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

United Nations Economic Commission for Latin America and the Caribbean (ECLAC) N° 34 October 2011

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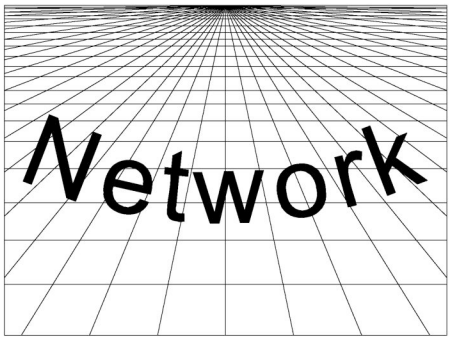
Water is always managed. This process never stops because nothing and no one can develop without this vital resource. Water is captured legally or illegally, being of good or bad quality, in quantities which sometimes are barely sufficient for survival, but it is obtained somehow even if harm results to the environment or other users; even if there is flood, drought or contamination, even if rivers dry up or water levels in aquifers fall, people will continue to capture water and use it, whether or not the State is involved. So, why should not all actors be left to do whatever they wish with water and with the river basin, depending on what suits their particular interests?



The answer is that, as water becomes scarcer, if there is no appropriate organization for its management in a shared water system, chaos will result. Inequity will worsen, there will be increased vulnerability to extreme natural phenomena, conflicts will spread and it will be more and more difficult to develop major infrastructure to use and regulate this resource. These problems will entail —and do always entail when they occur— a serious obstacle to development. To prevent this, an appropriate water management system is needed, involving participation by society.

The water of a river basin, and all water infrastructure that has been built, form an interconnected system used by multiple actors —well-established and newcomers, large and small, formal and informal, with highly diverse interests— who share and compete for the same resource, transfer to others the impacts they produce, and are in turn affected by externalities generated by others. From time immemorial this has required organization on the part of users and above all the involvement of the State, to prevent abuse, ensure efficient and orderly use, and implement major works for the benefit of all. It is therefore legitimate and necessary that the State, in conjunction with users and civil society, should regulate interventions affecting water and river basins, channels and major water infrastructure, to minimize inequities, protect the environment and support economic growth, leaving space for activities of private agents subject to clear and strict rules on coexistence among themselves and with the environment.

The basis of the problem is that in many countries, there is a lack of real State policy and of consensus recognizing the great complexity of water management. Public sector posts in water management bodies must not be treated as political bounty; and specialized and valuable teams must not be discarded with each change of government at the national or local level. Posts requiring high levels of specialization are often awarded for political reasons or undervalued. Water managers at all levels must satisfy conditions of aptness and honesty which must be respected and valued.

Accumulated experience shows that, regardless of any dominant paradigm in water management or in political declarations, if State institutions are insufficient and weak, countries will face the same problems: overexploitation of water sources, inequity in access to water, contamination, deteriorating infrastructure and inability to cope with the impacts of floods and droughts. Good water management needs an approach which goes well beyond statements of good will. It must therefore be placed at its deserved hierarchical level and strengthened continually, building institutional memory. Excellence and good ethics must be sought for its technical and professional staff, management systems must be reinforced by the participation of society at the national and river basin levels, with strong capacities for implementation and supervision and sufficient funding. Only continuity in water policies will yield real and lasting results. Only in this way can the targets of sustainability and development, hitherto seen more in speeches than achievements, be met.

Axel Dourojeanni (Senior Consultant, Fundación Chile)

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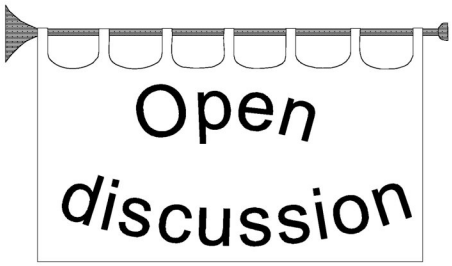


Drinking water and sanitation: lessons from relevant experience

Over the past 30 years, the drinking water supply and sanitation sector in Latin America

and the Caribbean has undergone successive reforms designed to improve its performance. Most of the countries, however, are far from achieving universal coverage and much remains to be done to provide appropriate levels of service quality. At the same time, there are still problems for the financing of operations and investment in services.

As for the depth of reforms in the region, the most noteworthy have been in Argentina and Chile. Their respective transformation processes have made considerable progress in both the implementation and improvement of new regulatory frameworks and the self-financing of services and private sector participation. Development and results have differed, however.

In the 1970s, services in urban areas in Chile and in the Buenos Aires Metropolitan Area showed similar levels of coverage. At present, urban areas in Chile have practically achieved universal drinking water supply (99.8%) and sewerage services (95.9%) and 86.9% of wastewater is treated, but coverage in Buenos Aires Metropolitan Area stands at only 79%, 59% and 8% respectively.

The Natural Resources and Infrastructure Division has published a document entitled "***Servicios de agua potable y saneamiento: lecciones de experiencias relevantes***" (*Drinking water and sanitation services: lessons from relevant experience*) (*Project Document Series*, LC/W.392, April 2011) by Emilio Lentini (available in Spanish only). On the basis of comparative analysis of those two experiences and taking into account references from other countries in the region (Bolivia, Brazil, Colombia, México, Peru, Uruguay, etc.), the author identifies the factors exogenous and endogenous to the drinking water supply and sanitation sector which determine performance or, in other words, success or failure. The focus will be on exogenous factors in this issue and more on endogenous ones in the next.

Macroeconomic policy

Developing drinking water supply and sanitation services entails a major investment process for a prolonged period. The intensity and regularity of this process are subject to the macroeconomic environment. Economic stability and growth in the framework of rational and consistent policies will foster healthy public finances, improvements in the population's ability to pay and an appropriate context for public and private investment. It is therefore understood that a country's macroeconomic situation and public policies have a strong impact on the development of the sector, both when services are provided by public bodies and where the provider is a private company.

To consider the Chilean example, the sector shows considerable, sustained development which has coincided with the period of favourable macroeconomic conditions which began following the serious crisis of the early 1980s, and which has continued to the present. Macroeconomic conditions during that period, together with a stable legal and institutional framework, encouraged participation by foreign investors in local businesses in a low-risk environment.

This compatibility of macroeconomic and sectoral policies has been reflected in the fact that increases in tariffs —and their readjustment up to self-financing levels under the model of public service provision— have coincided with periods of growth in household incomes and low unemployment. Political and economic stability, an effective and independent regulatory framework and acceptable tariff levels generated incentives and signals which were suitable for sustained high levels of investment based on reasonable profit margins and acceptable levels of corporate borrowing.

Services in the Buenos Aires Metropolitan Area, on the other hand, have developed in a framework which is significantly different from that in Chile. In recent decades, Argentina has been characterized by wide fluctuations in economic growth, alternating boom and bust periods, repeated crises, macroeconomic instability and periods of high inflation, including one of hyperinflation.

The volatility of the Argentine economy has been increasing, and has been so severe that extraordinary measures have been necessary. These have often involved modifications to the legal framework, and uncertainty and weak institutions have influenced decisions on investment: delaying them, guiding them towards assets with relatively short pay-off periods, or demanding high yields in comparison with international averages to compensate for possible losses resulting from changes in the "rules of the game".

In the macroeconomic context, the problems of poverty and unemployment should be emphasized. Given the characteristics of the services involved, the poor are most strongly affected, either because of lack of access to the service or because they are unable to pay. In the former case, they are affected by levels of investment; in the latter, by the existence or otherwise of subsidies, given the need for levels of tariffs which cover the real cost of providing the service. Concerning trends in poverty levels in the past 20 years, Argentina has experienced fluctuations, particularly the crisis of 2002, whereas in Chile the poverty index has fallen steadily since the late 1980s.

Priority given to the sector

The drinking water and sanitation sector is a permanent and prominent item on governments' agendas, being an important part of public policy. The results achieved in most cases, however, suggest that the sector has often been given low priority among government activities, particularly in respect of budgetary allocations, probably because the governments tend to emphasize solving short-term problems or those which can yield short-term results, postponing the attainment of long-term strategic targets, which are often vague or even nonexistent.

Attempts at sectoral reform, through the strengthening of state-owned service providers or private sector participation, have lacked strategic vision in many countries, focusing more on normative and formal issues rather than on effective policy changes in the sector and the vital elements which could bring about the necessary transformation. This has been the case in Argentina and Bolivia, where new institutions which arose in the 1990s were developed alongside the involvement of private service provision. Specific contracts were established between the responsible public authorities and the service provider, on the basis of a legal framework with general guidelines, and the private service provision was unable to satisfy the resulting expectations and became unstable in the face of political changes and complaints from civil society.

On the other hand, the most recent stages of the transformation strategy in Chile and Colombia were based on a specific legal framework with the characteristics of a State policy. In both of these countries, the process was facilitated by a non-federal political and administrative organization. The legal framework and institutional organization were not directly linked to private sector participation, and initial contents together with subsequent normative approaches set up regulations and procedures which were essentially technical, with a view to creating sustainable and efficient conditions for service provision regardless of whether the private or public sector was involved.

Priority treatment of the sector should take place through an integrated approach which demands recognition of the considerable externalities involved in the provision of drinking water and sanitation services. Decisions on spending and investment in the sector should take due account of the socioeconomic costs incurred when those services are in deficit. This in turn would mean that the regulation of the sector should contain explicit targets for universal coverage with binding deadlines, as well as mechanisms with suitable incentives to ensure

that service management is efficient and economically and environmentally sound.

Institutional quality

The effectiveness of the legal framework of the sector depends on the bases and the technical consistency of the instruments it comprises. This would not be enough, however, if it is not implemented by a specialized institutional organization which is experienced, stable, capable, independent and objective. Services should be provided by a diligent, efficient and transparent operator. Bearing in mind the considerable economic resources involved in the sector, the achievement of effectiveness in this context requires efficient anti-corruption measures. The sector's performance, therefore, is heavily dependent on institutional quality. Chile and Uruguay, which are well qualified in indicators of perception of corruption and governance, are also noteworthy for their high levels of coverage and quality in drinking water supply and sanitation services.

Urbanization

Growing urbanization in the countries of the region, together with rising levels of exclusion and poverty, have made it more difficult to progress towards the targets of universal service coverage and improved quality. As a result, the countries have been faced with growing unmet demands. In most cases, this has delayed yet further the progress towards the agreed targets.

Payment culture

Chile has an outstanding payment culture and, since tariffs fully cover the cost of service provision and consumers are billed on the basis of the quantities used, the economic cost of services is properly valued and there are incentives to use them efficiently. In Buenos Aires Metropolitan Area, on the other hand, tariffs do not cover operating costs. Moreover, payment is in the form of a fixed charge and the micrometering of consumption is not widespread, leading to bad habits of wasteful water use.

Popular recognition that having drinking water and sanitation services available entails monetary costs which must be paid by service users is an important condition for the sustainability of the system and a clear signal to the responsible authorities that they must act in accordance with that behaviour.

Economies of scale in drinking water and sewerage services

This section presents the conclusions and recommendations of a study on ***economies of scale in drinking water and sewerage services***, by Gustavo Ferro and Emilio Lentini (see "***Publications***"), which analyses relevant experiences in the region and other parts of the world, in relation to economies of scale in the provision of drinking water supply and sewerage services in urban areas. This report reviews the state of the art in theoretical and practical areas in relation to the impact of economies of scale on industrial structure of the sector and the consequent implications for public policymaking.

Economies of scale have been measured in a number of countries, using a variety of methods, at various times and using samples from different service providers. With the caution necessary when comparing data which are not entirely comparable, the commonalities between the studies are that the message of economic theory is confirmed:

- Small-scale providers (those serving fewer than 100,000 consumers) show clear economies of scale.
- Between that size and 1 million, sometimes as many as 4 million inhabitants, there is a tendency for economies of scale to remain constant.
- Very large service providers may experience diseconomies of scale.

The minimum efficient scale can be attained by merging small providers and can be prolonged by means of management improvements (in works, in areas such as loss control, and in management, for example, by streamlining administration and marketing).

There are a number of countries in the region where services are decentralized at the municipal level. This has generally led to service providers which are small, inefficient, with little cost recovery capability, technical difficulties in ensuring quality service and financial constraints in terms of expanding coverage and improving environmental sustainability (see Circular N° 20).

Decentralization has often been associated with central governments' macroeconomic problems, leading to the transfer of functions to subnational authorities. The purpose of this seems to have been fiscal in most cases, although it was argued that management could improve through proximity of the service provider to the citizen at the municipal level. As a result, there were losses of scale and critical mass, the problem of expansion was unsolved and there is now a danger of long-term continuity of political tariff setting and low capacity for cost recovery and increased coverage. With the loss of opportunities for economies of scale, there is a shortfall not only in economic efficiency but also in equity, since the most needy population groups are denied access to services a result of rising costs.

It has been seen that, following an initial phase of service centralization when major works were executed, significantly extending service coverage, a variety of decentralization processes began around the 1980s. These focused mostly on the municipal level, although in some cases they related to administrative regions, provinces and states. In the 1990s there were private sector participation initiatives in a number of countries, with mixed results. In more recent years there have been returns to public sector management and departures of private operators. In a number of cases, the consolidation of services at the regional level is currently being analysed.

In terms of public policies, there are various ways to take advantage of economies of scale. When the private sector is in control of the service provision, it seeks to capture them for itself by means of mergers and acquisitions. This practice is the best indicator that there are real opportunities to benefit from economies of scale. In the developed countries, regulatory policies seek to transfer efficiency gains of economies of scale to consumers through improved quality and sustainability in services, or lower tariffs.

In Latin America and the Caribbean, service tariffs do not always recover costs, quality and sustainability are deficient and coverage is not universal. Furthermore, income distribution is much more unequal than in the developed countries. The priority is, therefore, not to provide inexpensive service to those who are already connected, that is, the middle and upper classes, but to increase service coverage, quality and sustainability, providing subsidies only to the poor. Any economies of scale which can be achieved contribute resources to the virtuous circle of efficiency, coverage, quality, equity and sustainability.

With respect for countries' individual institutional realities and for the time needed for reaching consensuses, the following are a series of public policy recommendations which have emerged from the study:

- The first point is that the service provision must become "corporatized", that is, it should have separate organization and accounting, legal personhood to enter into contracts independently from the level of government which owns it, and professionalized management. Furthermore, service provision must be separated from planning, regulation and control, conferring upon the latter two functions an independent institutional structure with technical capacity.

- Second, there must be a legal framework and economic and administrative conditions so that municipal service

providers can be brought together into some form of organization based on geographical proximity, through an association or community of neighbouring municipalities which have common problems in service provision and water resources management, or directly at the subnational level (states, provinces, regions or departments).

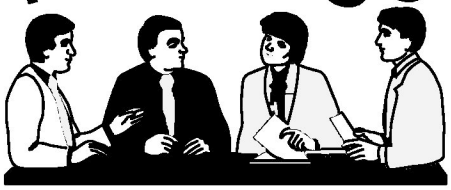
- Third, considerations of economies of scale for the creation of national regulatory bodies —and the definition of rules, planning, governing bodies, the design of mechanisms for tariffs and subsidies— are included in the arguments put forward for service provision, although in some cases they may conflict with the powers of autonomous subnational authorities and consensuses will have to be reached.

- Fourth, in the case of mergers between service providers, the origin and destination of the economies of scale obtained must be detected in advance so that they can be captured with lower tariffs or improved services. This is a precondition, to prevent the process from becoming distorted and to build public support to the extent that the citizens see that the process leads to a more efficient service, of higher quality, with prospects for expansion, and financially, socially and environmentally sustainable. Finding economies of scale involves good accounting practices, process costing, reasonable allocation of common costs, and decisions on cost streamlining and works planning. Mergers involve decision-making on matters such as installations, buildings, service contracts, organization charts and the staff, selection of senior managers, introduction of incentives in the form of financial rewards and career advancement for employees, relations with shareholders (such as municipalities) and regulators, and customer service policies.

- Fifth, consolidation offers a unique opportunity for redesigning sectoral structures and achieving targets which are highly significant in their economic, social, health-related and ecological impacts. This chance must not be wasted through improvisation or because of parochial interests.

- Sixth and last, it is a call to mental openness, since there are no single, universal solutions. The problems are similar, but institutional architecture and consensus-building can and must have variants which respect legitimate rights and prerogatives and local conditions, the autonomy of decision-making bodies and creativity in the quest for imaginative and lasting solutions. A degree of agreement on analysis is a very good first step.

Meetings



As part of the activities organized within the framework of the "Sustainability and Equal Opportunity in Globalization. Component 1, Theme 4: Building Commitment, Efficiency and Equity for Sustainable Water Supply and Sanitation in Latin America and the Caribbean" project undertaken jointly by ECLAC and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and financed by the German Federal Ministry for Economic Development and Cooperation (BMZ), the Natural Resources and Infrastructure Division has organized a regional conference, a national workshop and a training course. Further information is provided below.

Building Commitment, Efficiency and Equity for Sustainable Drinking Water and Sanitation

A ***Regional Conference on Building Commitment, Efficiency and Equity for Sustainable Drinking Water and Sanitation Services in Latin America and the Caribbean*** took place at ECLAC headquarters in Santiago, Chile, on 15-16 March 2011. Its main goals were as follows:

- to present, analyse and discuss the results of research and technical assistance activities conducted in the framework of the project;
- to debate and improve the draft public policy guidelines document for the drinking water supply and sanitation sector; and
- to determine the current situation of service provision in the countries of the region in order to establish areas of work for the future.

The work of the conference was organized around the following thematic areas:

- lessons from the main fields of research conducted in the framework of the project;
- experiences of the countries with which the project has cooperated (Chile, Colombia, Guatemala and Peru);
- other country-level experiences and the views of private service providers;
- presentation of the draft public policy guidelines document; and
- analysis and discussion of the draft document in working groups.

National Workshop on Future Challenges for the Drinking Water and Basic Sanitation Sector

In recent years, the Government of Colombia has adopted a policy known as Departmental Water and Sanitation Plans (PDA), designed to regionalize the delivery of drinking water supply and sanitation services by concentrating it in the hands of major specialized operators with technical and operational capacities to improve coverage, efficiency and quality of service, funded by the municipal authorities benefiting from the plan, the departments and the nation. After four years of this policy, it became necessary to pause in order to assess the situation in the sector, the progress made and the remaining challenges for the achievement of universal coverage in urban areas, efficient alternative solutions in rural areas and adequate standards of quality in those services. To that end, the Natural Resources and Infrastructure Division organized, jointly with the Office of the Superintendent of Domestic Public Services (SSPD) of Colombia —the body responsible for supervising and controlling the efficient, competitive and sustainable provision of public services and protecting users' rights— a ***National Workshop on Future Challenges for the Drinking Water and Basic Sanitation Sector*** (Bogota, Colombia, 8 and 9 June 2010).

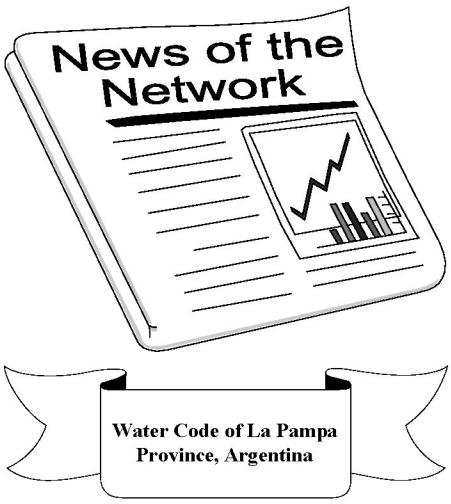
Participants in the workshop presented the results of studies conducted by ECLAC as part of its cooperation with SSPD. The subjects discussed included thematic areas of priority interest for the development of the water supply and sanitation sector (small communities, sectoral indicators, progress of the PDAs, growing needs for infrastructure and regulation in sewerage services, and the availability and reliability of sectoral information), and recommendations were made for the achievement of the Millennium Development Goals (MDG) relating to drinking water supply and sanitation.

The overall conclusion of the discussions held during the workshop is that Colombia is on the right track to attain the quality and coverage targets for drinking water supply and sanitation, but needs to simplify the operational design of the PDAs and focus on defining service provision arrangements and links with specialized operators which are mainly of regional level. Efforts need to be made to link the 550 communities of fewer than 10,000 inhabitants not covered by the PDAs and give priority to strengthening the supervision and monitoring of these service providers; it is in these communities that the country's problems with service quality and coverage are concentrated. It is also necessary to establish the most appropriate arrangements for funding wastewater treatment and to adopt

a policy in that regard. A user-friendly and functional system for consulting the Unified Information System (SUI) should be implemented, and information quality control procedures should be strengthened.

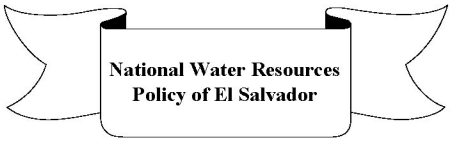
In the framework of cooperation with the Technical Secretariat of the Specific Water Cabinet and the Presidential Programme "Water, source of peace" in Guatemala, the Natural Resources and Infrastructure Division organized a ***Workshop on Analysis and Challenges for Institution Building in Public Drinking Water and Sanitation Services in Guatemala*** (Guatemala City, 30 November-3 December 2010). The workshop's main goal was to provide training in specialized areas relating to the legal and institutional framework of the sector and best practices in economic regulation and supervision of service provision in drinking water supply and sanitation. It was planned as a means of strengthening the team responsible for reforms in the sector and, in particular, the organization of the governing body. The main areas of the workshop content were as follows:

- Conclusions and recommendations of a study "*Drinking water and sanitation services in Guatemala: potential benefits and determinants of success*" by Emilio Lentini (see Circular N° 33).
- Design of the sector's specific legal framework and of its institutional organization.
- National experiences in urban water supply and sanitation services, particularly in Argentina, Colombia, Chile, Peru and a number of western European countries.
- National experiences in rural services and issues relating to the indigenous population.
- Practical aspects of economic regulation: regulatory mechanisms, organizational structure, functions and procedures, tariff setting and subsidies, financing and investments, industrial organization and economies of scale and scope, sectoral information systems and regulatory accounting, the concept of efficiency and its measurement, indicators of productivity and benchmarking.



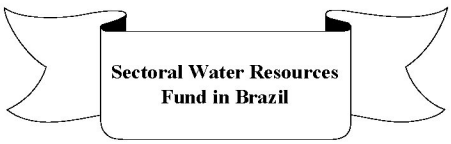
Law N° 2581 of 15 October 2010 adopted the ***Water Code of La Pampa Province***, Argentina. Pursuant to the code, water policy formulated by the provincial government and the resulting activities are the principal instrument of integrated water resources management and are to be based mainly on the following principles:

- Unified management, integrated treatment, water economics, decentralization, functionality and user participation.
- Unity of the river basin and water region in their various aspects: hydrography, water engineering and hydrology.
- Compatibility of public water administration with the management, planning, use and exploitation of natural resources in the province, environmental conservation and protection and the restoration of natural habitats.
- Consideration of joint, alternative or customized exploitation of surface, ground and atmospheric water according to local circumstances, type and nature.
- Treating water as a good which is scarce, valuable and vital for the social, economic and cultural development of the province and the general welfare of its inhabitants.
- Priority for human consumption in water use.
- Periodic assessment of the value of the royalty to be received by the provincial government according to the nature of the various uses of water, based on the consideration that water is a scarce and therefore valuable resource, vital for the social, economic and cultural development of the province and the general welfare of its inhabitants.
- To promote the equitable, rational, efficient and multiple use and exploitation of its water resources to ensure the integrated and sustainable management of water and associated resources.
- Safeguarding and preserving ecological and environmental balance, which may depend on water use.
- Planning and executing the necessary actions for optimal knowledge, conservation, regulation, protection and use of water resources.
- Promoting citizen participation to achieve effective governance in the water sector.
- Promoting education, awareness and training as a fundamental instrument for achieving integrated and participatory management of water resources.



The Natural Resources and Infrastructure Division cooperated with the Government of El Salvador on the holding of the event (San Salvador, 31 March 2011), which launched the elaboration of the ***National Water Resources Policy***, under the leadership of the Ministry of the Environment and Natural Resources (MARN). This policy will provide the frame of reference for defining the instruments needed to deal with and resolve current issues relating to the various uses of water: the national strategy and general water law, and the drinking water and sanitation subsector policy, its strategy and national plan and the drinking water and sanitation law. The national water resources policy is based on the following principles: equity, precautionary approach, shared responsibility, legal security, efficient exploitation, the polluter pays, citizen participation and water culture, economic and social valuation of water, and water as a public good. Its general goal is to ensure the protection and efficient use of water by institutionalizing the integrated water resources management approach.

The policy has the following specific objectives: to organize and strengthen State institutions for integrated water management; to ensure the viability of integrated water management based on the river basin as the planning unit for coordinating its various activities and uses; to improve knowledge of the condition and evolution of water resources through strengthened institutional capacities to generate timely and accessible information for decision-making; to incorporate integrated water management into sectoral plans, optimizing water structures to permit multi-purpose use; to incorporate water resources risk management, bearing in mind the impact of climate change, by protecting vulnerable areas from natural and man-made threats; and to preserve water quality for the protection of public health and natural ecosystems.



The implementation of integrated water resources management involves a variety of actions, professionals with suitable training, extensive research and, in particular,

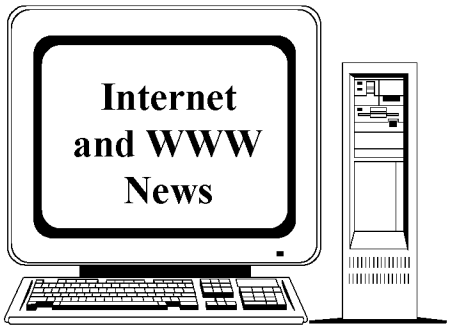
development of new technology for water use. In Brazil, so that some of these demands could be met, a ***Sectoral Water Resources Fund*** (CT-Hidro) was created in 2000 within the Ministry of Science and Technology (*http://www.mct.gov.br*). Its goal is human resources training and the development of processes and equipment for water-use optimization through actions in a number of areas of water resources management, urban water conservation, ecosystem sustainability and integrated and efficient water use.

CT-Hidro is funded by transfers from the electric-power sector —for the flooding of land areas for hydroelectric power generation and payment for the use of water resources— to the three levels of government. These resources are used in support of postgraduate studies and scientific and technological development. The process is led by a management committee comprising representatives of the Ministries of Science and Technology, of the Environment, of Mining and Energy, and the National Water Agency (ANA), as well as representatives of the academic world and the productive sector. The committee holds regional meetings jointly with the scientific community to identify areas where research is needed.

Manuela Moreira

Special Law on Drinking Water and Sanitation Committees of Nicaragua

In Nicaragua, the ***Special Law on Drinking Water and Sanitation Committees*** (N° 722), of 14 June 2010, is designed to establish provisions for the organization, constitution, legal establishment and functioning of drinking water and sanitation committees (CAPS), defined as non-profit organizations which, in a voluntary manner and democratically elected, take responsibility for ensuring, with support from all users, the administration, operation and maintenance of communities' drinking water supply and sanitation services, and are accountable for their procedures and activities.



Some websites worth visiting for information on water-related issues are listed below:

- The National Water Commission of Mexico (CONAGUA) has presented a document on ***dialogue for water and climate change: a call to action***, prepared as part of the follow-up to the dialogues on water and climate change held in December 2010 in the framework of the sixteenth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (*http://www.d4wcc.org.mx*). CONAGUA has also announced its strategy for the ***Water Agenda for 2030***, in which it sets out a commitment to establish a water sustainability policy and to pass on to the next generation a country with clean rivers, river basins and aquifers in equilibrium, universal drinking water supply and sewerage coverage and secure settlements in the face of catastrophic floods (*http://www.conagua.gob.mx*).

- On the website of the Latin American Association of Groundwater Hydrology for Development (ALHSUD), Chilean chapter, those interested can see the materials presented at the ***national seminar on the issue of whether water is overexploited in Chile*** (*http://www.alhsudchile.cl*).

- The overall objective in establishing the ***Ibero-American network for innovation and technology transfer for sustainable urban water cycle management*** is to develop scientific and technological knowledge and technology transfer to entities responsible for managing the integrated urban water cycle in the Ibero-American countries (*https://it-agua.com*).

- The ***Water Ethics Network*** facilitates sharing of experiences, ideas, and information about events and activities relating to water ethics. The aim is to bring an awareness of water ethics into the everyday discourse of water policies and management decisions, so that choices about water use and water ecosystem management are consciously informed by values (*waterethicsnetwork.blogspot.com*).

- On the website of the ***Chile Foundation environmental programme***, various interesting documents can be consulted, including papers on *river basin management in Chile* (experiences in water governance and a proposed plan of action for water committees); *collaboration processes and dispute settlement procedures for water*; and *water banks* (*http://www.innovacionambiental.cl*).

- ***eFlowNet*** (*http://www.eflownet.org*) is a portal dedicated to environmental flows.

- The function of the ***national environmental authority*** (ANAM) of Panama is to lead, facilitate, supervise and administer environmental management in order to conserve, protect, restore, recover and improve the environment and the natural-resource base, fostering environmental competitive advantages (*http://www.anam.gob.pa*).

- *http://www.consejosdecuenca.org.mx* is the ***portal of river basin councils*** in Mexico.

- ***Practical Solutions*** (ITDG) is an international technical cooperation body which contributes to the sustainable development of disadvantaged population groups, through research, application and dissemination of appropriate technology. Its work is organized into the following technological programmes: production systems and market access; energy, infrastructure and basic services; and disaster prevention and local governance (*http://www.solucionespracticas.org.pe*).

- A new set of ***environmental statistics and indicators*** has been published on the ***CEPALSTAT*** web page. It is structured according to a simplified pattern of thematic ordering: biota, water, seas, coastlines and continental waters, land and soil, energy, air and atmosphere, natural disasters, transport, and environmental management (*http://www.eclac.cl*).

- In the United States, the Rural Community Assistance Partnership (RCAP) has produced two ***new guidebooks that explain to non-technical audiences in everyday language the technical aspects of drinking water supply and wastewater systems*** (*http://www.rcap.org*).

- Materials for the ***seminar on modernization of the electronic water market in Chile*** can be consulted at the website of the Economics and Business Faculty of the University of Development of Chile (*http://negocios.udd.cl*).

- A blog on ***sustainable water management*** has published an article on *demographic analysis of river basin based water management organizations* by Axel Dourojeanni (*http://gsagua.com*).

- A book on ***rethinking river basins and water cycle management in the Valley of Mexico*** is available at *http://www.agua.org.mx*.

- ***MANCUERNA*** is the association of municipalities of the river Naranjo basin in Guatemala, formed in 2004, for shared formulation of municipal public policies, plans, programmes and projects, the execution of works and the efficient provision of services in its area of competence. It promotes integrated management of water resources through municipal institution building, environmental management and local

economic promotion, with the active participation and coordination of local government, civil society organizations, public bodies and the private sector, based on principles of social equity, economic efficiency and environmental sustainability (*http://www.mancuerna.org*).

- The ***Water, Sanitation, and Hygiene Education (WASH) Sustainability Charter*** (*http://washcharter.org*) is a collaboratively-developed mission and set of guiding principles to advance sustainable solutions in water, sanitation, and hygiene education.

- The ***fourth edition of the World Health Organization's Guidelines for Drinking Water Quality*** has recently been launched (*http://www.who.int*). It is the product of significant revisions to clarify and elaborate on ways of implementing its recommendations of contextual hazard identification and risk management, through the establishment of health-based targets, catchment-to-consumer water safety plans and independent surveillance.

- ***Tumbes Water*** is a company with Argentine and Peruvian capital, created to operate the drinking water supply and sewerage services in the urban areas of the Tumbes region, Peru (*http://www.aguasdetumbes.com*).

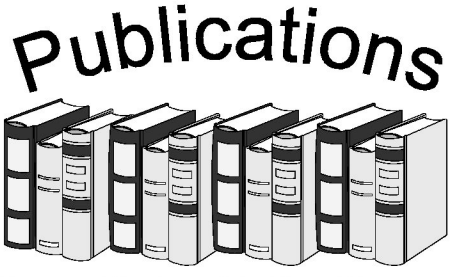
- The contributions to an international scientific workshop about "***water management options in a globalised world: promoting a dialogue between economics, ethics and other disciplines***" are available online at *http://www.hfph.de*.

Governance. From theory to practice. Application to drinking water and sanitation services

The provision of drinking water supply and sewerage services should not be seen as a merely technical matter; nor does it suffice to add the commercial aspect to make it financially and economically sustainable. Elements of political science must also be included, because these are basic and essential services whose absence is an unequivocal indicator of levels of poverty; which have recently been declared to be a human right; in which there is a large social component; in which, owing to their high social sensitivity, considerable social groups can be mobilized, with results that can easily call into question the continuity of municipal or subnational authorities, or even national stability in some cases.

The service providers are, like any organization, living and dynamic entities, providing services which are highly sensitive socially and politically, and as such are vulnerable to political interference at the local or subnational level, or even to public policies in a populist vein at the national level. On the other hand, these services are also subject to social pressure from organized groups and local political parties which can mobilize movements which may or may not have legitimate aims, and which can lead to lawlessness.

Consequently, the delivery of drinking water supply and sanitation services demands, in this new century and new decade, appropriate management of governance, which are broadly dealt with in the book "***Gobernabilidad y gobernanza. De la teoría a la práctica. Aplicación a los servicios de agua potable y saneamiento***" (*Governance. From theory to practice. Application to drinking water and sanitation services*) by Franz Rojas Ortuste, Doctor of Public Policy, the current coordinator of the rapid-impact measures programme in Peru. The document is available (in Spanish only) at the website of the national association of water and sanitation enterprises (ANEAS) of Mexico (*http://www.aneas.com.mx*).



Recent publications of the Natural Resources and Infrastructure Division on water resources management and provision of drinking water supply and sanitation services:

- "***Eficiencia y su medición en prestadores de servicios de agua potable y alcantarillado***" (*Efficiency and its measurement in drinking water and sewerage service providers*) (*Project Document Series*, LC/W.385, February 2011) by Gustavo Ferro, Emilio Lentini and Carlos Romero (available in Spanish only). This document describes how economists have dealt in practical terms with the issue of measurement and assessment of efficiency in drinking water supply and sewerage service providers. It answers several questions: what is efficiency, physical and economic? How is it measured? What is the state of the art and how is it applied to a public service company? It then explains in both a didactic and a practical sense the theory and practice, the utility and potential of techniques for measuring the comparative efficiency (physical, economic and financial efficiency, partial productivity indicators and average costs, data envelopment analysis (DEA) and econometric estimates of efficiency frontiers). The emphasis is placed on what is done, how it is done, what is the experience to date, what best practices have been recorded, what concrete problems have appeared, how they are solved in practice and for what purpose the results can be used.

- "***Tratados internacionales de protección a la inversión y regulación de servicios públicos***" (*International investment protection treaties and regulation of public services*) (*Project Document Series*, LC/W.382, February 2011) by Florencia Saulino (available in Spanish only). This document is the report of the workshop "International Investment Protection Treaties and the Regulation of Public Services" (see Circular N° 33). The aim of this event was to analyse the implications and challenges that international investment protection treaties entail for the work of the bodies responsible for the regulation and oversight of public services, and the protection of human rights in this area. The discussions were structured around the following themes: (i) the implications of foreign investment protection treaties for public policy formulation on the regulation, supervision and provision of public services; (ii) international arbitration in disputes relating to public service provision, the experience of Argentina in this field, and shortcomings in the international arbitration system and how to overcome them; (iii) the implications of investment protection treaties for human rights and environmental policy; and (iv) experiences in the regulation and supervision of public services, particularly when foreign investors are involved.

- "***Fomento de la eficiencia en prestadores sanitarios estatales: la nueva empresa estatal abierta***" (*Promoting efficiency in state-owned water utilities: the new open state-owned corporation*) (*Project Document Series*, LC/W.381, February 2011) by Juan Pablo Bohoslavsky (available in Spanish only). This publication describes institutional progression in the drinking water supply and sanitation sector since the post-war period, when the State ran all aspects of the service, through the privatization period and up to the current re-entry of the State. It analyses the factors which determine the performance of state-owned companies and the implications of the efficiency principle. The conversion of state-owned providers to corporations and the phenomenon of escape from public law are given particular attention; it is argued that efficiency should be promoted by establishing a block of legal status in the activity, based upon the following principles: (i) supranational

hierarchy of the human right to water —which, based on legal principles, reaffirmed many of the aspects traditionally developed by public service theory in the region—, understood within a framework of rational use; and (ii) democratized management of the service delivery company in the form of guidelines on experience, knowledge, independence, participation, transparency and accountability. That state-owned corporation —which is referred to here as "open"— takes on board the positive aspects of balance between efficiency and equity, putting them into practice in a participatory manner. That perspective requires the corporation to seek channels of communication and interaction with political authorities, experts, users, workers and citizens. The regulatory and supervisory agency has to respond to simultaneous demands for independence, democratization and knowledge in its decision-making. A careful analysis of the regulatory framework of the state-owned company Agua y Saneamientos Argentinos S. A. (AySA), which provides services in the Buenos Aires Metropolitan Area, together with other important comparative experiences, contributes to the debate on specific regulatory issues such as the system of appointment, dismissal and personal sanctions on the managers of corporations, their independence and that of the supervisory body, job security, contracting procedures and financial rewards for anti-corruption whistle-blowers.

- "***Retos a futuro en el sector de acueducto y alcantarillado en Colombia***" (*Future challenges in the water supply and sewerage sector in Colombia*) (*Project Document Series*, LC/W.379, February 2011) by Jorge Martín Salinas Ramírez (available in Spanish only) (see "***Meetings***").

- "***Control de precios de transferencia en la industria de agua potable y alcantarillado***" (*Transfer prices control in the drinking water and sewerage industry*) (*Project Document Series*, LC/W.377, February 2011) by Michael Hantke Domas (available in Spanish only). The purpose of this report is to present systematically and to identify: (i) typical problems in the area of purchasing and contracting among regulated corporations and their associates through the same group of companies; and (ii) the state of the art in regulatory measures and instruments to deal with those issues. The study also analyses the Chilean regulatory framework from the viewpoint of its ability to confront these issues, and proposes strategies for improving it.

- "***Protección del derecho humano al agua y arbitrajes de inversión***" (*Protection of the human right to water and investment arbitration*) (*Project Document Series*, LC/W.375, January 2011) by Juan Pablo Bohoslavsky and Juan Bautista Justo (available in Spanish only). This document looks at the ways in which bilateral investment treaties and the arbitration decisions which interpret them can negatively affect the fundamental rights of population groups in the region, especially regarding disputes concerning investments in the public service and natural resource sectors. It analyses the main characteristics of the international obligations of States in the area of economic, social and cultural rights —and particularly the right to water— and then examines the relationship between human rights conventions and bilateral investment treaties.

- "***Economías de escala en los servicios de agua potable y alcantarillado***" (*Economies of scale in drinking water and sewerage services*) (*Project Document Series*, LC/W.369, December 2010) by Gustavo Ferro and Emilio Lentini available in Spanish only) (see "***Open Discussion***").

- "***Servicios de agua potable y saneamiento en el Perú: beneficios potenciales y determinantes de éxito***" (*Drinking water and sanitation services in Peru: potential benefits and factors of success*) (*Project Document Series*, LC/W.355, October 2010) by Lidia Oblitas de Ruiz (available in Spanish only). The purpose of this study is to identify the main factors which have influenced the provision of drinking water supply and sanitation services in Peru and to put forward arguments for giving priority to public policies that promote efficiency, equity and sustainability in this sector. The first section provides a brief historical review of the development of the sector from the 1980s to the present. The second analyses the sector's current situation, seeking to identify key aspects which have contributed to the sustainability and efficiency of services and those which still require further development. On the basis of that analysis, the third section identifies the determining factors —both exogenous and endogenous to the sector— which affect service provision, either positively or negatively. The fourth section is devoted to identifying the benefits (costs) of good (bad) service provision. Lastly, conclusions are presented, focusing on the factors which have the most potential to contribute to efficiency, equity and sustainability in the provision of services in Peru.

The publications of the Natural Resources and Infrastructure Division are available in two formats: (i) electronic files (PDF), which can be downloaded from *http://www.eclac.org/drni* or requested from *Andrei.JOURAVLEV@cepal.org*; and (ii) printed (hard) copies, which should be requested from the ECLAC Distribution Unit, either by e-mail to *publications@cepal.org*, by fax to (56-2) 210-20-69, or by mail to ECLAC Publications, Casilla 179-D, Santiago, Chile.

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