

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



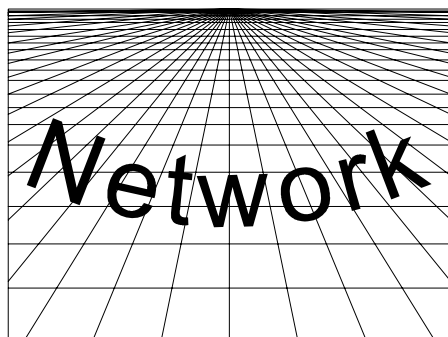
United Nations Economic Commission for Latin America and the Caribbean (ECLAC)

N° 31

April 2010

CIRCULAR N° 31

It is important to distinguish between human rights obligations related to access to water as a natural resource and those related to access to drinking water supply and sanitation services. Access to water as a natural resource may constitute a human right under certain circumstances, for example, as part of indigenous territories, when water has been customarily used by indigenous communities and farmers for time immemorial, or in the case of use for basic human needs if manually abstracted. But not everybody may have a right to water as a natural resource when there is not enough water or there is no intention to put it to a generally recognized and socially acceptable use. Therefore, implementing appropriate legal criteria to regulate access of economic agents to water resources, and to acknowledge and protect existing customary uses and entitlements, is crucial.



Access to drinking water supply and sanitation services is a human right. This access should be equitable and non-discriminatory, adequate in quality and quantity, economically, socially and environmentally sustainable, and affordable. Affordable here does not mean that services should be provided free of charge, but rather that those who can pay should pay reasonable rates, and for those who cannot, there should be effective subsidy systems in place.

The principle of progressive realization mandates the fulfilment of the right within the constraints of available resources. However, defining water as a human right creates a constant, continuing and inalienable responsibility for governments, which should

be meaningfully (for example, in budgetary allocations rather than only in public policy declarations) reflected in their decisions and priorities, to move effectively towards the full realization of this right—universal access to quality services—. At the same time, the recognition of access to drinking water supply and sanitation services as a human right should be balanced against other social needs (education, health, etc.) that must compete with them for scarce financial resources. Governments that recognize this right, and all governments should do this, may be subjected to litigation if they fail to satisfy it.

Governments should, therefore, analyze critically the available options for service provision, and structure them in such a way that they do not become a burden on the economy and citizens, nor a regressive factor that hinders socioeconomic development. In the same way, violation of good faith, due diligence and duty of efficiency in compliance with their responsibilities by service providers also affects human rights obligations related to access to drinking water supply and sanitation services.

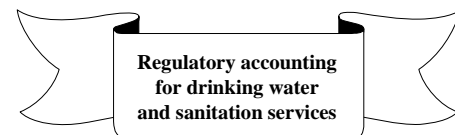
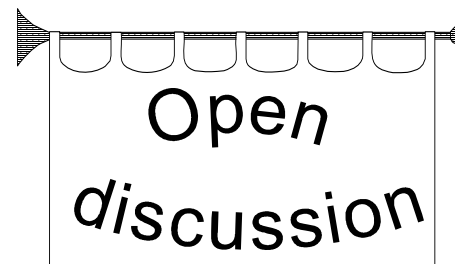
Efficient service provision is essential for satisfying the human right to water insofar, by lowering costs, it leads to greater availability. Conversely, increased costs due to inefficiency on the part of providers, whether public or private, violate the human right to water. Some of the most common forms of inefficiency include manipulation of accounting and transfer prices, excessive debt, corruption, redundant personnel, high transaction costs, loss of economies of scale and capture by special interest groups. In short, efficiency and equity are not mutually exclusive, but rather complementary.

Efficiency in this sector is a function of service management. The ability to promote efficiency essentially depends on regulatory frameworks, institutional control, political will and the economic, social, cultural and political conditions in each country. Thus, the weight governments assign to the human right to water is reflected in the seriousness and

care they use when developing regulations and institutional frameworks.

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Emilio Lentini, representative for South America of the Research Network “RÉS-EAU-Ville” of the National Centre for Scientific

Research (CNRS) of France, contributed an article 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*). In our previous issues (see Circulars N° 29 and 30), we published the first two parts of the article. In this issue, the discussion focuses on the experience of the Aguas Argentinas concession.

The Aguas Argentinas system was one of the first experiences of regulatory accounting for drinking water and sanitation service providers in the countries of Latin America. The company had been using traditional accounting methods to manage its accounting and was managing administrative and regulatory data using a set of parallel systems that did not always reconcile with each other. While these systems used accounting data as inputs, they were essentially based on non-accounting data related to various management aspects such as billing, customer balances, investment programmes and results broken down by service segment or business unit, among others.

Beginning in late 2003, the company began working with the regulatory agency to develop a regulatory accounting plan that included:

- Disaggregating revenue by service, geographic area or other criteria, allowing revenue to be identified by origin or assigned to a business unit.
- Disaggregating costs by segment (production, transportation, distribution, collection, treatment, sales, administration and financing).
- Disaggregating indirect costs (although this was included in the accounting plan, cost drivers were later calculated so they could be broken up by business unit).
- Criteria for allocating new assets (assets incorporated by the service provider other than those received from the State when the business was initiated), differentiating between controllable and non-controllable items to define, for example, the difference between investment costs and maintenance costs.
- Criteria for allocating liabilities.

Perhaps the most innovative aspect of the system was the inclusion of activity-based costing (ABC) or costing by business unit, which allows for more accurate allocation of central expenses associated with sales, administration and financing, and also helps determine rates by service or geographic area that better reflect investment costs and operating expenses. This step made it easier to reconfigure the rate scheme and even simulate an analysis of profitability according to

business unit or geographic area, which, in the case of a monopolistic service in a large metropolitan area, opens up a whole new realm of possibilities for regulators.

The regulatory accounting system used by Aguas Argentinas was developed and implemented in two stages:

- The design stage, which lasted eight months in 2003 and was led by the Tripartite Sanitation Works and Services Entity (ETOSS), in collaboration with the concessionaire.
- The implementation stage, which lasted 10 months in 2004-2005, during which the company itself was essentially responsible for modifying its accounting and information systems.

During the second stage, the following aspects needed to be addressed:

- Disaggregating all sales by service and area or district.
- Defining the criteria for classifying works and investments by process or activity and geographic area.
- Defining the distribution criteria for operating expenses by activity or process, and in the case of indirect or central expenses, allocating them to activities or processes.
- Classifying purchases or orders by supplier.
- Replacing regulatory reports with reports based on regulatory accounting.

The main problems faced during the second stage included:

- The modification of accounting practices that had been deeply entrenched in Aguas Argentinas for more than 10 years.
- The scope of the changes required in information systems and their cost.
- The volume of data handled by the company’s information systems.
- The need to implement regulatory accounting while still managing the daily operations of Aguas Argentinas, which neither should nor could be interrupted.
- The critical nature of some of the information systems and the extensive process of design+testing+implementation.

One of the by-products of implementing regulatory accounting for Aguas Argentinas was that the regulatory reports were submitted in electronic format (mainly spreadsheets), which not only made them easier to read but also made it more straightforward for regulators to review the underlying calculations and formulas they used.

The ETOSS developed an intranet platform where all the numeric data from regulatory reports could be accessed. This was an

important change in terms of how regulators handled company data, since it allowed every ETOSS analyst to have immediate access to all the information submitted by the company, so that they could extract whatever data they needed to process.

The following lessons were learned about implementing this effective regulatory tool:

- To the extent possible, the project should be approached as a joint undertaking between the regulator and the regulated company, with highly dedicated multidisciplinary teams on both ends.
- Contributors to the project should be brought on board as soon as possible, including technical, operational, commercial, administrative and information technology personnel to ensure their collaboration and support.
- It should be understood that the modifications to information systems and procedures involved in the implementation of regulatory accounting take place in large, existing companies, which limits discretionary authority and can increase the time it takes to implement changes.
- In order to foresee unintended consequences and have time to make any necessary adjustments, the possible effects of the project on the work culture in both the utility company and the regulatory agency should be taken into account.

Following the rescission of the Aguas Argentinas contract in March 2006, the new regulatory agency, Regulatory Body for Water and Sanitation Services (ERAS), helped to develop a new regulatory framework for water supply and sanitation services in the Metropolitan Area of Buenos Aires. Among other obligations, the new service provider, Agua y Saneamientos Argentinos (AySA), must implement a regulatory accounting system according to the regulations that will be issued by the concessioning authority with technical assistance provided by the regulatory agency together with the participation of the service provider.

Although the original regulatory framework governing the operations of Aguas Argentinas made no mention of this regulatory tool, its implementation was agreed upon in the 1997-99 contract renegotiation. During the new phase that began in March 2006, and based on both international practice and the experiences with regulatory accounting under private service provision, it was decided that the tool would be equally useful when services were supplied by a public entity. Therefore, the new regulatory framework included a provision requiring the implementation of regulatory accounting. The decision to introduce this type of accounting, as well as the need to develop other regulatory and management tools, stemmed from the fact

that when services are provided by a state-owned company there arise issues of incentives, “capture” and asymmetry of information which can lead to:

- Reduced incentives to improve levels of efficiency.
- Little stimulus to finance operations and investments through rates.
- High risk of services being “captured” by political authorities.
- Loosening of control.
- Management being (at least initially) less open to public scrutiny and having less of an obligation to release information about their performance.



The following is the third part (see Circulars N° 29 and 30) of the paper “*Desarrollando un nuevo modelo de regulación en Bolivia*” (*Developing a new regulatory model in Bolivia*) by Claudia Vargas, legal consultant and former legal advisor to Bolivia’s Sectoral Regulation System (SIRESE).

Towards new regulations

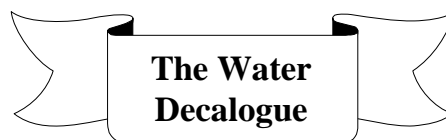
The new regulatory model adopted in Bolivia, that created the Supervision and Social Control Authority for Drinking Water and Sanitation (AAPS), is designed to carry out its operations and fulfil its mandate to increase access to services and consolidate the human right to water as recognized in the Bolivian Constitution. Its operations must be carried out according to the principle of regulatory governance, understood as “the ability to generate economic efficiency, with transparency, while guaranteeing the sustainability and legitimacy of the actions of regulatory agencies”. In this sense, regulation is no longer merely a matter of setting rates and enforcing rules, but the relationship between those who manage the infrastructure and civil society in a participatory process towards universal services.

In order to gain legitimacy and credibility among the population, regulation must be coherent, setting rates according to the level of services needed, with quality, continuity and accessibility for low-income groups. In many countries, including Bolivia, politicians have promised to expand access to infrastructure and have set prices below real cost. This has had adverse consequences for national budgets and has reduced the resources available for other critical sectors for human development such as health and education.

The new authority should be predictable and transparent, with clear rules and a defined role, so that those who manage drinking water

supply and sanitation services have legal certainty and are accountable for their actions and decisions in a way that is accessible to society. Legitimacy will come when regulatory processes are understood and accepted by consumers, and above all by the population still waiting to receive services, since they are the most directly affected by rate setting and service-quality guidelines.

The new model established in Bolivia has the additional advantage of including social control in decision-making and recognizing that the impact of reforms in infrastructure sectors vary greatly according to national circumstances such as level of income, its distribution, the existing expectations and the legal system. Some level of state intervention will always be necessary for consumers to receive high-quality services. The development of administrative capacity and the implementation of regulatory instruments are equally indispensable to ensure that regulation continue to play an important role in improving infrastructure and reducing poverty.



The following article, “*El Decálogo del Agua*” (*The Water Decalogue*), was contributed by José Luis Luege Tamargo, General Director of Mexico’s National Water Commission (CONAGUA).

Based on the challenges faced internationally and the work and progress made worldwide, Mexico —through CONAGUA— has promoted a series of international principles which it calls “The Water Decalogue”, presented below.

Water legislation and dedicated management institutions

In order to ensure water preservation and management, countries must have relevant legislation and develop the technical, financial and institutional resources necessary to enforce it. In addition, with a view to achieving more efficient management of surface and ground water, a single institution in each country should be in charge of

overseeing the legal aspects applicable to water.

Integrated river basin management

Given the natural water cycle, this vital liquid should be managed at the river basin level. Appropriate management of water of a river basin requires a comprehensive view including both surface and ground water. In addition, to improve the management and preservation of water in basins shared by two or more countries, formal agreements that regulate its use and allocation under various situations (including drought) must be entered into. Multinational technical and financial institutions that are duly recognized and supported by countries sharing river basins must be created to oversee the implementation of such agreements.

Mutually agreed upon and binding plans

Developing river basin plans that are mutually agreed upon by users and that take into account ethnic, social, economic and environmental aspects are critical for obtaining the maximum benefit from surface and ground water, as well as for ensuring its preservation and that of the environment for current and future generations. Thus, the implementation of river basin plans should be legally binding. In this way, continuity of action would be guaranteed and the investments of users, as well as federal, state and local institutions would be well directed.

Water is a strategic resource and an issue of national security

The preservation of water, forests and the environment must be a prime objective of national agendas and government development plans. Only in this way can the social welfare and economic development of current and future generations be ensured.

Water solidarity

In order to help achieve social welfare and economic development in a river basin or country, appropriate mechanisms and incentives must be developed that allow users with more economic and technical means to support those less favoured.

Social participation and dissemination

Sound management and protection of surface and groundwater of a river basin is only possible with the participation of all stakeholders. Their organization and participation should be guaranteed by law in order to achieve this goal. In addition, if the population is to understand river basin issues, participate in decision-making and assess

progress, they must have mechanisms and institutions that provide them with clear and timely information.

Institutionalization of programmes and capacity building

In order to maximize investment in the water sector, programmes that combine the technical and financial resources of users, the private sector and federal, state and local governments must be developed. In the same vein, to improve water administration, operations must be transferred to the most appropriate level from an operational and decision-making standpoint. In addition, the proper functioning of infrastructure can be ensured if investments are made not only for their construction but also for them to be properly operated and maintained, which includes training the personnel responsible for such activities.

Efficient water usage and appropriate charges

Given the limited water availability in so many areas, its efficient use and, to the extent possible, its re-use in various productive activities is critical. In addition, tariff and charging systems should be sufficient to recover the costs of providing drinking water and sanitation services, and subsidies should be available to low-income users.

Irrigation modernization and crop selection based on water availability

With a view to promoting agricultural development, irrigation modernization is especially critical as it helps increase productivity and reduces water consumption. The modernization of irrigation systems must take water availability and soil characteristics into account to help ensure soil and water conservation.

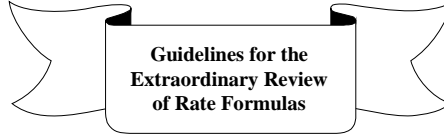
Climate change and its effects on the water cycle

Considering the possible effects of natural disasters, measures should be taken to strengthen early warning systems, build complementary infrastructure needed and create flood zones in specific areas to address severe weather. Moreover, residents must be kept informed about the possibility and progress of cyclones and hurricanes that might affect them. Thus, countries should have their own meteorological services or develop agreements with specialized meteorological institutions. Countries must also have strategically located and appropriate equipment and machinery to respond quickly and efficiently to weather related emergencies.

Experience has demonstrated that the joint participation of authorities, users and society

in general is critical for achieving the objectives proposed here. If those sharing river basins work together for the common good, it is possible to preserve rivers, lakes and aquifers, while still ensuring that water continues to be a key element for health, social welfare, economic development and ecosystems. Lastly, we must not forget that our actions are aimed at helping to create a better world.

Additional information regarding this proposal can be found at the following address:
<http://www.conagua.gob.mx>

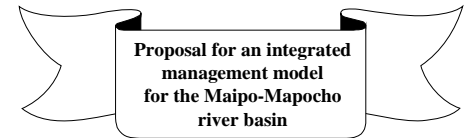


As the regulatory authority for drinking water supply and sanitation services in Peru, the National Superintendence of Sanitation Services (SUNASS) approved its "*Guidelines for the Extraordinary Review of Rate Formulas in Case of New Projects and Advancement of Investments included in the Improved Master Plan*". According to these guidelines, SUNASS establishes that sanitation service providers (SSPs), and in particular private operators contracted to execute infrastructure projects or assist with SSP management, must comply with the following principles when carrying out their legal, contractual or regulatory duties:

- **Economic efficiency:** SSPs and private operators shall be efficient, which includes —among other aspects— operating at efficient cost levels and obtaining efficient and competitive prices for all types of inputs, including making use of alternative national and international suppliers. SSPs and private operators shall specifically identify cases where associated parties are contracted and must justify that prices paid are consistent with those prevailing at the market. Their operational costs must be reasonable and they have a right to a reasonable return on investment.
- **Transparency:** SSPs and private operators shall provide the regulatory authorities with information they request in the manner and time frame specified so that such information can be understood, analyzed and compared with data from other sources. Such information can be requested directly from private operators or through the SSPs.
- **Due diligence:** SSPs and private operators shall act with due diligence and prudence in the operation and management of their services, as well as in obtaining, developing, assessing and using any information for their decision-making processes. Both parties shall manage their businesses in a prudent and reasonable manner, with a view to business sustainability. To this end, they shall

comply with all rules —whether technical, financial or administrative— included in existing legislation, regulation, or regulatory agency's instructions, as well as adhere to international best practices in the fields of drinking water and sanitation services and business sustainability.

- **Good faith:** SSPs and private operators shall act in good faith when preparing and presenting proposals and executing contacts. Their good intentions shall be assumed, unless proven otherwise. Their investments must be used and useful, in accordance with the principles that guide public service and serve the public interest. They shall respect and comply with the laws of Peru.
- **Social Equity:** SUNASS shall implement policies to provide access to sanitation services to a greater number of consumers.



The following excerpt, contributed by Juan Antonio Garcés, professor at the Universidad de Chile, is part of a research thesis for the Masters in Environmental Management and Planning at the Universidad de Chile entitled, "*Water resource management in Chile: proposal for an integrated management model for the Maipo-Mapocho river basin*". In this issue, the discussion focuses on the institutional framework for integrated management.

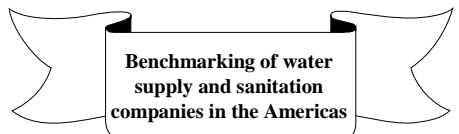
Both theory and practice have demonstrated that river basin management must fall under some kind of institutional framework that coordinates and establishes a "knowledge dialogue" among those in society with different types of knowledge. This dialogue allows for the assessment of river basin improvement projects, since the opinion and agreement of those involved can help lessen the difficulties inherent in assigning value to environmental benefits, which are by definition difficult to quantify. In addition, given that river basins are ecosystems, the dialogue helps establish the environmental relationships that exist within them.

Countries that have assumed an integrated river basin management approach as a part of their planning processes for natural resource use have tended to create river basin organizations that allow them to establish agreements between river basin users and authorities. These institutional frameworks have different names in the various countries who take an integrated management approach: Water Agencies and River Basin Commissions in France, Hydrographic Confederations in Spain, River Basin and Water Agencies in Brazil and River Basin Councils in Mexico.

These organizations are closely linked to the administration of water as a resource, and in particular, to building and operating water works and integrated and joint management of water uses within the river basin. Protecting the quality of water as a natural resource that is fundamental for the development and equilibrium of species and ecosystems was later included as a goal. This new function became a part of water management, in addition to traditional management functions.

Currently, river basin organizations are responsible for planning and managing water resources, conserving water ecosystems, monitoring water quality and quantity, creating mechanisms for the participation of civil society and resolving conflicts between users. They also serve as a place where water authorities and users can interact. In general, they are a clear expression of integrated water resources management at the territorial level of a given river basin.

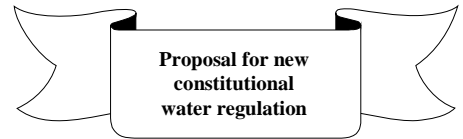
While some Western European countries such as France, Spain and the United Kingdom have long traditions of integrated water resources management, others in Latin America are attempting to focus their water management policies in this direction. Despite the fact that this issue has been widely discussed for some time in Chile, integrated management is still not a reality and no agency currently exists where participants of water management could take part, at least not with the characteristics of a river basin organization. The research challenge lies in analyzing and assessing the obstacles which have prevented progress towards integrated river basin management in Chile in general and in the Maipo-Mapocho river basin in particular.



The *Association of Water and Sanitation Regulatory Entities of the Americas* (ADERASA) (see Circular N° 20) *third annual benchmarking report*, drafted by Gustavo Ferro and Carlos Adrián Romero, was recently released. This study calculated efficiency frontiers using econometric and mathematical programming techniques on the basis of a set of 500 observations on costs, inputs, products, prices and qualitative issues.

The authors made calculations on cost and production functions with diverse specifications, with particular emphasis on including variables that would allow to control for local service provision conditions. The final goal of the report was to produce valid comparisons of relative efficiency to help define standards and guide the work of regulators. In addition, the data also contribute to the development of several

partial indicators for productivity and average costs. From a methodological standpoint, the models are robust to changes in specification, while methodological consistency remains an issue. The estimates derived from the report are generally satisfactory, given their permanence from period to period. Finally, the report is notable for its contribution to previous models by including variables that reveal qualitative differences and differences in institutional and regulatory environments.



In Chile, President Bachelet's Government proposed a bill to include new provisions about water in the constitution. The proposed constitutional reform considers the following five cornerstones:

- Promoting the concept of water as belonging to the public domain of the State to constitutional level, regardless of its physical state, thus extending the concept to glaciers and snow.
- Establishing the government's right to reserve water flows in the general interest of the State, national security, public health, and for the conservation of the environmental heritage.
- Establishing a legal procedure for the creation, recognition, renunciation, transfer, termination, forfeiture and loss of water rights.
- Establishing river basin management corporations to strengthen and promote their integrated management, with legal status and their own assets.
- Authorize a law defining the exploration, use and the establishment of water rights according to the country's diverse geography and climate, as well as the effective availability of water resources.



The discussions at the *Regional Conference on "Policies for Economically Efficient, Environmentally Sustainable and Socially Equitable Drinking Water and Sanitation Services"* (see Circular N° 29 and 30) were organized into four work groups. In the previous issue, we presented the conclusions

of the groups on: (i) business management, incentives for sustainability and efficiency; and (ii) social responsibility. In this issue, we will continue with the presentation of the conclusions of other two groups.

Efficient regulation and management

There was consensus among the participants regarding the need for an explicit efficiency obligation in the law, as can be found in the regulatory frameworks in countries that have significant experience in this area. Achieving this objective, which should apply to public, private or mixed companies, takes political will.

Few countries in the region explicitly consider the efficiency of service provision; its omission is a general rule, as for example, in Mexico. Exceptionally, this objective is implicit in several of the region's regulatory frameworks, as for example, in Colombia. In some cases, this objective is introduced administratively, in others it is dealt with in specific context, such as efficiency frontier analysis (Colombia) or model company (Chile), or via the adoption of incentive regulation. These strategies have limitations owing to the asymmetry of information and the operational limitations of the regulatory frameworks. Hence the need for countries to implement effective monitoring, control, enforcement, incentives and sanctions.

There was also a consensus that periodic rate reviews require explicit mechanisms to measure efficiency gains, so that these could be partially or completely passed on to consumers. The regulatory frameworks in some countries already require efficiency gains to be passed on to consumers, as is the case in some states in Brazil. It was remarked that this transfer is subject to the regulator's capacity and the existence of explicit norms included in the regulatory framework.

The transfer of efficiency gains can take several forms, for example, through rate reductions, better quality services or increased coverage. Some participants suggested that efficiency gains should be shared between service providers and consumers in order to maintain appropriate incentives.

In some countries in the region, the efficiency objective is hampered by low levels of micro metering and the existence of unclear systems of widespread and unjustified cross subsidies.

The participants agreed that, in order to ensure *investment efficiency*, greater control must be exercised over acquisitions (especially building contracts), transfer prices in transactions between affiliate companies and corruption in the contracting of works and

services. To that end, mechanisms such as rules governing purchasing and contracts, market-price analysis and scaling for optimal efficiency were suggested. This would ensure that rates actually reflect the market costs of investments made and that those be used and useful for providing services.

There was consensus that *inefficiency should be sanctioned*. This already happens in some countries, where regulatory frameworks prevent the transfer of inefficient costs to rates, such as in Peru, or where it is penalized, as in Colombia and Costa Rica. It was also noted that special attention should be paid to preventing inefficiencies and ensuring that any sanctions that are applied are not passed on to consumers. The participants emphasized the fact that sanctions for inefficiency rely heavily on the regulator's ability to regulate, enforce and control, and are subject to availability of consistent, objective and timely information. The participants agreed that institutionally sanctioning state-owned service providers, without regard for personal responsibility, could end up diminishing accountability to consumers.

In addition, it was agreed that granting service providers *excessive or unjustified guarantees* is harmful to efficiency as it creates perverse incentives and contingent liabilities. Nevertheless, many providers, both public and private, enjoy such guarantees, which are rarely justified. The inefficiency of excessive and unjustified guarantees is heightened when foreign private capital is involved, since investors can appeal to international arbitration tribunals who do not necessarily have the procedures, substantive principles nor composition to resolve such cases. The participants agreed that risks should be minimized by distributing them according to each party's management capacity, and the incentives thus created towards efficiency and sustainability. In this context, it was emphasized that the State should under no circumstances assume the foreign-exchange risk.

It was recognized during the meeting that regulatory frameworks should contain the principles of *fair and reasonable rate of return, good faith and due diligence*. It was additionally concluded that regulation should be far-reaching, efficient, independent, in-tune with present circumstances and based on general legislation rather than contracts.

Few regulatory frameworks in the region guarantee *adequate access to the information* needed by regulators to carry out their functions. For that reason, the participants argued for making modifications that would require service providers to supply information about their operations in a timely, consistent and objective fashion. One example

of initiatives in this direction can be found in the implementation of regulatory accounting in several countries (particularly Argentina, Chile and Colombia). At the same time, the fact that service providers' stock is publicly traded has forced them to reveal information that is useful for regulators.

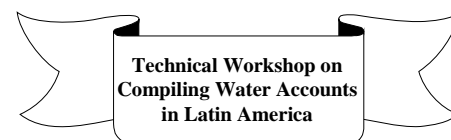
The need for *clear separation between the institutional roles of regulators, service providers and public-policy makers* was highlighted. There are still many cases in which services are provided under administrative control, and where there is no specific regulatory framework, nor any independent monitoring system or separation between the general government accounting and service-provider accounting.

In other cases, state enterprises are self-regulating. It was suggested that in many cases, self-regulation really means self-satisfaction. In several countries, such as Brazil, this self-regulation is undergoing a transformation to a formal economic regulatory model with a specific regulatory framework.

Financial sustainability

- **Investment financing.** Because these services are capital intensive, public investment —particularly in large projects and in rural areas— is critical. Public financing must be channelled through a system of clear, coherent and stable rules, and should be associated with plans to improve service-provider management and establishment of investment goals. Increased efficiency reduces the need for financing and translates into lower rates.
- **Rate policy** must be clear, transparent and based on long-term efficiency costs, while taking into account demand elasticity. Rate-setting methodology requires clear and exacting regulation and tariff setting itself has both technical and political elements. Subsidies must be transparent, explicit and focused primarily on low-income consumers. The use of large blocks in increasing block tariff systems is not conducive to the goal of rational use and tends to benefit consumers who do not need to be subsidized.
- **Rates vs. ability to pay.** The difference between ability and willingness to pay was discussed, and the need to analyze actual consumption and payment patterns was highlighted. In many cases there is a significant gap between a consumer's real ability to pay and actual rates, which must be reduced through subsidies. There needs to be better communication to consumers regarding the intrinsic value of services rendered in order to enhance their willingness to pay.

- **Subsidies** should be based on clear rules that are consistent with service objectives so as not to generate inefficiencies at the operational level or give conflicting signals to consumers. Targeted subsidies (demand based) are the most efficient, although well-structured cross subsidies are also effective. Consumption subsidies should be used in conjunction with connection subsidies, which are designed to facilitate access to service for low-income groups. Targeting subsidies accurately requires good information systems. It is desirable that bills include explicit information on the subsidies which have been applied.
- **Financial sustainability** is a function of: (i) appropriate rate policies that balance the financial needs of service providers, the social demands of the community and respect for the environment; (ii) efficient management of service provision and capable personnel; (iii) the conditions of financing (terms, local currency, interest rates etc.); and (iv) an adequate institutional and regulatory framework that includes transparency in the flow and use of information, and above all, effective external regulation.



The *Technical Workshop on Compiling Water Accounts in Latin America*, organized by the ECLAC Statistics and Economic Projections Division and the United Nations Statistics Division of the Department of Economic and Social Affairs, was held at ECLAC headquarters in Santiago, Chile, from 1 to 4 June, 2009. This event was designed to provide participating countries with training on implementing the System of Environmental-Economic Accounting for Water (SEEAW). The workshop had four specific objectives: (i) to provide an overview of SEEAW and its implementation in several countries; (ii) to create a space where countries could exchange their experiences with SEEAW implementation and discuss the quality of basic data used as inputs for such accounting; (iii) to help countries develop the standardized SEEAW accounts and tables and overcome issues that may arise; and (iv) to develop a plan for implementing SEEAW in the participating countries.



Within the framework of the project "Sustainability and equal opportunity in globalization", undertaken jointly by ECLAC and the German Technical Cooperation (GTZ)

and financed by the German Federal Ministry for Economic Development and Cooperation (BMZ), the ECLAC Natural Resources and Infrastructure Division, SUNASS in Peru and the International Institute for Sustainable Development (IISD) in Canada organized the *Seminar "Acuerdos Internacionales de Inversión, Sustentabilidad de Inversiones de Infraestructura y Medidas Regulatorias y Contractuales"* (International Investment Agreements, Sustainability of Infrastructure Investments and Regulatory and Contractual Measures). The event took place in Lima, Peru, from 14 to 16 January, 2009. The discussion held during the seminar focused on the following topics:

- Private sector participation in operating and investing in public utility services and infrastructure.
- Contractual, regulatory and administrative practices that promote investment sustainability and efficiency in this area.
- The implications of international trade and investment agreements for the formulation of public policies for infrastructure and public utility services.
- Contract and agreement negotiations and the legal defences associated with international arbitrations initiated by investors under existing treaties.



An international course titled "*Medio ambiente, recursos naturales y energía. Políticas y gestión pública*" (The environment, natural resources and energy. Policies and public management) was organized by the Latin American and Caribbean Institute for Economic and Social Planning (ILPES) in conjunction with the ECLAC Natural Resources and Infrastructure Division and the Sustainable Development and Human Settlements Division in collaboration with the United Nations Development Programme (UNDP). The course was held at ECLAC headquarters in Santiago, Chile from 18 to 29 May, 2009. The objective of the course was to strengthen the participants' capacity in performing economic analysis of public-policy alternatives for resolving problems related to the management of environmental and natural resources.



Some particularly useful websites regarding water-related issues are listed below:

- The *First International Meeting on Water Industry Competitiveness "Drinking Water and Sanitation Services in Urban Areas"*, organized by the Mexican Institute for Water Technology (IMTA) was held in Mexico City from 2 to 4 September, 2009. Meeting presentations can be downloaded at <http://www.imta.gob.mx>.
- The *Santa Cruz Public Utilities Cooperative* (SAGUAPAC) is a non-profit institution that provides drinking water supply and sanitation services to the population in its concession area in the city of Santa Cruz de la Sierra, Bolivia (<http://saguapac.com.bo>).
- The *Panamanian National Public Utilities Authority* (ASEP) was created by Law N° 26 of 29 January 1996, with the goal of regulating and controlling the provision of public services, including water supply, sewerage, electricity, telecommunications, radio and television as well as natural gas transmission and distribution (<http://www.asep.gob.pa>).
- The latest version of *Aquacrop* is now available for download on the Food and Agriculture Organization of the United Nations (FAO) Water website (<http://www.fao.org/nr/water>). A new Aquacrop practical exercise is also available. The exercise tests users on their ability to create climate files using the Aquacrop software. A step-by-step solution is also provided. Aquacrop is the FAO crop-model to simulate yield response to water of several herbaceous crops.
- Many important legal issues are presented by the use of water in agriculture. In the United States, the new *Water Law Reading Room* of the National Agricultural Law Center, University of Arkansas (<http://nationalaglawcenter.org>), deals with issues such as allocation, irrigation, and other problems common to agriculture's use of water.
- The *2008-2012 ENACAL Institutional Development Plan* can be accessed at the web site (<http://www.enacal.com.ni>) of the Nicaraguan Water Works and Sewerage Services Company (*Empresa Nicaragüense de Acueductos y Alcantarillados*) (ENACAL) (see Circular N° 13). The plan seeks to progressively make ENACAL efficient and financially, environmentally and socially sound without sacrificing the service needs of the marginalized groups.
- In Mexico, the *University Water Network* was organized by the Universidad Nacional Autónoma de México (UNAM) community in response to the proposals and discussions made at the IV World Water Forum (Mexico City, 16-22 March 2006), with a view to effectively coordinating the university efforts in research, teaching and dissemination of water-resource issues (<http://www.agua.unam.mx>).
- The article "*Participación privada y desarrollo empresarial en los servicios de acueducto y alcantarillado en Colombia: ¿cuándo, cómo y dónde?*" (Private-sector participation and business development in water supply and sewerage services in Colombia: where, when and how?) by Javier Roza Vengohechea, is available at the Economía Urbana website (<http://www.economiaurbana.com>).
- The *Machángara River Basin Council* (www.consejodelmachangara.com.ec) was created to effectively coordinate the river basin's participating institutions and users and is involved in the sustainable development of the hydrographic system with emphasis on managing water resources as part of the management and administration of the river basin's natural resources. The council seeks to: (i) coordinate the efforts and resources of the partner institutions and organizations for river basin management; (ii) facilitate consensus regarding the sustainable use of water and other natural resources and ensure compliance thereof; (iii) manage the pertinent resources, rules and regulations found in participating proposals at the local, national and international levels; (iv) provide for sustainability in river basin planning and development; and (v) promote actions and initiatives that help preserve the river basin.
- The *2008 UN-Water Annual Report* and the *UN-Water Work Programme 2009-2010* are now available on-line at <http://www.unwater.org>.
- *Aguas de Cartagena* provides drinking water supply and sanitation services to more than 180 thousand customers in the capital of the Bolívar Department in Colombia. Its shareholders include the District of Cartagena de Indias, which holds 50%; the operating partner Aguas de Barcelona (AGBAR Group) with 45.9%;

and other private shareholders, who own the remaining 4.1% (www.acuacar.com).

- The latest report of the World Health Organization (WHO)/United Nations Children's Fund (UNICEF) Joint Monitoring Programme on Water Supply and Sanitation entitled "*Progress on sanitation and drinking water — 2010 update*" provides the most recent data for drinking water supply and sanitation services, along with the implications and trends these new data reveal for reaching the basic sanitation and safe drinking water Millennium Development Goals (MDG) target (<http://www.who.int>).
- The United States Environmental Protection Agency (EPA) has launched a new initiative called "*Healthy Watersheds*" that emphasizes protection and conservation of aquatic ecosystems. The initiative is being introduced on a new website, which provides information on tools to identify and protect healthy watersheds and their components (<http://www.epa.gov/healthywatersheds>).
- The website of the *Directorate of Planning* of the Ministry of Public Works (MOP) in Chile provides information on the budgets and planning of public infrastructure projects, including data on infrastructure under the responsibility of MOP (irrigation, storm water drainage, flood protection and rural water supply, among others) (<http://www.dirplan.cl>).
- In California, the *Division of Safety of Dams* of the Department of Water Resources reviews and approves plans and specifications for the design of dams and oversees their construction to insure compliance with the approved plans and specifications. It also inspects existing dams on a yearly schedule to insure they are performing and being maintained in a safe manner (<http://www.water.ca.gov>).

- The *National Water Commission* (NWC) of Jamaica is a statutory organisation charged with the responsibility of providing drinking water and wastewater services for the people of this island. It was formally established in 1980 through the amalgamation of the Kingston and St. Andrew Water Commission and the rurally focused, National Water Authority. This amalgamation resulted in the merging of some major systems islandwide under one authority (<http://www.nwcjamaica.com>).
- The *Latin American network on control and prevention of contaminated sites* (ReLaSC) (<http://www.relasc.org>) seeks to promote the sustainable management of soil and groundwater by revitalizing contaminated sites.

Publications



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

- "*Contabilidad regulatoria, sustentabilidad financiera y gestión mancomunada: temas relevantes en servicios de agua y saneamiento*" (*Regulatory accounting, financial sustainability and aggregated management: important issues in water supply and sanitation services*) (*Serie Recursos Naturales e Infraestructura* N° 146, LC/L.3098-P, September 2009) by Diego Fernández, Andrei Jouravlev, Emilio Lentini and Angel Yurquina (available in Spanish only). Insufficient

coverage and poor-quality drinking water supply and sanitation services not only harm human health and exacerbate poverty, but also negatively affect the environment, socioeconomic development, the insertion of countries into the global economy, political stability, social cohesion and the availability of water for various uses related to productive development, as well as social and environmental interests. When poverty is combined with lack of access to these services, it is a condition that is not easily to overcome, as it gives rise to hunger and illness, prevents stable employment and negatively impacts school attendance. For these reasons, providing secure and high-quality services to the entire population must be an objective of the highest priority for governments of the region. This document, which summarizes the results of three studies prepared by Latin American experts for the Regional Conference on "Policies for Economically Efficient, Environmentally Sustainable and Socially Equitable Drinking Water and Sanitation Services" (see "*Meetings*"), analyzes the recent experiences of countries of the region in three areas of public policy formulation that are considered key to solving the urgent problems of service coverage, quality, efficiency and sustainability: improving regulatory frameworks (regulatory accounting); self-financing of service providers (rates and subsidies); and consolidating the industry's horizontal structure.

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 upon request from the ECLAC Distribution Unit, by e-mail (publications@eclac.cl), fax ((56-2) 210-20-69), or regular mail (ECLAC Publications, Casilla 179-D, Santiago, Chile).

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