

RESEAU INTERNATIONAL  
DES ORGANISMES DE BASSIN

INTERNATIONAL NETWORK  
OF BASIN ORGANIZATIONS

RED INTERNACIONAL  
DE ORGANISMOS DE CUENCA

3<sup>rd</sup> QUARTER OF 1995 N° 2

# The network newsletter

## INBO INTERNATIONAL NETWORK OF BASIN ORGANIZATIONS

### TOWARDS THE FIRST COLLECTIVE ACTIVITIES

The second meeting of INBO's Liaison Bureau was held in Gdansk on March 9-11, 1995. It was chaired by Mr. Mieczyslaw OSTOJSKI, Director General of Gdansk RZGW.

Mrs SERBU and Mr. LASCU (Romania) and Messrs. BENEVIDES (Brazil), NOAIN (Spain), CHIROUZE, KACZMAREK and DUCHEIN (France), MESTRE (Mexico) and WALCZYKIEWICZ (Poland) attended as well as Mr. DONZIER (IOW) as Secretary to the Network. Mr. Leszek BAGINSKI, Director of the Water Department in the Polish Ministry for Environment, Mr. Maciej PLAZYNSKI, Voivodship of Gdansk, and the Directors from each of the 7 Polish RZGWs also attended.

The Liaison Bureau listened with much interest to the presentation of the seven Polish RZGWs and to the prospects of the future Polish Water Law which is currently being examined by the Diet.

#### THE NETWORK NEWSLETTER

The first experimental issue of the "Network Newsletter", with more than 3,500 copies printed in French, English and Spanish was a great success and proved the strong interest of all INBO's member organizations. The Bureau entrusted the Secretariat with the preparation of a second issue to be published at the end of September 1995 and a third is already planned for January 1996.

The Newsletter should "reflect" the activities of Network members.

#### INTERNATIONAL SEMINAR

Finally, the Bureau agreed to the organization of an international seminar on "Information necessary for decision-making".

This seminar should enable the brainstorming of solutions to be implemented for developing monitoring and analyses networks, optimizing

#### "AQUADOC-INTER"

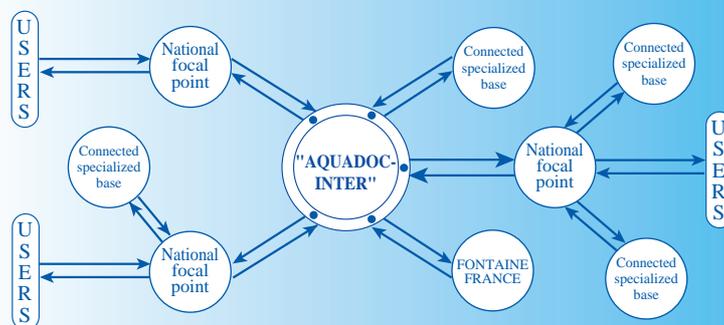
The Bureau also examined the "AQUADOC-INTER" project which aims at exchanging institutional documentation with standardized references among the basin organizations.

The Secretariat has already circulated a first project of a French-English thesaurus with institutional key-words

Spain, Apela Romane in Romania, the National Institute of Meteorology in Poland, the FICEI-Lerma-Chapala in Mexico and DNAEE's documentation centre in Brazil.

The objective is obviously not to create a new documentation base, gathering, in a central "place", all documentation on river basin manage-

The organizational chart of "AQUADOC-INTER" would be as follows :



as well as a proposition of documentary softwares and an indexing format that could be commonly used.

The first step of this project, which will draw on the skills of professionals in documentary data processing, is the designation of "National Focal Centres" (NFC).

Some have already been nominated. They are : the International Office for Water in France, CEDEX in

ment published in INBO's member countries, but rather to set up exchange possibilities within a network with a standardized reference system and access procedure. ●●●

the necessary data collection, while setting up real "basin observatories" to synthesize the information useful for planning, determining water charges and following-up priority action plans.

Retrieval of data in a form easily understandable and accessible to "Authorities" and to members of River Basin Committees, is also a topic of great interest.

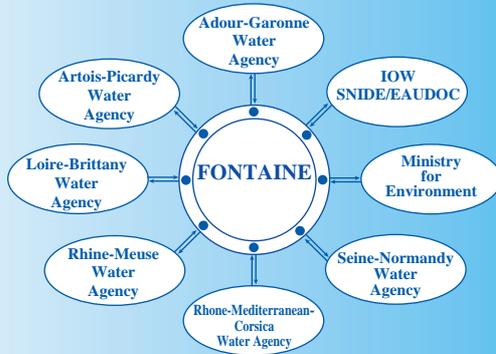
The Secretariat has requested the network's members to make written contributions to the seminar in order to constitute a particularly useful reference document.

The international seminar on "information necessary for decision-making" will be held in Mexico during the next INBO's General Assembly, which was initially planned for September 1995 and postponed to March 1996.

## ●●● INBO (CONT.)

In each country, the National Focal Centre will serve to "facilitate" exchange between the "users" (the country's ministries or basin organizations) and a combined collection of information within INBO. The advantage of these "transit points" is to privilege neighbourly relations and to use the access tools best suited to local conditions.

a sole network of standardized documentation exchange, the International Office for Water (SNIDE), the French Ministry for Environment and the six Water Agencies.



This kind of organization has already been successfully tested in FRANCE within the "FONTAINE" project, which associates, in

**INBO's Secretariat**  
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# FRANCOPHONE WORLD : "RésEAUX"

The Agency for Cultural and Technical Cooperation (ACCT) is publishing, in cooperation with Canada's Saint-Laurent Centre, a newsletter entitled "RésEAUX". It is addressed to the Francophone network of river and lake ecosystem managers.

Two articles, published in issue N° 7 of 1994, are of particular interest for INBO's members :  
- the "Development of the Gambia River" describes the strategy and programmes of OMVG (Organization for the Deve-

lopment of Gambia River) which includes 4 countries : Gambia, Senegal, Guinea, Guinea Bissau.

- the "Revival of the Development of Chad Lake Region" presents the new programme of SODELAC (Lake Development Company) including the building of Berim Polder which will considerably increase wheat production, and the preparation of a masterplan for the whole area.

*Yolaine St-Jacques*  
Saint-Laurent Centre  
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# UNEP

## THE NEW ENVIRONMENT ASSESSMENT PROGRAMME

UNEP (United Nations Environment Programme) has revised its Environment Assessment Programme "to provide the world community with improved access to meaningful environmental data and information, and to enable governments to use this information for decision making and action planning for sustainable human development".

### The new programme is aiming at :

- providing an information base for policy formulation, in addition to raising awareness,
- supporting the production of integrated environmental information for sustainable development, in addition to sectoral information,
- providing products for a wide range of users, in addition to scientific assessments,
- focusing on emerging issues and early warning, in addition to describing the current situation,
- and working towards an integrated information delivery system rather than a set of disparate systems.

technical report series for the dissemination of new technologies and approaches.

**2. Data and Information Management.** It will manage data derived from the regional information networks, the sectoral UNEP sub-programmes and particularly referenced information and information derived from remote sensing.

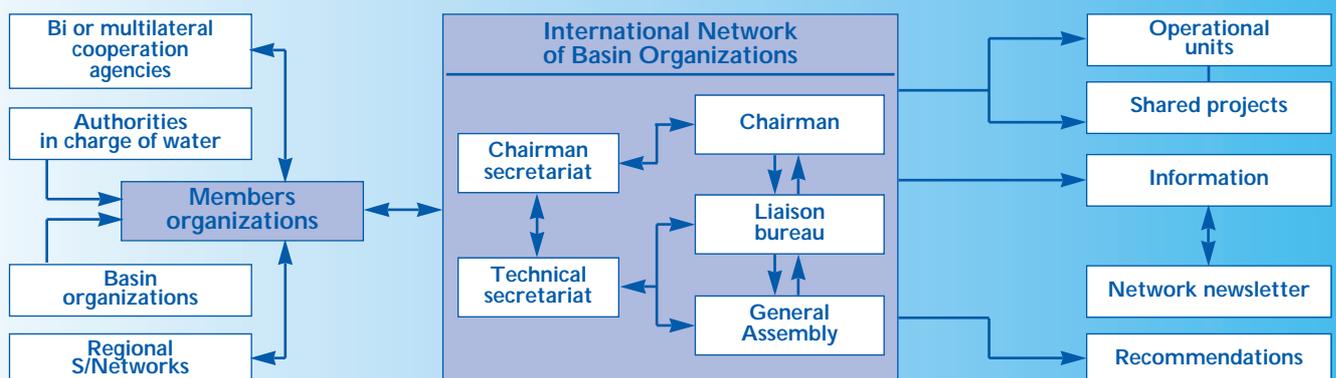
**3. Capacity Building and Servicing :** It mainly aims at developing Environment and Natural Resources Information Networks (ENRIN). The focus is primarily on enhancing the ability to acquire, collate, store, analyse, manipulate and manage databases within the context of broader national and international structures.

**4. UN System-Wide Earthwatch Coordination :** Over the past 20 years, UNEP has made significant contributions to Earthwatch by alerting the world community to environmental threats and to the perilous state of many rivers and lakes in particular.

*(Extract from "EarthViews")*  
*Harvey Croze*  
Environment Assessment Programme - UNEP  
Fax : (254-2) 226 890/215 787

The new programme will have four components which will be implemented in close collaboration with other UN agencies, the scientific community, governments, and development assistance organizations, such as UNDP, the World Bank and the regional banks :

**1. Assessment and Reporting :** the objective of which is to provide overviews of status, trends and development processes to support policy formulation at international level. It will include outputs such as the "World Environmental Outlook", sectoral comprehensive assessments and



# THE MEDITERRANEAN ALGERIA NEW WATER POLICY

The Ministry of Public Works and Regional Planning has launched a new water policy based on water economy.

This policy meets a general expectation in Algeria : it is based on six new principles:

- **uniqueness of the resource**,
- **dialogue** : it will be achieved with the setting up of regional water committees and with the revision of the law relative to the National Committee for Water Resources.
- **economy** : by applying commercial management principles to water enterprises and speeding up sub-contracting from public administration to management services,
- **taking environmental aspects into account** : ecosystem conservation, public health protection through potable water supply

and control of waterborne diseases,

- **human resources development**
- **involvement of the whole community** : "Water being everybody's concern".

Five Regional Water Agencies will be set up covering several catchment areas :

- Oran-Chott-Chergui
- Chellif-Zahrez
- Algiers-Hodna-Soummam
- Constantine-Seybouse-Mellergue
- Sahara

These agencies will aim at promoting actions of common interest in the water sector.

*Mr. Abrouk*  
Regional Water Agency, Central Region  
Ministry of Public Works

# AFRICA IVORY COAST WATER RESOURCES MANAGEMENT AND DEVELOPMENT

Ivory Coast is a coastal country of West Africa with a regular intertropical climate and alternating dry and wet seasons due to the junction of cold and humid oceanic winds with the dry and warm continental ones.

Thus, it has built one of the most productive agricultures in the sub-region and has set up a policy for human water consumption with a water supply coverage exceeding 87 % of the population.

Water needs are fundamental to its development process. Thus, Ivory Coast has prepared and applied sectoral policies for water resources management which included the involvement of several institutions in the water sector, and this without any coordination.

We are faced today with operational difficulties illustrated by conflicts between users and pollution problems.

The need for Ivory Coast to adopt a new approach to water resources management became clear in order to take water globally into account, in quality as well as in quantity.

The geographical layout chosen for this integrated water management is the watershed. This led Ivory Coast to adhere to IN-BO without any hesitation and become a founding member.

After many inter-institutional consultations at the national level (since 1985), the first step taken, and in process of completion, has been the preparation of a Water Law to be adopted by the National Assembly. This law will stipulate the overall framework of water resources management and the relevant technical and financial institutions to be set up to enforce the law.

The main objective of water resources management in Ivory Coast is not only to coordinate water uses and water resources conservation and development but also, and most importantly, to promote the role of water in development.

*A. Kouadio*  
Ministry of Public Works  
of Ivory Coast  
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# ASIA THE MEKONG RIVER COMMISSION IS ESTABLISHED

The Agreement on the Cooperation for the sustainable development of the Mekong River Basin was signed in Chiang Rai on April 5, 1995 by the four lower riparian States : Cambodia, Laos, Thailand and Vietnam, and established the Mekong River Commission (MRC) as an institutional and legal framework for cooperation. It comprises three permanent bodies : the Council, at Ministerial/Cabinet level, to make policies, the Joint Committee to carry out policies, and the Secretariat to provide technical and administrative support to the Commission. The Commission is replacing the former Mekong Committee established in 1957 and the subsequent Interim Mekong Committee (1978).

## The Agreement stipulates :

- cooperation in all fields of sustainable development, utilization,

management and conservation of the water resources,

- prevention of wasteful uses of the basin waters through the preparation of a basin development plan,
- protection of the environment, natural resources, aquatic life and conditions. All projects planned on the mainstream and tributaries should be notified to the Joint Committee,
- rules for water utilization and inter-basin transfers and criteria for determining surplus quantities of water during the dry season and inter-basin transfers from the mainstream,
- freedom of navigation on the Mekong River.

*(Extract from "Mekong News")*  
Mekong River Commission  
Secretariat  
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# INDONESIA PERUSAHAAN UMUM JASA TIRTA BRANTAS

Jasa Tirta Public Corporation is a State owned company, established by virtue of the Presidential decree of February 12, 1990. It comes under the technical supervision of the Indonesian Ministry of Public Works (DPU) and has two main missions : managing water resources of the Brantas River basin, operating and maintaining existing hydraulic structures. The Jasa Tirta Public Corporation is unique in Indonesia and the Brantas River basin, due to the applied concept "a river, a plan and one management", is a model in terms of water resources management.

## In some figures :

- catchment area : 12,000 km<sup>2</sup>,
- length of mainstream : 320 km. Length of the 39 tributaries : 1,393 km,
- population (1992) : 14 million,
- total irrigated area : 305,000 ha,
- annual production of electricity : 895 million kWh.

## Missions and Objectives

The missions and objectives assigned to the Perum Jasa Tirta Corporation are as follows :

1. Contribute to the implementation of a national economic development programme concerning water resources management,
2. Guarantee an optimal management of the water resources, by providing quality but nevertheless profit-making services to the pu-

blic. In addition, the Agency assumes a counselling role, offering technical assistance, information and guidance,

3. Provide drinking water, meet the requirements of various industries, of the company in charge of electricity production, of plantations and ports,
4. Responsible for the perfect operating and maintenance of water resources infrastructures within its scope :

  - allocation and distribution of the resource,
  - operations related to water resources infrastructures,
  - control of flow-rates (reduction of floods and maintaining low water levels),
  - operation of hydrometeorologic and gauging stations,
  - water quality and pollution control.
  - erosion control, construction of soil-saving dams on tributaries,
  - maintenance of banks, inspection roads, channels, dikes, dams and reservoirs (disposal of aquatic weeds)

## Future development

The working area of Perum Jasa Tirta is currently limited to the Brantas River basin. This model has proven to be valid and, according to the Government decree, should be extended to other Indonesian basins.

*Rusfandi Usman*  
Perusahaan Umum Jasa Tirta  
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# LATIN AMERICA

## BRAZIL

### TRAINING PROGRAMME ON RIVER BASIN MANAGEMENT

A course on inland waters was jointly organized in Rio de Janeiro, from January 30 to February 10, 1995, by the United Nations Environment Programme (UNEP), ACQUA Institute (Brazil) and the International Office for Water (IOW), with the support of the Brazilian Ministry for Environment, Water Resources and Legal Amazonia, the French Ministry for Environment and the French Water Agencies.

It gathered 23 participants from the Central Administration and most Brazilian states concern-

### SETTING UP RIVER BASIN AGENCIES FOR RIO DOCE AND PARAIBA DO SUL

France and Brazil have been cooperating since 1980 to set up River Basin Agencies for the Doce and Paraíba do Sul rivers, located in the South-east of Brazil. The principles of this programme, led by the National Directorate for Water and Electric Power (DNAEE) and the States of Minas Gerais, Espírito Santo, Rio de Janeiro and São Paulo, together with the French Ministries for Foreign Affairs and Public Works (DAEI) and DBE Consulting Company, are as follows :

1. Water management at river basin level and the setting up of an observatory of the environment,

large part of iron ore extraction and steel production of Brazil.

**As for the Paraíba do Sul river basin**, located in the middle of the triangle Belo Horizonte, Rio de Janeiro and São Paulo, the main challenge is to establish a river basin policy that would ensure the provision of drinking water to the 4.5 million inhabitants of the basin and to the 8 million inhabitants of Rio de Janeiro Metropolitan Area.

### Technical results

The first simulation of the establishment of an integrated river basin management system (Rio Doce project) was completed in May 1992. The survey of the basin and the action plan-programme were the subject of intense discussions among Federal and State Authorities, municipalities and users. The permanent observatory, monitoring water resource qua-

officials (30) and the community (17); setting up technical agencies for the Paraíba do Sul river basin (Rio de Janeiro) and Rio Doce basin (Belo Horizonte) (1995).

### Economic results

The World Bank and the Inter-American Development Bank have taken the programme results into account in their assistance to Brazil : Rio das Velhas, Rio Iguaçú, Rio Tiété, Guanabara Bay, etc.... In 1993 and 1994, the industries of the Rio Doce basin invested more than US\$ 60 million to decontaminate their own effluents or to implement activities that benefit public interest, in compliance with the masterplan guidelines. The new governors of the three States concerned with Paraíba do Sul river basin have signed an agreement amounting to US\$ 5 billion to decontaminate the basin. The modernization of water management in Brazil is the direct result of these two experiments : a consensus now exists on the type of system to be set up, inspired by the French model and by the principles applied in the Rio Doce and Paraíba do Sul projects.

In 1995, the new political context should speed up the passing of the Water Law which is a prerequisite to the collection of water charges.

Vinicius Benevides - DNAEE  
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Bacia do Paraíba do Sul



ned : Bahia, Ceará, Espírito Santo, Goiás, Minas Gerais, Paraná, Pernambuco, Rio de Janeiro, Rio Grande do Sul, Santa Catarina and São Paulo.

This course raised an important awareness on the benefit of using an integrated approach to river basin management, and of possibly applying to Brazil the "user-pays" and polluter-pays" principles, in particular.

Jean-François Talec  
International Office for Water.  
Department of International Cooperation  
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2. Integrated river basin management to settle disputes on water uses and to ensure the availability of the resource. An observatory is needed to monitor users (industrialists, municipalities, farmers, associations, ...) and uses (withdrawals and discharges, fishing, power generation, recreational activities, environmental protection ...).

3. Users' participation in decision-making : the users united in a river basin committee participate in the preparation of action plans to be implemented by a river basin agency.

4. Availability of a financial system specific to the basin : the "user-pays" principle provides the funds necessary to implement basin programmes.

**The Doce River Basin**, which covers an area of 84,000 km<sup>2</sup> and has a population of 3.6 million inhabitants, is responsible for a very

lity and Rio Doce basin users, was strengthened in 1995 with the introduction of the "Observatory" module of the computerized management system VIVA.

The survey of Paraíba do Sul river basin was published and presented to the three state governments and to federal authorities at the beginning of 1995.

### Organizational results

In June 1992, the demonstration "Viva a água" presented both projects during the United Nations Conference on Environment and Development (Rio 1992) : Setting up coordinating commissions for the Doce and Paraíba do Sul river basins (1993); setting up river basin committees for Rio Doce and Paraíba do Sul (1994), the Rio Doce Committee, for example, is composed of representatives from administrations (10 members), users (26 members), local elected

## ECLAC

(Economic Commission for Latin America and the Caribbean)

Various documents prepared by ECLAC's Division of Natural Resources and Energy, and of interest to INBO's members, have been received by the Secretariat. They are :

- A guide to water resources administration in the countries of Latin America and the Caribbean, original : English.

- Privatization of public water supply services, prepared for the Iberoamerican seminar "Water Regulations and Technologies", Alicante, Spain, December 15-17, 1994, original : Spanish.

- Planning and regulations for river basin management, original : Spanish.

- Water management in Latin American metropolitan areas, original : English.

- Bases for formulating laws on water resources, original : Spanish.

- Markets for water rights : legal framework, original : Spanish.

Miguel R. Solanes  
Division of Natural Resources and Energy - ECLAC  
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# MEXICO

## THE RIO BRAVO BASIN

Rio Bravo, a watercourse about 2,000 km long, is the border between Mexico and the United States. Water supply is governed by the Treaty on International Water Supply signed by both governments on February 3, 1994.

The Rio Bravo basin covers an area of 457,275 km<sup>2</sup>, 49.5 % of which belongs to Mexico. The mean annual rainfall is lower than 400 mm in more than 80 % of the basin area on the Mexican side.

The area of influence of the river basin on the Mexican side includes part of the Chihuahua, Coahuila, Durango, New Leon and Tamaulipas States with a population of 8 million inhabitants, including 7.2 million distributed among the main cities.

### Uses and resources

Total water supply in the basin, surface and groundwater included, amounts to 8,800 Mm<sup>3</sup> per year, 77 % of which is used in agriculture (irrigation), 14 % in cities, 3 % in industry and 6 % for other uses (energy, stockbreeding, aquaculture).

### Studies and projects

The arid and semi-arid climate of the region has caused the soil to become unfit for agriculture in a large part of the area, and in addition, the low rainfall together with its irregular distribution have caused a shortage of surface water in various parts of the basin.

Due to these problems, in addition to the pollution of water bodies and sub-soil, the main studies carried out on water uses in the basin focused on the improvement of water management and utilization and on water treatment.

Actions, undertaken within the framework of a bilateral transboundary cooperation for environmental protection, were implemented through the coordination and implementation of a strategy called "Integrated Planning for Transboundary Environment, Mexico-USA (PIAF). This international effort was strengthened when an agreement was signed to set up the Commission for Transboundary Environmental Cooperation (COCEF) and the North-American Development Bank (BANDAN) for supporting the development of sanitation projects, the construction of sewerage and wastewater treatment systems for the frontier population living in the basin.

### Survey

The Rio Bravo basin faces resource scarcity, irregular distribution of water among uses, users and federal entities, and pollution of water courses and bodies. Therefore, improving the operation of hydraulic systems is of prime importance to economize the water that could otherwise be used to develop urban centres.

### Missions

The River Basin Committee will coordinate actions in order to equitably distribute the available water among federal entities and users. It will also have to set time frames for the existing authorizations in order to deal with crisis situations, high water shortages, and over-exploitation.

It will have to control the quality of the water supplied to the consu-



### Objectives

The Rio Bravo Basin Committee was set up by the National Water Law of January 12, 1994. This organization was created to establish, within the basin, a coordination and dialogue between federal and state administrations, municipalities and users' representatives. Its objective is to formulate and implement programmes and actions for better water management, for developing hydraulic infrastructures and related services, and for basin resources conservation. This should be achieved through specific programmes and actions aiming at :

- developing the management, regulation and supply of surface and ground water,
- promoting the construction of wastewater treatment plants and wastewater reuse,
- improving water use with users' participation,
- preparing and evaluating the basin water programme with the users.

mers and of the wastewater reused for agriculture so that it meets the official Mexican standards.

This implies that the users be involved in the rehabilitation and modernization of hydraulic systems, in the setting up of metering systems and in the use of technologies for water saving.

The Committee will have to set up a system for the retrieval of information on programmes and actions relative to the basin.

Finally, one of the immediate concerns of the River Basin Committee will be to convene a special meeting to analyse the actions developed by the federal and state governments to deal with drought, to assess the present situation, and to make proposals should the drought continue.

Strategies for the participation of users' representatives, according to article 21 of the Water Law, are the responsibility of the National Water Commission.

*José Luis Montalvo Espinoza*  
National Water Commission,  
Northern Region  
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## EDUCATIVE PROJECT IN EL GRULLO, JALISCO

Last April, in El Grullo, Jalisco, began the pilot phase of an educational project developed by the Oficina de Comunicación del Lago Chapala, whose objective is to promote actions to improve water quality in the Ayuquila River.

The Irrigation District of El Grullo was the first one to be transferred to the users (Asociación de Usuarios) in the country and has shown an excellent management.

The focal point in the project is to establish a relationship between children and the River and to create information links between the river water and school-family-community.

Previous educative initiatives aimed at children have shown the relevance of projects that link children with the near and daily water. In that sense, it is very important to rely on an educative programme that allows to learn and develop attitudes and abilities towards water that increase active community participation in the solution of water problems.

For El Grullo, the project proposes an educative strategy that covers monitoring aspects and data analysis as well as school activities around water linked to the education programmes.

The project proposal is to involve students, teachers and community.

That means the establishment of a community communication nucleus that will allow for subsequent actions related to the environment, water especially, and for an uninterrupted production and use, by the community, of communication materials.

*Mercedes Escamilla*  
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Lake. Guadalajara, Jalisco.  
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# VENEZUELA

## THE RIO TUY BASIN AGENCY

The global objective of the Sole Authority for the Area, the Rio Tuy Basin Agency, created by the decree of June 5, 1992, under the supervision of the Ministry for Environment and Renewable Natural Resources (MARNR), is integrated river basin management, land development and environmental protection, conservation and improvement of the Rio Tuy Basin and the North face of the Coastal Mountain Range in the Federal District and Miranda State. Its geographical territory covers an area of 10,579 km<sup>2</sup>, includes 26 towns with a population of 4 million inhabitants and represents the largest basin in Venezuela, in relation to population concentration and economic activities, with serious environmental and land use problems.

### Design

The Agency is self-governing with a deconcentrated and decentralized structure, without any legal statute. It hierarchically depends on the Ministry for Environment and Renewable Natural Resources (MARNR). It is involved in the decentralization process started in the country and, due to its self-relying capacity, can take up central duties in its territorial area. In addition, it enables a confrontation-negotiation scenario to solve environmental problems.

### Functions

Presently, the Rio Tuy Basin Agency is carrying out the following tasks :

- coordination and implementation of the agreements signed with private or public organizations to develop the basin sanitation,
- establishment of environmental standards and guidelines to develop renewable natural resources and lands in the basin,
- preparation, coordination and implementation of plans, programmes and projects for environmental research, information, administration, management, monitoring and control, education and regulation,
- coordination and control of the preparation, approval and implementation of land development plans in the basin,
- application, as MARNR's representative, of the process for transferring services and functions,
- carrying out studies on the state of the environment in the basin,
- identification and evaluation of projects, promotion, organization and implementation of specific actions,
- promotion of environmental enterprises,

- promotion of effective population participation in environmental conservation and improvement in the basin as well as in projects and programmes dealing with environmental management.

### Structure

The Sole Authority for the Area, the Rio Tuy Basin Agency, comprises a Higher Council, an Executive Council, an Executive Directorate, a General Management Department, Programmes Departments, Local Departments and Operational Units.

### Financial and budgetary autonomy

Financial and budgetary autonomy is made possible through recovering and reinvesting payments of services.

The River Basin Agency's assets are presently composed of funds allocated by the Budgetary Law, of payments for the provision of services related to the development of water and other renewable resources, of funds provided through national and international agreements and guarantee funds dealing with environmental protection and rehabilitation.

The Rio Tuy Basin Agency expects to set up in the near future a water charges system which would enable industrial and domestic pollution control and a change in water users' behaviour while achieving a real financial self-reliance.

### Main developments

The most significant achievements in water resources management in the Rio Tuy Basin are the following :

- Transfer of services and duties to the Rio Tuy Basin Agency.
- Local plan for environmental development and management (PLOGA) in the municipalities of Urdaneta, Acevedo, El Hatillo del Edo, Miranda, Santos Michelena del Edo and Aragua.
- Plan and regulations for the protection of the central coastal area.
- Ongoing preparation of a masterplan and management for the sanitation and rehabilitation of the Rio Tuy Basin. It is designed as a planning tool to set up a 10-year sanitation workplan.

## APPLICATION OF THE "USER-POLLUTER-PAYS" PRINCIPLE

There is still no water charges system for pollution in Venezuela. However, legal arrangements do exist to protect natural resources. The Penal Law on Environment for instance, stipulates that any action transgressing the law on environmental conservation, protection and improvement is an offence and imposes sentences of imprisonment and fines. There are also additional rules to progressively achieve an adequate balance between activities producing liquid discharges and parameters of environmental quality.

HIDROVEN (Hidrología Venezolana) and regional hydrological enterprises have been in charge of the drinking water supply and sanitation since 1991. The main objective of this change is to transfer the management of

the drinking water supply and sanitation services to municipalities and regions, allowing them to achieve financial autonomy to cover their operation, maintenance and management costs with profits gained from drinking water supply, wastewater collection, treatment and disposal, and by strengthening planning functions.

HIDROVEN has developed a tariffing system through which the regional hydrological enterprises will recover their operating costs. This system will be applied to the services provided relative to drinking water supply and wastewater collection, treatment and disposal.

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MARNR  
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## PERU

### DRAFT OF AN ORGANIC WATER LAW

At present, water use, conservation and protection are governed by the General Water Law, passed with the decree of July 24, 1969. The law stipulates that all waters, without exception, are the monopoly of the State and their use, for any kind of utilization, is regulated by licences, permits and authorizations which are administrative rights that can be withdrawn.

The Democratic Constituent Congress presented, on June 9, the draft of an "Organic Law for Natural Resources Development for Agriculture".

This draft of an organic law establishes the principles of natural resources and water resources development for agriculture and stipulates, in particular, that utilization rights are granted to the users by way of title-deeds.

### NATIONAL RIVER BASIN MANAGEMENT NETWORK

The National River Basin Management Network (REDNAMAC) organized a workshop on "River Basin Management and Masterplanning" on January 8 and 9, 1995, with the participation of INRENA (National Institute for Natural Resources) and the self-governing authorities for the Chira-Piura, Chancay-

Lambayeque and Jequetepeque river basins.

The next REDNAMAC meeting will convene in Cajamarca City from October 25 to 29, 1995, with the participation of national and foreign professionals who will guide its activities related to river basins, and exchange experiences.

### IV<sup>th</sup> NATIONAL CONGRESS OF ASSOCIATIONS OF USERS OF IRRIGATION SCHEMES IN PERU

The association of users of water for agriculture held its 4th National Congress from May 4 to 7, 1995 in Huancayo city, 310 km from the capital.

The main objectives were as follows :

- guarantee the optimal use of water resources,

- propose reliable alternatives,
- increase the management capacity of enterprises.

Manuel Tapia Muñoz  
National Coordinator  
of REDNAMAC  
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# EUROPE

## EEA

### EUROPEAN ENVIRONMENT AGENCY

In Western Europe, many national and regional, official and independent monitoring systems provide a steady flow of environmental data.

The European Environment Agency (EEA) was created to ensure that this plethora of information can be orchestrated, cross-checked and used for the common good.

Located in Copenhagen, the EEA is an independent legal entity. The countries where it operates are the Member States of the European Union, but the geographical scope of the Agency is not confined to these countries as most of EFTA nations have now joined under the European Economic Area Agreement. This has a particular meaning for the countries of Central and Eastern Europe and the former Soviet Union.

#### The main duties of the EEA are :

- to produce objective, reliable and comparable information for those concerned with framing, implementing and further developing European environmental policy, and for the wider European public,

- to identify, prepare and evaluate suitable environmental measures, guidelines and legislation,

- to coordinate the EIONET (European Environmental Information and Observation Network) and publish a report on the state of Europe's environment every three years,

- to liaise with other relevant national, regional and global environmental programmes and institutions.

Water quality, pollutants and water resources, chemical substances hazardous for the environment, and coastal protection are among the priorities given to EEA.

To implement its Work Programme, the Agency is helped by National Focal Points and Topic Centres. As for the "Topic Centre on Inland Freshwaters", EEA has chosen the group composed of WRC (U.K.), CEDEX (Spain) and the International Office for Water (France).

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## DANUBE

### REVIEW OF RIVER BASIN MANAGEMENT PRACTICES IN THE DANUBE RIVER BASIN

#### Background

The Danube River is 2857 km long, its river basin covers 817,000 km<sup>2</sup> over 17 countries in the heart of Central Europe. Since 1992, 11 Danube countries have been working together with international partners within the framework of the Environmental Programme for the Danube River Basin. The main aim of the Programme is to build environmental management and regional cooperation in support of international conventions for the river basin. A Programme Coordination Unit manages daily activities.

Danube Programme activities address several main lines of action including :

- pre-investment activities and national reviews,
- Accident Emergency Warning System,
- integrated environmental studies and inventories,
- monitoring laboratories and information management,

- institutional development action,
- applied research.

In June 1994, 11 Danube countries and the European Union signed the Convention on Cooperation for Protection and Sustainable Use of the Danube River in Sofia and the ratification process is currently under way. The Strategic Action Plan for the Danube River Basin which provides, among others, an action-oriented framework for implementing the Convention's provisions was endorsed in Bucharest on December 6, 1994.

#### River Basin Management

The need to prepare, complete or revise tributary basin catchment management plans is set as a short-term target in the Strategic Action Plan.

In 1995, a project has been launched to review river basin management practices in the Danube River Basin countries. The main tasks are to review the application

of river basin management practices (nationally and internationally) in the Danube River basin, to determine the national commitment to implement such practices, and to recommend approaches by which integrated catchment management plans can be completed and implemented.

Part of the review will examine selected cases of national and international tributary basins. An International Workshop will be held at the end of the project (in Spring 1996) at which the results will be presented and comparisons drawn with River Basin Management practices in Western Europe.

In steering the project, the Programme Coordination Unit is being supported by the United Kingdom's National River Authority, and the French Ministry for Environment (Water Directorate).

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## BULGARIA

### THE YANTRA RIVER BASIN COUNCIL

The transition from a centralized planning system to a democratic society with a market orientation was initiated in Bulgaria at the end of 1989. It was natural that, at the very beginning, the legislative system of the new society had to be created. One of the first laws passed in 1991 was the law for the protection of the environment. This was a sign of society's recognition of the exceptional contribution of ecological organizations. For the first time, the public had the right of being informed and of taking part in the discussions on projects connected with the preservation and management of the environment. For a year, the water bill has been discussed at different levels. The restructuring of the water sector is complex, expensive but necessary in order to manage and preserve water resources. This bill presupposes a decentralized management of water resources in terms of river basins. Each river basin will have its organized Basin Council. To determine more precisely the functions, the representation and the role of Basin Councils, a pilot basin was established eighteen months ago for the Yantra River (covering 7% of the territory and comprising 8% of the population of the country).

#### Information necessary for the Basin Council

All institutions in charge of water management in Bulgaria have their own database on water resources conditions at the national and regional level. Some of this information is specialized and used by narrow professional circles.

The lack of a unified information system to control and manage water resources hinders the orientation of the Basin Council as specialized information is sometimes insufficient.

At present, none of the institutions dealing with the Yantra River basin collects and summarizes all information on water quality and the state of the ecosystem. It is clear that the Basin Council should carry out these tasks, but this has to be stipulated by law. The Basin Council should select and systematize the information necessary for decision-making.

There is no problem in obtaining information on the quality of surface water and industrial and agricultural wastewaters, and the most important polluters causing serious ecological damage and permanent polluters are known. Investigations have been made in each basin of Central and Eastern

Europe. Actions to improve the quality of the Danube should be carried out within the framework of the WASH project which set priorities.

In the current conditions of financial restriction, the Basin Council has attempted to impose some general principles in making decision on water resources use :

- public need,
- ecological expedience,
- economic effectiveness.

To carry out a project for an all-round information system for the Basin Council will cost approx. US\$ 100,000, including technical equipment.

Maps of the reserve sources of water should be drawn up while taking into account old data and contemporary geological surveys.

Apart from the necessary and permanent information, the council should also have selective information at its disposal to :

- implement new projects,
- inform the public to incite people to adopt an ecologically adequate behaviour,
- help local administrations to make decisions.

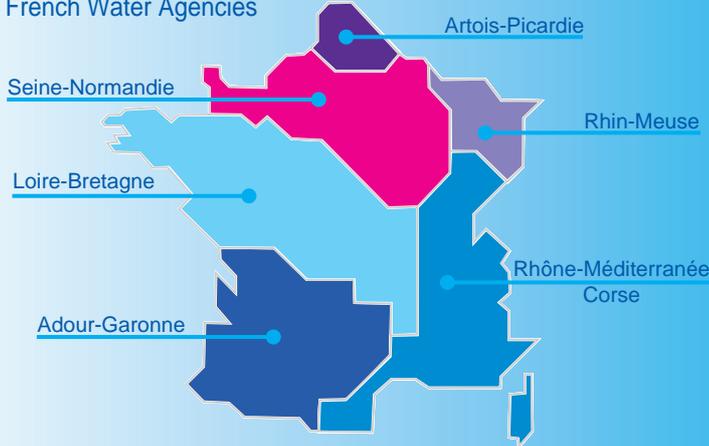
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# FRANCE SEINE-NORMANDY WATER AGENCIES

There are six agencies sharing the national territory : they are the Water Agencies Adour-Garonne, Artois-Picardy, Loire-Brittany, Rhine-Meuse, Rhone-Mediterranean-Corsica and Seine-Normandy.

progress of the work. These checks are carried out by real experts in the sector : the Agencies' staff which is mainly composed of engineers and specialists in the water sector.

The 6 French Water Agencies



## Incite rather than penalize

As simply making laws is not enough to change behaviour, the Water Agencies act as a stimulus to convince their partners to preserve this vital heritage which is water. They have a powerful argument with regard to local authorities, industrialists and farmers : that of the financial incentive. Neither contracting authority nor prime contractor, they grant loans and subsidies for projects, the aims of which are environmental protection, sound water management, pollution control and the rehabilitation of the aquatic medium.

## Some examples

Mr. KERBORIOU, a farmer, has built a small earth dam with a 10-year no interest loan to cover 50 % of his expenditure. He can now store in winter the water needed for irrigation in summer.

Mr. MULLIEZ, an industrialist, has decided to conform his polluted effluent discharges into the aquatic medium with the regulations in force. He was granted a 8-year no interest loan to cover 80 % of his investment.

The municipalities can obtain up to 40 % subsidies and even additional 20 % soft loans with a 5 % interest to build a treatment plant. For such a town as Rouen, it means a subsidy of about FF 240 million, and a soft loan of FF 120 million.

As the sums involved are high, the agencies are careful and amounts are only paid upon justification and supervision of the

They can also give preliminary advice to the project "holder".

## The Water Agencies : technical advisers and trainers

In addition to technical assistance and funding, the agencies also organize seminars and information sessions for local elected officials, industrialists, farmers, environmental protection associations, fishermen, technical services and administrations. There is still a lot to be done : convincing some people to act by sharpening their ecological awareness and broadening the knowledge of others.

With this prospect in mind, to which the notion of prevention could be added, one-week "water classes" are being proposed to children from nursery to high school with their teachers' cooperation. This programme includes meetings, visits, workshops, films ... together with keeping a "log". This leads to a collective production by the students : exhibitions, shows and newsletters ...

Finally, the agencies carry out, or request, surveys to analyse the relevance of their past actions, to forecast the evolution of needs and adapt themselves to the social and economic context.

## Solidarity of a friendly society and the performance of an enterprise

France has thus been divided into six river basins limited by a natural water divide. The agencies, as friendly societies, can



therefore initiate and fund coherent operations on each water-course and favour a necessary solidarity. This coherence is based on the fact that a water agency is the executive arm of a River Basin Committee, a kind of "water parliament", composed of representatives of all types of operators concerned.

## A successful organization : water pays for water

To apply their policy, the water agencies rely on a tailored financing system. Their revenues only come from the water charges added on to each consumer's water bill and from specific charges paid by industry and agriculture. These charges are commensurate with the water quantity used and the pollution volume produced in order to cover the planned investments.

The persons who compose the river basin committee are representing the people who pay the water price or have it paid by those under their administration. Sometimes a consensus must be reached between conflicting or even antagonistic interests.

## The Seine-Normandy Water Agency in a few figures

The Seine-Normandy Water Agency has a staff of 370 and intervenes on a fifth of the national territory (8 regions, 25 departments/districts). It is concerned with 17 million inhabitants, i.e. 30 % of the national population. This represents more than 40 % of the country's industrial activities. The Agency alone had a budget of FF 2.1 billion in 1992, higher than that of the Ministry for Environment (FF 1.45 billion).

Its programme of expenditure for the 1992-1996 period amounts to FF 15,220 million.

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# LOIRE-BRITTANY THE "FULL-SIZED LOIRE MASTERPLAN"

Following several years of debates, and even disputes and conflicts, the French Government published, on January 4, 1994, a global plan for the development of the Loire River, the longest French river (1,020 km) and, according to ecological associations, the "last wild river in Europe". The objective of this very ambitious plan is to reconcile people's safety with environmental protection and economic development, through three components :

- improvement in the population's safety against risks of flooding,
- meeting qualitative and quantitative water demands,
- restoring the ecological diversity of the natural environment.

An action plan for a 10-year period, FF 2 billion of public credit raised, a very large number of operators .... are many assets but also many challenges for the Loire Masterplan. Its success therefore depends, to a great extent, on the working method, on the dialogue with local communities and on the technical and financial partnership among the main operators.

A "partnership charter" for the implementation of the "full-sized Loire Masterplan" officializes and defines the rules of cooperation among the main organizations concerned.

The preparation of a programme for rehabilitating the natural media was entrusted to the River Basin Committee.

This authority representing all interests and water uses should be entrusted with the follow-up of plan implementation, in particular its scientific follow-up, in addition to the global concern of rehabilitating the natural environment. The River Basin Committee has set up a "Loire Commission" in its midst which regularly convenes to evaluate projects, to improve working methods and sustain dialogue among the various partners.

The "full-sized Loire Masterplan," is now in its eighteenth month and its implementation is going on at a good pace.

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# RHINE-MEUSE

## METHODOLOGY TO PREPARE A SDAGE

The SDAGE is a document which gives the orientations of water policy for the 15 years to come, and provides a framework for the actions of the services in charge of enforcing water regulations during the same period. On the scale of the Rhine-Meuse river basin in France, i.e. 5,7 % of the French territory and 4.05 million inhabitants, the document must remain general and avoid dealing with equipment and action planning. Its basic element, which is also its strength, is the dialogue among partners in water management.

**The thematic groups**, composed of specialists and authorities in six large technical fields, were, from the start, entrusted to propose the SDAGE's raw material. One of the difficulties encountered has been to harmonize the contributions and to draw up a synthesis which could provide the support for a global consultation. The SDAGE draft is now a document of just over 80 pages comprising about 250 orientations for water policy duly classified by topic.

**The geographic groups** have been the first support to this consultation. Three geographic groups have been set up in the Rhine-Meuse basin. Their composition is similar to that of the River Basin Committee, i.e. about 50 members, either local elected officials, water users (industrialists, associations ...) or public administrations and enterprises. Each geographic group deals with orientations at sub-basin level : Meuse and Chiers rivers, Moselle and Saar rivers, Rhine and Ill rivers.

The River Basin Committee entrusted a specialized Commission, chaired by an industrialist, with leading the SDAGE preparation work. This SDAGE Commission, like the River basin Committee, is both a place of consultation and exchange, and the leader of wider actions of consultation and information.

Before the document is to be discussed and possibly adopted by the River Basin Committee in November 1995, the Commission has decided to initiate a wide information campaign on the SDAGE project. Thus it has been disseminated in the basin to more than 500 partners in the water sector before the official consultation required by law.

The Basin Coordinator Prefect leads the process of consultation among the State services according to a coordinated plan to have the Rhine-Meuse SDAGE adopted by decree before 1997.

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# ADOUR-GARONNE

The Adour-Garonne River Basin Committee has just approved the project of a Masterplan for Water Development and Management (SDAGE) which will be submitted, in the coming months, to local communities for advice.

## What is a SDAGE ?

The French Law of January 3, 1992 sets an objective of sound management of the water resource, its economic development and its distribution among uses. It introduces ecosystem preservation, pollution control and water quality rehabilitation as well as water resource development.

To apply these principles, the law requires Masterplans for Water Development and Management (SDAGE) to be established in each large French river basin. These masterplans set up a regional and coherent planning of water resources and aquatic environment. They are not simple surveys, they have legal status, and will have direct impact on public decisions (regulations, development, investment programmes) made by the State and elected officials in the water sector.

The SDAGEs must be implemented before 1997 by river basin committees. The SDAGEs

will have to take the main existing public programmes into account but also remain compatible with future actions and administrative decisions.

After receiving wide ranging opinions, the SDAGEs will have to be approved by the Government.

## The Adour-Garonne SDAGE in 117 measures

A first draft, widely disseminated and commented upon, received more than 1,600 written opinions from elected officials and from the Administration, associations, industrialists, etc., in the basin.

To date, the SDAGE project comprises about a hundred measures, with comments, and detailed with maps and figures. A glossary explaining the words used is appended.

Each measure is preceded by a reference (arrangement, recommendation or reminder) which explains its meaning and allows the reader to assess its effect.

As far as the time frame is concerned, SDAGE's decision-making and actions are to be implemented within a 10-year period : quality and quantity ob-

jectives, removal of black spots ... but it defines a strategy to be immediately applied and thus a workplan to follow up its implementation.

As regards financial implication, drawn out estimates show that present investment rates are about 20 % lower than those necessary to meet the measures stated in the SDAGE and to comply with the workplan. An economic study has estimated the usefulness of hydrosystems in good operating order thus giving the masterplan its legitimacy.

Following this consultation, the masterplan, which will be the result of an overall consensus at basin level must be quickly used as a common reference system for activities carried out by the State, local communities, the Water Agency and for all local initiatives related to water issues.

This approach, while setting a reference system for several years, offers many benefits although new arrangements can intervene during this period.

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# UKRAINE

## IMPROVEMENT OF THE WATER QUALITY MONITORING SYSTEM IN THE PIVDENNY BUG RIVER BASIN

As a result of changes in Ukraine's economic system, the efficiency of the water quality monitoring system is being improved. The approach is by means of catchment areas and, of course, new forms of investment concerning water resources protection.

In the majority of industrialized nations, water quality control is currently based on the catchment basin principle, with investments provided by water users for elaborating and implementing water protection programmes. Thus, France, which can be compared with Ukraine, as far as the territory and population are concerned, has already, 30 years of experience, in river basin systems, operated and managed by Water Agencies.

In the wake of this experience, work is actually under way in Ukraine, for the creation of a catchment basin system for monitoring the water quality of the Pivdenny River. The project is being financed not only with

State investments but also with local sources of financial support.

The Pivdenny Bug River basin is entirely situated in Ukraine and includes the districts of Khmelnytskiy, Vinnitsa, Cherkassy, Kirovograd, Nikolayev and also, parts of the districts of Odessa and Kiev. It covers an area of 63,700 km<sup>2</sup> (approx. 10% of the Ukraine territory). The length of the river is 857 km. The population within the basin reaches 5 million people. The area is highly industrialized (shipbuilding, food processing, light industries, hydropower stations, agriculture).

The new organization for the Pivdenny River basin will be composed of two entities : the Basin Committee and the Water Agency for monitoring water quality.

The Basin Committee will define a strategy and policy for water utilization in the basin, perform arbitration in case of conflicts,

adopt basin standards, coordinate decisions pertaining to water utilization between county councils and regional bodies.

The Water Agency will perform executive functions. It will implement water protection plans and measures and will finance actions approved by the Committee. The Agency will obtain its funds by collecting water charges for municipal, industrial and agricultural uses and for discharge of effluents, as well as from State and local budgets and private donations.

At present, efforts are aimed at harmonizing the Water Agencies' regulations with those of administrations and organizing the structure of the Agency and its financial mechanisms.

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# POLAND

## POZNAN

The area of activity of Poznan Regional Water Management Authority (RZGW) is the Warta River Basin, the main tributary of the Oder, which covers an area of 54,500km<sup>2</sup>. Work undertaken by RZGW is related to two most important tasks :

a) creating a basic tool to manage water resources. The following work was initiated for drawing up this tool :

- assessment of water resources (ground and surface water) taking into account the minimal quality and quantity requirements,
- evaluation of the economic use of water resources.

b) creating the Regional Water Information System (RWIS) on water utilization, as part of the central information system.

In addition to updating the basin hydrological network, the system could contain precise data on water users and determine the kinds of use, and the demand. Data of this system will become the "terms of reference" for water use in the basin, and also a tool necessary for calculating water charges.

Simultaneously, digitalized mapping has been implemented by means of the MapInfo software which contains 30 geographic background layers. The MapInfo software produces a graphic presentation of data on water use and also a graphic display of the conditions which govern the use of water resources over the basin. The above-mentioned tasks have been completed in the pilot basin of Prosna River, one of the biggest tributaries of Warta River. This basin is considered to be the "pilot basin" for the development of activities in other basins. All these activities are aimed at preparing the application of the future Water Law which is under discussion in the Polish Diet.

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## KATOWICE

### "Little Vistula" Project

Katowice RZGW coordinates the "Little Vistula" Project, initiated in 1993, which is aimed at improving water quality in Goczałkowice reservoir, the main drinking water supply for the Upper-Silesian agglomerations.

This project is carried out in close cooperation with American experts from the Lenox Institute of Water Technology, authors of the report on water quality in Goczałkowice reservoir and of the recommendations necessary for improving the existing situation.

In March 1995, Katowice RZGW initiated the "Little Vistula" consortium which comprises the communities located in the reservoir catchment area and the water supply companies operating there.

### Training programme for elected officials

In cooperation with the International Office for Water (France) a training programme on water management for elected officials is ongoing.

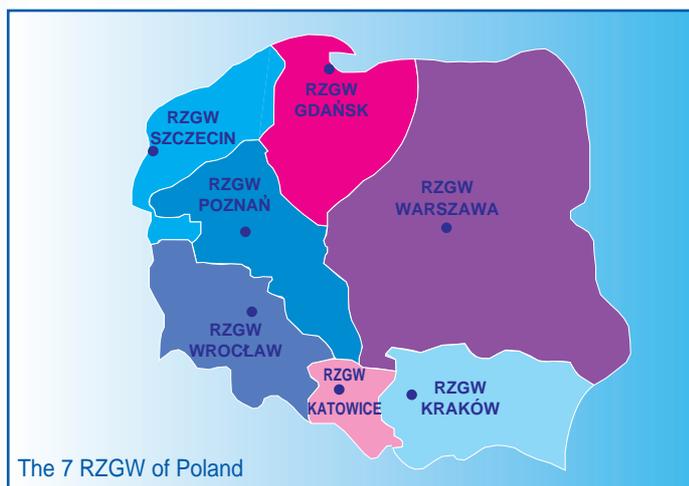
Two courses took place on December 6, 1994 in Katowice and on March 19, 1995 in Bielsko Biala.

More than 90 elected officials participated in these sessions. They considered these courses to be successful and therefore to be continued.

The following step of cooperation with the International Office for Water was a technical visit organized last June in the French region Nord-Pas-de-Calais and at the Artois-Picardy Water Agency for representatives of Katowice, Cracow and Bielsko regions. Other technical and institutional courses are planned for the authorities in charge of water supply, in collaboration with France.

### Groundwater quality monitoring

Groundwater quality monitoring is carried out in 55 sampling points over the RZGW area. It is to be underlined that, in Poland, groundwater monitoring is only carried out by Katowice RZGW. Equipment was bought within the programme "Environmental Management Strategy" (World Bank credit). The cost of maintenance and tests is covered by RZGW with the financial assistance of the Regional Fund for Environment.



The 7 RZGW of Poland

### Water use regulations

Katowice RZGW has initiated this regulation for the small Chechlo River basin and is preparing the same for Biala Przemsza river basin (larger and more complicated).

### Cooperation with Polish and foreign institutions

Mr. Franciszek Tomiczek attended a German-Polish Seminar on Wastewater Treatment and presented a paper entitled "Organization and distribution of responsibilities in sewage management in Poland".

In 1995, Katowice RZGW actively participated in many scientific and technical conferences, preparing papers on water management :

- "Water balance for the Upper-Silesian Region" for the International Fair INTERKO '95, Katowice, April 1995,

- "Water intakes protection" for the conference of Bielsko-Biala, May 1995.

Katowice RZGW also closely cooperates with the German firm Gauff in the elaboration of the Masterplan for Water and Sewage Management in Upper Silesia, within the framework of PHARE programme.

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Katowice RZGW  
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## CRACOW

The operational territory of the Regional Water Management Authority (RZGW) in Cracow comprises 401 communities and 99 towns in 13 provinces of South-East Poland.

The 1990 Law, restoring the local self-governments, enables the local communities to codecide the implementation of public projects concerning their localities. As a result, they are confronted with more and more requirements. Cracow RZGW, with the assistance of the International Office for Water and the financial support of the French Government, organizes seminars on water supply services addressed to representatives of local communities. Such a session was held in March 1995 on the Roznow Lake at Bartkowa. Representatives from communities located in the Dunajec River Basin, from the provinces of Nowy Sacz and Tarnow, participated in that session.

A meeting was held on April 6, 1995, in Rytro, province of Nowy Sacz. It concerned the trilateral French-Polish-Slovakian collaboration in relation with the transboundary hydrographical basin of the Poprad. This river is 245 km long. Its spring and two-thirds of its mainstream are in Slovakia, the remaining part flows through Poland. The Poprad river is the western border between the two countries. Establishing an international "Basin Committee" would be a priority. Such structures exist in Western Europe for some large European rivers.

Within the framework of the World Bank's programme, Cracow RZGW has begun the construction of five protection screens for the urban water intakes of Cracow, Rzeszow, Przemysl, Krosno and Nowy Sacz.

A twinning agreement between Cracow RZGW and the French water agency "Artois-Picardy", is scheduled to be signed very soon.

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## SZCZECIN

The RZGW's task is to elaborate the regulations for water utilization.

The existing regulations concerning the usage of the catchment area, are indeed, the first attempts to define the best conditions for water management, based on quite uniform and confirmed data and possible threats.

Data have been collected for the Geographical Information System (GIS) in the basins. This system, containing over 60 information layers is based on the Arc/Info software. The information layers linked to data bases will include all the necessary details referring to the natural environment, geological structure, ground and surface water resources, hydro-technical development, water users and potential hazards.

The connected data bases will enable a thorough and versatile analysis to be made of problems being encountered, without looking for external data.

Such a task is being performed for our two main rivers, Rega and Wieprza, where data on utilization, authorization, withdrawals, etc, were thoroughly checked and completed, as well as the harmful effect on the environment (waste-water discharge points, refuse disposal sites, liquid manure management, fuel stations, etc).

As a complement to the above data, a map of potential hazards has been produced, on our request, concerning surface and groundwaters on the territory covered by Szczecin RZGW.

The next but very vital task for 1995, is the development of cooperation with foreign partners. For example :

In July 1994, one of RZGW staff participated in a 1-month training course in France. The purpose of the training was to get acquainted with the cooperation methods used by water supply and sanitation services towards local administrations. As a result, an information meeting was organized last January for the local elected officials of Parseta river basin.

The Danish government services have elaborated a mathematical model for the Rega river basin. At the moment, a similar model is being prepared for Parseta river basin.

The construction of wastewater treatment plants in Trzebiatow and Gryfice is cofinanced by the Danish government.

There is also a close day-to-day cooperation with Baltic countries within the HELCOM Convention with a regular cooperation on coastal waters through the task force teams of the Polish-German Commission on trans-boundary waters.

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## GDANSK

The Gdansk Water Agency is in charge of implementing the National Information System for Water Management. It collects information on the state of the environment and on water and wastewater management (these data are stored in the data base), it prepares regulations for basin water use, informs on drought hazards, and is involved in flood control.



## The International Day on Environmental Protection TORUN 95

This year, the International Day on Environmental Protection, organized under the aegis of the Minister for Environmental Protection, Natural Resources and Forestry, was held on the territory of the Gdansk Water Agency in Torun on June 4 and 5. The important event was the laying of the foundation stone of Torun's wastewater treatment plant.

## Simulation models

Currently, the Gdansk Water Agency, in cooperation with the Swedish firm SWECO, is implementing the project "Regulations for the use of Leba river basin" the cost of which is financed by the Swedish Environmental Protection Agency (BITS).

Models on pollution dispersion in the Leba mouth will be carried out in this project, with mathematical models implemented by the Hydraulics and Water Quality Institute of Denmark.

The Gdansk Water Agency is also the coordinator of the Pasleka River project.

## Integrated management project for the Vistula lagoon

Within the HELCOM Programme (Common project for the environmental protection of the Baltic Sea), a contract was signed in November 1994 by WWF Sweden and by the Chairmen of the Polish group, Mieczyslaw S. Ostojki, and of the Russian group, Vladimir Litvinenko.

The project is financed by the LIFE Fund (European Union) and by the Swedish Environmental Protection Agency. It consists of a permanent monitoring to evaluate and control the state of the environment in the Vistula lagoon, to prevent floods, fires, oil dispersion, pollution of soil and wastewater discharge points, the increase in salt content, acid rain, the rise of sea and lagoon levels.

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## WROCLAW

The first Scientific and Technical Symposium on the water balance of the Oder River basin was organized by Wroclaw RZGW on October 25 and 26, 1994.

110 participants took part in the symposium and 39 papers were presented on :

1. the methods for surface and groundwater balances and the interrelations between the two;
2. the latest techniques and tools used for water balance;
3. the results of balances completed in particular river basins.

The participants formulated the following conclusions :

- one of the most important issues is the duration of the period over which hydrological calculations are based,

- for the purpose of water balances, national criteria for protected flows should be determined,
- an essential component of water balances is the quality of water in the main groundwater reservoirs,
- studies relating to groundwater balances may be undertaken, in the case of watersheds with regional resources documentation,
- water balances should include a system for monitoring surface and groundwater resources,
- the validity period of a water balance should be 5-10 years,
- each RZGW should have a classification of catchment areas.

In Poland, the lack of a uniform water management information system remains a problem.

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# CZECH REPUBLIC

## SYSTEM OF INTEGRATED WATERCOURSE MANAGEMENT IN HYDROGRAPHICAL BASINS

The beginning of the organization of watercourse management should be traced back to the 19th century, when Commissions for the Navigability of the Vltava and Elbe rivers in Bohemia, together with the Regional Commission for the Development of Rivers in the Kingdom of Bohemia were established. They were considered to be the supreme institutions responsible for the utilization of the water resource.

Due to the development of the technical infrastructure of water management and with the beginning of water conservancy within hydrographical systems, the integrated management of rivers and projects was transferred in 1966, from political-administrative territorial districts to hydrological authorities centred around river basins. That is how the Water Directorate was established, with six River Basin Authorities. After 1970, this organization was transformed. Five state-owned companies established as limited companies were founded on January 1, 1994 by the Ministry for Environment and 100% funded by the State: the Elbe River Basin Agency, based in Hradec Králové (administering an area of 14,400 km<sup>2</sup>); the Vltava River Basin Agency, based in Prague (27,600 km<sup>2</sup>); the Ohre River Basin Agency, based in Chomutov (administering 9,500 km<sup>2</sup>); the Oder River Basin Agency, based in Ostrava (6,300 km<sup>2</sup>) and the Morava River Basin Agency, based in Brno (21,100 km<sup>2</sup>).

The main objectives of the limited companies are to manage and protect surface and groundwaters and maintain a full-scale hydroecological organization of their river basins. To fulfill those functions, the companies:

- set a price for surface water and use funds thus collected to cover their operating costs,
- collect charges for extraction of groundwater and for contamination of surface water and turn them over to the State Environment Fund.

## WATER PROTECTION PROJECTS IN THE CZECH REPUBLIC

To encourage water protection and to secure the active involvement of international cooperation, three comprehensive projects have been under way since 1991, covering the whole territory of the Czech Republic: Labe (Elbe) Project, Morava Project and Oder Project.

The projects are financed from the State budget (Elbe Project 1991-1993), or out of funds allocated by the Ministry for Environment of the Czech Republic.

## ELBE (LABE) PROJECT

Carried out between 1991 and 1994, it was the most extensive project in terms of the area covered - approximately 65% of the Czech Republic territory. It included a vast programme of measures, fact-finding and analytical research, which provided the missing information on the quality of surface waters (including determination of the extent of sediment and organic biomass contamination) and of the groundwater linked with them. It also provided information on pollutants released from selected effluent discharge points (urban, industrial and agricultural, on the degree of risk of pollution to water resources by irrigation (surface pollution), and on the impact of atmospheric deposits on water quality. The project also dealt with the question of the potential threat to water quality by waste disposal sites, the influence of shipping and commercial water projects on water quality and finally, the ecological aspects of water protection and the creation of water structures and riverside residential zones.

On the basis of a synthesis of the results obtained in 1991-1993, the concept of protecting water of the Elbe River basin and the Action Programme for the Elbe Project were elaborated, including a programme of technical, economic and legislative measures to bring about the gradual improve-

ment in the quality of surface and groundwaters, and in the biocenosis of the Elbe River basin.

The results will serve international cooperation within the framework of the International Commission for the Protection of the Elbe, which was established in 1990 by the Czech Republic, the Federal Republic of Germany and the European Union and could equally serve to attain the goals of the Conference on Protection of the North Sea.

The Elbe II Project started in 1995.

## MORAVA PROJECT

Launched in 1992, it comprises - like the Elbe project - all the important aspects of surface and groundwater pollution and is expected to devise specific measures conducive to better quality and protection of waters in the Morava River basin (27% of the Czech Republic territory), which is part of the Danube River basin.

Research will also serve the interests of international coopera-

tion among the Danubian States, under the Environmental Programme for the Danube River Basin. An action plan will be elaborated in 1995 according to the Declaration on the Danube River Basin Environment adopted during the Environment Ministers' Conference in Bucharest in December 1994.

## ODER PROJECT

The project concerning the Oder River basin (8% of the Czech Republic territory) was launched in 1993, with activities similar to those of the Elbe and Morava Projects. Here again, the Czech Republic is preparing to join the International Commission for the Protection of the Oder, by signing an agreement with Germany, Poland and the European Union. It will constitute the Czech Republic's contribution to the protection of the Baltic Sea.

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# ROMANIA

## THE ARDI PROGRAMME

The self-relying public water authority "APELE ROMANE" has launched, with the support of the Ministry for Water, Forestry and Environmental Protection, a combined research programme on the global state of the environment, with research on the state and evolution of the aquatic medium. The area where research is carried out and the results applied, comprises the ARGES, DIMBOVITA and IALOMITA basins which gave the name "ARDI" to the research programme.

The aim of this programme is to obtain a thorough knowledge of the hydrological regimen in the area, from a qualitative and quantitative viewpoint, and of the ecosystem operation in order to carry out global, physical, chemical and biological modelling with a view to assessing human impact on the environment and implementing an integrated management of the water resources involved in ARDI.

During the 1995-2000 period, the research programme will be built around three main themes:

- a computerized system,
- water forecasting and management,
- human impact on water resources.

It involves the implementation of:

- models for forecasting floods, daily and monthly mean flowrates,
- models for the optimum exploitation of reservoirs and allocation of water resources to meet the needs of the various users located in the ARDI hydrographical area.

The ARDI programme will be carried out in cooperation with foreign research centres (the French research centres participating in the PIREN-SEINE project for instance) and will be a pilot study that might be used for other hydrographical areas of socio-economic interest.

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# The network newsletter

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