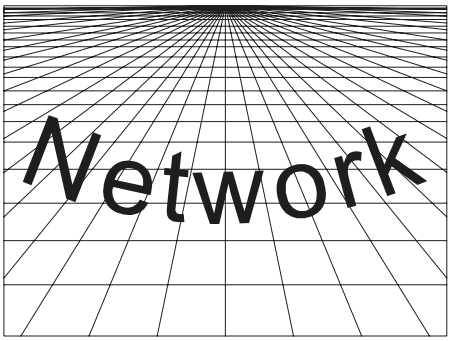
Network for Cooperation in Integrated Water Resource Management for Sustainable Development in Latin America and the Caribbean

United Nations Economic Commission for Latin America and the Caribbean (ECLAC) No 44 June 2016

CIRCULAR No 44

Last year, we conducted a study on water laws adopted in Latin America over the past decade (see "***Publications***"). A major theme that emerged from this study is the ineffectiveness of such laws. The region is highly informal and suffers, at times, from a failure to comply with formal legislation. Hence why it is important, in the medium-term, to understand and explain the real situation and selective application of regulations and the reasons or difficulties behind the effective implementation of both old laws and amended or recently adopted legislation.



Various studies, Inter-American and national jurisprudence, and many of the new legal reforms are increasingly seeking to address the conflict between intensive water use in large-scale, modern industries (such as mining, hydropower and irrigated agriculture), which invest heavily in and use advanced technology, and traditional water use (primarily in farming, but also in fishing, as drinking water supply for rural communities and for religious purposes) by indigenous or farmer communities and those whose livelihoods and traditional ways of life depend on those uses.

Such traditional uses have largely remained outside the formal system of State-recognized rights and, although such uses might often be protected as common or domestic use, in practice, they have begun to clash with formalized rights, provoking serious conflicts with significant social implications. Water legislation is beginning to address this problem by specifying certain rights or affirmative action that offer special protection to the groups concerned, although it is not yet clear how this will work in practice.

Even in countries that score well on global governance indicators, many water uses do not have a formal deed of ownership or legal instrument of use, or, when they have them, they do not respect the limits or conditions set out in these entitlements, with poor or non-existent monitoring or oversight by the water authority. Thus, the problem is not confined to indigenous or farmer communities, but is much more widespread and difficult to discern; hence the need for field studies on practices that are sometimes at odds with the law. The situation is even more problematic in those countries where the government does not have a formal presence in or effective control over part of the country.

There are many reasons why laws are ineffective. Legal theory has analysed the legal reasons, while other disciplines, such as sociology, anthropology, political science and philosophy, might offer other explanations for something as highly complex as a law's effectiveness within a modern State. In the case of water laws, they will probably become more ineffective because they are attempting to regulate (national) deeply entrenched, hundred-year-old cultural, social, and territorial practices that are not homogeneous, even within the countries themselves. Sometimes imported and to some extent disconnected from the realities they were supposed to regulate, many laws have failed to reflect cultural diversity and local practices, which continue as before outside the law.

Governments' failure to prioritize these issues in theory or in practice, the prioritization of new, formal users who have protected water use entitlements, and institutional weaknesses, specifically a lack of funds, financing, professional capacity or other resources, all come together to prevent the application of rules that, in most cases, demands wide territorial presence of the State, including control, monitoring and oversight functions and police powers, among others.

Antonio Embid and *Liber Martín*

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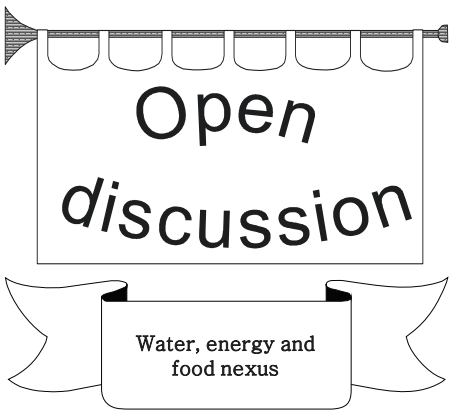


The growing pressure on water, energy and food systems is increasing and highlights the interdependence and interrelationships among

the three sectors. Events in one almost always have an effect, positive or negative, but often unforeseen, on the others. Previous editions of the Circular (for example, Nos. 29, 40 and 43) have already drawn attention to some of the interlinkages connecting the three sectors.

Water-energy

- The region has about 20% of the world's hydropower potential.
- Less than 25% of this potential is currently being used.
- Hydropower accounts for 65% of electricity generated in the region.
- Electricity costs represent between 5% and 30% of the operating costs of drinking water service providers. Due to inefficiencies, in many cases they are between 10% and 40% higher than they should be.

Energy-food

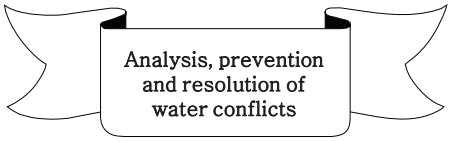
- Energy is needed for water pumping in irrigation and also in all other processes of the food production chain.
- Competition between biofuels and food for water and land.

Food-water

- The main consumptive water use is irrigated agriculture, accounting for 70% of total water withdrawals.
- There is intense competition for water in many river basins between irrigated agriculture and other uses. There are also competing demands from hydroelectric power generation, particularly when it relies on water storage in reservoirs to control the flow over the course of the year.
- With the expansion of irrigation and increasing use of fertilizers and other agrochemicals, agriculture is a major source of diffuse or non-point source pollution which has a negative impact on many bodies of water and aquifers. In turn, agriculture has also been affected by water pollution caused by other sectors, mainly the discharge of untreated urban wastewater.
- In a number of cases, changing to more efficient irrigation systems (drip or sprinkler irrigation, canal lining, etc.), together with increasing the irrigated surface area, has affected aquifers' sustainability and reduced the amount of water available for other uses.

To help the countries of the region to better understand and manage the interrelationships and interdependencies among the three sectors, the Natural Resources and Infrastructure Division is implementing the German Agency for International Cooperation (GIZ) project "***The water-energy-food nexus in Latin America and the Caribbean: public policies to manage interconnections among water, energy and food***". The main activities of the project include:

- A regional study to identify water, energy and agriculture nexus priorities in Latin America and the Caribbean.
- National studies to gauge the nexus interrelationship priorities in a particular country.
- National workshops to disseminate, discuss and supplement the national studies.
- Regional dialogue to introduce the nexus concept and the policies proposed to manage it better.
- Public policy guidelines to manage the interrelationships among the three sectors in a more coherent manner.



The publication "***Análisis, prevención y resolución de conflictos por el agua en América Latina y el Caribe***" (*Analysis, prevention and resolution of water conflicts in Latin America and the Caribbean*) by Liber Martín and Juan Bautista Justo (see Circular No. 43) postulates that water conflicts in Latin America and the Caribbean could be avoided and resolved more effectively if governance models reflected the changing approaches to water resources, leading to comprehensive, collaborative and participatory strategies. Strategies with a human-rights based approach seek to generate the innovative public policy tools that are currently needed, but that have not yet been widely adopted or incorporated into legislative frameworks, institutional structures, or the behaviour of public or private sector agents.

Conflict analysis

This is a crucial stage to be carried out prior to the adoption of conflict-prevention or -resolution measures, mindful that inappropriate measures, based on flawed analysis or calculations, not only run the risk of failing, but could even cause the conflict to flare up, escalate or be dragged out. Conflict analysis or monitoring must be carried out over the long-term, as many conflicts can smoulder for years or even flare up out of nowhere. Even when a conflict has apparently been resolved or settled, it often continues to simmer beneath the surface. In this regard, an interdisciplinary approach and a particular knowledge of local history and circumstances are essential, as water is often no more than a proxy for a prior dispute over an unrelated matter.

Conflict prevention

Conflicts must be prevented at the planning stages, which are the foundation of integrated water resources management and should include elements of adaptive planning and integrated watershed management. These planning efforts will help to avoid future conflicts, given the uncertainty over water resources in every country, river basin and region as a result of climate change.

Plans must be submitted to a rigorous economic, social and environmental assessment process to identify the economic and social costs and benefits, possible alternatives, environmental impacts, mitigation and adaptation measures, etc. Information must be available to the public and easy to access. As part of this process, it is vital to adopt mechanisms that allow the informed and genuine participation of all stakeholders, including direct water users and citizens in general, providing them with a real opportunity to influence decisions.

The priorities for granting water rights and supplying water and the requirements for minimum flows and preserving environmental flows must be clearly established and enforced transparently by the authorities. Common or subsistence uses, linked to the human right to water and to sanitation, must also take precedence over special uses, taking into account all consequences and cumulative impacts.

Conflict resolution

Water conflicts are difficult to resolve due to the number of stakeholders, interests and sectors involved. The tendency of such conflicts to resurface means that any solution is temporary and precarious; foresight is essential to avoid and prevent conflicts.

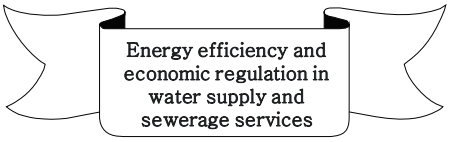
Dialogue, negotiation and mediation are key tools, allowing stakeholders to play an active role and to take decisions, rather than resorting to the courts and what are still often seen as legal diktats. Various bodies may have jurisdiction to resolve water conflicts, but they must be impartial, independent and have the necessary resources. Just knowing that there is a truly impartial and independent third party, able to settle conflicts, encourages parties to reach an agreement and thus prevents conflicts.

In short, the challenges posed by water conflicts must be tackled by strengthening water governance and overcoming short-termist attitudes that neglect the issue and result in weak institutions, fragmented territorial and sectoral management, and poor water culture.

Recommendations

- Strengthen, adapt and formalize regulatory frameworks to manage water resources, as well as institutional capacities to implement them effectively.

- Apply and integrate a human-rights-based approach to water management and mainstream the human right to water and to sanitation into related activities.
- Expand the grounds for monitoring and protecting water resources, adapting administrative and legal proceedings.
- Apply the principle of maximum disclosure to water resources, forcing the State to generate and disseminate, by law, information on the current state of water resources and the impact of human activity on them.
- Promote effective participation by requiring free and informed prior consent from communities affected by undertakings, subject to the principle of proportionality.
- Promote dialogue, mediation and the establishment of impartial administrative bodies to resolve water conflicts, subject to adequate judicial oversight.



Below are the conclusions of the study "***Eficiencia energética y regulación económica en los servicios de agua potable y alcantarillado***" (*Energy efficiency and economic regulation in drinking water and sewerage services*) by Gustavo Ferro and Emilio Lentini (see Circular No. 43).

Suppose that a country has a global policy to promote energy efficiency and that the regulator is responsible for promoting that policy in a specific sector. What would be a sensible work plan? One option might be a series of actions undertaken by the sectoral regulator in coordination with the service provider. The initial phase must be a diagnosis. The first concrete measure must be to reliably determine overall consumption, at every stage and in every process, in order to continue identifying key areas for improvement. Programmes that address both supply and demand should be implemented, examples of which are listed below:

- ***Diagnosis***. On the supply side, the pumping of both raw water and drinking water, and the transport and treatment of wastewater are key areas where savings could be made, bearing in mind that electricity consumption depends on the terrain, the source and the level of treatment required. The diagnosis will identify equipment that should be replaced, repaired, rationalized, etc. It may be carried out by companies with their own resources or outsourced to external consultants.

- ***Energy audits of equipment***. Determining the base energy consumption of processes, subprocesses and equipment provides better information, allowing indicators and targets to be developed and inefficient behaviour and improvement opportunities to be identified.

- ***Loss control***. Controlling leaks as part of a programme to reduce technical losses.

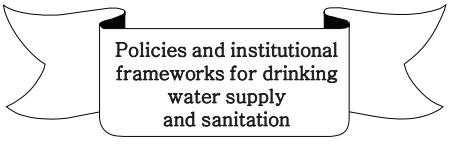
- ***Information and education***. Information and education programmes to curb irresponsible consumption and eradicate bad habits.

- ***Greater use of water meters***. Exploring the strategic use of water meters in areas where they have not been installed. While in the long run the idea is for metering to be universal, if baseline use is low, it makes sense to go forward with customers who use large amounts of water (for example, industry and non-residential customers, residences with extensive green spaces, etc.).

- ***Rewards for saving and penalties for excessive consumption***. Including price incentives for water conservation within tariffs, possibility of rewards and penalties.

- ***Standards for devices and mandatory labelling***. Promote housing standards and appliances or equipment that use water efficiently, and consider introducing programmes to replace inefficient equipment with new, more efficient appliances. Information considerations, promotional offers and credit and tax incentives should be negotiated with sector input suppliers, service providers and customers. Mandatory labelling.

First and foremost, to implement these measures an inventory of resources must be compiled in order to improve the work of both the regulator and the service provider. Standards must be set, working groups established, priorities determined, a work schedule agreed upon, studies commissioned and decisions taken on concrete measures to be carried out, calculating beforehand their cost-effectiveness. Those measures that would have the least financial impact or that would be the most difficult to implement should be postponed or rejected; the results of those that are implemented should be assessed and any necessary adjustments made. The process can be considered a continuous, ongoing and evolutionary activity as it will identify new possibilities as old issues are resolved and new situations arise.



The third part of the collection of good practices identified in the study "***Políticas e institucionalidad en materia de agua potable y saneamiento en América Latina y el Caribe***" (*Policies and institutional frameworks for drinking water supply and sanitation in Latin America and the Caribbean*) by Franz Rojas (see Circular No. 43) is presented below.

Bolivarian Republic of Venezuela

Promoting social participation is an important aspect of the sector's development. HIDROCAPITAL, the water company responsible for supplying services to Caracas (see Circulars Nos. 15 and 19), set up the communal water management programme which provides an organizational structure and training, with the company and the community sharing responsibility for managing water, based on principles of freedom, responsibility and solidarity. This experience was subsequently replicated and expanded nationwide by the national water company, HIDROVEN, which sought to share management of drinking water services with communities through the Technical Committees on Water (MTA) and Community Water Councils (CCA). These mechanisms were introduced as part of a community participation programme overseen by the community participation departments from each regional water company.

Dominican Republic

The Santo Domingo Water and Sewerage Corporation (CAASD) created a technical centre to train secondary school graduates in the operation and maintenance of water and sewerage systems. CAASD is working in conjunction with the National Technical and Professional Training Institute (INFOTEP) and the Dominican Republic's Association of Home Builders and Developers (ACOPROVI) to develop joint, coordinated and participatory activities as part of the drinking water and sanitation management programmes, in order to: (i) contribute to the development of educational programmes to train new technicians so that institutions have highly-qualified staff; (ii) implement specialized training programmes for professionals and technicians in various areas; and (iii) train plumbers members of ACOPROVI to work on the residential buildings.

Paraguay

Some water and sanitation boards have noteworthy management practices. One of them is the sanitation board of Itauguá (JSI) (*http://jsitaugua.org.py*), which was set up in August 1974 when it signed an agreement with the Ministry of Public Health and Social Welfare to drill the first public well to supply running water to the city of Itauguá. JSI is a member of the Sanitation Boards Association of the Central Department (AJUSADEC) which provides repair services and legal, accountancy and administrative advice to associated boards.

Peru

The Capacity-Building System (SFC) is a sectoral strategy that seeks to develop and strengthen the business capabilities of service-providing institutions and companies (*http://www.sfc.pe*), by creating a network of institutions with the knowledge, experience and resources that can help build business and professional capacities in the sector. By constantly developing the skills of its managers, professionals and staff, SFC seeks to promote sustainable services. The System's work is overseen by the Ministry of Housing, Construction and Sanitation.

Trinidad and Tobago

One success story is the Public Education Centre of the Water and Sewerage Authority (WASA), which was opened in 2006 as a source of information on the water and wastewater sector in Trinidad and Tobago as well as issues related to water in general. Its objectives are: (i) to educate the public on the water and wastewater sector; (ii) to promote conservation and preservation of the precious water resource; (iii) to enhance the public's understanding and appreciation of the operations of WASA; and (iv) to develop and sustain good relationships with all stakeholders.

Uruguay

One best practice is the National Sanitation Plan, created by the State Sanitary Works (OSE) in conjunction with the Ministry of Housing, Spatial Planning and the Environment to facilitate connections to sanitation services. This Plan offers financial support to all households that do not have the financial resources to connect to the public sewerage system. For the lowest-income households, OSE and the Ministry provide full or partial financial support, based on a socioeconomic assessment of the family.

The major rivers of Mendoza and San Juan: climate change impact and vulnerability

In Argentina, Mendoza and San Juan are the provinces of the Cuyo region whose water resources originate in the Andes. Changes in the hydrograph of the region's rivers are mainly due to rising temperatures. This trend could have a significant impact on the management and regulation of water flows.

The publication "***Impactos y vulnerabilidad al cambio climático de los principales ríos de Mendoza y San Juan a partir de la evolución de los glaciares cordilleranos. La economía del cambio climático en la Argentina***" (*The major rivers of Mendoza and San Juan: climate change impact and vulnerability, based on the evolution of Andean glaciers. The economics of climate change in Argentina*) (LC/L.4089, November 2015) by José Boninsegna y Armando Llop, presents the results of two studies carried out in this region. The first analyses changes in rainfall, temperature, flow rates and the hydrograph according to climate change scenarios. The watersheds most affected would be those located in the south of the region. The glaciers are expected to shrink and retreat significantly, with the subsequent loss of the water reserves stored therein.

The second study quantifies the socioeconomic impact of climate change on the river basins in Mendoza and San Juan. Reducing river run-off (supply), greater demand and water degradation processes will determine the increase in the marginal social value of water. Simulation models indicate a equilibrium value between supply and demand over time. Various simulations of alternative scenarios were run for each river basin, in order to identify optimal policies.

Meetings

Formulating Water Policies in the context of the post-2015 Development Agenda

The ***Meeting of Experts on formulating water policies in the context of the post-2015 development agenda***, organized by the Natural Resources and Infrastructure Division, was held at ECLAC headquarters in Santiago on 14 July 2015. Discussions focused on the following thematic areas:

- ***Water laws adopted or amended by the countries of the region in the past decade***. The recent evolution of water laws in the region was examined. Attention was drawn to the relative ineffectiveness of water laws and the great difficulties governments face in implementing them. Participants noted that the recently adopted national water laws were very different, to the extent that they did not appear to follow a common pattern other than incorporating some modern institutes. Some common trends did include: constitutional recognition of certain principles of water law; incorporating social and environmental variables; declaring that water belongs to the public domain; increasing public and State involvement; establishing the human right to water but not specifying how it will be exercised; streamlining management through specific authorities; specifying the rights of indigenous and farmer communities; and consolidating river basin management and participation principles that have still not been effectively implemented.

- ***The concept of water security and regional challenges***. The concept of water security primarily covers the management of social development and environmental risks that arise in different areas that rely on water management. In this connection, aspects that affect activities that rely on water resources and are crucial for the society, must be prioritized and threats to the proper development of those activities investigated.

- ***Preventing and resolving water conflicts***. These conflicts have increased considerably in recent years, becoming more complex and having an ever greater impact on economies, political issues, social stability, populations and the environment. Deficiencies in national water governance systems are one of the main causes of these conflicts (see Circular No. 42). In an effort to gradually overcome these deficiencies, a series of public policies, based on a human-rights approach to water resources, was proposed. Various aspects of this approach were explored, including the human right to water and sanitation; intergenerational equity; access to information; communities' free, prior and informed consent; and integrated water resources management.

Regional Consultation on Water Security

The Natural Resources and Infrastructure Division, together with the United Nations University Institute for Water, Environment and Health (UNU-INWEH), held a ***Regional Consultation on Water Security*** (Fortaleza, Brazil, 26 November 2015), as part of the Dialogue on Water Governance organized by the Inter-American Water Resources Network (IWRN).

The objectives of the event were:

- To gain a better understanding of the concept of water security and identify water security priorities, risks and challenges in the specific context of Latin America and the Caribbean.

- To identify linkages between water security in the region, the Millennium Development Goals, the 2030 Agenda for Sustainable Development and the Sustainable Development Goals.

- To discuss how UN-Water might assist countries of the region in addressing key water security issues. UN-Water is an inter-agency mechanism created to add value to United Nations initiatives by fostering greater cooperation and information-sharing among bodies of the United Nations system and external partners.

- To formulate recommendations for the countries of the region to help them address key water security issues.

Discussions on regional water security priorities focused on the following topics:

- Access of the population to adequate levels of drinking water and sanitation services.
- Water availability to ensure sustainable socioeconomic development.
- Protection of water bodies in a state that is compatible with public health and the environment.
- Flood protection and managing the risks of extreme events.

The results of this Regional Consultation will be used as inputs for a comprehensive document to be prepared by UN-Water, which will seek to describe and analyse the specificities of the concept of water security in each region of the world, and the use of that concept as a management tool to guide public policies and help countries to achieve the water-related Sustainable Development Goals.

IV Latin American Sanitation Conference (Latinosan)

The Natural Resources and Infrastructure Division participated in the ***fourth Latin American Sanitation Conference*** (IV Latinosan) (Lima, 9-11 March 2016), at which the Lima Declaration was adopted.

This Declaration reaffirmed countries' commitment, among others, to achieving universal access to safe drinking water and sanitation and to prioritizing State investment in rural, marginalized areas and vulnerable and indigenous groups. Signatory countries agreed to address water and sanitation gaps not only by using financial resources, but also policies on institutional arrangements, technological adjustment and improving management models.

It was also agreed to strengthen coordination within countries in order to enhance the impact of safe water and sanitation on the population's nutrition and health by adopting policies and strategies that promote coordination with sectors such as health, education, environment and, more generally, those that foster social inclusion.

Plurinational State of Bolivia: Decade of Irrigation Law

In the Plurinational State of Bolivia, Law No. 745, "***Towards a million hectares***", of 5 October 2015, declared 2015-2025 the Decade of Irrigation to promote agricultural production through centralized investment by the State and autonomous territorial bodies charged with developing irrigation in the country.

The strategic priorities of the agenda of the Decade of Irrigation are:

- ***Expanding irrigated land***, which includes the following strategies: revitalizing irrigation systems; implementing water storage systems using dams; implementing multiple-use water systems for families and water harvesting; reusing wastewater for irrigation, treated according to existing regulations; promoting irrigation technology; implementing a programme for paddy field irrigation; and implementing strategic, multipurpose projects.

- ***Strengthening organizations and institutions***, which includes the following strategies: strengthening irrigation organizations and field irrigation training; strengthening irrigation management and information management institutions; and training irrigation and research specialists.

- ***Increasing irrigated agriculture productivity sustainably***, which includes the following strategy: increasing the agricultural productivity of new and existing irrigation systems.

The Law also states that the investments foreseen in the Decade of Irrigation agenda will be made through the programme for more investment in irrigation. The Ministry of Environment and Water will undertake the activities needed to promote the development of irrigation, as part of multipurpose projects that will cover vast areas with potential for irrigation and embody a State vision for large-scale agricultural production that will guarantee the country's food sovereignty and security.

Chile: National Water Resources Policy

In 2015, the Government of Chile launched a ***National Water Resources Policy***. This policy seeks to assign a new role to the State and redesign public institutions, by incorporating a greater degree of decentralization and increasing regional governments' operational capacity. It proposes that new forms of territorial organization should be developed, based on the national distribution and availability of water resources. The country is currently organized along longitudinal (north-south) lines, on which the major transport routes have been built, but the policy introduces a complementary transversal perspective (from the Andes to the coast), which takes due account of the direction of river basins and any productive processes that depend on them.

The main objective of the National Water Resources Policy is to ensure that water of adequate quality and quantity is available and accessible to current and future generations, by using water resources rationally and sustainably, and prioritizing human consumption. Other objectives include:

- To design, develop and implement various programmes and activities that will mitigate the effects of drought (a recurrent problem in much of the country) and help the country to face future events better.
- To propose alternative institutional management structures and changes to the legal system that will allow tools and resources to be used more effectively, in order to manage water resources better in line with the magnitude and significance of current and future challenges.

The National Water Resources Policy falls within the scope of the following guidelines:

- Consider the most probable future scenarios, trends and forecasts concerning availability of and demand for water resources.
- Protect water resources and ensure their sustainability, both in terms of quantity and quality.
- Integrate water resources and environmental management.
- Consider the physical, biotic, demographic, economic, social and cultural particularities of each region of the country.
- Link water resources management to land use.
- Manage water resources at the river basin level.

Tools to ensure the implementation of the National Water Resources Policy include:

- A water resources information system based on scientific knowledge.
- Plans at the national, regional and major river basin levels.
- Criteria for defining priority water uses, the first being human consumption.
- A tariff system for using water resources and for managing the related infrastructure.

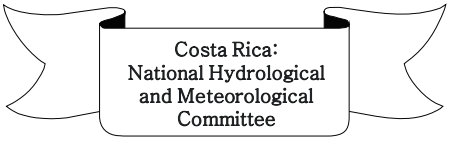
The National Water Resources Policy is based on four pillars:

- ***The State as an accountable and active stakeholder***, with the following action lines: establish integrated water resources management as a national policy; strengthen public institutions linked to water resources management and administration; create and strengthen a useful information system for citizens and various sectors; create a new culture that fosters the efficient use of water resources; and support sustainable energy development in the country.

- ***Measures to address the water deficit***, with the following action lines: redirect public instruments and resources to redress water imbalances; increase the supply and availability of water resources; and promote the development of new technologies in order to save and improve the availability of water resources.

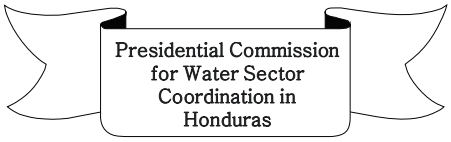
- ***Regulatory framework for water resources***, with the following action lines: initiate constitutional reform; amend the Water Code; and introduce a bill to regulate rural sanitation services.

- ***Strengthening the participation of social organizations***, with the following action lines: encourage citizens and social organizations to participate more; and enhance technical, administrative, community and legal training for water organizations.



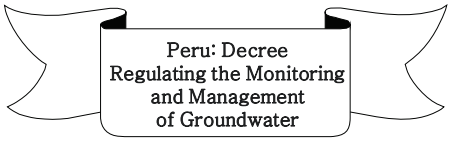
In Costa Rica, Decree No. 39349-MINAE, published on 18 December 2015, created the ***National Hydrological and Meteorological Committee*** (CNHyM), which aims to integrate and strengthen inter-institutional coordination efforts, in order to develop knowledge of surface-water and groundwater hydrology and of climate variability and change. This knowledge will allow the State to generate, integrate and share basic hydrometeorological information in a timely manner in order to ascertain the temporal and spatial behaviour of water, thus facilitating nationwide integrated water management. CNHyM is headquartered at the Ministry of the Environment and Energy, and its main responsibilities are to:

- Advise the Minister of the Environment and Energy, as the governing body for water, on the development of a public water policy.
- Guide institutions in order to optimize efforts to create a meteorological and hydrological network, and to collect meteorological and hydrological data and information.
- Recommend programmes to different agencies involved in the implementation of national and international assistance plans in the domestic meteorological and hydrological sphere.
- Suggest measures to improve administrative and technical aspects of the different agencies involved in studying and managing water resources.



In Honduras, Decree No. 58/15/PCM, published on 14 September 2015, created the ***Presidential Commission for Water Sector Coordination in Honduras*** (CON-AGUAH) to coordinate, articulate and contribute to all efforts to develop, promote and implement the Government's national water sector strategy. The functions and responsibilities of CON-AGUAH include:

- Promoting dialogue and consultation with stakeholders in the water sector in order to define legal and institutional mechanisms and strengthen the sector.
- Submitting a national emergency plan for the sector, covering both irrigation and drinking water, to the President of the Republic for approval and implementation.
- Prioritizing, updating and standardizing all existing water sector-related geographical, numerical and statistical information to facilitate decision-making, making use of the network of the Inter-agency Spatial Data Commission (CIDES).
- Proposing water resources management issues to the President's office that should be prioritized in the Government's strategic planning.

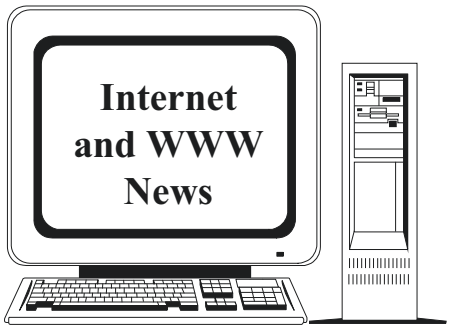


In Peru, Legislative Decree No. 1185, which ***regulates the monitoring and management of groundwater use by entities providing sanitation services***, published on 16 August 2015, establishes that the service of monitoring and managing groundwater use by entities providing sanitation services (EPS) should ensure the efficient and sustainable use of groundwater and the provision of sanitation services. By virtue of this decree, EPS are empowered to carry out the following measures and actions:

- Invest in efforts to preserve and increase groundwater availability, including those that will help aquifers recharge naturally or artificially.
- Conduct studies on and invest in aquifer sustainability, by looking for alternative drinking water sources and carrying out projects to make use of those sources.
- Promote the development and implementation of activities and measures that increase efficiency in sustainable groundwater use.
- Issue prior opinion on the water availability accreditation in the procedure of granting groundwater use licences.
- Design, implement and fully enforce a groundwater monitoring system that includes, as a minimum, reading groundwater levels; operating and maintaining measurement systems; monitoring well flow rates; and updating the well cadastre and other land registers related to the use, control and management of groundwater.
- Collect fees for groundwater use and transfer those monies to the National Water Authority (ANA).
- Collect the levy for monitoring and managing groundwater use.
- Ensure that those who use groundwater comply with the financial requirements and current regulations.
- Implement other measures and actions as necessary to provide timely and efficient monitoring and management of groundwater use.

As part of the agreement between ECLAC and the Ministry of Social Development of Chile, the Latin American and Caribbean Institute for Economic and Social Planning (ILPES) organized the course "***Technical topics in the treatment and discharge of wastewaters in rural areas***" (ECLAC headquarters, Santiago, 3-7 August 2015). The course covered methodologies and techniques related to the treatment and discharge of wastewaters in

rural areas, with a view to strengthening the project evaluation capacities of public officials from the National System for Public Investment (SNIP).



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

- The initiative to "***Calculate energy efficiency and savings in pumping systems***" (CEEPA) is led by the Energy Efficiency Working Group of the National Association of Water and Sanitation Companies (ANEAS) of Mexico, which seeks to help drinking water and sanitation service providers to reduce energy costs (*http://www.aneas.com.mx*).

- The ***Ibero-American Water Directors' Conference*** (CODIA) was established in response to the request of the first Ibero-American Forum of Ministers of the Environment (Spain, 2001) to create a regional forum composed of those bodies responsible for water management (*http://www.codia.info*). The main roles of CODIA are to provide technical support to the Forum and to examine and implement cooperation modalities in the area of water resources.

- In the Bolivarian Republic of Venezuela, the ***Vice-Ministry for the Ecosocialist Management of Water*** of the Ministry of People's Power for Ecosocialism and Water is charged with formulating, developing, implementing and overseeing the drinking water and sanitation guidelines, policies and plans, as well as with the comprehensive management of national and transboundary river basins (*http://www.minea.gob.ve*).

- FAL Bulletin issue No. 327, published by the Natural Resources and Infrastructure Division, concentrates on ***river mobility and river navigation systems in South America*** (*http://www.cepal.org*). River mobility is socially and economically important, especially in river basins where geography complicates the building of land transport infrastructure. In such regions, governments should acknowledge that navigable rivers, as the only means of travel, fulfil the same function as highways and should therefore be treated and considered in the same way.

- ***Sustento*** (*http://sustento.com.uy*) helps the public and private sectors in the countries of the region to better understand, quantify and improve the sustainability of their activities, mainly through environmental footprint accounting, assessments and training.

- The Regulatory Commission of Drinking Water and Basic Sanitation (CRA) of Colombia presented the draft resolution to ***modify the scope of basic domestic water use and to define complementary and non-essential domestic water uses***, in an effort to promote efficient use, save water and discourage unreasonable use (*http://www.cra.gov.co*).

- The main objective of the ***Argentine Water Resources Institute*** (IARH) is the study, promotion and dissemination of various matters related to the knowledge, use, preservation and administration of water resources (*http://www.iarh.org.ar*).

- The ***Chilean Water Portal*** (*http://www.portalchilenodelagua.cl*) is a water information and technology exchange platform that aims to help the country to adapt to drought conditions resulting from climate change.

- The ***National Water Authority*** (ANA) of Peru has launched its new website (*http://www.ana.gob.pe*), which provides dynamic, detailed and accurate information about activities that promote the integrated management of national water resources.

- In Chile, the ***Voluntary Agreement for River Basin Management*** (AVGC) is an agreement between companies, stakeholder organizations and relevant agencies that promotes clean production in territories, through coordinated efforts, with specific targets and actions, that address environmental externalities and generate social and collective benefits (*http://www.cpl.cl*).

- The World Wide Fund for Nature (WWF), with the support of the Biodiversity Foundation of the Ministry of Agriculture, Food and the Environment of Spain, is disseminating ***recommendations and best practices to improve the management of river ecosystems and riparian forests***, a key factor in reducing the risk of flooding (*http://www.wwf.es*).

- The report on the Regional Conference "***Strategies for water operators in protecting your sources and basins: challenges and opportunities***" (Buenos Aires, 25-26 November 2014) is available at the website of the Inter-American Development Bank (IADB) (*http://www.iadb.org*).

- The ***Coalition of Mexican Organizations for the Right to Water*** (COMDA) (*http://www.comda.org.mx*) is an association of civil organizations and social movements that work to protect water for the benefit of society and the environment through social participation, democratic management and recognition of access to water as a human right.

- The Ministry of Energy of Chile (*http://www.energia.gob.cl*) launched the ***Platform for Sustainable Hydropower in Chile***, the aim of which is to provide information on the development of hydropower in the country and, in particular, to disseminate the results of the study "*Base para planificación territorial energética en el desarrollo hidroeléctrico futuro*" (*Basis for a national energy planning process for future hydroelectric development*).

- The Centre for Climate and Resilience Research $(CR)^2$ published the report "***The 2010-2015 mega-drought: A lesson for the future***" (which also exists in Spanish), which addresses, in an interdisciplinary manner, various aspects of the rainfall deficit that has affected central and southern Chile over the past five years (*http://www.cr2.cl*). Another study published by $(CR)^2$ on this subject is "***Identificación de actores relacionados a la sequía en Chile***" (*Identifying stakeholders connected to the drought in Chile*).

- In 2014, in the Province of Córdoba, Argentina, the "***Provincial Environmental Policy***", Law No. 10208, was adopted, which modernizes and defines the main policy and environmental management instruments, and incorporates citizen participation into management processes (*http://www.prensalegiscba.gob.ar*).

- The "***Prepaid Water***" programme run by Empresas Públicas de Medellín (EPM) (*http://www.epm.com.co*), Colombia, in the city of Medellín and its metropolitan area, is an advance payment programme for drinking water and sewerage services. It is an integrated system for the supply of drinking water in quantities paid for in advance by the user.

- ***AQUAFONDO*** (*http://aquafondo.org.pe*) is a financial mechanism that mobilizes resources to conserve the watersheds of the Chillón, Rímac and Lurín rivers, and to ensure a continuous, clean water supply for the population of Lima.

- The World Meteorological Organization (WMO) and the Centre for Research on the Epidemiology of Disasters (CRED) of the Catholic University of Louvain (UCL)

have jointly published the "***Atlas of Mortality and Economic Losses from Weather, Climate and Water Extremes 1970-2012***", which describes the distribution and impacts of weather, climate and water-related disasters, and highlights measures to increase resilience (*https://www.wmo.int*).

- ***Centro Italiano per la Riqualificazione Fluviale*** (CIRF) is a non-profit technical-scientific association that promotes sustainable river management and river restoration (*http://www.cirf.org*).

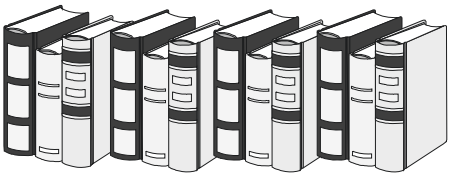
- Investment Treaty News of the International Institute for Sustainable Development (IISD), published an interesting article on "***Foreign Investment in Farmland and Water: 10 Steps for Better Contracts***" (*http://www.iisd.org*).

- The ***United Nations Convention on the Law of the Non-navigational Uses of International Watercourses*** (New York, 21 May 1997) entered into force in August 2014 (*https://treaties.un.org*).

- Ministers from 34 member countries of the Organization for Economic Cooperation and Development (OECD) welcomed the ***OECD Principles on Water Governance***, which set standards for more effective, efficient and inclusive design and implementation of water policies, and encouraged governments to put them into action (*http://www.oecd.org*).

- The ***Public Utilities Commission*** of Guyana (*http://www.puc.org.gy*) was established in 1990. Its objectives are: (i) to establish and enforce rules and procedures for the regulation of public utilities; (ii) to promote and regulate the efficient long-term provision of utility services; (iii) to provide a fair environment conducive to business interests, investment in the public utilities sector, and the interests of consumers; (iv) to investigate and seek to resolve in a timely manner complaints filed with it against any public utility; and (v) to carry out its functions in a fair, transparent and independent manner.

Publications



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

- "***La experiencia legislativa del decenio 2005-2015 en materia de aguas en América Latina***" (*The legislative experience of the decade 2005-2015 with regard to water in Latin America*) (*Natural Resources and Infrastructure Series* No. 173, LC/L.4064, September 2015) by Antonio Embid and Liber Martín (available in Spanish only). The study analyses new water legislation adopted in Latin America (Argentina, the Bolivarian Republic of Venezuela, Ecuador, Honduras, Nicaragua, Paraguay and Peru) between 2005 and 2015. It examines the recent evolution of water law and reforms and key factors behind its effectiveness in the region. The laws are considered, article by article, in the context of national constitutions, but in a manner that allows for comparison among them. The differences among them are so great it appears that there is no common pattern. However, some common trends are identified in the conclusions (see "***Meetings***"). These also include the lack of climate change provisions and decentralized reallocation mechanisms. Lastly, it focuses on the problem of inefficiency and formulates some recommendations.

- "***Latin America and the Caribbean: looking ahead after the Millennium Development Goals. Regional monitoring report on the Millennium Development Goals in Latin America and the Caribbean, 2015***" (LC/G.2646, September 2015) (also available in Spanish). This ECLAC report presents an overview of progress made in relation to the Millennium Development Goals, serving as a starting point for reflection with a view to 2030. Specifically, under Millennium Development Goal 7, the region achieved the target of sustainable access to safe drinking water and was close to achieving the target on the use of improved sanitation facilities.

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

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