



RESEAU INTERNATIONAL
DES ORGANISMES DE BASSIN

INTERNATIONAL NETWORK
OF BASIN ORGANIZATIONS

RED INTERNACIONAL
DE ORGANISMOS DE CUENCA

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The network newsletter

THE SECOND GENERAL ASSEMBLY WILL BE HELD IN VALENCIA (SPAIN) FROM 2 TO 4 OCTOBER 1997

INBO

INBO's Liaison Bureau (International Network of Basin Organizations), which was held last 27 and 28 January at the Headquarters of Rhone-Mediterranean-Corsica Water Agency in Lyons (France), accepted that the next General Assembly would take place in Valencia next October, at the invitation of the Spanish Authorities.

An international seminar on the topic "financing of basin organizations" will be organized on that occasion. Bi and multilateral cooperation agencies and INBO member-organizations have been requested to contribute papers.



INBO's Liaison Bureau around Messrs. ROUX and CHIROUZE (Rhone-Mediterranean-Corsica Water Agency) - January 27-28, 1997

THE LIAISON BUREAU:

Since INBO's constitutive meeting that took place in Aix-les-Bains (France) in May 1994 at the invitation of the French river basin organizations, INBO's Liaison Bureau has already held five meetings in Romania (October 1994), Poland (March 1995), Mexico (September 1995), Romania (July 1996) and Ivory Coast (November 1996) respectively.

This Bureau has been composed of Messrs. BENEVIDES and GARRIDO (Brazil), CHIROUZE (France), LASCU and PREDESCU (Romania), KOUADIO (Ivory Coast), NOAIN and SANTAFA MARTINEZ (Spain), MESTRE-RODRIGUEZ (Mexico), OSTOJSKY and BADOWSKI (Poland), ROEDJITO and RUSFANDI-USMAN (Indonesia) and Mrs SERBU (Romania).

Mr. DONZIER (IOW) participates as Permanent Technical Secretary.

The Bureau, chaired by Mr. E. MESTRE, administers the Network between meetings of the General Assembly. Assisted by the Permanent Technical Secretariat, it prepares the Agendas and ensures the implementation of resolutions.

www.oieau.fr/riob/
From now on all
information on INBO
will be available



on the WEB
www.oieau.fr/riob/



INBO's Liaison Bureau around Messrs. Mestre (INBO's Chairman) and Sekou Toure (High Commissioner for Water) - Ivory Coast - November 8-9, 1996



THE 1996 GENERAL ASSEMBLY

It was held in Morelia (Mexico) from 27 to 29 March 1996.

The works of this Assembly were opened by Mr. Ernesto ZEDILLO, President of the United States of Mexico, himself. The texts of the "Declaration of Membership" and the "Charter for Organization and Operation" of the Network, prepared by the Bureau, were adopted by the Assembly.

It gathered representatives from 45 countries, interested in the approach of an integrated management of their water resources on the scale of large river basins.

During the closing ceremony, 68 organizations from 32 countries officially signed INBO's "Declaration of Membership".

An international technical seminar on "information necessary for decision-making" was held on March 28, 1996, during the General Assembly of Morelia.

This seminar enabled the finding of solutions to be used for developing monitoring and analyses networks, optimizing

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

Retrieval of data in a form easily understood by and accessible to Authorities and to members of River Basin Committees, is also an issue of great interest.

The Network members adopted recommendations so as to help new basin organizations to approach this important issue. The reference file, summarizing all the papers of this conference, will be particularly useful to develop new "basin observatories".

In addition, the General Assembly confirmed the mandate given to the International Office for Water to carry out, under the authority of the Network President, Mr. Eduardo MESTRE-RODRIGUEZ (Mexico), the Permanent Technical Secretariat of INBO, with the support of the six French Water Agencies and the French Authorities.



The General Assembly in Morelia

THE NETWORK'S JOINT ACTIVITIES

These are progressively being implemented:

• "INBO's NEWSLETTER", written by the Network members themselves, is a link and means for exchanging information on their experiences.

Four issues have already been published in the three official languages of INBO (French, English, Spanish); more than 7,500 copies of the last issue were disseminated all over the world.

• "ACQUADOC-INTER" will enable, as from 1997, the exchange of institutional documentation based on references harmonized between basin organizations.

• "AQUADOC-INTER" will be operational on INTERNET next Summer. It will be a "virtual library" gathering all legal, administrative and economic documentation on the organization of river basin management in INBO's member countries.

The first step of this project, which relies on professionals of documentary data processing, was to nominate -on an experimental basis- 12 "National Relay Documentation Centres" (NRDC), which will indeed be the "windows" used as relays between national users, national specialized bases and the system.

This entails creating within a network the ideal conditions for exchange by standardizing reference systems and access procedures. It thus aims at having a users' friendly access to the nee-

ded information, whatever its source.

• **INTERNATIONAL WORKSHOP ON BASIN MASTER PLANS**

It was held in CONSTANZA (Romania) from 31 August to 4 September 1996, on the initiative of the Romanian Authorities. It enabled 31 participants from 11 countries to examine in detail the organization of water institutions in the various countries interested in INBO : it turned into a real comparative administration course, very useful for developing principles for a better resources management, adapted to each local situation.

• **A 2-WEEK, INTERNATIONAL, TRILINGUAL COURSE on the "creation of basin organizations"** will also be jointly organized by France and Spain at the beginning of 1998.

• Finally, **The INTERNET SERVER "http://www.oieau.fr/riob/"** has been broadcasting since November 1996 all documentation published within INBO, in 3 languages (French, English, Spanish), including the entire papers of the March 1996 technical seminar on "Information necessary for decision-making" and of the September 1996 workshop on "basin master plans".

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INBO

1ST MEETING OF BASIN ORGANIZATIONS OF CENTRAL AMERICA AND THE CARIBBEAN

The first meeting of basin organizations of Central America and the Caribbean took place in San Jose, Costa Rica, from May 14 to 16, 1997.

Representatives from the various sectors that play a part in river basin management in Costa Rica participated as well as foreign representatives from Germany, Belize, Cuba, El Salvador, France, Guatemala, Honduras, Mexico, Nicaragua, Panama and the Dominican Republic.

It dealt with:

- 1 the exchange of useful information and experiences on river basin management.
- 2 strengthening the concept of using the river basin as a natural management unit and stimulating its application at political level in each participating country.
- 3 drawing out recommendations on river basin management and analyzing the

opportunities for technical cooperation and training.

Some of the topics that were discussed in the meeting, are:

- institutional aspects,
- water pollution,
- the use and management of multinational river basins,
- land use planning in river basins.

A new opportunity for the analysis and exchange of expe-

riences between the participating institutions was thus created.

This meeting also enabled to prepare the Assembly of the Regional Network for Latin America which will be held next July in Brasilia (Brazil).

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INTERNATIONAL EVENTS



DRAFT OF A EUROPEAN CHARTER FOR THE DANUBE RIVER BASIN

The objective of this charter, which was elaborated by the **European Council**, is to set up a permanent cooperation between governments, national parliaments, local communities or authorities and their assemblies of elected officials, European institutions, international organizations, non-governmental organizations, either qualified, national or European.

Objectives

The Charter aims at managing the Danube river basin, taken as a whole and considered as a common asset, to guarantee the maintaining of its cultural values, the equilibrium of ecosystems and biodiversity; setting up socioeconomic means for sustainable development; presenting a global vision for coordinating the various me-

chanisms and programmes; and strengthening relationships between the basin States and the riparian States of the Black Sea.

Structure

The functions of a **Permanent Committee** will be to examine the cooperation activities that are developed in the Danube river basin, evaluate them and submit appropriate recommendations to the Ministers' Committee of the European Council.

This charter is open to be signed by the Danube riparian States and the countries of the European Community.

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THE GLOBAL WATER PARTNERSHIP AND THE WORLD WATER COUNCIL

Recognizing that water is critical to sustainable development, many aid organizations have attempted over the years to solve problems by creating many water-focused programs. But, with little coordination, these programs have frequently overlapped, competed, or left serious issues unaddressed.

In August 1996, to solve this problem, a group of Agencies founded the **Global Water Partnership (GWP)**, whose head office is located in Stockholm (Sweden), the first-ever attempt to coordinate water solutions on a global scale. Membership in the group now includes national governments, multilateral banks, UN agencies, professional associations, the private sector and non-governmental organizations.

- **Identifying priority sectors**
GWP has already begun a global overview of the major sub-sectors like health, agriculture, environment and industry to identify the most critical needs and has begun studying aid organizations' present efforts.
- **Focusing on regions**
GWP is mainly directing its efforts to Africa and Asia, where need and donor interest are greatest. It aims to set up a number of regional partnerships. The first regional meeting was held last November jointly with the **Southern Africa Development Communi-**

ty (SADC) in Windhoek (Namibia). The Next regional meeting will be hosted by the Asian Development Bank in Manila in June 1997.

- **Dialogue with the private sector**

To find solutions to developing countries' problems, GPW feels that methodologies developed by the private sector, in the United Kingdom and France in particular, could be mobilized in less developed countries.

It is the case of the **African Water Utilities Partnership (WUP)**, managed by the Union of African Water Suppliers (UAWS).

GWP coordinates its initiatives with those of the **World Water Council (WWC)** whose head office is located in Marseilles (France) and which successfully organized its first large international conference in Marrakech (Morocco) in March 1997.

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INTER-AMERICAN WATER RESOURCES NETWORK

The Inter-American Water Resources Network (IWRN), was established during the first Inter-American Dialogue on Water Management in Miami (Florida) in October 1993, to build and strengthen water resources partnerships in the Western Hemisphere that address issues of public health, water supply, sanitation, water resources management in the context of sustainable development and protection of ecosystems.

The network promotes horizontal collaboration between member countries of the Organization of American States (OAS), academic institutions, non-governmental organizations, water user associations and individual practitioners throughout the water resources community of the Americas. The network also facilitates technological cooperation and information and data sharing, education and training. IWRN uses existing networks and organizations to accomplish its objectives.

- **Declaration of Buenos Aires:**

The Second Inter-American Dialogue on Water Management was held in Buenos Aires on September 1-6, 1996. It brought together 260 water experts from 26 countries of the Americas.

Major conclusions and recommendations include the following:

- to establish an integrated management of water resources, using the river basin as a planning unit whenever possible and create regional or basin authorities,
- to undertake an assessment of transboundary water resources in the Americas,
- to strengthen the institutional capacity of countries,
- to establish information systems,
- to organize training courses, conferences, seminars and workshops on integrated water resources management
- to improve economic and regulatory mechanisms for the integrated management of water resources

It seems indispensable to coordinate IWRN's efforts with those of INBO's Regional Network for Latin America (RRAL/RIOC) which will hold its first general meeting on July 9-10, 1997 in Brasilia (Brazil).

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REGIONAL NETWORK FOR LATIN AMERICA (RRAL/RIOC)

ALL UNITED FOR A BETTER WATER MANAGEMENT

Nineteen Latin American countries were represented in the General Assembly of the **International Network of Basin Organizations (INBO)** in Morelia, Mexico (March 1996). They decided to set up a regional sub-network for Latin America (RRAL/RIOC).

It will enable them to develop and increase exchanges of information and experience which should lead to the reinforcement of basin structures in countries of the region.

The first meeting of the regional network will be held in Brasilia in July 1997, at the invitation of the Brazilian Authorities.

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NORTH AMERICA

QUEBEC

NEW MANDATE FOR COBARIC

At the end of 1996, the Government of Quebec set up a restricted committee that regroups all main governmental actors in water management in Quebec. This committee is entrusted with, among other things, the analysis of water management problems and with the making of a proposal for the means to ensure an optimum management. **Its aim is to provide Quebec in 1997 with a real water policy which could possibly lead to a water law.**

The favoured approach is that of river basin management. Water agencies could be set up in the main river basins of Quebec.

With the purpose of experimenting and concretizing this concept, a second mandate will be given by the Ministry for the Environment and Fauna (MEF) to the **Chaudiere Basin Committee (COBARIC)** which had already been mandated in 1994 to propose a new approach for water management in Quebec.

This mandate will consist of:

- **the design of the first water master plan** in Quebec,
- **the preparation of a strategy for funding the possible water agencies,**
- **a consultation with the population** on both above items.

Within a 24-month period, COBARIC will have to draw up a report for the Minister who will then make proposals to the Government on the orientations to be followed.

Regional organizations will be involved in the project and

an interministerial committee, coordinated by MEF, will follow up its implementation.

This strategy is in accordance with the proposals made by the scientific and technical commission of dam management, created after the floods that occurred in Quebec in July 1996, which, in its final report of January 1997, recommends, among other things, a river basin management.

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LATIN AMERICA

CAPRE

CAPRE (Coordinating Committee for Potable Water Supply and Sanitation Institutions of Central America and the Caribbean) carried out several important activities within its Priority Action Plan:

- **In October 1996, CCAAS's Regional Meeting for Latin America was held in Quito.** Its main objective was to define strategies for modernizing the Potable Water Supply and Sanitation sector, regional regulations and certifications for equipment and materials, human resources development.
- **A meeting of services providing enterprises on the "Progress made in the modernization of potable water supply and sanitation enterprises" was also organized in Mexico** within the framework of AIDIS's XXVth Inter-american Congress to exchange their institutional experiences, to solve problems related to the service provision of companies with a high development rate, new

technologies, new administrative schemes, experiences and trends.

- **In November 1996, the institutions represented in CAPRE decided to set up a National Technical Committee for Disaster Prevention in each member country.**

They recommended a sound organization, a better capability to face emergencies and disasters and a priority prevention programme.

- **In January 1997, the first meeting of the National and Regional Technical Committees of CAPRE and ANDESAPA was held in Panama and dealt with the topic "Equipment Quality".** Its main objective was to officialize and apply harmonized standards between CAPRE and ANDESAPA and require conformity certificates in member countries and institutions.

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ARGENTINA

WATER MANAGEMENT IN ARGENTINA

In the Argentinean Republic, the Secretariat for Natural Resources and Sustainable Development elaborates the policy on water resources conservation.

The Sub-Secretariat for Water Resources Management which is supervised by the Secretariat of Public Works and Transport is the organization in charge of implementing this policy.

The main objectives of the Sub-Secretariat for Water Resources Management are to prepare proposals for programming and implementing the national water policy and to supervise its application while coordinating water-related plans, programmes, projects, works and activities in order to obtain a sound use and conservation of water resources.

It also designs and implements programmes and actions for the management and development of infrastructures concerned with the delivery of public services and potable water supply, wastewater and wastes treatment and disposal and finally mobilizes the technical and financial cooperation of international and bilateral organizations to achieve the proposed objectives.

These objectives concern priority actions that are implemented by the **National Directorate for Water Resources Management (DNGRH)** in charge of assisting the Sub-

Secretariat in the planning and implementation of the Country's foreign policy as regards shared international water resources and transboundary water courses, and advising the Ministry for Foreign Affairs.

DNGRH is also in charge of planning and implementing programmes and actions oriented towards the Integrated Management of River Basins and Interprovincial Hydrographic Regions, of coordinating the preparation of shared multi-use projects regarding water resources with the organizations and jurisdictions concerned to ensure a rational distribution.

The Directorate represents the Nation in international programmes and networks concerned with water resources management. It elaborates and proposes technical, administrative and legislative standards to regulate resources utilization and enforces their application while coordinating actions with the various organizations concerned.

The National Director for Water Resources Management, Mr. Victor Pochat, is the Argentinean representative in INBO's sub-network for Latin America.

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SOUTH AMERICA

BRAZIL

THE NEW BRAZILIAN LAW ON WATER RESOURCES

The Brazilian Water Law of July 10, 1934 organizes water management in the country. In spite of being almost 63 years old, it is still considered today as a model.

However, several problems remained regarding water use, especially those concerning pollution, scarcity management and conflicts between users.

The law of 8 January 1997 is filling this gap: this law establishes the new organization of water resources planning and management in the country. This new text allows for:

- 1 the establishment of the sector's basic concepts;
- 2 the creation of management tools;
- 3 the definition of a suitable overall institutional frame in order that the various actors can play their role in decision-making on water use.

The text clearly establishes the hydrographic basin as the planning unit, according to a holistic concept; states the economic value of water, recommends multipurpose uses;

and organizes the decentralization of management and the participation of all decision-makers.

The law establishes masterplans, water charges, the classification of water courses, information systems and the allocation of utilization rights on water.

The law creates basin committees, water agencies, the National Commission for Water Resources with water resources commissions for each State that are members of the National Water Resources System.

The problem is a little more complex as the Brazilian Federal Constitution divides "water bodies" in two classes belonging either to the Union (central government) or to the States. One of the difficulties to be solved is, for example, the organization of water agencies as a basin can comprise rivers belonging to the Union and rivers belonging to a Federate State.

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PIRACICABA, CAPIVARI AND JUNDÁI RIVER BASINS

The Piracicaba, Capivari and Jundáí River basins are an important industrial region with 3.5 million inhabitants. They also supply water to half the population of Greater São Paulo, i.e. about 12 million people.

Since 1989, an Intermunicipal Consortium that comprises 37 municipalities and 17 local private and public enterprises, has tried to control pollution and protect freshwater sources for public supply.

In 1997, an important project will be submitted to the World Bank by the Federal Government and by the Government of São Paulo State,

with this consortium's participation.

The total cost of the project will be about US\$ 600 million, half of which will be supported by the World Bank. It concerns sewage treatment and control and water management on one hand, wastes and protection of springs on the other hand. The Consortium is helped by the French Seine-Normandy Water Agency in the preliminary studies.

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THE "VIEDOCE" PROGRAMME

The Rio Doce Project has always been based on a partnership with the basin users. This partnership developed itself and its most important result is a perfect interinstitutional credibility.

Aware of the serious environmental situation of the hydrographical basin, **local enterprises have collaborated and invested** to solve their problems and those of the communities. So the **VIEDOCE Programme proposes to encourage their actions to improve the life quality of the population within the Rio Doce Basin Management System.**

How does the Programme work?

The Technical Agency of the Doce River Basin uses a digital system, as planning tool, that interrelates basin diagnostics, water management and development plans and financial administration, with "scenarios" that allow for a compatibility between investment options and execution results.

The VIEDOCE programme will permit that all investments made by enterprises, in favour of the improvement of life quality of the population and pollution control, be registered and counted as financial contribution.

What benefit for the enterprises?

The investment made by enterprises, in partnership with the Basin Technical Agency, will be considered of regional importance and directly tied to the Doce river rehabilitation and conservation. Besides, their actions thus considered will be made public in the basin by its periodical bulletin and by the media.

Who can participate in the programme?

The programme is based on the "User-Collaborator" principle. Therefore, all enterprises of the industrial, mines, agricultural, energy and tourism sectors that are interested and concerned by the river state can participate.

All actions of enterprises that are carried out to benefit basin communities and to rehabilitate water quantity and quality in the Doce basin and that can be integrated in the basin masterplan for water management and development will be taken into account:

- cities' sanitation, potable water supply, sewage systems, domestic wastewater and wastes treatment,
- recovery of native forest, protection of cultivated forest and soil,
- establishment of liquid effluent control systems for point source pollution: stills, pigsties, mines, gas stations, pesticides, etc.
- financing of studies and research that aim to increase knowledge on the basin,
- the Technical Agency's operation: equipment, educational and information materials and human resources,
- hydro-environmental education programmes and human resources development in the field of water resources.

The trinomial "community-enterprise-government" is passing nowadays through great transformations. A transparent and decentralized government, a participating society and interdependent enterprises are going to be the base that Brazilian society needs to make the great changes of the XXI century. The VIEDOCE programme is a solid step in this way!

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THE NATIONAL AGENCY FOR ELECTRICAL ENERGY

The law of 25 December 1996 changed DNAEE into a National Agency for Electrical Energy and transferred to the latter all hydrological activities, the technical heritage, personnel and responsibilities of DNAEE.

Dissemination of information

In order to facilitate users' access to information, DNAEE has made available, in real time and via satellite, the hydrologic data of its main stations on the Internet server: "www.dnaee.gov.br".

The new water law

It establishes the National Commission for Water Resources and will enable the organization of new Basin Committees and Water Agencies and plans the use of charges for water use.

The French-Brazilian cooperation, which started in 1989 with the Rio Doce, Paraiba do Sul and Picacicaba-Capivari pilot projects, has enabled the testing of these new law principles and has been the base of the consensus between federal ministries, the States, civil society, communities and users.

Strengthening of the Technical River Basin Agencies of Rio Doce and Paraiba do Sul

The Rio Doce and Paraiba do Sul Technical Agencies have been provided a precious tool, with the support of the French Embassy in Brazil, for the assistance to decision-making on basin management, the "Viva System", prepared by the consulting firm DBEnvironment, which comprises the following software: "Viva-Agua" (Observatory of the basin's environ-

ment and users), "Viva-Plan" (integrated planning of the basins) and "Viva-Fina" (Financial development of the masterplan).

Thus, on behalf of the Rio Paraiba do Sul Integration Committee (CEIVAP), the Technical Agency is going to participate in the masterplan preparation (on World Bank's funding), while reinforcing the works already carried out by the teams of Minas Gerais, Rio de Janeiro and São Paulo States.

The Paraiba do Sul Technical Agency will have a prime role in transferring experiences to the other basins of Brazil, through a close partnership with the Ministries of Mines and Energy (National Department of Water and Energy - DNAEE), of the Environment, Water Resources and Legal Amazonia (Secretariat for Water Resources).

DNAEE, together with the Secretariat for Water Resources, organized on December 4 - 6, 1996 in Rio de Janeiro, the first round table for managers of basin organizations with the support of the regional delegation of the Cooperation for the South Cone of the French Ministry for Foreign Affairs, the UN Economic Commission for Latin America and the Caribbean and DBE. It gathered representatives from basin organizations and Water Directorates of Argentina, Brazil, Chile, Uruguay, Paraguay, Peru, Bolivia, Ecuador, Venezuela and France. This initiative aimed at encouraging the informal exchange of field experiences to prepare the future activities of INBO's regional network for Latin America (RRRAL/RIOC).

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COLOMBIA

THE "YELLOW LINE" PROJECT FOR PROTECTING SPRINGS

The hydrographic basin of Amaine River, a 64 km-long tributary of Cauca River, supplies water to El Cerrito town (55,000 inhabitants), by way of 54 aqueducts that also supply 12,000 inhabitants of rural areas. It also irrigates 22,000 hectares. This ecosystem also comprises 14,000 ha of dry lands and 15 lagoons that must be protected and preserved.

The increasing degradation of the hydrographic basin and a severe erosion are caused by conflicts on land use between stock breeding and agricultural cultivation in forestry-oriented areas. This leads to a poor water flow regulation through lack of vegetation cover and to a slow disappearance of springs.

Therefore, the Autonomous Regional Company for Cauca Valley (CVC) initiated the project "**a yellow line for spring recovery and rehabilitation**". It consists in surrounding each spring with a 100 m protection area closed by poles and barbed wire and therefore vegetation can be reconstituted with pioneer species. 135 ha of forest have thus been isolated to improve the supply conditions of these springs.

The "yellow line" is thus named because poles and wires are painted a bright yellow to give them a meaning of **warning, geographical boundary line, conservation and protection**.

The cost of a km of protection amounts to 2,100,000 Colombian pesos, about US\$ 2,100.

The Association of Amaine River Users (ASOAMAINÉ) cofinanced this project with CVC. This association has been a pioneer in spring recovery. It implements the project by paying the work force, carrying out maintenance and follow-up, in collaboration with CVC.

ASOAMAINÉ is also monitoring water flows monthly to prepare a register, planting and maintaining forest species to create a living circle ensuring a permanent protection, and deals with the obtaining of the necessary agreements from the landowners concerned.

This is an example that should be better known and reproduced as it is a real, practical and easy environmental protection activity.

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ECUADOR

STUDENTS PROTECT MICRO-BASINS

Quito City is supplied with water coming from neighbouring mountainous and snow-covered micro-basins which are subject to hazards caused by the pressure of population growth.

The latter, indeed, pushes farmers towards the mountains where they grow basic crops whose disastrous effect is added to the overgrazing carried out by big landowners who use land burning to feed their cattle. The irresponsibility of hikers also contributes to soil degradation.

Quito's Municipal Enterprise for Potable Water Supply and Sanitation (EMAAP-QUITO) obtained that six areas be considered as "Areas for forestry and vegetation protection" by the Ministerial Decree of 5 March 1992. They cover a surface area of 78,188 ha.

The town's high schools formed teams of 250 schoolboys each who planted more than a million trees and built small reservoirs, recharge canals and terraces during

2-week periods in the rainy season (January to June) in areas situated between 3,500 and 4,200 m above sea level. **More than 8,500 young people participated in this large project.**

This action is completed by the organization of information days in schools by the participants themselves that are addressed to their younger comrades.

The programme is financed by EMAAP and the Ministries of Education and Defence provide logistics.

In 1997, the programme will be extended, within the framework of an agreement with Swedforest for technical assistance, to undertake a diagnostics of the basins and to develop an action plan which will prevent environmental destruction and will allow the farmers to obtain a sustainable agro-sylvo-pastoral production with a raise in household income.

Rafael Chambers (EMAAP-QUITO)
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SOUTH AMERICA

PERU

REDNAMAC

REDNAMAC organized the "IVth Meeting of the National Network for Hydrographic Basin Management" with three objectives in mind:

- 1 to exchange experiences, technologies and knowledge on basin management,
- 2 to propose alternatives to solve present problems,
- 3 to promote the institutional strengthening of REDNAMAC and the setting up of regional units.

Piura town, located 1,000 km north of Lima, hosted this meeting which took place from 22 to 26 October 1996, under the aegis of the National Institute for Natural Resources (INRENA), the Autonomous Authority of Chira-Piura Hydrographic Basin, the University of Piura and the Piura branch of the Engineers' School of Peru.

The meeting gathered about 200 participants: farmers and professionals from

various technical specialties and regions of the country, as well as foreign participants: Messrs. A. Cadiou (France), J. Faustino (Costa Rica); A. Dourojeanni (Chile), J. Escobedo and M. Lino (Bolivia) and C. Valarezo (Ecuador).

The workshops concluded on the benefit of setting up and strengthening regional networks for basin management.

The "Vth REDNAMAC meeting" will be organized in the Southern town of Tacna in 1998.

The first 1997 activity took place in April. It concerned a "seminar-workshop" on the use of "Geographic Information System in basin management". It was held in Lima with the participation of a GIS expert from CATIE-Costa Rica.

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VENEZUELA

NEW STANDARDS

The Decree on Standards for the regulation and control of water resources development and hydrographic basins came into force on 2 August 1996. Its aim is to make the various developments compatible with the actions implemented within the framework of a sustainable development.

The main issues of the normative law are:

- 1 **Taking into account water resources and the requirements of river basin management in land use planning.** Up to now one could only rely on general declarations stated in laws and on obsolete regulations.
- 2 **Establishing specific and modern rules to regulate water resources development** through the allocation of concessions.
- 3 **Stating that water resources use and development must take into account environmental constraints** as a determi-

ning factor to legally restrict individual rights.

- 4 **Characterizing various categories of "protected areas"** for water resources, as stipulated in the law on land use planning.

This decree is an important progress. However, it is still necessary to reform the regulation of individual rights on water resources, to establish a consistent policy based on clear guidelines for the different bodies that participate in water management and to create mechanisms for the funding of water-related activities of the public sector.

It should be noted that, even with a better legal base, an integrated action plan for public and private sectors is needed, which would take into account the political will, its acceptance by society and the necessary financial resources.

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WATER RESOURCES

Venezuelan surface water resources are distributed between the five large hydrographic basins of the Orinoco, the Caribbean Sea, Maracaibo Lake, Valencia Lake and Cuyuni River. 94 % of surface water resources are concentrated on the Orinoco.

Water resources are scarce depending on the climatic conditions in some sub-basins: this is the case of the Caribbean Sea and Valencia Lake basins, where rivers are short with irregular regimes and low flowrates.

The heaviest rainfall occurs on the right bank of Orinoco River, exceeding an average of 4,000 mm/year, while coastal areas, such as the Caribbean Sea basin, comprise semi-arid regions where rainfall varies between 400 and 900 mm/year.

The majority of the population and industries are found on the northern coast where water resources availability is not sufficient and where a constant development has considerably increased the deficit. Water comes mainly from surface resources, with rare cases of groundwater utilization.

In 1995, a surface area of 108,492 ha was really irrigated, which corresponds to 55 % of the potential areas that can be irrigated.

75 % of the hydropower production of Venezuela is found to the South of the Orinoco on Caroni and Caura rivers.

The Ministry of Environment and Renewable Natural Resources is responsible for water resources management and planning in the country.

Potable water supply, wastewater collection and treatment are the responsibility of Regional Hydraulic Enterprises that apply policies established by the Ministry.

A project for the **Modernization of the National Hydrometeorological Network** is planned to considerably reduce the costs and improve the quality of the information necessary for a sound resource management.

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THE RIO TUY BASIN AGENCY (AUA) COMMUNICATES WITH THE WORLD

Internet, with its range and possibilities, enabled AUA to widely exchange information with other similar organizations the world over.

Thanks to these communication means, a more efficient and effective management can be achieved by taking into account the progress made by organizations with a wide environmental experience. See-

king advice from the Members of the International Network of Basin Organizations can be convenient to pool new experiences that can be models for an efficient but also a coordinated and updated management.

Innovating in telecommunications use will be the rule to set up inter-relationships and to make effective pro-

cesses that integrate productivity and efficiency.

Using the opportunities offered today by Internet technology, within the framework of a global vision of information management, AUA plans to become one of the strongest and most modern basin organizations of the XXIst century.

On its Web server "<http://www.marnr.gob.ve>", AUA presents an information sheet which describes its origin and organization, its professional and technical team, its functions and the services it presently manages.

José Gregorio Hernandez
Rio Tuy Basin Agency
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CENTRAL AMERICA

MEXICO

SAN JUAN RIVER BASIN REMEDIATION AND CONSERVATION COMMISSION

The San Juan River Basin, a tributary of Rio Bravo, belongs to the Hydrologic Region of Panuco, with a total area of 5,427 km² involving parts of the States of Mexico, Hidalgo and Queretaro.

The economic development had a great influence on surface and ground water availability and quality.

The basin comprises five aquifers with 1,289 wells. Extraction is 581 Mm³ per year and the mean annual recharge has been estimated at 340 Mm³. **So there is a serious overdraw.**

Water quality degradation has appeared, mainly due to municipal, industrial and agricultural effluents, that are directly discharged without any treatment.

On January 11, 1992, the Environmental Health Center of Tequisquiapan and the Southern region of Queretaro State was created. It has since expanded its interest area and has become the Environmental Health Institute of San Juan River Basin and of Hidal-

go, Mexico and Queretaro States.

The Institute's initiative resulted in coordinating efforts with the three governments and led to the creation of a **Commission for the Sanitation, Rehabilitation and Conservation of San Juan River Basin which is the first step towards the creation of the Panuco Basin Council.**

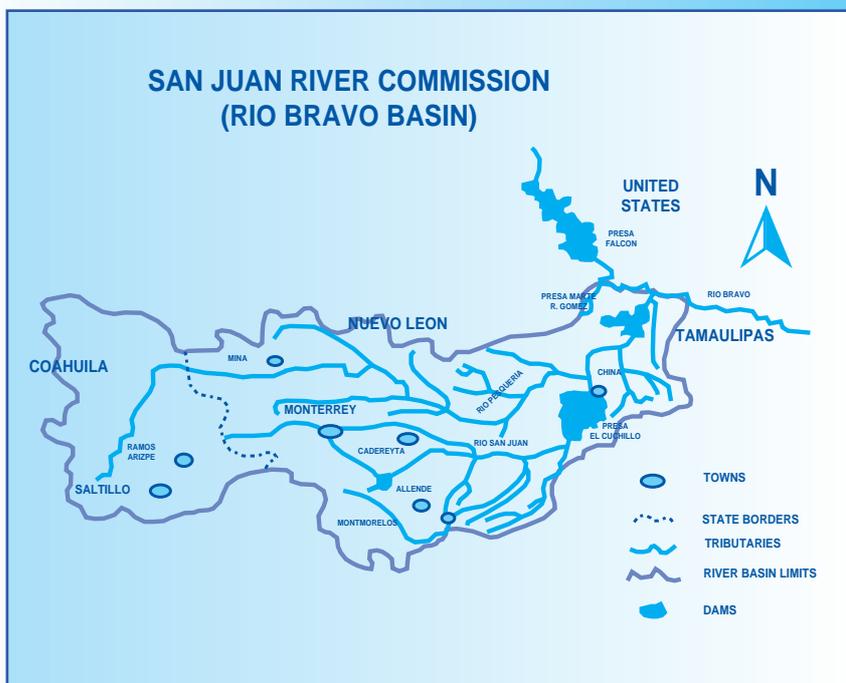
The objective of this Commission is to promote and cooperate to the sustainable development of the San Juan River Basin. It concerns the implementation of an environmental protection strategy with the participation of water users and the civil society in agreement with the 3 governments involved.

Action programs will combine regulation of water uses, fertilizers and pesticides control, erosion control and productive diversification, integrated management of solid wastes and air quality programs, and an educational and information program.

The following priority actions should be noted: review of the efficiency of treatment plant operation, the establishment of particular discharges conditions, delimitation of the "Centenario" reservoir federal zone, water lily removal in reservoirs and agricultural drains, updating of a wells inventory, the establishing of a regulation of groundwater

uses to stabilize the aquifers, and the San Juan River classification study which is already advanced.

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MODERNIZATION OF THE WATER SECTOR IN NAZAS-AGUANAVAL REGION

The Nazas-Aguanaval region is one of the **13 hydrological regions created for water resources management in Mexico.**

This region is formed by three endorheic basins: Mapi-mi, Nazas-Aguanaval and El Salado whose drainage system does not reach the sea.

The surface area of this region reaches 223,104 km² in the Chihuahua, Coahuila, Durango, Nuevo Leon, Tamaulipas, San Luis Potosi and Zacatecas States with a population of about 3.5 million inhabitants, 43 % of which live in 2 developing urban areas.

This region is characterized by a scarce water resource, due to low rainfall. Therefore, the Regional Directorate of Northern Region of the National Water Commission recently requested the creation

of a Basin Committee and a Coordination Committee.

A regional diagnostics is being carried out to become the basis of a masterplan for the basin.

The Regional Directorate is also working on the information and awareness raising of users to get them represented in the Nazas-Aguanaval Basin Committee.

Thanks to this direct dialogue between users and governmental authorities, within the basin committee, the problems caused by resource scarcity will be solved and the regulation of water use will be enforced to obtain an integrated and sustainable development.

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PANAMA

ECOLOGY AND HYDROGRAPHY

The Isthmus of Panama, whose surface area reaches 75,616 km², includes 12 ecological areas.

It comprises 480 rivers, 150 of which flow into the Atlantic Ocean and 330 into the Pacific. They compose 51 river basins, 18 to the East and 33 to the West.

The rainy season usually lasts 7 to 9 months, from May to November. Rainfall can vary from 50 to 200 inches per year.

The vegetation cover has been drastically reduced du-

ring the last decades and deforestation progresses at a speed of 60,000 ha per year.

The law on incentives for reforestation has been recently approved.

It is important that INBO takes an interest in the issue of vegetation cover in river basins and in the fight against erosion caused by uncontrolled deforestation.

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THE MEDITERRANEAN

EURO-MEDITERRANEAN CONFERENCE ON WATER MANAGEMENT

The Euro-Mediterranean Conference on local water management was held in Marseilles (France) on November 26. It gathered the Ministers in charge of water from the 15 member countries of the European Union and their 12 counterparts from countries bordering the Mediterranean who had signed the Barcelona Declaration.

The debates were chaired by Mrs. Corinne LEPAGE and Mr. Bernard ALLEN, French Minister for the Environment and Irish Secretary of State for the Environment respectively, and in the presence of Mrs. Emma BONINO, European Commissioner.

The conference was preceded on the day before by a meeting of international experts which had been opened by Mr. Jean-Claude GAUDIN, Mayor of Marseilles and French Minister of Land Use Planning.

A first preparatory meeting of the experts had been held in Cairo (Egypt) on October 21 and 22, 1996. The International Office for Water had been entrusted with the preparation and organization of Marseilles conference and the Cairo preparatory meeting by the European Commission and the French Government.

Water is a fragile resource and the basis of a Mediterranean sustainable development. Water

is a social, economic and environmental concern in all countries and the Ministers pleaded for the implementation of a global water management that would associate the various users as well as for the acknowledgment of the socio-economic value of water.

The Ministerial Conference adopted a Euro-Mediterranean declaration on local water management which stressed common principles and objectives for water policies and broadened the arrangements of the Rome Charter (1992) to a Euro-Mediterranean context.

The Ministers also decided to set up a Euro-Mediterranean Water Information System (EMWIS) that will be organized into a network of competences.

In his closing speech, Mr. Hervé de CHARETTE, French Minister for Foreign Affairs, recalled the interest of France for a Euro-Mediterranean cooperation and wished that this partnership contribute to the setting up of a solidarity in the Mediterranean.

All official documents and reports of the Conference are available on Internet:
<http://www.oieau.fr/Euromed>
The Conference Secretariat:
International Office for Water
Fax : (33-4) 93 65 44 02

EURO-MEDITERRANEAN INFORMATION SYSTEM ON KNOW-HOW IN THE WATER SECTOR (EMWIS)



Meeting of EMWIS working group AMMAN - 8-9 April 1997

The Marseilles Ministerial Conference emphasized the need to acquire the best possible knowledge of water management tools, actors and methods. The available information on these items only exists in a fragmented, dispersed and heterogeneous way. Therefore it is necessary to make an effort to rationalize and make this information readable, easily accessible and usable.

The purpose of EMWIS is to gather the existing information systems into a network and define common rules for data processing and exchange.

The priority topics, which were considered in a first phase, are:

- basic and continuous professional training,
- documentation,
- data management,
- research,
- institutions.

It was agreed that this structure should rely on existing organizations and data and would not require the creation of a new one. EMWIS is designed to be open to all users in the associated countries, signatories of Barcelona Convention.

France was mandated to prepare these works. Therefore, the Water Directorate of the French Ministry for the Environment has launched an inquiry to:

- define the information contents for each topic of action,
- identify the operators who can be rapidly mobilized,
- evaluate information transfer systems that are already organized,
- examine the possibilities for widening and gathering these networks to open them to all interested Euro-Mediterranean partners.

The preparation of an action plan has been entrusted to the International Office for Water by the European Commission and the French Government.

A working group composed of the European Commission and the following countries: Algeria, Cyprus, France, Italy, Jordan, Malta, Morocco, Spain, the United Kingdom and the Palestinian Authority, met on April 8 and 9, 1997 in Amman at the invitation of Jordan.

The next working group's meeting is planned to be held at the beginning of October 1997 in Valencia (Spain) together with the 1997 General Assembly of INBO.

This group must prepare this action plan that will be submitted to the Directors for Water of the 27 countries concerned during their meeting that will take place in Italy on November 25-26.

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ALGERIA

AN AGENCY FOR ALGIERS-HODNASOUMMAM HYDROGRAPHIC BASIN

The Algerian Authorities have decided to set up Hydrographic Basin Agencies within the framework of the new water policy.

The Decree of 6 March 1996 defined the objectives of the Agency for Algiers-Hodna-Soummam-Isser basins:

- Prepare and update a water register.
- Participate in the elaboration of masterplans.
- Give technical advice on resource utilization.
- Propose plans for resources sharing.
- Participate in pollution monitoring.
- Carry out awareness and information campaigns.

This new institution was designed to complete and reinforce the existing Administrations and Organizations to enable them to

carry out their missions, especially in the field of institutional coordination and incentives for water protection and saving.

The Agency is a public body with an industrial and commercial operation.

The Agency will carry out missions defined in specifications. **The Agency will also be responsible for implementing an incentive policy financed by the National Fund for an Integrated Water Resources Management.**

In 1996, the priority for the action programme was to set up the Agency, start the register and carry out a water inventory of the basin.

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*Euro-Mediterranean Conference on Water Management
Marseilles - 25-26 November 1996*

EUROPE SPAIN

EBRO HYDROGRAPHIC CONFEDERATION

Hydrological Plan for Ebro river basin

The Ebro river basin covers 20 % of the Spanish territory and involves a complex administrative distribution between nine Autonomous Communities including Navarre, Catalonia and Basque Country.

From an administrative point of view, the management of Ebro water is entrusted to the Ebro Hydrographic Confederation, organization created in 1926, whose various successive reorganizations set up a body, the Basin Water Committee, in which are represented all water users and local administrative bodies: central administration of the State and Autonomous Communities. The Hydrological Plan of Ebro river basin, in accordance with the 1985 Water Law, must deal with the following aspects:

- a) inventory of water resources,
- b) existing and foreseeable uses and demands,
- c) priority criteria, compatibility between uses, and order of preference between the various uses and developments,
- d) resources allocation and reserves for present and future uses and demands as well as conservation and rehabilitation of the natural medium,
- e) basic characteristics of water quality and of wastewater discharges development,
- f) basic standards for irrigation improvement and changes to better share available water resources and lands,

g) protection areas and measurements for the conservation and rehabilitation of the concerned resources and environment,

h) hydrological, forestry and soil conservation plans that must be implemented by the Administration,

i) guidelines for groundwater recharge and protection,

j) basic infrastructures necessary for the plan,

k) evaluation criteria for energy developments and establishment of the conditions necessary for their implementation,

l) criteria for studies, actions and works needed for the prevention and elimination of damage caused by floods and other hydrological phenomena.

The draft Hydrological Plan has been prepared by an inter-professional group of the Water Planning Office who, for several years, have carried out the necessary technical studies and who approached this complex water field with an open and participative view.

The draft Hydrological Plan was approved after a public consultation during a final debate of the Water Committee of Ebro river basin.

This proposal has been given to the Ministry for the Environment which will submit it in the near future to the Council of Ministers for approval.

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BELGIUM

FLEMISH ENVIRONMENTAL AGENCY

The law on surface water protection was enacted on March 26, 1971. The Water Treatment Agency for the coastal area was set up in 1975 and the Flemish Water Treatment Agency in 1981. These agencies merged in 1988 to form the Flemish Agency for Water Treatment (VMZ) and finally the Flemish Environmental Agency (VMM) in 1991.

It is in charge of the biological and physico-chemical analysis of surface water quality, of making an inventory of wastewater discharges and finally of monitoring the quality of bathing water.

It also formulates general wa-

ter treatment programmes: therefore it defines the effluents that can be discharged, establishes priorities for financial intervention and collects levies on water pollution.

VMM makes an inventory of the state of the environment related to water, air and discharges and co-ordinates the report on the environment and nature in Flanders, whose second issue was published in November 1996.

It also runs an extensive documentation centre related to the environment in general and water and air in particular.

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JUCAR HYDROGRAPHIC CONFEDERATION

Historical role of Users' Communities

The head office of the Jucar Hydrographic Confederation is located in Valencia, the town which will host the next General Assembly of the International Network of Basin Organizations (INBO) in October 1997.

Its territory includes the hydrographic basins of Vinalopo, Serpis, Jucar, Palancia and Mijares rivers that flow into the Mediterranean Sea between the left bank of the Segura mouth and that of Cenia river.

Its territory has a surface area of 42,988 km² and involves four Autonomous Communities: Aragon, Castile-The Mancha, Catalonia and Valencia Community. The latter approximately represents 50 % of the territory of Jucar Hydrographic Confederation.

The population reaches 4,127,563 inhabitants to which must be added about 700,000 tourists during summer.

50 % of the available water resources comes from groundwater. Thanks to the large reservoir capacity, a good yearly regulation is achieved and the present demand is of the same order as resource availability, 80 % of which is used for irrigating approximately 370,000 ha.

Some distribution systems nevertheless have important deficits as those of the Marina Baja and Vinalopo Alacanti, due to the large urban demand.

In this Confederation, the Users' Communities play an important role in water resources management. The Water Tribunal, an institution more than a thousand years old, solves the conflicts on the use of the seven irrigation canals of Valencia Plain on the last part of Turia river and holds its sessions every Thursdays of the year at noon under the porch of Valencia Cathedral.

Some of these Users' Communities are history, for instance those of the Jucar and Moncada canals, of Castellon Plain, of the main canal of Sagunto or of the canal of Alcoi or Serpis river which have been models for **some 700 Communities of Irrigation Users that exist nowadays on the Confederation territory.** The Communities of Acifer Users should also be mentioned, such as the Central Bureau of Irrigation Users of the Eastern Mancha and the General Community of Upper Vinalopo Users.

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GERMANY

SANITATION CONTROL OF "EMSCHER RIVER"

The Emscher, a 84 km long German tributary of the Rhine, is a river that flows across a very urbanized area of the Rhine-land in North-Westphalia which is characterized by coal mining, steel works and chemical production.

Between 1991 and 1994, several studies were carried out on 84 gauging stations to assess water quality in the basin water courses.

These results compose a data base on the present state of water quality. Among these gauging stations, fourteen were selected to establish a permanent monitoring network: six on the Emscher and the other 8 at the mouth of the main tributaries.

All these gauging stations are subjected to the same programme of analysis. Parameters were chosen

according to the results obtained in the preliminary studies. Six measurement campaigns are planned per year to assess the evolution of each parameter.

The control programme will be managed by the three services of technical assistance and enforcement (Staatlichen Umweltämter) of Herten, Hagen and Duisburg within the surface water quality control system of the Rhine-land.

These results will provide data on residual pollution levels when the building and starting-up of treatment plants that will treat all tributaries of Emscher river in the future, will be completed.

Extract from the second issue of Techniques Sciences Méthodes of February 1997.

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FRANCE

THE NATIONAL WATER DATA NETWORK

The authorities in charge of water in France decided in 1992 to set up a consistent information system on water, the National Water Data Network (RN-DE).

The French Water Law is based on integrated river basin management and aims at meeting water demands and preserving aquatic media. RNDE is the information system that accompanies this policy and it allows for the preparation of decisions and the measurement of their impact.

RNDE is also the tool that ensures the storage and the availability of a rich heritage of data coming from many water monitoring networks: rainfall gauging, hydrometry, water quality, piezometry, etc.

Finally, RNDE must meet an increasing information demand from the water users.

The high number of operators in the water field led to the design of this information system as a network which federates data producers and users.

Initiated and funded by the Ministry for the Environment, the Water Agencies, the French Institute for Environment and Higher Council for Fisheries, RN-DE now also regroups the Ministry of Health, Météo-France, IFREMER and EDF; the International Office for Water (IOW) is in charge of the project implementation.

A network of data bases

The data bases carry out the tasks, or parts of them, of collecting, storing and disseminating water data.

- the river basin bases collect data from the producers with whom they have agreements, store and distribute them at river basin level.
- the specialized bases deal with rainfall gauging, hydrometry, coastal water quality...

- the National base prepares a summary information with the data of other bases and meets the demand of European or French users.

The Observatories of the environment are set up by local communities to provide information on water to the decision-makers and the public.

The RNDE data bases are progressively modernized and networked to be adapted to the Web and Internet technology.

The National Base

The National Base prepares aggregated information from basic data for national users.

Equipped with modern computerized systems and with a powerful data base system, it widely uses **geographic information systems (GIS)** to produce maps of all kinds.

As it will soon be equipped with an Internet server, **it will also have a pivotal role for the users to have access to data whatever the place of storage.**

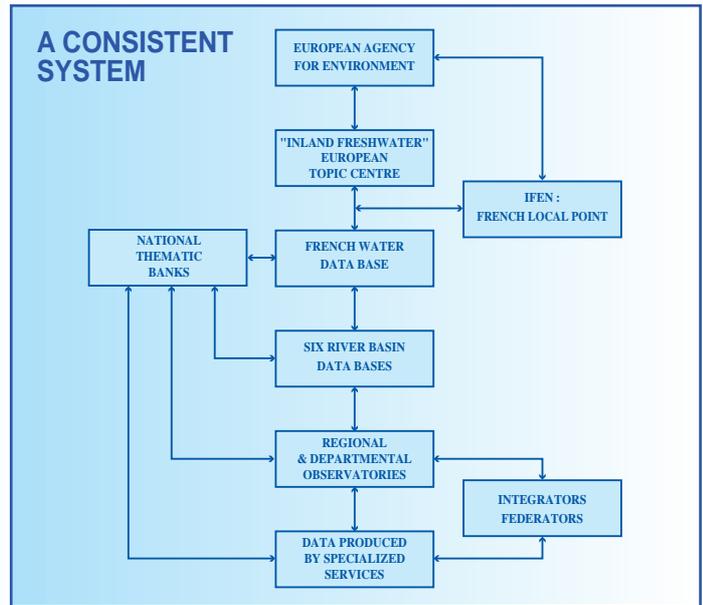
A common language for data

In order to have comparable data and facilitate their exchange, RNDE has established a common language: "SANDRE".

"SANDRE" precisely defines how producers must describe their data for them to be used by others without any risk of error.

It manages the common references at national level under the form of lists of codes: physico-chemical parameters, taxons, analytical methods, aquifers and watercourses...

Finally, **it defines electronic exchange formats.** "SANDRE's" work is now used for exchanges (EDI) between the Ministry of Health and water suppliers, or between Water Agencies and operators of wastewater treatment plants.



Available products

In 1996, RNDE widely disseminated several of its publications:

- a map of the main polluting discharges of industries,
- an assessment of sewerage in towns,
- 4 quality maps of water courses,
- the state of fish population in rivers.

The new topics for 1997

After completing its work on **surface water**, then on discharges, RNDE is now dealing with new topics:

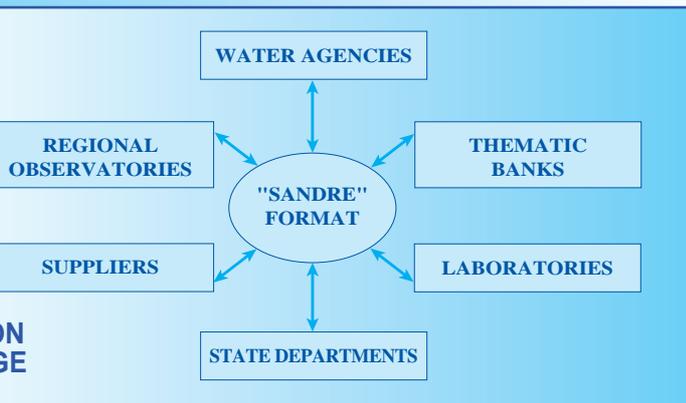
- Potable water: with the co-

operation of the services of the Ministry of Health. RNDE aims at providing information on the quality of the supplied water and also on the safety of water supply in towns.

- **Coastal water:** on-going studies associate IFREMER and the Department of Fisheries with the departments of the Ministry for the Environment and the Water Agencies.

- **Groundwater:** RNDE is going to assist in the setting up of networks for the patrimonial knowledge of aquifers.

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LOIRE-BRITTANY

SDAGE ADOPTION AND VIITH ACTION PROGRAMME

The Masterplan for Water Development and Management (SDAGE) of the Loire-Brittany basin was officially adopted in July 1996.

It is the result of the work carried out by the Basin Committee for four years, in close collaboration with the State services and the Water Agency. This orientation document associates all actors involved: a real consensus on the management objectives for the 15 years to come was reached



after about fifty meetings.

As a reference document and a consistency framework for the policy to be implemented, the SDAGE is composed of:

- the state of knowledge and environment
- a diagnostics to be made using the above inventory
- 7 "vital" objectives for Loire-Brittany basin to solve identified problems
- general and local recommendations to achieve these objectives,

- economic considerations which show that the **SDAGE's objectives can be achieved in the next fifteen or twenty years should the present financial effort be maintained.**

The SDAGE integrates the recent evolutions of national and European water policies, and as regards Loire-Brittany basin:

- the Full Size Loire Plan,
- the plan for the prevention of flood hazards (a 10-year programme of river rehabilitation and maintenance),
- the objectives of urban wastewater treatment,
- agricultural pollution control, especially pollution by nitrates,
- the action plan for wetlands.

The public administrations' decisions and programmes in the water field must, from now on, be com-

patible with the SDAGE and other decisions must be made according to these arrangements.

A 5-YEAR ACTION PROGRAMME

Adopted on 5 December 1996 by the Loire-Brittany Basin Committee, **the VIth multiannual action programme of the Agency (1997-2001) amounts to 7.6 billion francs for financial aid on a five-year period, which corresponds to 16.5 billion francs for works.**

Noticeable progress in the reconquest of water quality was made thanks to actions that have been undertaken up to now. At present, it deals with:

- strengthening these results, especially by eliminating the last large sources of pollution and by preserving and rehabilitating water quality in rural areas upstream of river basins;

- ensuring the operational quality of equipments and reinforcing the efficiency of investments already made.

Three strategic challenges were underlined:

- water quality for potable water supply, the prime objective,
- water quality in rivers and coastal areas,
- groundwater management.

Within this framework, the VIth Programme defines:

- voluntarist strategies for each geographic area to widen the results obtained,
- a contractual approach to contracting authorities and local communities to favour consistency in activities,
- aid for the most effective operation of treatment plants and modalities for technical assistance to obtain the sustainable efficiency of investments made,

- improvement of knowledge on treatment plants operation and on aquatic media.

Therefore, the VIth programme of the Water Agency will contribute to achieve the objectives defined in the SDAGE for Loire-Brittany Basin.

Jean-Louis Besème

Jean-François Talec

Loire-Brittany Water Agency

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RHONE-MEDITERRANEAN-CORSICA



A CONTRACT FOR ARVE RIVER

River contracts are part of an overall policy supported by the French Government and the Rhone-Mediterranean-Corsica Basin Committee. **Their principle is to gather around a table all water** (political, administrative, economic and financial) **actors who live along the same river to define a consistent action programme.** Under the impulse of the Regional Directorate for the Environment and of the Water Agency, a contract was established to deal with the aspects of domestic sanitation, industrial and agricultural decontamination, watercourses rehabilitation, maintenance and management.

The Arve is a 107 km long watercourse which flows down the Alps near Chamonix-Mount Blanc and into the Rhone just outside Geneva City in Switzerland.

Two main problems were found in this sector:

- a **large-scale extraction of materials** (15 million m³) which leads to an alluvial deficit and sinking river beds,
- **water pollution caused by the discharges of about 1,500 plating and under-cutting industries located in the valley.**

Signed for 10 years, the objectives of the Arve river contract are as follows:

- improve water quality,
- give back Arve river a freer aspect,

- preserve and develop the natural medium,
 - raise the awareness of the population on a good management of its heritage,
- with a total amount of more than MF 600 for works, and about MF 200 for aid from the Rhone-Mediterranean-Corsica Water Agency.

The main activities of the contract deal with:

- **Sewerage**, about MF 350 are devoted to build or extend urban wastewater treatment plants, including those of Chamonix, Annemasse..., to improve sewage systems and reduce the discharges of ammonia nitrogen to restore piscicultural life,
- **Industry**, MF 60 for works to reduce the discharges of plating and under-cutting industries,
- **The development of aquatic media**, MF 200 devoted to works for water course recovery (shoals, vegetation treatment...) and to the setting up of management structures for water courses.

Due to the considerable amount to be committed (**the ARVE river contract is the most important in France**), its implementation will be completed over a ten-year period. It is funded by local communities, the Rhone-Mediterranean-Corsica Water Agency, the Ministry for the Environment, the "Rhone-Alps" region, the Upper-Savoie Department and by the department for the Rehabilitation of Mountainous Lands of the National

Office for Forestry.

Other partners such as Electricity of France, the Highways Company and Swiss Confederation are associated with this large-scale project as well as the Republic and the Geneva County in Switzerland.

This contract aims at initiating a real long-term development and management policy for the water course and its bank spaces.

THE SDAGE FOR THE RHONE-MEDITERRANEAN-CORSICA BASIN

The Prefect of Rhone-Alps region, coordinator of the Rhone-Mediterranean-Corsica basin, approved, on behalf of the State on 20 December last, **the Masterplan for Water Development and Management.** Based on an atlas that maps the inventory of sites, this plan comprises three parts and annexes.

- **The atlas is composed of 200 maps** that present all the basin problems regrouped around 7 topics: water quality, main sources of degradation, uses to be taken into account, outstanding ecosystems, etc.
- **The first part describes the overall strategy** with its ten objectives and the necessary operational measures to be taken to achieve them.
- **The second part is composed of 27 topic sheets and**

is primarily addressed to managers in charge of implementing the masterplan.

- **The third part presents the objectives to be applied in the field using figures and maps.**

The main ambitions of the SDAGE

The following ambitions should be underlined:

- reduce by half the overall toxicity of the discharges in the whole basin over a ten-year period and phosphorus discharges by two-thirds,
- focus on the "bathing" quality of the threatened water courses,
- improve the management of large hydraulic and hydroelectric installations to exceed the minimum flowrates given in the regulation,
- make an inventory of wetlands and follow up their evolution,
- ensure a careful and forecasted "patrimonial" management of groundwater.

Among the "spaces" which were particularly studied by the members of the Basin Committee, the following should be noted: the Saone alluvial plain, Lake Geneva and the large alpine lakes, Berre lake, the Camargue, Isere and Durance rivers, and the Rhone itself, of course, which benefits from a rehabilitation plan elaborated in 1992.

J. P. Chirouze

Rhone-Mediterranean-Corsica

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FRANCE

RHINE-MEUSE



REGIONAL MEETINGS ON SUSTAINABLE DEVELOPMENT IN ALSACE

Following the commitments made during the 1992 Rio's Summit, the partners in the French Rhine basin decided to elaborate a strategy that would, in a transverse manner, integrate economic, ecological and social aspects in order to better meet "the needs of the present without forfeiting the capacity of future generations to meet their own needs".

Within the framework of the Rhine-Meuse SDAGE and "Alsace 2005" project, the Regional Council of Alsace, a region highly attractive and developed in the core of Europe, has chosen to have a reflection focused on sustainable development and planned Regional Meetings which were held in Mittelwhir on November 27, 1996.

Water, **groundwater in particular, is an important heritage**, with a transboundary aquifer of 50 billion m³ in its Alsatian part alone which is **threatened by the densifying of economic and urban activities and by the intensification of agriculture**.

Water was one of the main topics dealt with in the debates in which participated the Rhine-Meuse Water Agency. The great number of

exchanges well demonstrated that the concerns about this topic were transverse, with many implications in other development fields.

The following topics to be thoroughly studied were emphasized:

- **a better control of the extraction of the Rhine alluvial materials**, the promotion of an economic development of materials,
- **decontamination of historical and often "abandoned" industrial sites** which cannot be dissociated from an economic management of available space for development,
- **action "at source" to control the quality of sludge produced by treatment**, and the promotion of technologies and commercial products producing a minimum flow of clean and recyclable sludge,
- **integration of sustainable development concerns** in the negotiations related to the **European Common Agricultural Policy and to national medium-term orientations of agricultural activities**.

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RUSSIA

TOM RIVER BASIN

ROLE OF MUNICIPAL ENTERPRISES IN ENVIRONMENTAL PROTECTION

The municipal enterprises in charge of potable water supply systems are also responsible for domestic wastewater collection and treatment. They are not the owners of installations.

According to the existing legislation, these enterprises have to pay pollution taxes, although they are not directly responsible for the pollution they are in charge of removing and the prices paid by the users of water supply services do not include any charge for environmental pollution. This causes large economic problems.

A new law is thus necessary to establish water quality standards to limit pollution and ensure law enforcement. **Municipal enterprises must be provided economic incentives to improve quality by properly treating wastewaters.**

The existing installations were built according to old standards that cannot ensure a good water quality.

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CZECH REPUBLIC

ACTIVITIES OF THE MORAVA RIVER BASIN AUTHORITY

The Morava river is one of the most important tributaries of the Danube. Its basin covers 26.2 % of the whole Czech Republic.

Water quality is not very good, especially in rivers downstream of large municipalities. The main point sources of pollution are connected with industrial activities. The wastewater treatment plants operate, but some of their equipment must be modernized or replaced. Severe non-point pollution has been caused by an ineffective agriculture by using too large quantities of pesticides and fertilizers. It results in an important water pollution.

Water management in the Morava river basin and in part of the Vah river basin is mostly the responsibility of the "Povodi Moravy a.s." company which also deals with the monitoring of water quality, water supply for users, protection against floods and pollution control. It mainly manages the largest water courses, key storage reservoirs, slackwater pools and all hydraulic structures. The company also performs water resources control, draws up operating schedules, establishes guidelines and ope-

rates information and warning systems.

In 1995, the company started coordinating the activities of the **"Rada Povodi Svatky = Commission for Svatka river basin" (RAPOS)** which is an association of professional enterprises and institutions.

The activities of the Focal Point of the Danube Programme in the Czech Republic were entrusted to the company. It contributes to 3 subworking groups: Monitoring, Laboratory analysis and Information Management (MLIM), Information Systems (DANIS), Accident, Emergency Warning Systems (AEWS). It is also part of the working group on Effluents for the International Danube River Protection Commission.

The Task Force of the Environmental Programme and the International Commission for the Danube River Basin gathered 80 specialists in Brno on January 27 to 30 to coordinate their activities.

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POLAND

KRAKOW RZGW

The Information System

Under the stipulations of the World Bank Program, **Krakow RZGW is to pilot the development of the new regional water management information system (RSIGW)**. The Krakow Branch of the Institute of Meteorology and Water Management, commissioned by the Ministry of Environmental Protection, Natural Resources, and Forestry, has developed the database structure.

Data for the system under development is derived from existing studies, maps of operating areas, the Hydrographic Atlas of Poland, and questionnaires filled out by water users.

Water user lists were developed, based on the studies conducted in 1992 for Krakow RZGW by Hydroprojekt Krakow and the Institute of Meteorology. It comprises the water users who are charged

for the use of water. The information on water use is systematically improved and the user list updated. At present, nearly a thousand water users are listed.

The RSIGW database was adapted to the ARC/INFO environment; **a hydrographic map of the region was digitized** and a computerized layer of watershed divides was added for all sub-watersheds; a map showing county and municipality borders was developed. A computerized water user layer is currently under development.

The system has been supplied under UNIX.

Krakow RZGW has just proposed a new invitation to bid for adapting this computerized water management system.

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WARSAW RZGW

Water in Warsaw

The potable water distribution network of Warsaw uses water coming from the Vistula (2/3) and from the man-made Lake Zegrze, located 30 km north of the city and supplied by the Bug and Narew rivers. In the future, 50 % of the water will come from the lake. Groundwater only represents a small part of potable water production.

The "Centralny" and "Prascki" networks use the Vistula water and the "Pólnocny" network the water from Zegrze lake.

The "Pólnocny" network is a new one. The withdrawn water is treated at Wieliszew, 35 km north of Warsaw, using a preliminary chlorination, settling, coagulation, high-rate filtration and disinfection. Water is then stored in reservoirs and sent through 18 km long pipes to the "Bialoleka" pumping station that delivers water to the municipal network.

The Vistula water quality should meet the requirements of Class I of surface water. Unfortunately it is not

the case due to pollution. In winter the Vistula water is characterized by ammonium chloride, manganese and by a decrease in oxidability. Summer is marked by large plankton growth, high oxidability and by the deterioration of organoleptic parameters.

The alarming phenomenon which has been observed during the last few years is the systematic increase of water salinity as well as of a micro-pollution caused by pesticides and detergents.

The water of Zegrze lake is usually of Class I in spite of a large quantity of marsh humus and bog constituents, of manganese, nitrogen and plankton.

As the Vistula water quality has been deteriorating and the quantity of plankton increasing these last years, it was noted that the efficiency of the primary treatment was diminishing. Therefore a search for technical solutions to replace surface water by infiltration water has started.

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WROCLAW RZGW

Symposium on «Clean Nysa river»

The "Clean Nysa" Symposium was held in Liberec from June 19 to 22, 1996.

There were nearly 100 participants representing local and provincial authorities, as well as water and sewerage companies, research institutes, engineering firms from the Czech Republic, Germany and Poland. **24 papers were presented on the quality of the Nysa water and on water and wastewater management.**

The initiators of the co-operation between the local authorities of the administrative districts on both sides of the border,

Dr Stanislaw Bocian and Dr Bernhard Wachartz, expressed their positive opinions about the forms and the scope of the exchange of information and stressed the importance of its further intensification, especially with regard to the promotion of joint investment projects relating to the construction of wastewater treatment plants and their operation.

Quality tests of the Nysa water, conducted in 1995 along the border with Germany, showed that permissible concentrations of nitrites were exceeded at four measurement points.

The main urban sources of water pollution on the Polish side are the towns of Bogatynia, Zgorzelec, Lubsko and Gubin,

GDANSK RZGW

International Cooperation

Gdansk RZGW actively cooperates with some foreign institutions. During 1996, most of the international cooperation was focused on French partners: the International Office for Water and the Rhine-Meuse Water Agency.

The International Office for Water gave assistance to create a **river basin observatory** which is to focus on surface water quality on the territory of Gdansk RZGW. **This project is also establishing and testing procedures for data exchange between the various Polish partners to design later a national base** that could be set up on the whole Vistula river basin, in a first phase. In order to achieve these objectives, Polish experts from the interested institutions were trained at IOW in Limoges. The project will be completed in the first half of 1997.

The Presidents of the French and Polish River Basin Councils and the Directors of Gdansk RZGW and Rhine-Meuse Water Agency signed a cooperation agreement on June 5, 1996. At present, Poland is applying a new water management system based on the experience of Western European countries and the Rhine-Meuse Water Agency offers its thirty-year experience.

The agreement objectives are as follows: exchange of know-how, improvement of water resources management and environmental protection, organization of meetings, conferences and seminars, training of personnel, cooperation with the media.

A Polish delegation, headed by the Vice-Minister of Environmental Protection, visited France from November 11 to 17, 1996. Propositions for the monitoring of surface water quality and quantity were discussed with the International Office for Water in Paris.

The delegation visited the automatic measuring stations of Hydroenvironment, the automatic measurement systems of river water quality and quantity used for the protection of water intakes providing drinking water in the Hauts-de-Seine Department and met the Director for Water of the French Ministry for the Environment.

It was invited to participate in the meeting of the Board of Directors and of the River Basin Council of Rhine-Meuse Water Agency to learn about their organizational system, public relations, water charges system, data base and water management systems. Our Vice-Minister presented the Polish water management system.

During its stay in Metz, the delegation visited the municipal wastewater treatment plant to study the system of work organization, technological processes, sludge treatment and use.

On 19 February 1997, Gdansk and Szczecin RZGWs together with the Danish Hydraulic Institute (DHI/VKI) signed a cooperation document on non-point pollution in the Baltic coastal catchment areas.

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which account for over 80% of the municipal sewage discharged into the Nysa. The investment projects in the field of water protection carried out in cooperation with German partners are thus important. Piensk wastewater treatment plant, which also treats sewage from several small towns on the German side, started operating in 1995. The construction of a wastewater treatment plant for Gubin is also planned.

The investment programme of the municipality of Bogatynia provides for the construction of a separate sewerage system as well as five wastewater treatment plants for 15 towns and villages, with a total capacity of over 15,000 m³/d.

In 1994, work started on the Nysa River on the initiative of the Germans, who intend to start a permanent water transfer of 1.0 m³/sec to the Schöps river in the Spree River basin and to fill up an abandoned opencast lignite mine at Berzdorf.

Both Czech and German lecturers presented the technical specifications of the largest wastewater treatment plants at Liberec-Jablonec and Görlitz, which have been recently put into operation.

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HUNGARY

REGIONAL PLANNING FOR WATER MANAGEMENT

The history of water management in Hungary during the past three decades was a proof of the importance of regional planning. There are many arguments to renew such activities after reinforcing the process of socio-economic transformation and modernization of the "water management system":

- the financial institutions are hoping that investments could fit in the water management system of these regions to assure the best use of allocated loans,
- the water services should propose a future image of the basin evolution which corresponds to the consensus of the population concerned that will be the basis of authorizations for water exploitation.

In this spirit, a document entitled "**Information on the water policy of Hungary**" has been prepared and approved by the Government.

The most important questions which had to be answered to before the beginning of the programme concerned its design, its range, the bases used to define planning units.

It was also necessary to keep uniformity between the various plans of the country by determining their terminology, important aspects, processes, the expected content and results.

It is purposeful to experiment this new planning process in the three pilot areas of Altaler, Sajo and Maros at the end of 1997.

A strategic study based on the concepts of the different professional sectors and entitled "Water management in Hungary at the Turn of the Millennium" was completed at the end of 1995.

In 1996, VITUKI and the Lower Tisza department prepared a proposal to define the hydrological limits of 33 regional plans.

The conditions specific to Hungarian hydrological systems led to consider the proposed regions in the framework of mutual inter-relationships.

The terms of reference to be applied in each region are being elaborated.

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UKRAINE

NEW REGULATIONS ON WASTEWATER DISCHARGES INTO WATER

The new regulation adopted by the Cabinet of Ministers on September 11, 1996, established basic provisions for effluent limit values and four lists of pollutants which must be controlled when wastewater is discharged into surface and marine waters.

Effluent limit values (in Ukraine they are called "ultimate permissible discharges") are set with the aim of a step-by-step approach towards a satisfactory state of surface water. The regional offices of the Ministry of Environmental Protection and Nuclear Safety are in charge of their control.

The lists of normalized pollutants are updated every three years.

List A includes 10 substances: dissolved oxygen, suspended solids, minerals, sulphates, chlorides, ammonium nitrogen, nitrates, nitrites, phosphates, oil products, which must be controlled in all cases of wastewater discharges.

List B comprises 132 pollutants, 129 of which are dangerous substances included in List I of the European Directive

EEC/76/466; the discharges of these substances into Ukrainian water should cease in the near future.

List V contains 155 dangerous substances and is based on List II of families and compounds of the European Directive. The discharges of these substances will be gradually reduced.

If some pollutants contained in Lists B and V are present in wastewater and produce impacts on water ecosystems, they will have to be included by national environmental authorities in List A and considered as polluting discharges to be controlled at regional level.

Finally, List G contains 1,345 substances which were included in July 1988 in the Sanitary Rules and Standards of the USSR.

The new regulation is an important step towards the harmonization of Ukrainian legislative documents with those of the European Union.

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SLOVAKIA

4 RIVER BASIN AUTHORITIES

In Slovakia, four river basin authorities which are State-owned were created for the Danube, Váh, Hron, Bodrog and Hornád hydrographic basins. Under the supervision of the Ministry of Soil Management, they are responsible for:

- the administration, operation and maintenance of water courses, water works and re-

lated equipment,

- the surface water supply to all sectors of the national economy,
- protection against the harmful effects of water,
- monitoring the quality of surface and irrigation water and crisis management,
- the establishment of guidelines for water transport and

for the utilization of the hydro-power potential of streams,

- the operation and modernization of State-owned irrigation and drainage systems.

The total length of water courses managed by river basin authorities is 24,830.7 km, of which 7,139.8 km (28.9 %) are regulated.

They perform tasks such as

the preparation of plans for river navigation, construction of dams and maintenance of shipping routes.

River basin authorities perform a systematic water quality monitoring on 3,973 km of large water courses.

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The network newsletter

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