Network for Cooperation in Integrated Water Resource Management for Sustainable Development in Latin America and the Caribbean

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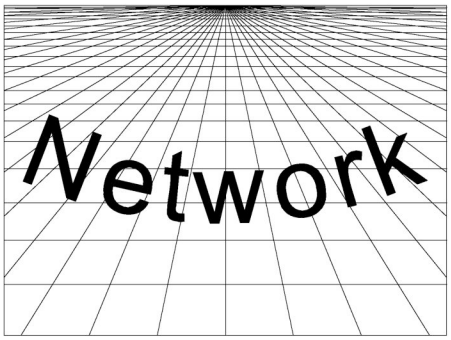
In the few years before the outbreak of the world financial and economic crisis, and in spite of severe fluctuations in the international economy, energy and food prices had been moving steadily upwards. Apart from the direct implications on a variety of economic and social issues that frequently figure on the international agenda, this issue merits special attention from the water resources management community.



As water is a critical factor for the global energy and food supply, a rise in the price of such goods implies an increase in demand and, consequently, in the cost of water for society. This has many consequences —both threats and opportunities— for water resources management.

The increased value of water naturally leads to greater interest in making use of underdeveloped water sources, which should make many projects more profitable. Accordingly, the higher food and energy prices may make irrigation or hydroelectric projects that were economically non-viable until recently much more feasible. The case of Chile illustrates this new dynamic: rising energy costs have led to an eightfold increase in the number of hydroelectric projects submitted to environmental impact assessment over the last two years; and in the 1990s, when agricultural output shifted to high-value crops, groundwater extraction increased tenfold.

Another foreseeable outcome in water-dependent production sectors is that, where there is scarcity, investors will be more willing to finance projects to enhance water-use efficiency in order to conserve an increasingly valuable resource, and will show more interest in funding the exploration of new sources, such as groundwater.

On the other hand, the increased production value of a resource which, like water, has an alternative environmental use, represents a threat to proper ecosystem conservation, since this alternative use now carries a greater opportunity cost in the present circumstances.

The cost of drinking water supply and sanitation services is heavily driven, in certain circumstances, by energy prices. The dynamics of this link could well worsen longstanding financial difficulties in the countries of the region. The magnitude of this impact is apparent from the fact that energy costs can represent as much as two thirds of the operating costs of drinking water services in areas where reverse osmosis is required.

It is clear that the new situation and the forces it has unleashed have created a complex challenge for the region's institutions and water policies. This leads to a series of questions: Are existing policies and institutions in a position to promote the best possible use of the opportunities arising from the new international setting? Will they do so with an eye to environmental and social equity needs? Will they offer incentives to enhance efficiency in the use of water resources? Will the institutions be solid enough to deal effectively with situations of increasing competition, conflict and more intensive use? Do institutions have the capacities to manage water resources sustainably? What financial implications will the current conditions have for drinking water supply and sanitation services? From a global perspective, it is also worth asking what would be the impact of diverting land and water resources to biofuel production; whether irrigated areas will be expanded indiscriminately or sustainably; and what role virtual water transfers will play in international trade; and many others.

In short, rising energy and food prices could generate powerful dynamics that will affect water resources management. This effect may remain unnoticed and hidden for a time, but is no less important for that. Consideration should thus be given to the policies and institutions that can deal with the threats and opportunities inherent in the new set of conditions.

Humberto Peña

CONTENTS

The previous issue introduced the document entitled "*Servicios de agua potable y alcantarillado en la ciudad de Buenos Aires, Argentina: factores determinantes de la*

sustentabilidad y el desempeño (*Drinking water supply and sewerage services in the city of Buenos Aires, Argentina: determining factors of sustainability and performance*) (LC/L.2751-P, May 2007, *Natural Resources and Infrastructure Series* N° 126) by María Begoña Ordoqui Urcelay (available in Spanish only). On that occasion the discussion focused on factors exogenous to the drinking water supply and sanitation sector which were considered determinants of economic, social and environmental unsustainability (and sustainability) of the provision of services in the metropolitan area of Buenos Aires, using a methodology that may be applied to other Latin American and Caribbean countries. This issue will now discuss endogenous factors.

The main conclusion that can be drawn from this analysis, as well as from other experiences (both local and international), is that problems of efficiency, transparency and infringement of the rights of actual and potential users, are largely common to both public and private water utilities. This conclusion leads to the main recommendation, which is the need for a specific legal framework to regulate service providers, as well as an institutional set-up that includes a specialized oversight body endowed with a certain degree of independence. The principal objectives of the regulation and control of service provision should be:

- To ensure that the service is socially, environmentally, technically and financially sustainable.
- To establish appropriate incentives for efficient service provision, understood as minimization of long-term service costs.
- To ensure that efficiency gains are justified in terms of social equity goals, making sure that the savings generated will be passed on to the community through lower tariffs, improved service quality and greater access for population not covered by the service previously.
- To establish incentives and make the service provider and its management accountable for the fulfilment of agreed goals and objectives, in accordance with the principles of due diligence, good faith and the duty of efficiency.
- To offer incentives for rational service use.

Within this general framework, it is important to consider those problems and lessons learned for the control and regulation of private, State-owned or mixed water supply and sanitation companies. The problems involved in conducting economic activities under a monopoly are widely recognized in economic theory. Attempts to mitigate these problems through a competitive bidding process designed to attain water tariffs that reflect efficient costs are quickly diluted once the contract is under way and the whole process is reduced to a bilateral relationship with opportunistic behaviour by firms and weaknesses on the part of political and concessioning authorities and regulatory and oversight bodies, when these exist at all.

The "principal-agent" approach focuses on this bilateral relationship, in which the principal delegates the task of service provision to an agent and sets the required objectives and mechanisms, but in a context where the agent is better informed about the business being managed. Here theory and practice coincide: the theory warns of information asymmetries, the possible capture of the principal by the agent and difficulties in creating incentives for efficient service provision; the practice shows that the principal (concessioning or regulatory body) does indeed lack sufficient information to regulate the service provider's conduct, as well as the institutional capacity and strength to stand up to a large monopoly, and that regulatory instruments are insufficient to induce service providers to conduct themselves in a socially desirable manner.

Interesting enough, both theory and practice agree that the bilateral relationship of principal-agent and its problems (mainly inefficiency and capture) are also detrimental to users when the agent or water supply and sanitation company is State-owned. The challenge for sectoral public policies, then, is to create *ex ante* mechanisms (regulatory framework) or *ex post*, in the case of a contract or operating license, to mitigate the problems inherent in a monopolistic market or a principal-agent relationship in which the principal is, usually, in the weaker position. The following are the main recommendations, by topic.

Limiting capture of the concessioning authority and the regulator

- Implement a system for user participation and supervision covering all areas of the utility company's management, such as the evaluation of annual reports and opinions on investments or the settlement of complaints.
- Ensure that decision-making by supervisory bodies is transparent, to avoid their capture by the regulated company to the detriment of users.

Implementing and strengthening regulation and supervision

- Specify the type of decisions to be taken by regulators, the means and procedures to be used, the information to be requested and the reports to be submitted by the utility company.
- Define a precise scheme of penalties for non-compliance, which must be dissuasive in their frequency, impact and magnitude.
- Define the capacity of the regulatory body to impose penalties, as a key element in motivating or correcting the conduct of the utility company, limiting its scope for finding administrative loopholes.
- Take steps to ensure that the regulatory body's internal organization includes the definition of roles and assessment of specific tasks, providing for the formulation of a long-term strategic plan and the calculation of a budget with secure funding.
- Use competitive processes to select management and technical staff, requiring appropriate experience and expertise and establishing responsibilities and roles and a system of remuneration and promotions.

Enforcing compliance with the investment plan and guaranteeing access to services for low-income groups

- Prepare a consistent and sustainable development plan for services, with a priority on meeting social needs.
- Define *ex ante* the economic and financial structure of the service provision including, where appropriate, return on private capital invested in accordance with the risks assumed, reconciling tariffs levied on low-income groups with their capacity to pay.
- In order to achieve universal service coverage in the shortest time possible and avoid disputes arising from the consequent rise in tariffs, the State should be actively involved in the funding of investment plans, either by contributing with budget funds or by assuming long-term loans.
- Put in place mechanisms to protect funds earmarked for investment (whether derived from tariffs or from State contributions), in order to ensure that investment goes ahead as planned; a trust fund may be one good mechanism.
- Establish subsidy systems targeting low-income groups, both to expand service coverage and to help pay bills. Although it would be preferable to provide subsidies directly through external contributions, another alternative would be to set up funds using contributions from users with a greater ability to pay. This would then fund cross subsidies through a focused procedure using a survey structured to minimize inclusion and exclusion errors.

Dealing with conflicts over water tariffs and the effects of macroeconomic shocks

- Design a tariff scheme based on micrometering of consumption, to encourage rational use of water and simplify the billing base. This ensures clarity for users and facilitates control and regulation of the providers' income.
- Determine whether service delivery costs will be recovered partially or in total from

tariff income. If only partially, it will be necessary to establish how the necessary funds will be provided and what institutional and financial arrangements will be made to secure the financing to ensure the service's sustainability.

- Define beforehand how service provision risks will be shared between the State and the company, and ensure that such risks are fully reflected in the terms of the contract and in the business's financial structure, providing contractual mitigation and adjustment mechanisms in order to deal rationally and equitably with any contingencies that might disturb the equilibrium. This would avert opportunistic behaviour by either the concessioning authority or the utility company.
- Establish specific regulations on debt levels in order to avoid negative impacts from macroeconomic shocks and opportunistic behaviour by the company in "offsetting" costs, which should be done consistently with the risk allocation set forth in the contract.

Improving access to information on service provision

- Define the content and frequency of reports to be submitted by the company: business and investment plans, service provision report and annual inventory, quarterly statements, monthly budget execution and reports prepared for regular tariff reviews.
- Set standards for the plan of regulatory accounts to be used by the company, specifying the type of plan, accounts to be included, breakdowns and cost centres to be used, along with instructions for submission (regulatory accounting).
- Create and implement instruments for the regulator to develop its own information, so that it can define a set of efficient costs by which the utility company's behaviour should be guided. These instruments should be developed using an integrated approach incorporating elements of technical design (demand, assets and investments, operation of networks and plants, operating costs, process innovation and technological change) and financial considerations (demand and consumption factors, operating costs and investments, general and industry-specific efficiency indicators, the cost of capital and optimum levels of debt).
- Make arrangements for technical and accounting information provided by the company to be reviewed by certifiers or auditors who should be hired by the concessioning authority or regulator, in order to avoid their capture by the utility.
- Develop benchmarking systems, defining indicators, markets and companies to compare with utilities in Argentina and abroad.

Improving the competitiveness, transparency and efficiency of the utility company

- Establish a procurement and contracting regime for technical consultants, inputs and work, defining the type of actions to be regulated, sums, procedures, registration of suppliers, bidding conditions, external audits, obligations regarding attendance and information, and proper dissemination.
- Impose management efficiency obligations on the company, with penalties for non-compliance, creating mechanisms to transfer the benefits of efficiency gains to users.
- Implement regulatory procedures to improve the capacity to impose service delivery efficiency targets and induce companies to meet them.
- Without disregarding the benefits of economies of scale, analyse the technical and financial viability of separating metropolitan services by region or function, which could even facilitate participation by other service providers through build, operate and transfer (BOT) contracts, particularly for investments in wastewater treatment plants.
- Look at the possibility of opening up the utility's capital to investors, or set this as a goal, with the dual aim of securing voluntary financing for investments and improving the management information system.
- Establish a staff remuneration system for the utility company that rewards good performance achievement or results.

This study can be downloaded from *http://www.eclac.org/drni.*

Regulatory accounting for drinking water and sanitation services

Emilio Lentini, representative for South America of the Research Group "*Res-EAU-Ville*" of the National Centre for Scientific Research (CNRS) of France, Financial Manager of the Regulatory Body for Water and Sanitation Services (ERAS) of Argentina (see "***Internet and WWW News***") and Coordinator of the Regulatory Accounting System of service provision in the Metropolitan Area of Buenos Aires, contributed a paper entitled "***La contabilidad regulatoria de los servicios de agua potable y saneamiento. La experiencia en el Área Metropolitana de Buenos Aires***" (*Regulatory accounting for drinking water and sanitation services. The experience of the Metropolitan Area of Buenos Aires*). The introduction to this paper is presented below.

As public utility companies were opened up to private investment in the 1990s in Argentina, it became necessary to develop a regulatory framework that would induce private companies to work towards the objectives set forth by the State. Regulatory bodies created at the time of privatization were responsible for ensuring the application of such regulatory frameworks and for regulating and overseeing private companies providing public utility services. The application of these regulatory frameworks and the action of the regulatory bodies have had mixed results, depending on the public utility industry concerned, the privatization strategy adopted, the number of regulated companies and the institutional quality of sectoral stakeholders.

The experience of the regulator of drinking water supply and sewerage services in the Metropolitan Area of Buenos Aires (a function performed by the Tripartite Body for Sanitation Works and Services (ETOSS) from 1993 to 2006, and by ERAS from 2007 onwards), during the period of their provision by a private company (1993-2006), led to the conclusion that the regulation of *Aguas Argentinas* suffered from weaknesses in the regulatory framework arising from design flaws and the fact that there was only one large service provider.

Some of the main problems faced by the regulator have been the risk of public sector "capture", the problem of information asymmetries, the difficulty in establishing adequate incentives to realize investments and the complexity of benchmarking between service providers. These difficulties have been caused partly by gaps in the regulatory framework and weaknesses in the mechanisms designed back in 1992, as well as the dynamics of private sector management and the contracted service. All these point to the need for additional, specialized technical mechanisms that are truly effective, objective and transparent.

With this in mind, albeit after some delay, in the early 2000s ETOSS began to implement new regulatory instruments, including a trust fund for carrying out investments, a programme for social tariffs and another for low-income neighbourhoods, a benchmarking scheme, new auditing mechanisms, regulations for purchases and contracting, and a regulatory accounting system. This last instrument was one of the most important, given that during the short period it was in force it demonstrated its ability to alleviate some of the information problems between ETOSS and *Aguas Argentinas*, as it helped to:

- establish a uniform, consistent and objective basis for providing information to the regulator, so reducing information asymmetry;
- integrate regulatory reports with audited financial statements;

- provide consistent information for calculating tariffs; and
- integrate regulatory requirements into electronic accounting systems of the company.

Experience both at home and abroad indicates that information asymmetry is also present in the regulation and oversight of publicly-owned service providers. Accordingly, once the *Aguas Argentinas* contract was revoked in 2006 and services were transferred to the largely State-owned *Agua y Saneamientos Argentinos* (AySA) in 2006, the new regulatory framework stipulated that the company had to implement a regulatory accounting system.

Developing a new regulatory model in Bolivia

The following is the first part of the paper "***Desarrollando un nuevo modelo de regulación en Bolivia***" (*Developing a new regulatory model in Bolivia*), contributed by Claudia Vargas, legal consultant and former legal advisor to the Sectoral Regulation System (SIRESE) of Bolivia.

Creation and role of SIRESE

SIRESE was set up in 1994 following the enactment of Law N° 1600. Its purpose was to regulate, monitor and oversee the activities of the electricity, telecommunications, transportation, water and hydrocarbons industries, and help these sectors to operate efficiently. The system consists of the General Superintendent Office, which acts as a "regulator of regulators" and five sectoral superintendents' offices.

SIRESE has adopted a one-person model, with individual regulators for each sector and an arm's length approach focused on regulatory objectives and company performance. The innovation of SIRESE has been to establish the office of the General Superintendent, which is the appeal body for decisions taken by sectoral superintendents and monitors the efficiency and effectiveness of these agencies in carrying out their functions.

The functions of SIRESE are of a regulatory nature: its main tasks are approving prices and tariffs, promoting the competence and effectiveness of the regulated companies, and hearing and processing consumer complaints. Additionally, SIRESE has an important mandate to ensure that regulated sectors strive to make services available to all.

Ten years after SIRESE started up, a number of weaknesses were identified as regards its work to broaden the coverage of regulated services, customer attention, the need to complete regulatory frameworks (especially in the transport and water sectors) and, particularly, the legitimacy of the system in the eyes of the population. In 2004 it was already apparent that some changes had to be made to the system, and it was proposed that SIRESE should actively seek and promote ways to achieve universal service coverage, close oversight of companies and improve protection for users by making the work of Consumer Offices broader and more efficient.

These issues led to a debate regarding access to drinking water supply and sanitation, electricity and domestic gas, and regulators were given a role as active proponents of projects and investment plans. The utility companies and different levels of government (central, departmental and local) were to work together to try to meet the growing social demands for service coverage. Another objective was to introduce tariffs that incorporated the principles of social solidarity warranted by a population with very high levels of poverty and vulnerability.

Although SIRESE has done much to broaden service coverage, a number of challenges remain. From the mid-1990s onwards, large improvements were made in the provision of regulated services in cities; however, rural areas benefited less. In 2004, for example, 86% of the urban population had access to the drinking water supply networks and 87% to electricity, while in rural areas these figures were 34% and 28%, respectively.

The very poor are usually the last to gain access to infrastructure services. Social problems arise when large groups of society are left behind and excluded from service provision. One example of this situation were the protests in the city of El Alto in December 2004 and January 2005, demanding the conclusion of the contract awarded to the private company *Aguas del Illimani*, on the basis that 200,000 people in the city lacked access to drinking water supply.

Universal access to public utility services should be a priority for both the State and all those involved in the provision of public services. Under Law N° 1600, mechanisms must be implemented to facilitate access to public services for the low-income population in order to achieve universal access in SIRESE-regulated sectors. During this process, however, it has been found that some sectors of the population still find their access to public services severely constrained since, although they live in areas covered by the service, it is difficult for them to meet connection and supply costs.

Additional information about SIRESE is available at *http://www.sirese.gov.bo.*

World Water Day 2009

International World Water Day is held annually on 22 March as a means of focusing attention on the importance of freshwater and advocating for the sustainable management of freshwater resources. An international day to celebrate freshwater was recommended at the 1992 United Nations Conference on Environment and Development (UNCED). The United Nations General Assembly responded by designating 22 March 1993 as the first World Water Day. Each year, World Water Day highlights a specific aspect of freshwater.

In 2009, the theme for ***World Water Day*** is "***Shared Water - Shared Opportunities***". Special focus is placed on transboundary waters. Nurturing the opportunities for cooperation in transboundary water management can help build mutual respect, understanding and trust among countries and promote peace, security and sustainable economic growth.

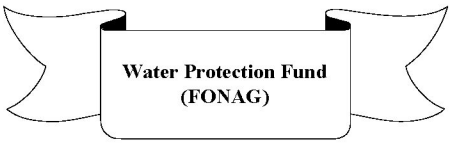
There are 263 transboundary river basins. Over 45 percent of the land surface of the world is covered by river basins that are shared by more than one country. Over 75 percent of all countries, 145 in total, have within their boundaries shared river basins. And 33 nations have over 95 percent of their territory within transboundary river basins. Over 40 percent of the world's population resides within internationally shared river basins. So far, 274 transboundary aquifers have been identified. They lie under 15 percent of the Earth's surface.

The Food and Agriculture Organization (FAO) of the United Nations has identified more than 3,600 treaties relating to international water resources. The majority of these treaties are concerned with some aspect of navigation. In the last century, more than 200 water-related treaties have been negotiated and signed.

International water law concerns the rights and obligations that exist, primarily between States, for the management of transboundary

water resources. Such legal rules and principles are dedicated to preventing conflict and promoting cooperation in shared water resources. The United Nations Convention on the Law of the Non-navigational Uses of International Watercourses was adopted May 21, 1997. It sets out the basic rights and obligations between States relating to the management of international watercourses. The primary substantive rules of international law is that States must utilize their international watercourses in an equitable and reasonable way and without causing significant harm to their neighbours.

Additional information about the World Water Day is available at *http://www.unwater.org.*



This paper "***FONAG: un fideicomiso como herramienta financiera para la conservación y el cuidado del agua en Quito, Ecuador***" (*FONAG, a trust fund as a financial instrument for water conservation and protection in Quito, Ecuador*) was contributed by Pablo Lloret, Technical Secretary of the Water Protection Fund (FONAG) in Ecuador (see Circular N° 27).

Context

The inter-Andean area of Pichincha Province (Hoya de Quito) is one of Ecuador's most densely populated areas and faces one of the worst problems of water shortage, competition and pollution. The water needs of the population of Hoya de Quito are supplied by surface water from the upper Esmeraldas river basin, ground water and some transfers. The aquifers surrounding Quito used to supply much of the population's drinking water. However, the deterioration of wells and the economic and operational advantages of surface water supply systems have led to the progressive closure of wells. In order to supply the unmet needs of Hoya de Quito, water now has to be transferred from river basins in the Amazonian region: drinking water for Quito is extracted from the Antisana, Oyacachi and Papallacta rivers; water for the Tabacundo irrigation project from the Boquerón, Monteras and San Jerónimo rivers; and irrigation water for Cangagua from the River Oyacachi. The situation has been worsened by a deep crisis in national water resources management, owing to irregularities and deficiencies in water concessions and poor administration of conflicts related to water use and access.

The "*Preliminary report of the programme to monitor water quality in the Guayllabamba river basin*", issued by the Metropolitan District of Quito Environmental Department in 1999, concluded that levels of bacteria in all the sub-basins made unadvisable human consumption of untreated water under any circumstances, and indeed all other uses involving direct contact. High levels of suspended solids have been observed in some sub-basins, which could be an indication of major erosion. Typically for mountainous areas, all the rivers sampled showed a significant capacity for reaeration, meaning that the dissolved oxygen content is almost always close to saturation level, even though pollution levels are quite high in some cases.

Creating a trust fund for water protection

The Water Protection Fund (FONAG) was created to resolve these problems in water resources management, acting as a permanent and stable financial mechanism based on a trust fund, so that returns on capital can be used to fund conservation and maintenance of water sources that supply human and productive needs in the Metropolitan District of Quito and its environs.

The proposal to create FONAG was headed by the NGO The Nature Conservancy (TNC) on the basis of analytical studies and the programme of communication and education on water-related issues in Quito, which were both developed with the assistance of the United States Agency for International Development (USAID). *Empresa Metropolitana de Alcantarillado y Agua Potable de Quito* (EMAAP-Q) (the water utility serving the city) and TNC signed the contract creating the fund on 25 January 2000. Legally speaking, it was set up as a private trust fund under Ecuador's Stock Market Law. The electric company *Empresa Eléctrica Nacional* joined the venture in May 2001; *Cervecería Andina* in March 2003; the Swiss Agency for Development and Cooperation (COSUDE) in January 2005; and Tesalia Springs, a company selling bottled spring water and related products, in April 2007. Members' contributions vary between a fixed rate of 1.25% (in 2008) on the drinking water and sewerage sales of EMAAP-Q, to a fixed annual amount paid by other participants. The fund currently holds close to US$ 6 million and investments for 2008 are estimated at some US$ 0.8 million in financial returns and US$ 2.9 million in counterpart funds.

The objectives of FONAG are to conserve water sources through the control of predatory activities, ensure protection of surrounding biodiversity and conserve and recover plant cover, as well as undertake reforestation around river sources and riparian areas in high mountain river basins, all allied to the creation and recognition of social policies to support and promote poverty reduction and build firm linkages between conservation and development. The proposal is thus consistent with the conservation objectives of biodiversity and support for job creation in protected areas as a practical means of offering assistance to the most excluded sectors.

The menu of financial services now being provided by FONAG includes investment donations for local agencies specialized in formulating and implementing projects and programmes conducive to FONAG objectives in the river basins that supply Quito. Investment loans will be made available in a second stage. Contributions are also sought from external agencies in order to strengthen the fund, whose yields finance efforts to achieve the goals proposed.

The purpose of FONAG is to safeguard the water used in Quito and its surroundings. This is being realized through payment for the environmental services produced in the river basins supplying the city, and through funds from electricity and water bills, along with specific and regular contributions. All these contributions are channelled into a capital fund through a mercantile trust, which acts as a financial instrument for water protection.

Methodology

Establishing a new water culture is a huge objective which can only be achieved through long-term measures based on partnerships with the regional and local actors involved in water resources management. Water management is currently sectorized and characterized by very weak governance, and work is under way to improve this situation. FONAG is guided by a methodology based on promoting integrated water management and providing leadership in this area in the river basins covered by its mandate.

Since it is set up to operate for a period of 80 years, FONAG aims to work continually and systematically on the different aspects of water protection. Accordingly, 80% of its investment resources go to continuous, long-term measures.

FONAG currently runs the following programmes: forestation and reforestation; communications, surveillance and monitoring for protected areas; and environmental education and training. The hydrological programme is under construction and is aimed at characterizing and defining the water balance of the river basin by monitoring supply and demand, working on the basis of a model of the river basin, operating an information system for water resources and establishing a social base for water management.

As a means of supporting its intervention programmes, FONAG co-finances projects in different areas (always with a clear focus on

water protection), with 20% of its investment funds being used in this way. Such projects range from support for production activities with an environmental focus to applied research, constantly seeking to establish alliances and joint responsibilities, not only as regards funding but also in project implementation.

Current challenges and proposed solutions

The challenges FONAG currently faces are related to its institutional framework, technical performance and relationship with the community:

- Keep up the technical implementation of programmes and projects over time, regardless of political or economic changes.
- Establish indicators to show in a clear and comprehensible manner substantive changes achieved in water conservation.
- Ensure accountability to society in order to strengthen the programme of interventions, which is perhaps the only real way of showing and maintaining the fund's commitment to water users.
- Provide an explicit account of how and how much each water user contributes to the maintenance and growth of the fund.

Lessons learned

- The financial resources of FONAG are provided by direct users of water, part of whose payments goes towards the protection of water sources. The trust fund is fed by locally-generated funds and is not dependent on foreign or government capital.
- Given the weak governance of natural resources, particularly water, the availability of long-term financial instruments is a guarantee that interventions and programmes to protect water sources will last.
- Experience from measures taken to protect natural resources shows that most impact is resources is established on the basis of water use and consumption.

For further information on FONAG please see *http://www.fonag.org.ec.*

Matanza Riachuelo River Basin Authority

In this section, Alejandro Rossi, Secretary General of the ***Matanza Riachuelo River Basin Authority*** (Argentina), describes how this organization was created. It involves 14 municipalities, 29 authorities and more than 200 statutes. Industries have flourished and succumbed to the rises and falls of the country's economy, set alongside poverty, disease and high social vulnerability, all on the doorstep of Buenos Aires. Such has been the Matanza Riachuelo River Basin right to the present, home to shanty towns, salting houses, tanneries and everything one would expect from the explosive growth of a city like Buenos Aires over the course of almost two centuries. Ever since the yellow fever epidemic of 1871, authorities, commissions and committees have come and gone, and countless promises have been made, but little has changed.

Both the National Ombudsman's and Comptroller's offices were adamant about the need for an effective "authority" for the river basin, and similar concerns were echoed by different studies commissioned by the legislative branch to deal with the problem of pollution in this area of some 2,200 square kilometres. However, it was not until residents of the river basin, together with a group of NGOs, sued the State, the Province of Buenos Aires, the City of Buenos Aires as well as 44 polluting companies for damage to the environment and individuals, and the Supreme Court issued a ruling in what was known as the "Mendoza" case, that the State designed an effective plan to deal with this serious problem. In August 2006, the Environment and Sustainable Development authorities of the Province and City of Buenos Aires have acceded (see Newsletters N° 26).

Regarding the legal certainty of this methodology, this model follows an existing legislative practice of agreements between the federal and provincial authorities. Other examples include the Law on Sanitary Works, the Tripartite Body for Sanitation Works and Services, the Law on Forests and the Law on Hazardous Residues. The law that establishes the River Basin Authority does not stipulate a minimum budget for environmental protection (a regulatory minimum at federal level), or an emergency standard, much less a proposal for federal action. It is a "national" law based on a scheme of agreements that could be described as a "double closure" (*ex ante* and *ex post*) with the jurisdictions concerned, in order to help set up, coordinate and implement an environmental regulatory mechanism consisting of a territorial area shared on the principle of integrated management of the river basin. This principle is recognised by various laws now in force, and serves to avoid a single resource being pulled back and forth by multiple regulations and jurisdictions.

Integrated river basin management should not be understood as the administration of its resources by a single unit, but rather effective coordination by applying the principle of subsidiarity established in both the Matanza Riachuelo River Basin Authority Law and the National Environmental Act. There is no intention of substituting local powers in the river basin, but rather of strengthening them, in accordance with the goals set out in existing legislation, which are directed at the longstanding need to restore the river basin.

It should be clarified that the planned authority will not be empowered to apply penalties that pertain to the jurisdictions within it, nor will it receive any financial resources generated by taxes, charges or fines. The River Basin Authority may, however, require preventive measures to be taken in order to avoid worsening damage to human