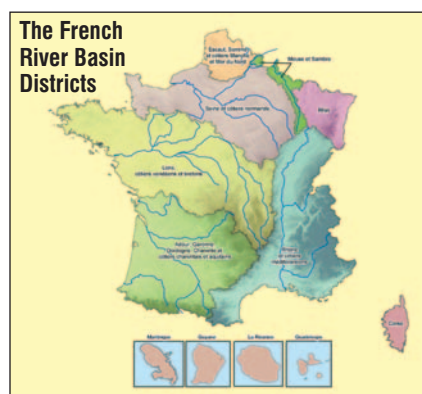
Based on these characterizations, **a quarter of the total French surface Water Bodies could be considered as "Heavily Modified"**, taking into account the hydromorphological changes, in particular those related to economic activities or the protection against floods. An objective, "good ecological potential", would then be set for the concerned water bodies.

The remaining water bodies, for which the aim is "good ecological status", can be divided into three groups of the same significance:

For a third of them, the objective of "good ecological status" is already achieved.

For a complementary third, doubt remains, as the lack of data does not now ensure that the objective will be achieved in 2015.

For the remaining third, this risk of not-achieving "good ecological status" is proven, such as for example in the event of discharges of a big agglomeration into a small river.



The Directive plans that achievement could be postponed beyond 2015; a derogation could then be retained provided that it is justified by technical or economic difficulties in carrying out the necessary work.

Such adaptations of the objectives would be essential for 20% of the

Water Bodies for which either a doubt remains or the risk of non-achievement is proven.

The next stage is the definition of environmental objectives, which implies an iterative step with the identification of the "measures" necessary for their achievement.

The Directive plans that objectives can be adapted to the technical and economic feasibility of the measures.

In collaboration with the Basin Coordinator Prefect, the Basin Committees identified, at the end of 2006, the advisable complementary measures to achieve, in 2015, the objectives of good status or good ecological potential for surface water and good chemical status and good quantitative status for groundwater.

The draft objectives and Programs of Measures necessary to achieve them will be submitted to the consultation of the public and local Assemblies, starting from the end of 2007 to be approved at the beginning of 2009.

The achievement of "good ecological status" implies to prioritize, during the next three or four years, the improvement of the treatment of urban

discharges, but also to gradually increase investments for the restoration and maintenance of aquatic environments, as well as for non-point pollution control.

The draft 9th Programs of the Water Agencies integrate actions for the restoration of aquatic environments.

As compared to the 8th Programs which are now completed, the goal would be to increase threefold the rate of work in this field, which should then account for 10 to 15% of the work financed each year by the Water Agencies.

The Basin Committees will have to analyze the proposals and public opinions and draw conclusions to supplement the diagnosis and orientate actions.

Finally the Basin Committees will have to choose the environmental objectives best suited for 2015, while complying with the Directive requirements and taking into account the technical and financial constraints and socio-economic impacts in their analysis.

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The Programs of Measures for the French river basins

ECONOMIC ANALYSIS OF THE UPPER SEINE RIVER BASIN



The economic analysis of the Program of Measures for the Upper Seine (one of the sub-basins of the Seine-Normandy Water Agency), required by the WFD, allowed supporting decision-making throughout the planning

process, by assessing the economic significance of water and associated stakes, by evaluating the level of cost recovery while optimizing the selection of combination of measures according to cost-effectiveness criteria.

The study, carried out by IOWater, led to the technical and financial sizing of the measures usually planned in the baseline scenario, but also of additional measures, which, in the Upper

Seine River Basin, are divided into **3 great priorities**: agriculture (nitrates, phytosanitary products), river morphology (restoration, protection, specific development), and specific discharges of cities and industries.

A systematic approach to the costs of the measures implementation and their induced costs was carried out, distinguishing investment from operating costs.

A representation of the costs by type of activity (crops, animal husbandry, industries, environments, etc.) was considered for each geographical area, by identifying the zones where the costs would be regarded as disproportionate, with objectives to be revised or deferred consequently.

France

Public Consultation in the Martinique River Basin

The Martinique Basin Committee organized, from November 2005 to May 2006, a public enquiry on the important issues regarding the island catchment area.

IOWater analyzed the consultation and trained the local organizers to the facilitation of meetings.

The enquiry concerned about 2,000 people.

Nine significant questions were included in the enquiry. Three of them are definitely at the top of the Martinique inhabitants' concerns:

- ❖ public health,
- ❖ water quality,
- ❖ technical and financial means for better water management.

Environmental education was selected by 90% of the respondents. 70% of them wished to be better associated in the definition of water policy; the enquiry supporting aids, quoted by preference order, are: TV spots (80%), regional press and radio (65%),

articles in the municipal bulletin (53%) and, far behind, public meetings (40%), participation in real actions (45%), Web forums (33%).

The Municipalities and the Regional Water Office of the Martinique are perceived as being the best vectors of information.

Recommendations were proposed for improving next consultation: increasing the information/communication on the enquiry, improving the formulation of the questionnaire, relying on local relays (mayors, "blue ambassadors", organizations for environmental education, etc.) for better reaching the population, having the questionnaires disseminated in the neighborhood (mail boxes, local newspaper, etc.).

There is a strong demand from the population!

Martinique Basin Committee

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Adour-Garonne: A new website



The Adour-Garonne Water Agency has a new website online. Enriched with new sections, it provides information, not only on its missions, its organization and its action program, but also on the basin authorities (Basin Committee and Board of Directors, with their Working Commissions), on water resources and aquatic environments.

The online information comes from the various services of the Water Agency, from the studies carried out, the measurement networks and the data collected for the calculation of aids and taxes.

A simple animation is better than a long speech... It is the choice made, for example, for better understanding the formation of deep aquifers ("maps and key figures/all the maps").

More diversified contents

The contents are enriched and renewed, especially due to the "Current events" section which has a broad space on the home page.

Among the new sections, let us quote "Aquatic environments and water uses". It especially presents the surface or ground water resources, water uses and the generated pollution, the measurements made. A double click on "Needs/resources balance /Management Plans for low water levels" allows access to all the PGEs (management plans for low water levels) of the Adour-Garonne Basin.

Online with you

The Water Agency wished to privilege easy access to data with, in particular, a search engine and a glossary on the home page. The new section "On line with you" particularly allows the farmers, Local Authorities, industrialists, teachers, water specialists, federations of fishermen, the media and the general public to quickly reach the information which concerns them.

Specific spaces for targeted publics

Two spaces dedicated to specific publics should be noted:

- **for water specialists**, academics and consulting firms in particular, the button "Access to water data" gives access to the WIS (Water Information System): quality of river and ground water, flows, low water levels and their management plans, water treatment, etc.
- **for the young people who can access four spaces according to their age.**

With this new website, the Water Agency wishes to give everyone access to any useful and current information, without ambitioning to make a water encyclopedia. And those who want to go even further will find links with institutional or specialized sites.

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THE WFD BOOSTS THE "ECONOMY" SITE



Since the beginning of 2006, IOWater has developed and managed, according to its Multiyear Objective-targeted Convention with the Ministry of Ecology and Sustainable Development, a new website of the French Water Information System, presenting economic data on water uses for the implementation of the Framework Directive.

This site presents the sources of data and structured documentation, according to four broad topics: water-related activities, water pricing, financing of services, environmental costs and benefits.

The Ministry, IFEN, the Water Agencies intervene in the development of this website by providing the documents or indicating their existence.

www.economie.eaufrance.fr



Central and Eastern Europe

Central and Eastern European Network of Basin Organizations - CEENBO

3rd General Assembly

Cesky Krumlov, Czech Republic – 13 October 2006

The 3rd General Assembly of the Central and Eastern European Network of Basin Organizations took place in Cesky Krumlov in the Czech Republic, on 13 October 2006, at the invitation of the POVO-DI VLTAVY, state enterprise, and CEENBO Secretariat.

Mr. Frantisek HLADÍK, General Director of the Povodi Vltavy, welcomed the participants.

The Assembly welcomed the new Member Organizations or Observers from: Belarus, Czech Republic, Hungary, Moldova, Poland, Romania, Russia and Uzbekistan.

Mr. Petr Kubala gave a presentation about water management in the Czech Republic and a report on the conclusions of the Magdeburg seminar on Water Protection - WFD, which was held in Cesky Krumlov just before CEENBO General Assembly.

A progress report of the Central and Eastern European Network of Basin Organizations was presented by its Secretary, Mrs. Daniela Radulescu, since the last General Assembly, held in Krakow, Poland, on 26 September 2004.

The first CEENBO General Assembly had taken place in Sinaia, Romania, in February 2002.

The Assembly proposed to invite the Baltic Sea countries to join the Network activities.

The website will be developed by incorporating the Member Countries' experience in the water sector.

The Transnational River Basin Districts on the Eastern Side of the Baltic Sea Network - TRABANT project was presented as well as the results achieved under the TWINBASIN program in which CEENBO Basin Organizations are strongly involved: Bulgaria, Hungary, Poland, Romania, Russia, Uzbekistan, etc.

The Assembly unanimously nominated Mr. Petr Kubala as the new CEENBO President until the next General Assembly.

The Assembly also nominated the following members of the Liaison Bureau: Mr. M.S. Ostojski (Vice-President) and Mrs. Halina Burakowska - Poland, Mr. Ovidiu Gabor - Romania, Mrs. Galina Balusheva - Bulgaria, Mr. Vaclav Jirasek - Czech Republic, Mr. Dragana Milovanevic - Serbia.

The National Administration Apele Romane - Romania - will continue to host the Association's Head Office and CEENBO Secretariat. The Czech Republic nominated as Secretariat assistant, Mr. Jaroslav Benes from Povodi Vltavy.

Next meetings

The implementation of the European Water Framework Directive will remain a priority topic for mobilizing the Network Members and the European Flood Directive was proposed to be a future topic for CEENBO activities.

The next meetings of the Liaison Bureau will be coordinated with the main events to be organized by INBO or EUROPE-INBO Group:

- CEENBO Liaison Bureau will take place in Debrecen in Hungary on 6 June 2007, during the 7th INBO General Assembly;
- CEENBO workshop will be combined with the plenary meeting of EUROPE-INBO in Italy, in September 2007;

- CEENBO Liaison Bureau meeting will take place during the Conference on "Water Resources in Europe", in Poland, in the first half of 2008;

- CEENBO workshop 2008 will be coordinated with the Magdeburg Seminar on the WFD, Germany, 7 - 9 October 2008.

The delegates retained with thanks the proposal from the Bulgarian Authorities to organize next CEENBO General Assembly in Autumn 2008 in Bulgaria.

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"CEENBO Workshop 2006"

A workshop of the **Central and Eastern European Network of Basin Organizations (CEENBO)** took place in Bucharest on 22 and 23 June 2006, on the WFD implementation, with the support of the International Office for Water.

It gathered experts from Hungary, Romania, Poland, Serbia, Bulgaria, France, Spain, Czech Republic, Uzbekistan and Belarus to exchange on the definition of the "good ecological status" and potential of "Water Bodies" and on related surface water monitoring.

It gave to the different countries the occasion to present their progress reports on the Directive implementation.

This workshop led to the formulation of common recommendations for the assessment of the "Good Status" and of a methodology for assessing water and environmental quality:

- Use of a common reference system with reliable typologies;
- Definition of an evaluation system: common understanding of the status of water resources and the environment, clear separation of technical and socioeconomic issues, monitoring using common parameters and frequencies, inter-calibration, common criteria for selecting reference sites, preparation of the Program of Measures;
- Importance of the representativeness of the monitoring network;
- Common data management by the different administrative bodies: adoption of a common language for data codification and for acquiring the same metadata, and identification of responsibilities.



Central and Eastern Europe

Romania

FLOOD PREVENTION

In April 2006, due to heavy rainfalls and snow melt in the Danube River Basin, high water levels were registered in Romania as well as in the upstream countries. On 15 April 2006, the water flow in the Danube in the Romanian sector was about 15,800 m³ per second, which is a historical value similar to the one registered in 1895. The Romanian sector of the Danube is embanked and the total length is about 1,200 km.

In Romania, floods, as natural phenomena, are the most common disasters and the high floods which occurred in 1970, 1975, 2005 and 2006 led to changing the strategy for finding the best solutions.

Coordination of all stakeholders involved in flood risk management was needed.

At the end of 2005, the National Strategy for Flood Risk Management was formulated and approved by the Government. Structural measures were taken, associated with supporting extensive financing programs.

To strengthen French-Romanian cooperation on flood prevention, a new Letter of Intent was signed in Bucharest, on 27 October 2006, by Mr. Pascal Berteaud, Water Director, on behalf of the French Ministry, and by Ms. Lucia Ana Varga, Secretary of State, on behalf of the Romanian Ministry of Environment and Water Management.

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www.mmediu.ro

Hungary / Romania

THE TRANSBOUNDARY BASIN OF THE KÖRÖS / CRISURI

Launched in 2005, this technical assistance project, supported by the French Fund for Global Environment (FFEM), with a total budget of 3.7 Million Euros, should continue up to mid-2007.

This project is based on the regulations of the European Water Framework Directive, which make the States impulse a common vision of the water management objectives, through the preparation and implementation of a Basin Management Plan.

The action plan of the French, Hungarian and Romanian experts includes the following steps:

- Coordinating the various stages to meet the obligations of the Framework Directive;
- Analyzing the risk of not achieving "Good Status", by taking into account the baseline scenario for 2015;
- Determining the significant issues related to the basin characterization and to the definition of a Program of Measures;
- Drafting a Program of Measures and testing it on a sub-basin unit;
- Modeling pressures and impacts, as a decision-making supporting tool for preparing the Program of Measures; this part includes the selection of various models and their test on a sub-basin unit;

- A detailed economic analysis of the planned measures and their effects, for selecting the most suitable measures;
- Methods for public participation, with the testing of an enquiry on significant issues on the two national territories.

The project also plans the formulation of a Plan for the Prevention and Control of Accidental Water Pollution.

It inventories the possible sources of accidental pollution, as well as the propagation mechanisms, that could result from it. It describes the processes to be implemented and the various services to get involved, should an accidental event occur.

To achieve these objectives and to complement the assignments of the involved French experts, two topical study tours were organized in France. They allowed the Hungarian and Romanian experts to benefit from the French experience in surface water monitoring and water data management.

Thanks to a common European legislative context, the project has now a positive dynamics, as the results show it, and can fully benefit to the two involved countries and to the other Danubian Countries.



Study tour on surface water monitoring
in the Rhone River Basin

Hungary

CHINESE -HUNGARIAN COOPERATION

Within the cooperation agreement between the Ministry of Water Resources of the People's Republic of China and the Hungarian Ministry of Environment and Water, a Chinese delegation headed by Vice Minister, Mr. Hu Siyi, visited Hungary on 10-14 September 2006. The Chinese delegation was received by Dr. Miklós Persányi, Hungarian Minister for Environment and Water.

The Chinese delegation was informed about Hungarian water management by the State Secretary, Dr. Miklós Varga, with special regard to the European Water Framework Directive. The Hungarians also presented the international cooperation within INBO and invited the Chinese delegation to take part in the work of the 7th World Assembly of INBO which will be held in Debrecen (Hungary), from 6 to 9 June, and join this International Network.

The study tour ended with a visit of Balaton Upland National Park at Csopak and of the Tihany peninsula. The importance of ecotourism was underlined during the discussions. The closing event was a boat trip on the lake when the representative of the Transdanubian Directorate presented water management of Lake Balaton. The problems of shallow lakes will be one of the topics for future cooperation.

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Central and Eastern Europe

Belarus

Ecological hydrology: new scientific discipline for water resources management

Ecological hydrology is a new scientific discipline that has arisen at the boundary of general hydrology and a great number of biological disciplines for justification of integrated water resources use and protection for sustainable basin development in the 21st century.

Ecological hydrology deals with:

- Role of water in the environment and society;
- Characteristics of water quality;
- Ecological characteristics of rivers, lakes and wetlands;
- Protection of water bodies from depletion, pollution and eutrophication;
- Ecological assessment, measurement of pollution, and recreational uses of rivers and lakes;
- Monitoring and typology of aquatic ecosystems, audit of river basins, planning and strategy development for a long term;
- Elaboration and control of measures for the protection and rehabilitation of water bodies, taking into account the ecological significance and bioproductivity of river ecosystems;
- Ecological approach to transboundary river management.

It is very important to continue experimental investigation for a better understanding of the functioning of river ecosystems.

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Bulgaria

TWINNING BETWEEN BLACK SEA BASINS

The first step of the **TWINBASIN** project, between the Black Sea Basin Directorate, in Varna, and the National Administration Apele Romane, Dobrogea Water Directorate, took place from 27 March to 2 April 2006, in Constanta, Romania.

The topic of this meeting was institutional framework and capacity building. Four experts from Varna Directorate participated in it.

This twinning plans:

- ❖ Exchanges of experience and introduction to the administrative framework and institutional capacity;
- ❖ Exchanges of information for WFD implementation;
- ❖ Discussions regarding coastal erosion and beach management.

The main activities deal with:

- Visiting the Romanian Black Sea shore from Mamaia to Mangalia, observing the coastal zones affected by erosion.
- Comparing Bulgarian and Romanian sea coasts from the sediment formation point of view;
- Exchanging experience regarding normative and legislative aspects of the strategy for coastal management;
- Analyzing the situation and determination of major objectives for future actions in both countries.
- Demonstration software, electronic maps, GIS, etc.

TWINBASIN

VARNA - CRETE TWINNING AGREEMENT

The second **TWINBASIN** project concerns the Varna Directorate and Crete Water Directorate.

The first mission took place in Heraklion, Crete, Greece.

The Topic of this twinning is also institutional framework and capacity building.

Three experts from the Varna Directorate went to Heraklion from 4 June to 11 June 2006 for:

- ◆ Exchanges of experience and information on the implementation of the Water Framework Directive;
- ◆ Discussions regarding surface water and coastal water monitoring programs and measures for the reduction of saline intrusion into groundwater and use of desalinated water.

The main activities were a visit of the brackish spring in Malavra, an agricultural cooperative, irrigated from a reservoir, the Institute of Olive trees and subtropical plants of Chania, the Wastewater treatment Plant of Chania, the Institute of marine biology and genetics for learning about sampling practices.

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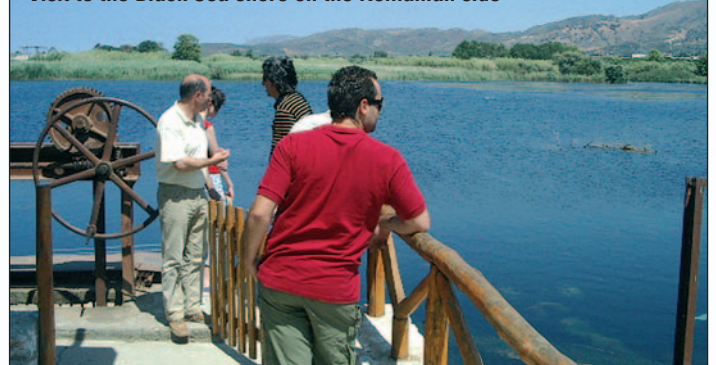
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Visit to the Black Sea shore on the Romanian side



Central and Eastern Europe

Poland

Successful twinning on the European Water Framework Directive

The overall objective of this twinning between the French and Polish Ministries of the Environment was to provide support to WFD implementation, and more particularly to the preparation of the Management Plans and Programs of Measures for the Polish River Basin Districts.

The experiment has been undertaken for about 18 months in the Upper Vistula pilot Basin.

It allowed the testing of methods for:

- **Improving the Basin characterization**, with a detailed analysis of pressures and of their impacts on water quality; data were gathered and supplemented to allow a test of the **PEGASE** model, and with an economic analysis of water uses, with, in particular, the organization of sectoral workshops;
- **Analyzing the risk of not achieving "Good Status"**;
- **Identifying the main water management issues in the Basin**;

- **Formulating a Program of Measures** for Water Bodies at risk of not achieving "Good Status";

- **Public information and consultation**: a committee, representing the Basin local interest groups, was made up to give an opinion on the drawn-up documents to be used as support for a public enquiry and on the organization of the consultation itself. Facilitators were also trained and a direct public consultation was carried out.

Special attention was paid to the **economic analysis** during all the stages of the WFD implementation process: cost-effectiveness analysis of the Programs of Measures, economic justification for the Heavily Modified Water Bodies, estimates of environmental and resource costs, disproportionate costs, etc.

These analyses were also carried out in the **Narew Basin**.

The aspects specific to International River Basin Districts were dealt with in the Bug Basin, with meetings

gathering representatives from Poland, Ukraine and Belarus.

The tests allowed the drawing-up of methodologies and recommendations, which were presented in several topical guides.

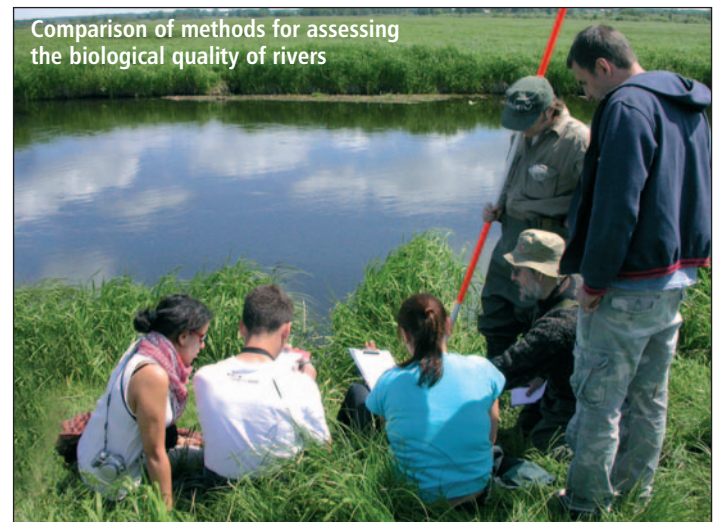
The main elements were integrated into a final guide, presenting the whole process of a Management Plan preparation.

All these guides were developed according to a process for validation by

the Technical Committee, composed of representatives from the RZGWs and main Polish organizations concerned by the WFD.

Seminars and training courses allowed the dissemination of the project results.

A conclusion seminar was organized in Pultusk on 2 and 3 October 2006.



Public participation is getting organized

The texts for the organization of the public participation process at the country and regional levels, developed by the Department of Water Resources of the Ministry of the Environment, were published on 19 August 2005.

In order to ensure public participation at the country level, a National Water Forum (NWF) has been established for the Oder and Vistula River Basins.

This instrument contributes to the democratization of the decision-making process.

Although involving the public only at the level of river basins will meet the requirements of the WFD, it will not prove sufficient for obtaining social

acceptance of the WFD implementation process. It is thus necessary to involve the entire society and stakeholders at the lowest local levels.

In Poland, the WFD implementation measures will be taken at the level of water regions, and, in specific cases, at the level of municipalities:

The Regional Water Management Councils are the institutions responsible for ensuring public participation at this level.

In order to ensure the involvement of the biggest social circle in the process of water management planning, **Permanent Public Participation Committees** were established at the end of August 2006 to gain the optimum

representation of the basic social groups interested in the water management issues existing within a water region.

The dissemination of information is of great importance for carrying out public consultations and ensuring active involvement.

In Poland, different methods of disseminating information have been applied: the Internet, leaflets, meetings and the media. For that purpose, a special website has already been launched which is devoted to the process of implementing the WFD and public participation in Poland. An interactive forum will soon be launched.

Public consultations will deal with the schedule and work plan for the development of Basin Management Plans, the list of measures to be implemented, as well as with the main problems related to water management in each basin and with the draft basin management plans when they will be made available.

The consultations will last till 22 June 2008.

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EMWIS: Orientations for 2006-2010



During their Rome conference in November 2005, the 35 Euro-Mediterranean Water Directors, under the impulse of the new President of the Steering Committee, Pascal Berteaud, noted a positive progress in EMWIS activities and wished to continue its implementation, by formulating a series of recommendations to strengthen the transfers of know-how between the Mediterranean Partner Countries (MPCs).

EMWIS is now recognized as being an effective vector for knowledge transfer between the two shores of the Mediterranean, thanks to its wide dissemination capacity and institutional presence in all the Mediterranean countries.

Four vertical topics, associated with operational objectives, were defined for the 2007-2010 period:

- ① Participative approaches in Integrated Water Resources Management;
- ② Prevention and management of risks related to extreme phenomena, especially droughts and floods;

③ Non-conventional water resources, with two sub-topics: desalination and wastewater reuse;

④ Local management of sanitation utilities and the prevention of domestic pollution.

For each topic, the objective is to promote methodological comparisons, transfers of know-how and field applications in the partner countries.

The work initiated about the **European Water Framework Directive (WFD)** by way of an enquiry involving the Water Directorates and working groups of the European Water Initiative Joint Process (MED-EUWI), shows the interest of the Countries and the value of the support provided by **EMWIS** (technical platform, contacts in the countries, institutional support).

CREATION OF NATIONAL WATER INFORMATION SYSTEMS

These National Water Information Systems (NWIS) are essential tools for decision-making, for sustainable management of the resource and for the follow-up of national policies.

At the regional level, the **NWIS** are indispensable tools for convergence, consistency or follow-up of the main

water-related initiatives: Millennium Development Goals on Water and Sanitation, the "Water" Component of the Mediterranean Strategy for Sustainable Development, the European Union Neighborhood Policy Agreements or the Program, up to 2020, for pollution removal in the Mediterranean Sea.

The feasibility studies, carried out by EMWIS in 2005, showed the need for helping the Southern countries in creating or developing their **NWIS**.

NEW EMWIS WEBSITE

Based on an innovating technical architecture, the new international Website of EMWIS is a unique tool for disseminating information between the Euro-Med countries, especially for better information on the European initiatives and programs and for promoting dialogue and exchanges between all the countries.

It offers a multilingual content in English, Arabic and French, continuously enriched: monthly electronic flash (8,000 subscribers), current events, database on international projects, multilingual specialized thesaurus, topical directory ("who does what"), regional initiatives and programs, documents, international and national legislation, institutional structure of the countries, etc.

This new platform improves information flows with the various National Water Information Systems.

TOWARDS A REGIONAL WATER OBSERVATION MECHANISM

The Water Directors launched preliminary feasibility studies for the implementation of a regional water observation mechanism, following up the progress made towards the Millennium Goals and the objectives of the "water" component of the Mediterranean Strategy for Sustainable Development, in coordination with the monitoring working group of the European Water Initiative for the Mediterranean (MED-EUWI) and with the European Environment Agency.

CONFERENCE OF THE 35 WATER DIRECTORS OF THE EURO-MEDITERRANEAN PARTNERSHIP

The Forum of the Euro-Med Water Directors, initiated by EMWIS, has appeared as the most appropriate body to initiate, validate, coordinate, direct or evaluate the various international water initiatives in the Mediterranean: MED-EUWI, MEDA-Water, the United Nations Mediterranean Action Plan, etc. It met again on 6 and 7 November 2006 in Athens, Greece, country coordinating the Mediterranean Component of the MED-EUWI Initiative. The Directors insisted again on a quick launching of the 2007-2010 program of EMWIS.



www.emwis.net

The Mediterranean

MELIA

"MEDITERRANEAN DIALOGUE ON INTEGRATED WATER MANAGEMENT"

Better dialogue between the Mediterranean water stakeholders

Within the sixth RDP, the launching of **MELIA** in Seville, from 4 to 8 September 2006, gathered 20 Mediterranean countries and more than 40 partners at the home office of the **CSIC** (Spanish National Research Center), which manages and coordinates this project.

MELIA shows a dynamics, which aims at promoting all means for exchanges between the socioeconomic stakeholders of the concerned countries and the principles for sustainable development of inland and coastal waters resources in the Mediterranean region.

The International Office for Water (IOWater), as INBO Secretariat, is in charge of analyzing the "water policies" of each country of the Mediterranean Basin and, in particular, the economic aspects, the resolution and management of conflicts, good governance.

This step will have to result in identifying how the Water Framework Directive principles can be implemented in the Southern countries of the Basin.

Which are then the implementation constraints and limits?

Thanks to **MELIA**, spaces for dialogue or platforms for exchanges will be built, so that decision makers, researchers, water users, representatives of the civil society can better understand the stakes and jointly make decisions.

MELIA objective is also that water-related research in the Mediterranean countries influences the institutional world and that the managers and decision makers take into account its results to formulate adapted water policies in their own countries.

INECO

DEVELOPING FUTURE INSTITUTIONAL AND ECONOMIC INSTRUMENTS FOR SUSTAINABLE WATER MANAGEMENT IN THE MEDITERRANEAN REGION

INECO (INstitutional and ECONomic Instruments for Sustainable Water Management in the Mediterranean Region) is a consortium, gathering the stakeholders involved in water management and utilities and coming from the entire Basin (Maghreb, Machrek), and aims at analyzing the decision-making practices. Launched in July 2006, it consists in a series of coordinated actions for:

- ❖ Promoting the exchange of the best practices between the institutions participating in the project;
- ❖ Increasing synergies, by organizing workshops of exchanges on management processes (systems for the authorization of abstractions, management of irrigated areas, etc.) and validating alternative policies for better demand management;
- ❖ Promoting North-South exchanges on institutional and economic know-how (especially on the application of the WFD principles).

IOWater, as INBO Secretariat, will more particularly deal with:

- the analysis of the current practices used by developed countries in arid zones (Australia, South-West of the USA, Israel, Chile, Argentina, Brazil), other than EU Member States,
- the role of women in integrated water resources management in the Mediterranean countries,
- the organization of workshops and exchange activities, in coordination with the **International Network of Basin Organizations (INBO)**.

Algeria

THE RIVER BASIN AGENCIES (ABHs) LEVY A TAX ON "WATER ABSTRACTIONS"



The Algerian Financial Law of July 2005 entrusted the River Basin Agencies (ABHs) with the levy of taxes for the direct use of water resources from the "Public Water Domain". It aims at inciting the water users to better manage the water withdrawn from the natural environments, by making them pay a use cost by way of this tax on abstractions.

IOWater, as INBO Secretariat, and the French Seine-Normandie Water Agency supported the "ABHs" within the French-Algerian cooperation program financed by the French Ministry for Foreign Affairs.

The support missions carried out in 2006 focused on:

- the definition of a strategy and precise timetable for starting the system;
- assistance with the development of an Access application software for the issue and follow-up of the "tax invoices";
- the development of communication with the users;
- the control and follow-up of meters;
- the evolution of the system to make it an economic tool for better quantitative water management.

This action is essential for the River Basin Agencies, because part of the levied tax, excluding the cost of its recovery, could be used to finance actions, such as planning, IWRM development, users' awareness on water saving, but also the financing of measures to promote recycling, fight against wastage, etc.

INVOLVEMENT OF THE FARMERS AND INDUSTRIALISTS IN THE PARTICIPATIVE APPROACH



The Algiers-Hodna-Soummam River Basin Agency organized, in two cities of the Algiers basin, two meetings for the farmers and industrialists, the main objective of which was to raise the users' awareness on water saving and the protection against pollution.

The first meeting dealt with the status of the Mitidja aquifer (main water reservoir) from a quantitative and qualitative viewpoint and the need to use modern irrigation techniques for rational water use in agriculture.

The second meeting took place in the Blida Department and allowed answering questions on existing potentialities, their management, the possibilities of rationalizing and saving water resources.

It was also the occasion to deal with the payment of taxes on the abstraction of water from the Water Public Domain by the users of the industrial, tourist and service providing sectors not connected to the public networks and this in accordance with the provisions of the complementary law of finances of 2005.

During these meetings, all the participants wished that this kind of meeting be renewed.

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The Mediterranean

Morocco

Surface and ground water resources in the Sebou Wadi Basin: quality and vulnerability

The watershed of the Sebou Wadi is one of the largest basins of North Africa.

Its geographical situation in the middle of Morocco and its high population density give it great importance in the development plans of the Country.

The Development of Agriculture and Industry, demographic growth in the Basin (approximately 5 million inhabitants) and the succession of dry years in the Mediterranean area contributed to increase water stress.

A scientific research project was elaborated to follow up the hydrological and geochemical evolution of inland waters in the Basin.

Thus, many doctoral theses have been written since 1990.

This research showed major deterioration of the Basin water resources, as compared to the 1960s.

The water volumes have more or less diminished, except in the Basin coastal plain (Gharb Plain) where the mobilizable water resources increased because dams were built upstream. The mountains of the Middle Atlas and Rif, the Saiss Basin and the Maamora plain recorded high fluctuations in the mobilizable water volumes caused by drought and anthropogenic activities.

The study of the chemical characteristics of surface water showed significant deterioration downstream of cities and industrial complexes. The main contamination areas are located at the confluence of the Fès Wadi and Sebou Wadi downstream of the city of Fès. Significant water pollution was found there, caused by all kinds of organic wastes which contribute to the increase in the nitrogen content, phosphates and in the number of faecal micro-organisms and total coliforms.

The content in heavy and toxic metals is particularly high downstream of Fès, Meknès and of the small town of Moulay Driss. This is caused by the handicraft industries of these historical cities (Tanning industries and "Dinanciers") and the lack of wastewater treatment systems.

Groundwater chemistry in the various hydrogeological basins of the Sebou is usually in balance with the characteristics of the aquifers. Thus, the waters studied are loaded with elements, following a line going from the limestone plateau of the Middle Atlas to the Ocean. Water of the Middle Atlas has very low salinity (lower than 350 mg/l) and very low content of heavy metals, thanks to a protected forest and to a low density of population.

The Saiss Basin includes the cities of Fès and Meknès and records considerable economic growth caused by agricultural, industrial and tourist activities, which implies an increase in the exploitation of groundwater resources. Water shows salinity changes depending on the nature of the aquifer.

The Saiss Basin locally shows groundwater pollution by nitrates, caused by the use of fertilizers in agriculture. Around the cities, industrial pollution was identified coming from agro-food industrial discharges and, to a lesser extent, from industrial wastes (heavy metals and toxic elements).

Hydrogeochemistry allowed distinguishing water classes in the Gharb Plain and the nature of the reservoir in which water flows. Heavy metals result from the natural processes of water-rock interaction. However, in some wells the presence of mercury and other elements, which can be harmful to health, was highlighted.

As the Gharb plain is an area with strong agricultural potential, pollution by nitrates was recorded everywhere and the NO₃ values exceed, sometimes five times, the acceptable maximum value recommended by WHO.

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The Sebou Wadi mouth
in the Atlantic Ocean

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Palestinian-Israeli Cooperation in the Water Sector

A NEED TO ENHANCE COOPERATION

The challenges to be faced after nine years of joint cooperation in the management and planning of the water and wastewater sectors are as follows:

- Water resources in the region are scarce, disputed, as mainly controlled and utilized by Israel and increasingly costly to be developed, particularly in the Gaza Strip where water resources are well above the level of stress.
- Water demand is continuously increasing due to the population growth, economic development and rising standards of living. Current population in the West Bank is 2.2 million and 1.3 million in the Gaza Strip and is expected to double in the next 20 years.
- Water supply and sanitation services are inefficiently delivered as well as inadequate. Coverage is limited; around 12% of the populations living in 254 communities are not served and buy water from tankers at a very high cost. The present per capita consumption is 58 l/c/d in the West Bank and 81 l/c/d in the Gaza Strip, which is far below acceptable standards.
- There is insufficient control of water infrastructure development and water losses in the system are excessive. The unaccounted-for-water in most communities ranges between 30-50% of the supply.

- Wastewater treatment is mostly unavailable, inadequate or not functioning, around 30% of the population is connected to the sewage system and wastewater is not yet satisfactorily reclaimed and reused, less than 1% of the discharged sewage is properly treated.

Water is a possible cause of tension but also, more importantly, a powerful source of cooperation.

There is no alternative for the Palestinians and the Israelis except to cooperate, and this cooperation should be based on solid grounds and meet the needs and demands of each side.

Future bilateral cooperation, based on permanent sovereignty over Palestinian water resources, regional safety, reciprocal benefits and good neighborhood rules, should deal with the following issues:

- ◆ All the shared aquifer basins should be considered as one unit and joint management should be established.
- ◆ Cooperation should concentrate on domestic and agricultural water supply projects so that the lives of the Palestinians are improved (especially the populations who are not served and who suffer from water shortages).
- ◆ Both sides should cooperate to explore new resources to meet the future needs.

- ◆ Cooperation should take into consideration the protection of water resources from pollution, practical measures should be taken to stop the deterioration of the environment.
- ◆ A clear and practical mechanism of cooperation should be established to control, inspect and monitor the implementation of the signed agreements.

As the region's water resources transcend political and administrative boundaries, these resources must be shared while respecting the need for environmental sustainability.

This requires the adoption of sustainable transboundary water resources management that is based on:

- Sharing water-related benefits among nations for regional economic integration.
- Balancing competing uses of basin and aquifer water resources, especially upstream and downstream uses, in a transparent and participative way.

- Focusing on poverty reduction, public participation and gender balance to ensure equitable access to water.
- Recognizing the fundamental need of fresh water ecosystems for resource protection and natural risk prevention.
- Protecting water resources and infrastructure during wars and conflicts and their post conflict rehabilitation.
- Improving our knowledge about the causes of conflicts triggered by competition for the resource among different uses and users.
- Development of additional water resources such as importing water and desalination to meet the increasing demand on fresh water.
- Developing capacity building on Integrated Water Resources Management and regional cooperation mechanisms and framework.

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Jerusalem





www.inbo-news.org



Basin management worldwide on the Web

- **The International Network of Basin Organizations**
- **The General Assembly in Debrecen - 7 - 9 June 2007**
- **Our Regional Networks:**
 - **Africa - ANBO**
 - **Latin America - LANBO**
 - **Central Europe - CEENBO**
 - **The Mediterranean - MENBO**
- **"Europe-INBO":
the implementation of the European Framework Directive**
- **The Network of International Commissions
and Transboundary Basin Organizations**

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IOWater / EMWIS / UNESCO**



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