



Water and the green economy in Latin America and the Caribbean: regional context and lessons learnt

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Regional context

Latin America and the Caribbean possesses about a third of the world's water resources. However, these resources are spread unevenly among and within countries. Many large urban centres and important economic activities are settled in arid or semi arid areas and water availability is increasingly reduced by intense use and or water pollution. Latin America is already the world's most urbanised developing region, with more than 80% of the population living in towns and cities, in many cases in precarious conditions, such as the 100 million people still living in slums.

Water management in Latin America and the Caribbean has evolved over time. Attention has shifted from the construction of large infrastructure projects for irrigation and hydroelectricity generation in the 50s and 60s to the provision of water supply and sanitation services in the 70s and 80s, to increasing emphasis on non-structural measures, water conservation, environmental management and pollution control in the 90s and 2000s, as the region started facing challenges of increasing water scarcity, pollution and climate change. The governments of the region have also recognised the importance the water sector can have in creating conditions for economic growth and in the alleviation of poverty.

The main issues facing the countries of the region in water management have not changed significantly in recent years. There has been a widespread inability to establish formal institutions that are able to deal with water allocation issues, extreme events and externalities (water pollution, aquifer depletion, etc.) under conditions of scarcity and conflict. The water sector still exhibits many examples of poor management; when formal norms exist, they are often inadequate to deal with the problems at hand and the operational capacity to implement them tends to be extremely limited. There is a general absence of self-financing and a consequent dependence on fluctuating political support. In general, there is an inability to respond to crises. Despite much improvement, reliable information is often missing, including on the resource itself, its availability and use, on the infrastructure, on institutional responsibilities and on future needs. Poor water management in the region means conflicts over the resource are still persistent and widespread. Issues over water allocation and competition amongst sectors – e.g. agriculture, industry, mining, urban water supply, water for environmental protection and indigenous groups – will increase significantly as economic development continues to augment. It is estimated that the region will keep on growing – regional growth is projected to exceed 4% for 2012. At the



same time, Latin America and the Caribbean has the most inequitable income distribution in the world. Universal service coverage and resolution of environmental problems have been hampered by these inequalities.

Important efforts have been made to improve water supply and sanitation coverage. At the regional level the Millennium Development Goal to reduce by half the proportion of people without sustainable access to safe drinking water has been already met with few exceptions (Haiti, Dominican Republic, Peru, Jamaica, etc.). However, service quality (intermittency, water quality control, etc.) is mediocre and infrastructure is often in bad condition, which is illustrated by high water losses that can reach up to 50-75%. Coverage in rural areas is much lower and those without drinking water and sanitation services are the most impoverished segments of society. Almost 40 million people still lack access to safe drinking water, while almost 120 million people do not have access to sanitation. And more than 70% of sewage is discharged into the nearest water bodies without any treatment causing alarming water pollution problems.

Agriculture is the main user of water in the region representing over 70% of the total water extractions in almost all countries. Currently, the region produces 31% of the global supply of bio-fuels and 48% of soybean. Tendencies show that agricultural production will keep on growing in most of the countries in Latin America resuming the expansion achieved between 2000 and 2007. Irrigation can play an important role in increasing agricultural yields. In many Latin America and the Caribbean countries, the levels of irrigation efficiency are in the range between 30% and 40%. Expansion of the area under irrigation has slowed down in many cases and an increasing urban population will add pressure to reallocate water from the agricultural sector to urban drinking water supply in cities.

Many parts of the region are highly vulnerable to the adverse consequences of climate change, and this could potentially threaten the progress made towards achieving the Millennium Development Goals. The expected effects of climate change will generate risks, challenges and opportunities for water management. The risks and challenges can be seen in the Andean countries which experience El Niño-Southern Oscillation (ENSO) and in the succession of long droughts in the northeast of Brazil. Moreover, the countries estimated to be in areas of high and extreme risk from global climate change are the poorest countries of the region in Central America, the Caribbean and the Andes. The most serious challenges arising from climate change for the management of water resources in Latin America and the Caribbean can be expected to lie in the following areas:

- A significant deterioration in the quality, quantity, and availability of water for all uses in many areas.



- Damage to coastal areas owing to a potential rise in sea levels, which in turn will affect river regimes.
- Increased economic damage from the greater intensity and frequency of hurricanes and tropical storms due to higher ocean surface and air temperatures

Challenges

The issues that water management in Latin America and the Caribbean has to confront do not all come from within the water 'box'. There have always been strong external drivers or forces affecting both water management and the water resource. The more significant of these come from general social change, but also include macroeconomic policies, often with a negative influence, stemming from abrupt changes in domestic policies and from outside, such as the international financial crisis of 2008-2009; but sometimes with positive effects as macroeconomic administration has improved domestically and globally, as with the expansion of world markets in recent years.

Water resources management often presents problems requiring a holistic approach. Among these the following are significant: coordination of supply and demand policies; policies for the quality and quantity of water resources; the joint use of surface and groundwater; the multiple use of resources and multi-purpose projects; coordinated management of land use, vegetation cover and water; management of externalities; improvements in data collection and information management; and environmental conservation policies.

In Latin America and the Caribbean, institutions are often weak, they lack operational capacity and rules are insufficient or not enforced. Fragile institutional frameworks and corruption, not only in the water sector, but in general have affected water management. The absence of appropriate water management institutions causes uncertainty, deepens conflicts over water and hampers economic development. Water provision and allocation needs clear rules, strong government institutions, transparency and a holistic approach which in most of the countries of the region are missing. There has been an effort to transit towards integrated water resource management as a framework for helping overcome these challenges; however, it often remains as a concept difficult to translate into reality.

Advances have been achieved both at the national level, through the implementation of new water management systems based on new legislation; and at the river basin level with watershed or river basin organisations, however these efforts have been isolated and had limited success. Over the last two decades, the water supply and sanitation sector has been subject to extensive reforms in the majority of the countries of the region. Unfortunately there have been few success



stories, as in many cases reforms encountered difficulties or went astray due to the lack of consensus, capture by special interest groups, and especially failure to consider the structural limitations of national economies and sound principles of public utility regulation and economics of service provision. Lack of integrated planning has hindered advances in many countries. Public awareness and stakeholder participation are key to solving conflicts. Not involving communities in decision making has proved to have explosive effects (e.g. Cochabamba). Although the situation has improved over the years, it is in general still affecting the proper management of water resources in the Latin America and the Caribbean region.

Aging water infrastructure, insufficient investments and inadequate regulatory frameworks are at the heart of the challenges for the provision of drinking water and sanitation services. Tariffs should serve as a proper signal to water users, however they often do not reflect even operational and maintenance costs. Some countries, such as Chile, have implemented full cost recovery tariffs supported by subsidy systems for the poor; however this is not the case for many countries in Latin America and the Caribbean. Water operators find financial sustainability difficult to attain due to high levels of poverty and the fact that decisions, often taken outside the economic realm, set tariffs that are too low. There is a need to bring tariffs to cost recovery levels, but accompanied by significant public investment (political priorities are very important) and creation of effective subsidy systems for the poor.

Approaches

Some countries have implemented significant reforms. For example, Brazil has adopted a new water legislation and a national water management policy; new water laws have also been recently adopted in Honduras, Nicaragua, Peru, Venezuela, among other cases; Chile has reformed its water law and the water supply and sanitation sector, and privatised all water-related utilities; and Mexico reformed its water legislation and created river basin councils. The water supply and sanitation sector has been subject to extensive reforms in the majority of the region's countries particularly in Argentina, Bolivia and Colombia. In addition, a large number of countries are currently discussing modifying or reforming their water-related legislation.

Economic instruments, such as subsidies, tariffs, fees, incentives to mobilise resources, regulatory controls and prices signals have been implemented in the region with mixed results. In the countries of the region – which do not have the human and financial resources of developed countries, nor a State or private apparatus with the equivalent organisation and management capacity – interest in trying to apply economic instruments is not always compatible with the basic conditions they require. Good results are generally vetoed by the prevailing conditions of user informality, lack of information, perverseness or ignorance about good practices concerning the use (or rather abuse) of water, in combination with an almost absolute inability to enforce the



law even where formal legal conditions exist. Among other basic conditions that are lacking, most of the countries of the region do not have efficient institutionalised systems of water management. Without this, very little can be done, bearing in mind the enormous fragmentation of institutions and responsibilities involved in water management. Widespread poverty, lack of trained personnel, lack of control and monitoring systems, the concentration of economic and social power, the ease with which regulators or managers (where they exist) can fall under undue influence, all constitute impediments to the use of economic instruments.

Reforms in the water sector have taken place, yet there is still work to be done as many of the changes undertaken have not yet yielded the benefits they were expected to produce. It has been acknowledged that to achieve universal coverage and good quality services, systems need to be financially and economically viable. Many systems charge for the cost of administering water resources. There are also examples of charges intended to recover costs of water works, pay for water-related services and treatment of wastes, cover administrative expenses and induce water conservation and environmentally sound behaviour. However, legislation charging for water as such is not so abundant. Nevertheless, some countries of the region have already implemented or are implementing systems of charges for water as a resource.

Improving efficiency helps achieving equity. By providing services efficiently, costs can be reduced allowing the allocation of resources into maintenance programmes or even new infrastructure investments.

To transition towards a green economy, Latin American and the Caribbean countries will need to focus on elements such as:

- Water use efficiency, loss reduction, metering, efficient water use.
- Energy efficiency in the provision of drinking water supply and sanitation services.
- Drinking water supply and sanitation in the fight against poverty, for social cohesion and integration, green employment and their role in countercyclical policies.
- Generation and management of new and unconventional water sources (such as seawater and brackish water desalination, wastewater reuse, market reallocation, watershed management and payments for environmental services) for human supply and other competing uses (especially mining).
- Domestic wastewater treatment and recycling, full water cycle management.



- Climate change adaptation and mitigation in drinking water supply and sanitation; methane recovery in wastewater treatment.

Water management, direct regulation and economic instruments: the Colombia case

For more than 35 years, Colombia has been building a wide range of instruments for water management: regulatory controls of quality and quantity, price signals to encourage efficient use of the resource, and obligatory investments to protect water resources. Sometimes, productive sectors respond effectively to price signals and command and control measures. Nevertheless, despite some advances, various limitations hinder sustainable use of water in accordance with the challenges of economic growth. This case shows that:

- a) When price signals are applied properly and with appropriate institutional enforcement, the positive effects on the rationalisation of the use of water are clear and effective.
- b) A financial strategy of environmental investment associated with economic growth and the use of natural resources is more effective than exclusive dependence on the political will of national authorities.

Source: <http://www.faae.org.co/PolicyPdf/policy-26.pdf>

Lessons learnt

There is a need for integrated water planning to satisfy economic objectives, environmental requirements and social concerns, through the generation of a shared vision regarding the future evolution of water availability and use at the river basin level. These are some of the main lessons that have been drawn from experiences across the region and the consensus that has been built amongst stakeholders and experts to improve water management in the region:

Water legislation

- Water laws must clearly state that water belongs to the public domain of the State.
- Water laws must determine specifically that water use rights, when granted under conditions of, or which aim at, effective and beneficial use and that do not cause environmental damage, are protected by private property clauses in the constitution.



- In the case of water rights and uses that were in existence prior to the legislative change, including traditional and indigenous uses, they should be recognised in accordance with their effective and beneficial, historical and current use, without this affecting the possibility of imposing appropriate regulations.

For the regulation of drinking water supply and sanitation services:

- Reasonable tariffs and profits. It is important to bear in mind that privatisation does not miraculously make unprofitable operations profitable.
- A subsidy system that avoids as far as practicable cross-subsidies and that guarantees the low-income groups a basic minimum supply.
- The right to adequate and opportune information, both for the regulators and for customers.
- Obligatory uniform regulatory accounting; and control of transfer prices, holdings and intra-holding transactions.

Regarding centralisation and decentralisation:

- Depending on the activities involved, determine the appropriate level for decentralisation or centralisation, in accordance with technical considerations and economies of scale and scope.
- Preserve a residual capacity at the central level, to promote or implement the necessary activities or measures in the event of decentralised bodies being negligent or unable to carry out their functions.
- National legislation should recognise the two basic principles that govern disputes between decentralised authorities: (i) equity and reasonableness; and (ii) not causing significant harm.

Regarding water management institutions:

- The authority responsible for water allocation and management should be independent from sector influences, with authority and resources in line with its responsibility.
- Inserting water management within environmental agencies may result in minimising its potential for driving socioeconomic development.
- Therefore, it seems appropriate that the water resources have their own stable and independent institutions, even when these are closely linked to institutions responsible for the strategic vision of national development.



- Water-related decision making has economic content, and special interest group pressures can promote or dissuade certain decisions. Accordingly, water authorities should have independent budgets and chief executives appointed for fixed terms and protected from arbitrary removal.
- River basin level organisations are valid options for water management. Critical requirements for their creation include a precise definition of their specific exclusive functions focused on water resources, and adequate authority and funding.

Regarding regulatory agencies for drinking water supply and sanitation services:

- Clear institutional separation between the functions of sector policy formulation, regulation and provision of services.
- The regulator must have independence and stability, and be subject to rules of good conduct and ethics.
- The regulator must have the necessary powers and resources.
- The regulator must have appropriate legal capacities.

Lessons learnt from selected cases in the LAC region

Case	Lesson learnt
<p>Greening (ecologización) the economic regulation for the provision of drinking water and sanitation services in Peru: lessons from SUNASS</p>	<p>Cost recovery tariffs coupled with clear and transparent subsidies for low income families is an efficient way to rationalise water use and increase coverage of water and sanitation services; however an important precondition is public investment in the universalisation of service coverage.</p> <p>Providing access to drinking water and sanitation services can be used as a way to alleviate extreme poverty and social exclusion.</p> <p>Projects which are designed considering environmental dimensions can reduce their maintenance and operative costs, avoiding future expenditures on new supply infrastructure.</p> <p>Communities accept subsidising those who cannot afford to pay for water</p>



	<p>services, however, they are not willing to pay on behalf of “free riders”.</p> <p>It is necessary to acknowledge the cultural and environmental context on a case by case basis; there is no solution that can fit all.</p> <p>Transparency on the water bill enhances the end user understanding of its water consumption.</p>
<p>Design and approval of the Multi-annual Sectoral Plan for Water and the Environment of the Republic of Guatemala and the creation of the Water Advisory Group (Gabinete Especifico del Agua GEA)</p>	<p>Policy coherence and coordination is necessary to improve water management.</p> <p>Consensus building at the national and local level among relevant stakeholders is key for success.</p> <p>The role of institutions and organisations outside of the water sector can be critical to the success of water governance within the sector.</p> <p>Political commitment and innovative approaches can generate positive changes.</p>
<p>Public management of water in Colombia</p>	<p>Colombia has a legal, institutional and financial framework that allows the implementation of measures for the regulation of water use and for ensuring the sustainable development of production and consumption.</p> <p>When price signals are applied properly and with appropriate institutional enforcement, the positive effects on the rationalisation of water use are clear and effective.</p> <p>A financial strategy of environmental investment associated with economic growth and the use of natural resources is more effective than exclusive dependence on the political will of national authorities.</p> <p>Financial sustainability of water authorities is necessary, but not sufficient, to ensure the effectiveness of water management.</p> <p>As well as supervision and control of water users being necessary, appropriate monitoring of water authorities by the control entities and citizens is also essential.</p>
<p>Community water management in Central America</p>	<p>Community based management can be a low cost efficient initiative especially for low income groups.</p> <p>This level of involvement generates economies of scale that enhance the</p>



<p>as an environmental, economical and socially feasible choice</p>	<p>provision of services.</p> <p>The approach used by the communities now involves not only water management but also the protection of forests, recharge areas, integrated watershed management, and sustainable agricultural practices.</p> <p>Water has become a valuable resource for agricultural purposes and for small scale hydroelectric generation.</p> <p>The development of networks has allowed knowledge sharing and the adoption of best practices in different communities.</p>
<p>Prices that reflect the costs and benefits to the poor in Bogotá and Medellín, Colombia</p>	<p>Cost recovery and financing- economic instruments helped reduce water consumption.</p> <p>Financial sustainability of water utilities can be attained, reducing their dependence on government budget allocations.</p> <p>The introduction of a law requiring the implementation of full cost tariffs set a clear legal framework.</p> <p>Communication strategies to emphasise the value of water and the value of paying its cost, and the support from the local mayor were necessary for the successful implementation of the tariffs.</p>