



Best practices in regulating State-owned and municipal water utilities

Sanford V. Berg



NACIONES UNIDAS

CEPAL



Liberté • Égalité • Fraternité

RÉPUBLIQUE FRANÇAISE
Délégation régionale de coopération
pour le cône Sud et le Brésil

Best practices in regulating State-owned and municipal water utilities

Sanford V. Berg



This document was prepared by consultant Sanford V. Berg, in coordination with Andrei Jouravlev, Economic Affairs Officer, Natural Resources and Infrastructure Division of the Economic Commission for Latin America and the Caribbean (ECLAC) (who also prepared annex 3), and in collaboration with Caridad Canales and René Salgado, officials of the same division, within the framework of the "Natural Resources" project undertaken jointly by ECLAC and the Ministry of Foreign Affairs of France (FRA/11/002). The author is Distinguished Service Professor, Economics, University of Florida, and Director of Water Studies, Public Utility Research Center (PURC).

The author would like to thank the following persons for their contributions and comments: Andrei Jouravlev, Carol Balkaran, Christine Boyle, Jorge Ducci, Allen Eisendrath, Hatto Fischer, Richard Franceys, David Fuentes, Ingo Gentes, Marita Konstanczak, Matthias Krause, Christopher Moore, Fernando Prado, Michael Rouse, Ryan Schweitzer, Myriam Senn, Claudia Vargas and Branko Vucijak.

The views expressed in this document, which has been reproduced without formal editing, are those of the author and do not necessarily reflect the views of the Organization.

Index

Abstract.....	5
I. Introduction	7
A. Standards for measuring performance	7
B. The politics of water	9
C. Institutional context for regulation	12
D. Regulatory frameworks	15
E. Indicators of weak performance	16
F. Promoting transparency	18
II. Regulatory governance and substance	21
A. Regulatory governance	21
1. Evaluating regulatory governance.....	21
2. Regulatory governance and transparency	23
B. Regulatory substance	25
1. Regulatory instruments	25
2. Regulatory processes revisited	29
III. SOE utility governance and substance.....	31
A. SOE utility governance.....	31
1. Aligning incentives.....	31
2. Elements promoting good governance	33
B. SOE utility substance	34
1. High performing utilities	35
2. Capacity building	35
IV. Best practice: benchmarking and conflict resolution	37
A. Sources of conflict.....	38
B. Regulatory governance for conflict resolution.....	38
1. Research: What are the facts?.....	39
2. Research and negotiation: How should benefits and costs be allocated?.....	40
3. Adaptive work: What is important?.....	42
4. Adaptive work: Who has jurisdiction?	43
V. Key lessons and conclusions.....	45
A. Key lessons for utility regulation.....	45
B. Conclusions.....	48

Bibliography	51
Annexes.....	57
Annex 1 The National Water and Sewerage Company, Uganda, case study.....	58
Annex 2 The Phnom Penh Water Supply Authority, Cambodia, case study.....	61
Annex 3 Water Industry Commission for Scotland: regulatory accounting	62
Annex 4 Citizen engagement, accountability, and utility performance	65
List of figures	
Figure 1 Institutional context.....	20
Figure 2 Factors affecting perceived bribery	24
Figure 3 Governance, substance, and sector performance	26
Figure 4 Inputs, processes, outcomes, and performance benchmarking.....	36
Figure 5 Conflict resolution matrix	38
List of tables	
Table 1 Performance indicators for NWSC, 1998-2010	60
Table 2 Performance indicators for PPWSA, 1993-2010.....	61

Abstract

The fundamental lesson that emerges from this survey of regulating state-owned and municipal water utilities in developing countries is that sector regulation has to be embedded in an adequate and consistent institutional framework in order to have a positive impact on performance. Sector regulation, by itself, is no guarantee of performance improvements in the drinking water supply and sanitation sector. Case studies and empirical analyses suggest that without significant changes in the supporting institutions, the standard tools of regulation will not be effective. This conclusion is disturbing, especially for developing countries, since it means that the establishment of a regulatory agency might raise hopes, but ultimately, the agency's rules are unlikely to improve performance without additional, politically difficult initiatives. An industry observer said "to have effective regulation, you must have utilities that can, in fact, be regulated". The problem boils down to getting a broader set of institutions to support regulatory and managerial actions that promote good sector performance. This means getting the **governance structures** right (rules of the game) and the **substantive actions** right (play of the game). Conflicts usually arise in the politically-sensitive water services sector, so the regulator also needs to develop tools for conflict resolution. Thus, the conclusion that the institutional environment matters also provides a rationale for establishing a comprehensive set of governance reforms. These reforms may go beyond the jurisdiction or immediate responsibility of the regulatory agency itself. Nevertheless, an autonomous regulator can (in many cases) facilitate reforms that lead to lower costs, improved service quality, and greater network coverage. On the other hand, when both operations and oversight are part of the same organization (whether a ministry or municipality), pressure for strong performance is unlikely since reforms represent a public admission that past procedures were inadequate (at best) or corrupt (at worst). This study identifies best practice in regulatory governance and corporate governance of state-owned and municipal utilities. The **regulatory system** goes beyond the regulatory agency and the water utility to include stakeholders that are in a position to support, block, or blunt reforms that would improve performance. In particular, this study documents how domestic politics can limit the effectiveness of regulatory institutions. Greater transparency (for example, via benchmarking and accountability) and citizen participation (via public hearings, public consultation processes, workshops, and consumer advisory boards) represent two ways the regulator can gain leverage against those benefiting from current dysfunctional arrangements. Without broad institutional support, even a technically competent regulatory commission will find itself marginalized by political forces that are far stronger. If the local "regulator" is the municipal commission, lack of professional skills and political cronyism usually exacerbate the problem. Ultimately, a sound regulatory system requires coherence, creativity, real-time communication, collaboration, consultation, and credibility.

I. Introduction

Numerous studies have addressed water utility performance in developed and developing nations. These studies recognize the importance of the institutional factors affecting those managing water utilities and those providing regulatory oversight: social structures (the political and cultural context), formal organizations (regulatory commissions and government ministries), and support systems (including political patronage and civil service). These external factors affect how conflicts are resolved regarding resource allocation, pricing, and access to water services. In addition, these issues influence the internal governance of state-owned enterprises (SOEs). By publishing key performance indicators (KPIs), the regulatory body can contribute to greater transparency. In addition, the information stimulates participation by stakeholders, including minority groups and those receiving rural water services. Favours to special interest groups that could be revealed by business plans are more likely to be brought to public attention when governments open their books. Ultimately, in conjunction with incentives established by regulators, external factors determine managerial objectives and actions. These objectives include financial sustainability (via cost containment, improved collections, and reducing non-revenue water), better service quality, and network expansion providing access to the poor through affordable tariffs (or targeted subsidies when necessary); alternatively, managers might focus on delivering favours to special interest groups, including contractors, employees, or politically-connected constituencies. The key issue is how to design an institutional system that reduces the likelihood that the latter actions prevail since they lead to capture, corruption and low levels of utility performance.

A. Standards for measuring performance

Competitive markets have two key features: (1) informed consumers make choices from among a variety of products (of different qualities); and (2) those providing capital allocate funds to a large number of firms that are meeting those demands at least cost. In competitive markets, prices are signals to both producers and consumers: increases in demand lead to short term above-normal profits, causing firms to expand output. Initially, the higher prices lead to less consumption than would otherwise be the case, but entry further increases output and reduces price. Similarly, when production costs rise (causing prices to increase) quantity demanded falls. On the other hand, competition leads to lower prices when production costs fall (as a result of improved technologies or lower input prices).

Industry performance is evaluated in terms of consumer satisfaction, the absence of long term excessive profits, the adoption of cost-reducing innovations, new product introductions, workplace safety, service quality, and an absence of negative environmental impacts.

When there are substantial scale economies, a single provider of the product is the least-cost way to organize production: a natural monopoly. However, an unregulated (privately-owned) natural monopoly has very different performance from what one finds in a competitive market: consumers face high prices and low quality, and the monopoly obtains excessive profits. Regulation can bring price in line with cost, and (with proper incentives) promote cost containment for a product or service, at a quality that is valued by consumers (Berg and Tschirhart, 1988).¹ In the case of water and sanitation utilities, additional public interest concerns regarding health and access by the poor have resulted in state- and municipally-owned utilities in most nations. However, the objectives (and institutional context) for these utilities differ from those of privately-owned monopolists.

Eisendrath (2012) underscores the differences between privately and publicly-owned utilities: “When a regulator regulates a privately owned utility, [the] main concern of the shareholders is their return on equity, their free cash flow and their dividends. Under rate of return regulation ..., the regulator has a benchmark ... [return on equity] that they will build into the revenue requirement and tariff order. Under incentive-based regulation, ... the regulator also sets a framework for allowed equity return. In either case, the shareholders are very interested in their equity returns”. Thus, Eisendrath emphasizes the role of capital markets as placing discipline on a regulated utility that is separate and independent from those pressures placed on the firm by a sector regulator. Investors monitor both managerial actions and the regulatory climate, where the latter is evaluated in terms of regulatory consistency and predictability. Those providing capital consider whether regulators are providing the utility an opportunity (but not a guarantee) to earn a reasonable (or fair) return on investment. To earn that return, managers are then incentivized to achieve cost containment, quality improvements that are valued by customers, and network expansions (when prices recover costs that are incurred). In principle, regulation attempts to replicate what would happen in a competitive market when managerial success is gauged by financial performance.

Eisendrath (2012) also identifies the governance structure of private utilities as an important element of the system: “Similarly, in a private utility, the board, appointed by shareholders, will have the power to establish bonuses for management based on performance, salary levels, and to appoint and fire management. There are often substantial benefits to shareholders and management associated with performance, and similarly, when there is poor performance, boards and management are often replaced”. His key point is that in order for the board of directors to be in a position to discipline weak managers, owners of the utility require transparency regarding trends in performance indicators, particularly financial performance.

However, government ownership introduces some complications into the governance process: “In state-owned utilities, there is often little concern about return on equity, dividends, or bonuses to management. Similarly, poor performance is not penalized. This is not a necessary condition; in fact, state-owned utilities can reward management with bonuses and ‘good’ salaries, and they can penalize poor management by not giving bonuses and replacement of non-performing managers. Part of this has to do with linking incentives and penalties to performance”. Thus, Eisendrath (2012) identifies a theme that will be emphasized throughout the current study: the important role of incentives for sound managerial decision-making (where targets are based on careful performance benchmarking). This

¹ In the United States, the Interstate Commerce Commission was established in 1887 as the first federal agency regulating the use of market power—in this case, that of railroads. California created its own Railroad Commission in 1879, but this agency was captured by the industry. Many states created commissions during the early 1900s; additional regulatory commissions for different infrastructure sectors were established in the 1920s and 1930s (Phillips, 1969). The Costa Rican regulatory agency was established in 1928, although most autonomous regulators in the region began in the 1990s.

commercial orientation requires professionalism within the utility and some insulation from political intervention. That does not mean that a SOE has no social objectives (such as ensuring access for low income citizens), but that the pursuit of those objectives should involve realistic business plans that are transparent and involve input from civil society.

Eisendrath (2012) concludes that, in “state-owned utilities, these incentives and penalties associated with regulation often do not exist, or exist only in a weak form”. Thus, substantial attention must be given to “the corporate and sector governance mechanisms that create incentives and penalties. First, it is possible to establish appropriate corporate and sector governance arrangements; second, it is possible to use specific mechanisms to create incentives and penalties needed to make regulation more effective” (some of these mechanisms are described in Eisendrath (2013)). Thus, governance arrangements and associated managerial incentives are central to achieving high performing state- and municipally-owned utilities. Of course, the first issue to be addressed is how governance arrangements are affected by the political power of different stakeholders.

B. The politics of water

Water services are politically salient: cost of service (even for a well-managed natural monopoly) can be high relative to some citizens’ ability to pay. SOEs may be particularly concerned with low prices; however, politicians can make promises without backing them up with adequate government funding. Thus, excessive political involvement in utility operations is almost certain to lead to inefficiencies: excessively low tariffs that starve the utility for cash needed for maintenance and network expansion. Furthermore, political objectives for the water and sanitation sector are seldom prioritized: low tariffs, network expansion, and service quality are reasonable objectives, but they are mutually inconsistent. In addition, citizens are not well informed about the financial sustainability of current prices (and promises): evidence regarding performance trends is often unavailable or not publicized. In such situations, external governance and internal incentives are often based on short term pressures from powerful political actors representing particular constituencies, sub-national governments, or multilateral financial agencies. Also, although there may be social sensitivity towards protecting vulnerable groups, the actual policies, rules, and outcomes often serve the interests of dominant stakeholders (depending on the political context).

Thus, a standard recommendation made by industry observers involves developing mechanisms to insulate both the regulator and the utility from daily political pressures. The latter is important so the utility managers can base decisions on long term financial, economic, and engineering considerations. Of course, sometimes tariff issues are resolved outside the formal regulatory system, or the utility itself is more powerful than the regulator (particularly if a line ministry shields the utility from regulatory rulings). In the latter case, the utility managers can by-pass formal processes or just not comply with regulatory information requests. If politicians placed greater emphasis on water utility performance, the governance structures (including appointments to regulatory commissions, Boards of Directors, and leadership positions in SOEs) could yield dramatic improvements in performance. Indeed, there are numerous examples where this is the case.²

Dozens of studies have focused on the performance of state-owned regulated water utilities. Based on an examination of case studies and empirical analyses, there is a consensus that without major changes in the supporting institutions, the standard tools of regulation will not be effective in significantly improving performance (Ehrhardt and Janson, 2010).

² A census of water regulatory commissions in Latin America and the Caribbean, including information on founding date, staff size, and other characteristics, is available in Akhmouch (2012).

A World Bank report on infrastructure services in the Caribbean identified the following problems facing state-owned water utilities (Jha, 2005):

- Overstaffing, with typically around eight employees per 1,000 connections.
- High levels of unaccounted for water, typically more than 50 per cent, with commercial losses due to illegal connections, faulty meters, and under billing, making up about half the nonrevenue water.
- Below cost-recovery revenues, which, in some cases, do not even cover operating and basic maintenance costs.
- Lack of funds to make capital investments to expand the network and replace aged pipes.
- Political interference in network expansion and personnel recruitment decisions.

In addition, the lack of accountability and codes of conduct result in non-transparent institutional frameworks.

The report concludes that “The combination of these issues leads utilities into a vicious cycle of value destruction. The inability to invest in network expansion constrains revenue growth; inability to invest in expansion or rehabilitation of treatment plants and networks leads to higher losses and more service interruptions; lower service quality decreases the willingness of consumers to pay for services and hampers revenue collection; lower revenue collection coupled with higher costs further limits the ability of these utilities to make capital investments” (Jha, 2005).

In the past decade, those developing and implementing policy in the Caribbean have begun to take some steps to address these concerns. However, the listing of five problem areas appears in study after study of developing countries. Based on these problems, the author of the present report concludes that **the fundamental problem is not engineering; it is the economic incentives and disincentives that accompany excessive political interference in commercial utility actions.**

In addition, the lack of a predictable and stable legal framework harms the regulatory system since neither sector regulators nor utility managers can make decisions for the long term when there is high turnover and legal uncertainty. Power asymmetries between interest groups lead to managerial behaviour that reflects political relationships rather than professional competence. Thus, the governance of institutions and the substantive decisions by authorities are central to water service sector performance.

One could ask whether there is a need for a separate regulatory institution when the utility is state- or municipally-owned. Presumably, the water ministry (perhaps in conjunction with the finance ministry) is already providing oversight for national water utility operations. Similarly, if municipal taxpayers own the utility, the elected officials serving on the municipal council or commission should be monitoring and incentivizing utility managers to improve performance. However, the question answers itself: when both operations and oversight are part of the same organization, pressure for strong performance is unlikely since reforms represent a public admission that past procedures were inadequate (at best) or corrupt (at worst). In addition, governments can become characterized by policy inconsistencies, information asymmetries, politicization of operating and investment decisions, unclear priorities, and lack of stakeholder input. The establishment of autonomous infrastructure regulatory commissions was designed to reduce the role of politics in operational decisions and improve the external (and internal) governance of utilities.

The Organisation for Economic Co-operation and Development (OECD) has identified multi-level governance gaps in water policy related to water resources management and to the delivery of water services (OECD, 2012):

- **Policy gap:** Overlapping, unclear allocation of roles and responsibilities.
- **Administrative gap:** Mismatch between hydrological and administrative boundaries, with implications for long term sustainability of utilities if they are forced to turn to high cost water sources, such as desalinization.
- **Information gap:** Asymmetries of information between central and sub-national governments, and between utilities and governments, and consumers.
- **Capacity gap:** Lack of technical capacity, staff, time, knowledge and infrastructure.
- **Funding gap:** Unstable or insufficient revenues of national, sub-national and local municipal governments to effectively implement water services policies, and to invest and operate infrastructure.
- **Objective gap:** Competition, and lack of coordination, between different ministries.
- **Accountability gap:** Lack of citizen concern and awareness about water service policy, plus low involvement of water users’ organizations, where lack of data and participation limits ability of affected groups to raise concerns in public forums.

These gaps will be addressed here in the context of regulating SOEs. In addition, although water resources policies are seldom implemented by the regulator of water utilities, the two types of regulation have linkages that warrant attention. OECD (2012) concludes that “Sustainable financing, effective governance, and coherence between water and sectoral policies are the building blocks of successful reform”. Establishing these building blocks require addressing three issues: **sustainable financing, effective governance, and coherence between national priorities, water supply and water resources management.**

- **Sustainable financing:** To increase access to drinking water supply and sanitation services, it is necessary to identify mechanisms that can be counted on to finance new investments (primarily higher tariffs, increased budgetary allocations, and issuing bonds). Higher prices are politically unpopular, but if the public has confidence in the regulatory system (and KPIs are improving) citizens will recognize the benefits that are being realized. Increased (and predictable) government transfers to the utility enable it to make investments that improve service delivery, although government funds have substantial opportunity costs. Finally, when a water utility issues debt, it has financial capital for investment purposes; in addition, managers are taking on an obligation to meet interest payments in subsequent years.
- **Effective governance:** Incentives are essential for operational efficiency. However, context related information on past trends and best practice must be available to regulators, utility Boards of Directors, and managers. Then incentives can be based on benchmarking studies and well-specified targets for performance improvements. In addition, as managers do “more with less”, resources can be made available to promote fairness (in terms of increased coverage and enhanced access). Efficiencies enable managers to apply cash flows to meet social objectives that may not be financially self-sustaining. Of course, customer advisory boards, workshops, and other mechanisms promoting citizen participation in the regulatory process provide other levers for placing pressure on managers.
- **Coherence between national priorities, water supply and water resources management:** Without internal consistency, policies are likely to operate at cross-purposes. While water resources management is not the central issue being addressed here, poor water management has implications for future costs, as water sources are contaminated, watersheds destroyed or aquifers drawn down. Competing water uses

include ecological habitats, irrigation, industry, power cooling, and utility services. Inter-agency discussions about water resources, water quality, and utility access to water can help policy-makers make better decisions. At the same time, when objectives are neither quantified nor prioritized, managers (and political leaders) cannot be held accountable if water supply and sanitation sector performance appears to be weak—but those public perceptions cannot be documented. In such situations, developmental linkages are not established (reducing opportunities for entrepreneurs in supporting industries) and favourable health impacts are not achieved.

C. Institutional context for regulation

The focus of this report is on how the regulatory system can improve water and sanitation services provided by SOEs and by municipal utilities. Past research suggests that without a sound governance system, regulation cannot do much to improve the performance of SOEs—other than promote transparency and utilize benchmarking to put pressure on managers. The regulatory agency is one institution that is part of a regulatory system (as is emphasized by Brown, Stern and Tenenbaum, 2006). The tools (and political influence) are generally inadequate for the regulator—unless the internal governance of the utility focuses on performance (via pressure from the Board of Directors). That means that the Board must be in a position to introduce incentives, evaluate managers, and remove those who are unwilling or unable to do their jobs. Thus, the external governance (power and interests of other institutions and stakeholders) must be part of an enabling environment.

In political settings, public policy evolves in response to pressures on and from institutions. These institutions reside at three levels: **broad social structures** (reflecting norms and customs), **formal organizations** (such as regulatory agencies), and **support systems** (like civil service) (see Berg and Vargas, 2008).

- **Social structures:** Informal institutions are the “norms and customs regulating socio-economic life” (Casson, Giusta and Kambhampati, 2010). As such, they are mechanisms that facilitate cooperation or mitigate conflicts among sets of individuals: such structures become part of the social order, setting rules and procedures for solving problems. As part of the cultural context for governance, institutions can also be customs and accepted patterns of behaviour that encourage or discourage a wide range of actions. North (1990) and Ostrom (2010) are just two of the eminent scholars who have highlighted the role of social structures in affecting economic outcomes.
- **Formal organizations:** Institutions can be organizations, such as courts or regulatory commissions. Such entities are established to fulfil specific functions: they emerge from complex sets of circumstances to address salient issues. Regulatory organizations generally have formal mandates, limited resources, and a culture that includes incentives, shared values, and a structure of decision-rights (Berg, 2000). Both sector regulators and state-owned water utilities are formal organizations embedded in a social structure. The fundamental problem is whether one governmental entity (a regulatory commission or a municipal council) can influence the actions of another governmental entity that delivers water services (which may be at the national or sub-national level). In particular, the utility might “bypass” the regulator, by drawing upon an alliance with the line ministry responsible for the water services sector. In addition, other formal organizations (like a water resources authority, environmental protection agency or a public health department) are likely to have jurisdictional responsibilities that overlap with those of the water utility regulator.

- **Support systems:** Institutions can also be part of the structure that supports formal organizations; for example, systems of political patronage or civil service systems both could provide the framework for capacity-building, information collection, analysis, advice, and policy implementation. Increased professionalism is generally viewed as an input for improving the effectiveness of formal organizations. For example, Ramió and Salvador (2008) examine how civil service reform affects agency performance in general. They evaluate these decision-support systems in eight Latin American countries, and find that civil service reforms tended to be externally imposed or involved emulating systems from developed countries, usually without domestic support; there seems to have been a lack of political consensus regarding the benefits of a more professional civil service, perhaps because that reduces opportunities for political patronage.

All three types of institutions affect behaviour. For example, without a tradition of transparency in decision-making, corruption is more difficult to detect and punish. The social and cultural structures matter: behaviours that are viewed as unacceptable and are subject to penalties will be less prevalent than otherwise. For the utility itself, procurement processes might give significant discretion to managers, leading to opportunities for bribes and kickbacks, bid rigging, and fraud (Halpern and others, 2008). Similarly, meter readers may encourage (or be susceptible to) bribes. Finally, at the level of support systems, if citizens do not perceive the political system as providing channels for expressing grievances about the state of water services or do not understand the links between tariffs and utility financial sustainability, sector reforms will lack legitimacy. Voters are a key group of stakeholders affected by regulatory, managerial, and political decisions, so institutional support is degraded when citizens become disaffected. Of course, without mechanisms for citizen participation (in public hearings or other forums) they will not have a direct voice in utility matters. In some crisis situations, often related to privatization (as for example in Cochabamba and Tucuman), citizen protests arose when consultations were deemed inadequate. Note that there are community managed systems in which there is peer pressure for the payment of bills; in those situations, citizens understand the need for cost-recovery.

There is no doubt about the importance of citizen perceptions regarding institutional performance in the large (as a foundation for social cohesion) and in the small (as scaffolding that facilitates governmental decision-making). Between broad systemic outcomes and underlying decision processes (civil service), are the agencies that implement public policy. **Newly established (relatively) independent regulatory agencies are the focus of the current study.** These agencies represent deliberate attempts at reducing the power of government ministries responsible for infrastructure (Checchi, Florio and Carrera, 2009). With some insulation from day-to-day political pressures, these new formal institutions were given authority to provide sector oversight, to promote transparency, and to establish incentives to improve sector performance. Ideally, regulatory agencies were supposed to have strong leadership (appointed through a well-specified process) and to recruit skilled professionals and avoid conflicts of interest. In principle, respected regulators and technical support staff could promote the long-run sustainability of important infrastructure sectors. In reality, the formal structures are not as robust as many had hoped, as the governance gaps identified by OECD (2012) characterize many nations. One reason for this gap between promise and performance is that the regulators were often initially created with the expectation that utilities would be privatized. It is much more straightforward to regulate a privately-owned utility than a SOE (Vagliasindi, 2008a).

- **Social structures affecting water sector performance.** Citizens' expectations are difficult to manage, especially when political leaders promise things that cannot be delivered. For some reforms, few benefits are perceived as "trickling down" to the poor or to those without access to services. In the high profile case of water supply and sanitation, initially, the costs of network expansion and service quality improvements were not widely recognized. In particular, when the price of water was initially far below cost, the introduction of a new regulatory commission could coincide with tariff

increases, but underlying problem was the non-sustainability of extremely low prices, unless significant taxpayer subsidies were available.

- **Formal organizations in the water sector.** A number of organizations are involved in the development and implementation of policies in the water services sector. Here we focus on the regulatory commission, an agent of the state that often has some degree of autonomy. The functions of regulation include establishing incentives for good sector performance and communicating developments to all stakeholders. In the case of water utilities, many regulators lack the legal mandate to collect and analyze information in a timely manner (Jouravlev, 2003a).³ The shared values so essential for an agency's success have also been labelled the organizational culture: "Culture is ... a pattern of shared basic assumptions that the group [agency professionals] learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (Schein, 1992).
- **Support systems for improving performance.** Civil service reforms can promote professionalism, but recruiting and retaining a strong staff depends primarily on salary schedules and opportunities for advancement. Thus, the pool of potential applicants and the processes for appointing commissioners and other top decision-makers both affect the culture of the formal organization.⁴ Technical skills are necessary but not sufficient for new agencies to be effective. Leadership, a factor often ignored in economic models, turns out to be a key determinant of organizational performance—both for regulatory commissions (McCraw, 1984) and for water utilities (Jamison and Castaneda, 2011; Alfaro, 2009). That means that any comprehensive sector reform needs to address governance and the selection processes for commissioners⁵ and for top utility managers. Furthermore, in the case of SOEs, while still being mindful of keeping an arms-length relationship, the regulator has to be willing to share ideas for wider sector reforms with the line ministry, even though the latter is responsible for setting public policy.

Continuity in regulatory decisions is helped when there is stability in regulatory leadership. In addition, those responsible for appointments need to address gender issues and inclusive representation across different racial and social groups.

At the same time, the resources necessary to comply with regulatory mandates are often controlled not by utilities themselves but by other agents that are not subject to regulation. For example, decisions on budgetary allocations for expansion or to compensate for low tariffs are usually the responsibility of the ministry of finance. So weak performance by the utility can be a reflection of "promised" funding that does not get transferred. In addition, in some cases utilities can (and do) ignore regulatory mandates. A large, national utility is likely to have greater political weight than that of the regulator, or it could be shielded by municipal autonomy (or instead of being corporatized, the service provider could be part of the general government apparatus).

³ Brown, Stern and Tenenbaum (2006) identify factors affecting the effectiveness of regulatory systems. Here, we focus on the special problems that arise when agencies regulate SOEs and municipal utilities.

⁴ There is a need for empirical studies that draw upon developing country experiences regarding backgrounds of appointed regulatory commissioners, their tenure in office, and their activities after leaving regulatory agencies. Such studies would help analysts better understand the extent to which commissioners are insulated from political intervention and whether job opportunities after they leave the commission might be influencing decisions.

⁵ The skill set for regulators should include some technical capabilities (law, finance, economics, management, etc.) but also the ability to communicate with different constituencies and to balance stakeholder pressures. Staff can provide the technical support needed for sound regulatory decisions, so long as excessive bureaucracy does not shut down internal communication channels. While studies of the staffing of water regulatory agencies do not exist, Pollitt and Stern (2009) examine human resource constraints facing electricity regulators. They find that staffing in Latin America does not appear to be constrained by funding or the availability of professionals.

D. Regulatory frameworks

This section outlines a number of governance models that have been utilized for state-owned and municipal water utilities:⁶

- **Sector-specific national regulator.** Some countries have established a water services regulator with oversight responsibilities for both privately-owned, and state-owned and municipal utilities. Depending on applicable laws for a particular nation, the sector specific regulator may be able to issue licenses related to regulatory functions, set performance standards, monitor utility performance (data collection), determine tariff levels and structures, establish uniform systems of accounts (where reporting requirements may differ for large vs. small utilities), arbitrate disputes among stakeholders, perform management audits (and require submission of business plans), develop staff capabilities, and report sector (and regulatory) activities to appropriate government authorities.
- **Multi-sector national regulator.** Particularly for smaller nations, the multi-sector regulator has some advantages in terms of economies of scale, as well as consistency in the regulatory process and opportunities for learning based on experience with other industries. Such agencies generally have the same types of oversight responsibilities and regulatory instruments as sector-specific regulators.
- **Contract monitor.** When infrastructure is owned by the municipality (and investment funds also provided by it), there can be a management contract for a private entity to operate the facilities. The monitor could be the municipal commission or a committee representing different government agencies. Even when utility operations are still performed by a SOE, when an external group monitors the performance contract, that group performs a role similar to that of a regulator—though usually with a much smaller professional support staff and with less discretion.⁷ Issues include the bidding process, managing and sharing risk, and instruments available to the contract monitor.
- **Municipal department.** For example, the City of Los Angeles has a Board of Water and Power Commissioners appointed by the mayor, subject to removal without municipal council approval. The City Council determines rates, compensation schedules, property sales, debt issuance, and other aspects of utility operations and investments. The potential for political intervention is substantial: without clear separation from municipal politics, managers face procurement issues, multilayer reporting structures, hiring delays, and other problems (see da Cruz, Berg and Marques, 2013).
- **Utility reporting to municipal council.** When the utility Chief Executive Officer (CEO) reports directly to the Municipal Commission or Council, the elected members of that council offer the oversight that a sector regulator would provide. Of course, elected officials will be addressing a wide range of local issues and would (generally) lack expertise in water utility issues. Baer and others (2001) conclude that the oversight provided by the council seems to work for smaller cities. Prices are approved by the municipal council and service quality issues are addressed through public hearings. Of course, it is important to have procedures in place that constrain the municipal council from micro-managing the water utility, since that raises the likelihood of politically-

⁶ Those models for the United States municipal utilities are taken from Baer and others (2001). Trémolet and Binder (2010) provide another helpful overview of regulatory models.

⁷ Monitoring contracts involves the same types of data and incentive issues facing traditional sector regulators. The strengths and limitations of public-private partnerships are discussed in Marques and Berg (2010, 2011a, 2011b), Jouravlev (2000) and Vergès (2010).

motivated initiatives rather than having business decisions based on professional evaluations of options.

- **Strong board or commission: independent municipal agency.** Relatively independent governing boards are utilized in some jurisdictions. In this regulatory structure, the mayor appoints the Board, with confirmation by the municipal council. The Board sets rates and appoints (and removes) the General Manager or CEO of the utility. The CEO is responsible for customer relations, personnel, debt, and utility activities in planning and operations. The Municipal Council determines the transfer to the municipality (corresponding to a dividend to the “owner” of the utility).
- **Municipally-owned corporation.** Like the strong board model, the Board of Directors (appointed by the mayor, often with municipal council approval) would oversee the utility, operating a separate personnel system. The Board represents the municipality (sole shareholder) and has the power to approve rates (see SALGA, 2011).
- **Municipal utility district.** For example, the Sacramento Municipal Utility District has an elected seven member governing board, with managerial authority delegated to the CEO. This governance framework resembles that of cooperatives, where customers are “members” and voters. The governing board then provides oversight of utility activities.
- **Performance contract.** The national (or state) government can have a performance contract that is monitored by some institution or group of agencies. In the case of Uganda, the Ministry of Finance, Planning and Economic Development and the Ministry of Water, Lands and Environment have a performance contract with National Water and Sewerage Company (NWSC) (and its Board of Directors), with targets for unaccounted for water, billing efficiency, water connections, and collection efficiency. Subsequently, the targets have been revised and incentives established for meeting them (see annex 1).

In each of the approaches presented above, the variance within a category can be great, so it is difficult to fully outline the range of regulatory authority for different types of regulation. Suffice it to note that there is oversight by some authority, the water ministry, a national regulator, or a municipal commission. The key issues are related to how these institutions make information available, implement incentives, and evaluate performance. It should also be noted that local regulation often lacks the expertise to overcome information asymmetries and the transparency required to promote citizen participation. In particular, without some form of national data collection, it is difficult to make performance comparisons.

E. Indicators of weak performance

KPIs represent an essential element for benchmarking utility performance (Ferro, Lentini and Romero, 2011 and 2012) and for establishing realistic targets for the utility.

- **Staffing:** Employees per 1,000 connections is one KPI that can be used to gauge efficiency (recommended 2 to 4 employees per 1,000 connections)—taking different operating conditions (and outsourcing) into account. Managers of SOEs and municipal utilities generally do not have a significant incentive to reduce the work force and cut labour costs, since there is seldom any reward to achieving those savings. In fact, some view organizations that deliver public services as a kind of “employer of the last resort.” In addition, politicians want to have some control over the jobs available in utilities: to reward the party faithful and to gain support of key labour leaders. Politicians often want to place those who would promote their political agendas into positions of authority within utilities. In addition, turnover among top managers is a significant problem in

many nations, leading to short-term decision-making by those running the utility and lack of professionalism and institutional memory within the organization. The utility needs to prioritize human capital formation and the development of procedures that promote efficiency, but that requires funds and insulation from political interference. The organization's culture is driven by its leadership.

- **Non-revenue water and collections:** Indicators for both these aspects of performance capture the extent the utility has maintained the water network, reduces illegal connections, and improves the per cent of bills that are paid. Politicians often do not want to tackle the politically-sensitive issue of water non-payment and theft (part of non-revenue water). Some government agencies (such as defence or hospitals) may not pay their water bills, arguing that the money all comes from the same source and their budgets are limited. Cutting off residential customers for non-payment raises both public health issues and can be the source of political pressures. Similarly, reducing leaks requires funds for maintenance and leak identification—that implies either tariff increases or additional government funding, neither of which may appeal to politicians. Leak reduction is not politically visible in comparison with inaugurating a new plant or new connections (which are clearly seen as benefiting potential voters). Reducing commercial losses (theft) raises further issues requiring community involvement and changing a culture that views illegal hook-ups as acceptable—despite the fact that revenue burdens are passed on to others.
- **Below-cost recovery revenues:** Total revenues that at least cover operating and maintenance expense is one indicator of financial sustainability (without even considering network expansion) (Ferro and Lentini, 2013). Tariffs are politically sensitive issues that are often beyond the control of the regulator. For example, in various countries regulators actually do not set prices (Joffe, Hoffman, and Brown, 2008); ministries have this responsibility. In countries where municipalities operate water utilities, municipal councils tend to set the tariffs. One strategy has been to have the price indexed in real terms (as in Uganda), avoiding big jumps in tariffs—which are likely to provoke citizen push-back. Certainly, citizen ability to pay is one determinant of price levels, but those actually receiving water are often relatively well-off. Cross-subsidies are difficult to eliminate in the long run, even if social conditions change. However, properly designed cross subsidies can be a reasonable option in many circumstances (Jouravlev, 2004; Vergès, 2010). When the regulator does have authority to set prices, they (generally) should move towards full cost recovery. In addition, targeted subsidies can be introduced to promote water service access for the poor.
- **Funds for capital investments:** Trends in coverage give an indication of whether network expansion is occurring. Planning is difficult if government funding is unpredictable. If a SOE or municipal utility is credit-worthy, the issuance of privately held debt adds another external stakeholder who supports financial sustainability. Capital markets place pressure on the utility managers to maintain financial sustainability—so the regulator gains an ally when SOEs become subject to another external stakeholder with an interest in efficiency and cost-recovery. One task of the regulator is to lay the foundations for commercial funding sources, since that places direct pressure on managers to operate efficiently and makes service provision more resilient in the face of external shocks (Ferro and Lentini, 2012). The finance ministry would be another potential ally, if a hard budget constraint is feasible. Of course, such capital sources increase public sector debt, raising concerns about whether the national or sub-national government will raise funds for short term political gain. WSP (2009) and Advani (2012) have shown how local and international funding for utilities requires credit-worthiness.

There are many other deserving claimants for public funds, so water services sector performance needs to match “promised” outcomes.

- **Service quality:** Standards include continuity (hours per day of service), system reliability, water safety (meeting safe drinking water standards in terms of microbiological and chemical quality), and mean time to repair breaks. There are important trade-offs between improving the service quality for current customers and expanding the network. This issue needs to be part of a public discussion, with input from political leaders and consumer organizations. Measures of citizen satisfaction reflect perceptions regarding the mix of service coverage (including access to public stand-pipes), tariffs, and quality. Public information regarding service quality (by geographic area) is often woefully inadequate, limiting the ability of public input to put pressure on water utility managers.
- **Political involvement in network expansion and other decisions:** There is no simple indicator that captures the extent to which the utility and the regulator are insulated from excessive political interference. The underlying premise of the current study is that interference from domestic politics is the key barrier to improved performance by SOEs and municipal utilities. Reinforcing this problem is the fragmentation of the industry (Jouravlev, 2004) in some nations—supposedly to increase responsiveness to local conditions; however, participants in local governance systems (municipal commissioners or part-time regulators) often lack expertise and tend to have very short time horizons. In other nations, a single national supplier has such political power that the regulator may be denied the tools necessary to regulate effectively. Professionalism and a focus on efficiency are less likely to characterize utilities embedded in politicized systems (Baietti, Kingdom and van Ginneken, 2006).

F. Promoting transparency

The underlying reasons for weak performance in SOEs and in municipal utilities relate to institutional factors. Clearly, the political and social structures within which utilities are embedded seem to hold water services as necessary for human dignity. Even with the recognition of the human right to water and sanitation (Justo, 2013), public funds and utility governance arrangements often do not support strong water utility performance. Funds for investment are not actually allocated to the utility and CEO appointments are based on political patronage rather than professional competence. Basically there is a dissonance between rhetoric and reality. Political leaders say that they want water systems that meet the needs of today’s and tomorrow’s citizens. However, one could argue that other investments have more immediate (political) returns, while the benefits of network expansion, maintenance, and better operations will be enjoyed by future leaders. Transparency is central to improving utility performance.

Of course, the provision of drinking water supply and sewerage services is embedded in the fabric of civil society. They are bound to have a political and social dimension. Thus, it is proper that those in positions of political leadership set national and local priorities. The problem is that the entire process tends to be non-transparent. Thus, the availability of consistent and reliable data on KPIs would serve as a reality check for all those directly involved in setting and implementing policy and for those responsible for providing water utility services. So, if excessive political interference is a key barrier to improving performance, access to benchmarking information could serve as a catalyst that would reduce rhetoric and provide a foundation for establishing better external and internal governance. Of course, if the information is buried or distorted (and unavailable to civic society) the data collection effort will have minimal impact.

Up-to-date, consistent and audited information and citizen awareness of trends in water utility performance can alter the content and tone of public discourse. When utility business plans are brought under technical scrutiny, decision-makers are forced to confront reality. Realistic targets (and associated managerial incentives) are totally dependent on having timely, reliable, and consistent data on KPIs. When robust comparisons across utilities are available, politicians and managers are more likely to be held accountable for outcomes affecting the health and welfare of citizens, efficiency in the provision of water and sewerage services, and the long term sustainability of water as a valuable natural resource. Of course, again the utility's Board of Directors becomes a key component of the governance system. If the Board is politically-driven rather than motivated to track and incentivize good performance, then the system lacks the good governance essential for monitoring management.

The dissemination of information is necessary for external and internal governance to be effective. Thus, newspapers, radio, television, and the internet serve as platforms for communication among and between these organizations and groups. Regulatory hearings and less formal workshops provide opportunities for stakeholders to present their views. Suffice it to note that each of the three levels of institutions can reinforce or blunt efforts to improve water sector performance. The broad social structures matter because political institutions, the legal framework undergirding transactions, and the activities of agencies, educational systems (and associated managerial skills and attitudes), and work patterns all have an effect on the operational effectiveness of water utilities. Similarly, there are a number of formal organizations that influence sector performance in addition to the regulatory agency and the state-owned utility. These stakeholders include government ministries, non-governmental organizations, multilateral financial institutions, local municipalities, and unions. In addition, capital markets can serve an important disciplinary role if it is politically acceptable for the state-owned or municipal water utility to issue private debt. Finally, civil service (professionalism) and citizen attitudes regarding political processes and the legitimacy of the regulatory system can support or hinder reform initiatives.

Note that even if water utility performance is very weak, some group or groups benefit from the sub-optimal outcome. Savedoff and Spiller (1999) described the low level equilibrium as reflecting excessive governmental discretion in setting prices, leading to political opportunism: "First, substantive restraints on regulatory discretion must be embedded in the regulatory framework; second, formal or informal constraints must limit the ability of the polity to change the regulatory framework itself; and finally institutions must be in place that enforce those substantive or procedural constraints". Of course, balancing substantive restraints on regulatory discretion against the advantages of regulatory flexibility depends very much on the institutional context. The three complementary mechanisms correspond to the three types of institutions: the broad political/legal framework, the interactions among formal organizations (including the legislature), and the agency's own internal procedures (as implemented by leaders and professional staff).

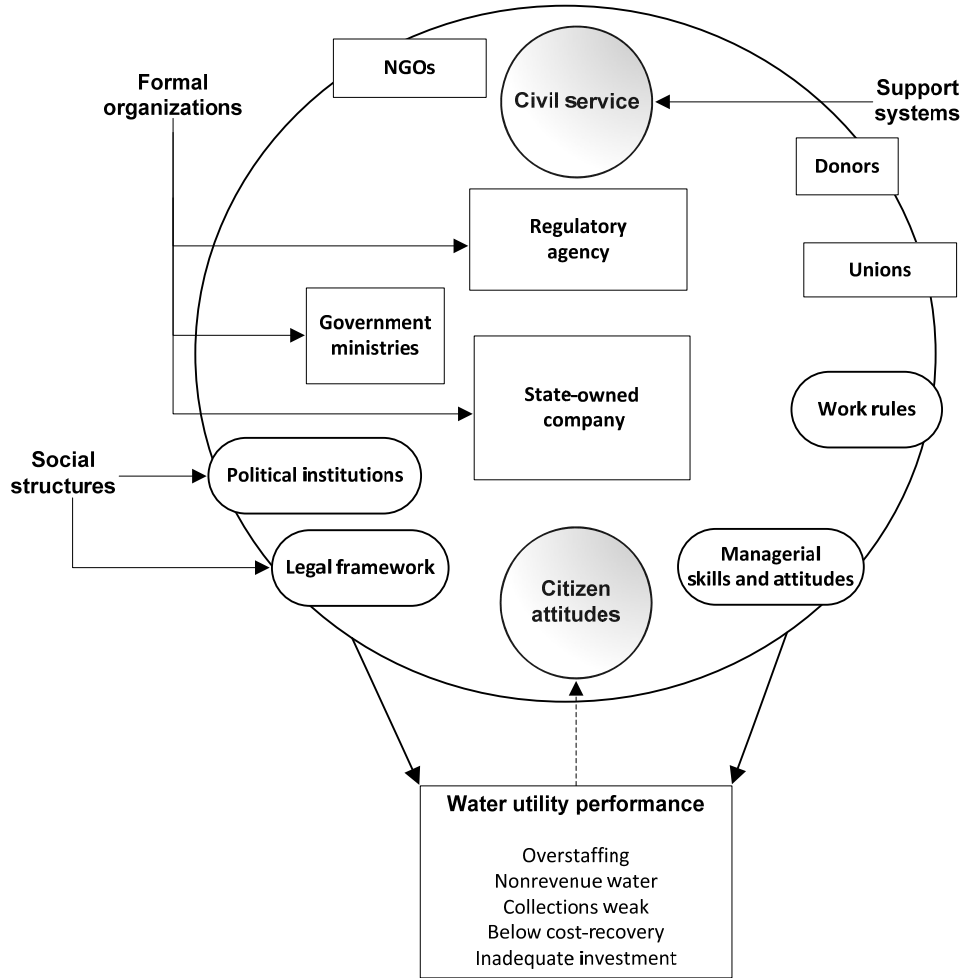
Taking a different approach to evaluating governance, Murillo, Scartascini and Tammasi (2008) examined the political economy of factors affecting productivity. The multi-dimensional matrix they use to evaluate the performance of economic institutions includes:

- **Political actors** (key socioeconomic interests).
- **Mechanisms utilized by socioeconomic actors in their political demands** (including campaign contributions and media campaigns).
- **Venues: arenas of the policymaking process** (including political institutions).
- **Policy domains** (policy areas, time frames, institutions, and historical context).

Their focus is on developing an understanding of the political economy environment which affects both regulatory processes and sector performance.

The purely institutional perspective does not emphasize how different actors (specific leaders) affect the governance process. Yet we know that individuals and arenas of the policymaking process matter a great deal (see annex 1 and annex 2). Krause (2009) argues that an actor-centred institutional approach sheds light on how the recruitment, appointment, and retention of skilled leaders (and their insulation from daily political pressures) affect both managerial and regulatory processes. Figure 1 depicts the context of regulation: broad social structures (cultural and political context), formal organizations, and support systems.

**FIGURE 1
INSTITUTIONAL CONTEXT**



Source: Krause (2009).

II. Regulatory governance and substance

A. Regulatory governance

The consensus from previous studies is that governance is central to performance: policy-making, decision-making, implementing rules, and reviewing policy are essential if sector performance is to improve (Vagliasindi, 2008a). Regulation has been shown to be an effective mechanism for reducing price of private, for-profit monopolists (Berg and Tschirhart, 1988). However, as we have seen, the objectives and incentives of a state-owned (or municipal) enterprise are likely to be different from those of a privately-owned company: for SOEs, economic sustainability (often dependent upon budgetary transfers) is balanced against stated social objectives and (generally) unstated and non-transparent political objectives (related to political patronage). Since monopoly by a SOE has a different agenda than monopoly by a private entity, the situation calls for different regulatory initiatives. Furthermore, these initiatives must be accompanied by complementary institutional steps.

A study of electricity distribution firms in the Ukraine (Berg, Lin and Tsaplin, 2005) analyzed the responses of SOEs and privately-owned utilities to the same regulatory rules. The study found very different responses to the same incentives: privately-owned utilities appeared to inflate their costs of service (given the cost-plus nature of regulation adopted there) but they also significantly reduced technical and commercial losses (theft) relative to SOEs (again in response to incentives to do so). It appears that managers of SOEs were more concerned with the political implications of reducing theft (offending powerful groups) than were managers who were focusing on profits. Clearly, regulatory rules can have different impacts on utilities with different types of ownership.

1. Evaluating regulatory governance

We distinguish between **regulatory governance** (the laws and processes followed by an agency) and the **regulatory substance** (tools and rules available to regulators): “the how” of regulation and “the what” of regulation. In addition, we can think about **utility governance**, where best practice supports the corporatization⁸ of the utility, providing it with some degree of autonomy from political pressures.

⁸ Corporatization involves separating a SOE from a government ministry (or municipal government) so that its record-keeping is that of a stand-alone entity (PURC, 2013). The process should yield clear information regarding its balance sheet and income statements over time.

In terms of regulatory governance, Mustafa (2002) identifies some key questions for evaluating a regulatory agency:

- How were the regulatory authority and its mandate established? (How detailed is the legislation? Are specific responsibilities assigned to the agency? Is there clarity in roles?)
- What kind of governing body is the regulatory authority? (Is the commission sector-specific, a collegial board, separated from political and business interests?)
- How autonomous is the regulatory authority's decision making? (What are the specific appeal procedures?)
- Does the regulatory authority have enforcement power? (Is the authority clearly defined? Does the regulatory agency have access to information? Does it require utilities to utilize a standard system of accounts (regulatory accounting), so that the definitions of various accounting and operating categories are clear and consistent (Lentini, 2009a, 2009b and 2010)? What is the authority's ability to establish fines and sanctions or to award, enforce, and revoke a license?)
- How much job security do commissioners and key staff have? (What is the appointment process, term of office, remuneration and rules for dismissal? Where do candidates come from and where do they return to? Does staff recruitment allow competitive hires?)
- Does the regulatory authority have financial autonomy? (What are its funding sources? Does the agency have full control over expenditures and who audits the agency?)
- Does the regulatory authority use transparent decision making processes? (Does it publish drafts for comment and publish decisions and justifications? What is the nature of its annual report? Where and how often does the agency hold public consultations? How is the regulator accountable to executive or legislative entities?)

The above points could benefit from further elaboration. Two, in particular, warrant additional discussion: sanctions for SOEs and accountability. For example, it has been proposed that, in the case of a public corporation, sanctions must be personal rather than institutional in order to be effective (Solanes, 2007a and 2007b). Otherwise, the benefits of the wrongful act would accrue to the offender or the guilty party, and the cost would be borne by the State. As has been noted, "punishing" a SOE by lowering its prices can be perceived as benefiting current customers (which would be politically popular). However, in the long term, such a punishment hurts future and potential customers if the result is deferred maintenance and reduced network expansion.

Accountability is another issue. Regulatory agencies should be responsible to the legislative authority and have administrative independence inasmuch as their decisions should be appealed only in courts of law (Solanes, 2007a and 2007b). This point is very important in that it ensures that, ultimately, the regulator is not the executive branch acting through administrative channels. The recent history of regulation in the region provides examples of executive interference with the regulatory body, often to the advantage of the regulated companies. When an agency's legitimacy is based on an executive order, its authority can be easily undermined by a change in executive administrations. Such changes are generally more difficult to achieve via legislative processes.

Of course, the above list reflects formal characteristics of the agency—which depend on both the law and the way the commission actually operates in practice. Furthermore, an agency that appears to utilize "best practice" in its procedures could still be associated with a sector that has weak performance. Thus, analysts evaluating regulatory performance need to focus on more than expertise and sound processes: it could be argued that trends in sector performance are the best gauges of regulatory effectiveness. Ultimately, sector performance is affected by the effectiveness of the water sector regulator. For example, an agency's design determines the clarity of its role in relation to other

government institutions: specifically to the division of authority between the finance ministry (often responsible for allocating funds to a SOE), the water authority (usually the government agency responsible for developing broad policies including water resources management, specifically water allocation and water pollution control), other sector regulators, and agencies in other jurisdictions (sub-national level).

It has been noted that various types of media filter information to the public. Newspapers, television, radio, and the internet all serve as gatekeepers who collate and interpret information about the regulatory process and outcomes. Thus, they shape public perceptions, including the views of the political elite. The media can also manipulate public pre-conceptions about the utility and the regulatory system—reflecting the channel’s ideological slant or the need to sensationalize rather than educate the citizenry. Thus, the media are often heavily influenced by political parties and interest groups. Nevertheless, regulatory decisions that are not documented or explained to stakeholders bring the process into question. Public participation and awareness are achieved via outreach activities and transparency in the process.

The exchange of ideas within government and among stakeholders can help identify win-win options and develop consensus among key groups. A wide range of formal and informal mechanisms can be used to communicate with citizens. Similarly, reform champions can use interactions with the media as a platform for galvanizing stakeholders who would benefit from change. This raises the following questions:

- To what extent has the government promoted transparency and accountability?
- Have regulatory commissions attempted to communicate with stakeholder groups or are they basically tools of ministries, and thus unable to be a separate “voice” for reforms that promote efficiency and network expansion?
- Have the press, television, and other media outlets helped educate the public regarding the facts of past and current infrastructure performance?
- Is enhancing citizen awareness given priority by government, the regulator, utilities, or infrastructure suppliers?
- Have non-governmental organizations, local research institutions, and other stakeholder groups played a constructive role in the reform process? Is there evidence that they had a particularly positive (or negative) role in public discussions?

Answers to questions such as these would help outsiders better understand the reasons why regulators might be unable to get their “message” out to a wider audience. Water professionals (in groups such as the Inter-American Association of Sanitary and Environmental Engineering (AIDIS)) bring technical expertise and regional perspectives to water utility issues—contributing to public awareness in this area. Of course, if communication is indeed an important element of reform, then narrowly focusing on technical issues may be insufficient to generate broad public concern over water utility performance.

2. Regulatory governance and transparency

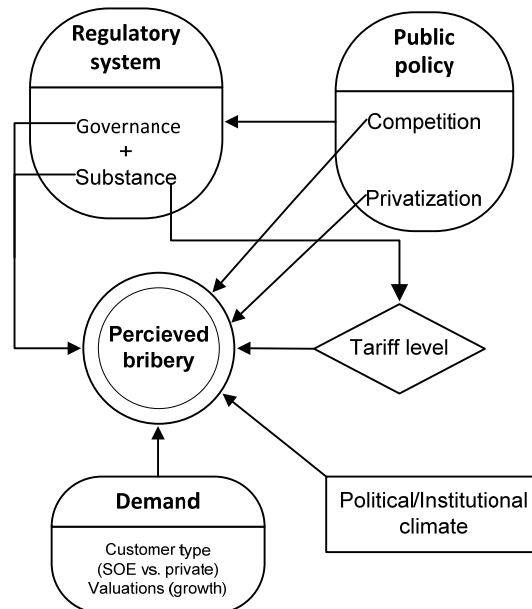
Principles of regulatory governance are far easier to list than to implement in practice. Each of the ten principles identified by Brown, Stern and Tenenbaum (2006) appear on other lists developed by experts and practitioners. It is difficult to argue that these are not important elements of a regulatory agency. However, they depend on the support of other institutions in the regulatory system to be fully implemented. The list includes (among others) accountability, autonomy, clarity of roles, coherence among objectives, public participation, predictability, professionalism (civil service), and transparency. Vergès (2013 and 2010) underscores the role of transparency for benchmarking and “competition by emulation” (Ferro, Lentini and Romero, 2011 and 2012).

It is useful to highlight one element of the broad political and social framework: corruption. A comprehensive study of 85 nations from 1990 to 2004 found that “public sector corruption such as bribery in the process of building and operating water and sanitation systems serves to significantly reduce a population’s access to clean water and adequate sanitation, at any given level of income. That is, even when a country has the financial resources necessary, whether domestically generated or not, to develop and operate proper water supply and sanitation systems, public sector corruption can and does keep the systems from being as effective as is possible” (Anbarci, Escaleras and Register, 2009).

Berg, Jiang and Lin (2012) found that regulatory governance and regulatory substance combined to reduce bribery in the telecommunications sector. The effects were actually stronger in countries with state-owned or partially state-owned telecoms. The study suggests that regulatory strategies that reduce information asymmetry (by collecting and publishing benchmarking data) and that increase accountability (through public rate hearings and other forums) tend to reduce illegal side-payments for connections. Figure 2 identifies the links found in Berg, Jiang and Lin (2012):

- strong regulatory substance (the content of regulation) and regulatory governance help reduce corruption;
- competition and privatization reduce corruption;
- the effects of regulatory substance on corruption control are stronger in countries with state-owned or partially state-owned telecoms, greater competition, and higher telecommunication fees; and
- bureaucratic quality exerts substitution effects to regulatory substance in deterring capture and corruption.

FIGURE 2
FACTORS AFFECTING PERCEIVED BRIBERY



Source: Berg, Jiang and Lin (2012).

The results described above apply to the water services sector as well. Davis (2003) collected data on petty corruption in South Asia’s water supply and sanitation sector. In a sample of 411 customers, 41% had made at least one payment to falsify meter readings for lower bills in the previous

six months. In addition, 30% had made one or more payments to expedite attention to repair work in the previous six months and 12% had made a payment to speed up new connection applications. A sample of 176 utility staff corroborated these numbers, with 73% reporting that falsified meter readings occurred “about half the time”, or were “very common” or “virtually every time”. The study also reports collusive bid-rigging by contractors, kick-backs from contractors (to politicians and/or managers), and other types of corruption. When members of the staff are under-paid and a culture of a non-accountability pervades the organization, employees take advantage of opportunities for extortion and side-payments. Davis (2003) concludes that transparency via new information technologies and the participation of non-governmental organizations can help reduce corruption: “Indeed, given the sizeable reforms that must occur in civil service in order to unravel the web of corrupt practices in public service provision, strategies that enhance these feedback mechanisms between customers, civic organizations, development agencies, and employees may be one of the few workable strategies for reducing corruption in the foreseeable future”.

Figure 3 presents the elements of governance and substance for the regulator and the water utility. It identifies the elements of regulatory governance (laws and processes) and regulatory substance (tools and rules). These institutional conditions partly determine the governance and substance of SOEs. However, SOE governance is much more a matter of political decisions regarding membership on the Board of Directors, the extent of commercial orientation, internal performance incentives, and other elements of the utility’s internal lines of authority. The substance of utility decisions (relating to cost containment, service quality, financial sustainability, and other dimensions of performance) is affected both by external regulatory rulings and by internal incentives. Actual performance of the utility then determines the legitimacy of the system (in the eyes of citizens) and the credibility of the entire utility governance system (from the standpoint of external stakeholders).

B. Regulatory substance

The substance of municipal regulation of water utilities is not well documented in studies nor in cases, illustrating the lack of transparency in local regulation. Many of its instruments are similar to those available to better-funded, professionally-staffed national agencies. So here the focus will be on national (or state/provincial) regulatory authorities that can be single sector or multi-sector regulators.

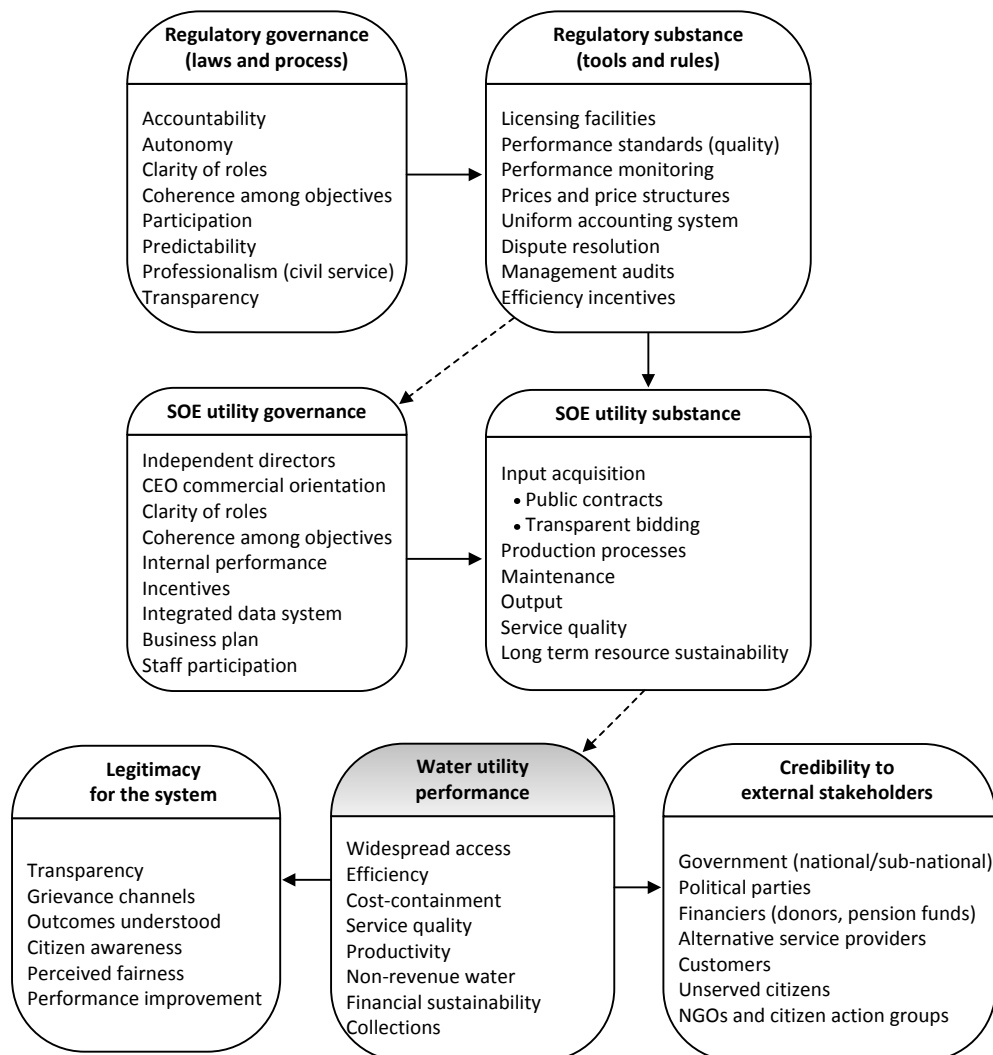
1. Regulatory instruments

Water sector regulators have a limited number of instruments, but these can be applied to state-owned and municipal water utilities.

- **Issuing or monitoring licenses related to regulatory functions:** In many jurisdictions, the water regulator has responsibility for issuing a “certificate of use” when a capital investment has been completed. Or it may be responsible for monitoring a license (or concession) issued by another body. Generally, existing production facilities are issued “certificates of use”, stating the standards under which the facility is to be operated. The regulator has a potential instrument since such licensing generally specifies operating standards that have impacts on costs and tariffs. However, what is the regulator of a SOE to do if those operating standards are not met? Withdrawing the certificate will affect service quality as production capacity is reduced. A penalty that takes cash from the utility is also a blunt instrument: managers can just reduce maintenance outlays. In the case of a concession, the regulator oversees the contract, ensuring that both parties (usually the state and a private entity or public-private partnership) adhere to the contract.
- **Setting performance standards:** Performance standards on service quality and reliability have cost and tariff implications since these involve resources. Consumers are

willing to pay for a defined standard of service quality; however, performance standards have implications for the cost of service. Such standards can include meeting health standards, service continuity and water pressure, meeting installation or service repair schedules, and addressing customer complaints. Monitoring the outcomes associated with these standards involves benchmarking. The fundamental issue is whether and what incentives and disincentives are available to the regulator if the performance standard is not met. Criminal penalties and fines could be one mechanism for punishing noncompliance with regulatory rulings, though this requires that the law clearly specify the prohibited behaviour and identify penalty structures. In addition, this approach should be able to identify where, in the chain of command, the breach occurred (Solanes, 2007a and 2007b).

FIGURE 3
GOVERNANCE, SUBSTANCE, AND SECTOR PERFORMANCE



Source: Berg, Jiang and Lin (2012) and Jarvis and Sovacool (2011).

- **Monitoring the performance of regulated utilities:** Collecting and analyzing data on costs, revenues and performance is essential for tariff determination by agencies. Although regulatory commissions need to avoid micro-management of SOE activities, it is essential that they be authorized to request information (according to predefined accounting guidelines), and receive appropriate responses. It is standard practice for regulated utilities to prepare audited financial reports on an annual basis to facilitate regulatory review. An independent accounting firm (or an independent state agency specializing in audits) could audit the utility's books. The commission also needs the authority to penalize firms that do not comply with data requests. Similarly, regulators need the capability to benchmark operations and provide incentives for cost-reduction.
- **Establishing the price level and the structure of tariffs:** The rate level is based on revenues required for financial sustainability. Rate structure refers to rate designs that allow the opportunity to recover prudently-incurred costs (including those associated with meeting environmental standards), incentivize the efficient use of scarce resources (including water), and promote fairness. This task is complicated when tariffs do not cover the cost of providing service. Thus, linking the revenues to an internally consistent business plan becomes an important task for both managers and regulators. If an equipment outlay was not prudent or does not meet the "used and useful" test, then the item could be disallowed from the rate base—reducing prices. As has been noted, however, reduced prices do not directly penalize a SOE. Regulators may be required by law to apply a particular methodology to set tariffs, or they may be given discretion in determining them (as in the United States where fairly general criteria of fairness and cost-recovery are often applied). In the case of SOEs, a case can be made that minimum tariffs be established to yield cash flows that are consistent with the business plan. A related issue is the control of transfers from other levels of government: are funds used for the designated purpose—maintenance, expansion or replacement—or are they channelled to other non-utility uses or to cover other costs? The regulatory commission is in a position to determine whether funds are actually used as intended by government authorities. However, the regulator has no power over whether, say, a ministry of finance actually follows through with past announcements.
- **Establishing a uniform accounting system** (Jouravlev, 2003a; Lentini, 2009a, 2009b and 2010): Operators should be required to file reports in formats determined by the regulator. Income statements, balance sheets, statements of cash flows, and operating statistics are all essential inputs in managerial decision-making and regulatory review. These reports include financial and operating data needed to evaluate SOE performance. The cost accounting system should include a cost centres approach to facilitate the development of tariffs that reflect costs. Furthermore, accounting separation according to functions facilitates benchmarking—so performance comparisons can be made across utilities facing comparable production conditions (Ferro, Lentini and Romero, 2011 and 2012). Annex 3 outlines the regulatory accounts utilized by the Water Industry Commission for Scotland (WICS); these apply to the state-owned water utility. Without a comprehensive system for collecting and analysing data, an Indian regulator has said, "I may as well be writing pretty poetry".
- **Arbitrating disputes among stakeholders:** Regulators ensure that facts are carefully documented and that different interests are well represented. Disputes may arise in a number of areas, including tariffs, expansion plans and access to water resources. Customer complaints about prices often are the source of disputes, but the issue can go far deeper into water quality and access to services. This particular role underscores the need for the regulatory commission to have the authority to rule on matters within its jurisdiction. Location of new facilities and cost allocation among different customer

classes both have differential effects on stakeholders. The regulator is in a position to organize workshops and promote dispute resolution. Delays in decisions are not neutral in their impacts on the various parties to disputes. There are two related issues: (1) in many cases, utilities have more political weight than the regulator; and (2) there can be conflicts between regulatory decisions (as part of the central/national government) and oversight at the municipal level.

- **Performing (usually via independent consultancy) management audits on regulated utilities:** Typically, the regulator reviews the organizational elements of companies on a regular basis to ensure cost effectiveness and a continuous and efficient supply of services. This is not micro-management, but is a way for the regulator to document whether the utility is utilizing best practices. On a specified schedule, the regulator also reviews companies' performance effectiveness (achieved through incentive plans and management contracts) to reach acceptable efficiency benchmarks. If annual reports are not available on a timely basis, the regulator will not be in a position to evaluate management processes. One possible component of a management audit that is probably under-utilized is the evaluation of managerial incentives. Clearly, regulators need to avoid micro-management. However, if the utility has no internal rewards to meeting key targets, that would be evidence that management is not doing its job. The laws of economics apply to SOEs and municipal utilities: if good performance is not incentivized, the result is weak performance. Bonus systems that are tied to improving KPIs represent one type of incentive that can improve performance. Uganda utilized internal incentives to achieve targets and strengthen the financial sustainability of the national water utility (see annex 1).
- **Developing human resources for the regulatory commission:** Recruitment and staff training warrant particular attention as part of regular managerial responsibilities. In addition, compensation policy needs to be flexible enough to recruit able staff and retain the expertise that is developed. Also attention needs to be given to the nomination procedures and measures to avoid political appointments and undue rotation (to promote stability), control conflicts of interest, and encourage professionalization. Attention given to capacity-building is one indicator of the long term sustainability of commission. Of course, the funding of the regulator is a key determinant of resources available for recruitment, capacity-building, and staff retention. Depending on the law, regulators could obtain funds from a surcharge on utility bills; but even then, the central government may have the authority to allocate money from the trust fund. In such situations, the ministry (or legislature, depending on disbursement arrangements) is in a position to place pressure on the regulator.
- **Reporting sector and regulatory activities to appropriate government authorities:** A regulatory agency should submit reports regarding sector activities to a higher authority. Given the expertise assembled at a commission, the agency is in a position to provide information and advice to appropriate government departments that are part of the water sector, including water resources management authorities and environmental agencies. Publicly available reports provide clarity in regulatory priorities, transparency for sector stakeholders, and accountability to political structures. Coordination between the many "regulators" that oversee the service provider is facilitated by commission communications. In addition, effective commissions are not passive: regulators do not wait for a crisis before taking actions. By being pro-active in the presence of (potentially) short-sighted government policies, the commission can bring analyses and forecasts into the public debate. The expertise based at the commission can inform the development of public policy so targets are realistic and objectives are compatible with one another.

2. Regulatory processes revisited

The instruments can only be utilized as part of a regulatory process. So the substance of regulation is depended upon the procedures used to gather information, develop rules and regulations, implement decisions, and evaluate their impacts. The law or executive order establishing the regulatory commission may be specific about some of these procedures (just as it will be specific regarding instruments available to the agency), but there is generally scope for the agency to develop internal organizational structures and processes to apply the available instruments. This point is particularly important in the context of regulation via elected municipal commissions.

One important issue (that emerges from the listing of instruments) is that of sanctions (and incentives). Economic or financial sanctions and incentives are often perceived as ineffective for state-owned and municipal utilities and this is one of the reasons for inefficiency. At issue are the sanctions (and incentives) that could be useful and effective in the context of state-owned and municipal utilities (Groom, Halpern and Ehrhardt, 2006). Some internal incentives are described below. Since salary bonuses are probably the most powerful internal incentives for managers and utility staff, the utility's Board of Directors should be in a position to reward managerial and staff teams that meet targets. These targets (related to coverage, cost of service, quality, and other dimensions of performance) should not be too easy to reach (since the reward should be commensurate with the effort required). Also, the targets should be consistent with citizen preferences, as reflected in public policy.

The question is whether elected municipal officials who serve as both the Board of Directors and the regulator have the instruments and are in a position to implement processes to promote high performance levels in their local water utility. The municipal commission will have to depend to a significant degree on self-reporting by the utility management. Particularly for small and mid-size cities, the commission is likely to lack the expertise required to evaluate utility reports. In particular, unless there is a national benchmarking system, the municipal commission will not have yardsticks that enable it to evaluate trends and the performance of the local utility relative to comparable utilities. Without uniform accounting systems and full transparency, comparisons are difficult to make.

Many SOEs do not utilize internal incentive systems, yet there is evidence that such incentives can have a significant impact on performance. For example, NWSC in Uganda instituted bonuses of up to 50% of salary if well-specified targets were met (Mugisha and Berg, 2008; Mugisha, 2011). Targets included reductions in non-revenue water, improvements in collections, improvements in the working ratio (monthly operating expenses divided by billings), and better connection efficiency (active connections divided by total connections). The result has been high performance (see annex 1). As has been noted, institutional sanctions are more difficult to apply because utility managers are in a position to just defer investments or reduce maintenance outlays.

The local municipal government generally controls zoning, density of development, and rights-of-way—all of which affect water utility costs. To this extent, having local regulation under the city government might improve coordination and planning activities of the utility. Managers are in a position to interact directly with counterparts in other municipal divisions. Disagreements are then resolved via the political process. One downside of having elected officials regulate the utility is that the pressure to keep tariffs unsustainably low will be great.⁹ The short election cycle means that municipal authorities are not insulated from short term pressures: officials are less likely to support decisions that are beneficial over the longer run (but have costs that are borne today). Another limitation stemming from the combination of operations and governance in the same entity is that managerial mistakes (and ethical lapses) are less likely to be publicized. Such information becomes a

⁹ In some cases, the SOE is the entity keeping tariffs unsustainably low. The government (as owner) may decide not to file for a rate increase, even though the regulatory commission would in all likelihood approve rates that move tariffs towards cost recovery (Groom, Halpern and Ehrhardt, 2006).

political liability for those in power, so management is effectively insulated from the threat of regulatory exposure.

These points underscore the extent to which governance, policy, and regulatory mechanisms should be separated for SOE. Under a unitary system, coordination is facilitated as governments direct the utilities they own to achieve stated objectives. The governance mechanism is the traditional hierarchical chain of command in ministries or municipalities. The Board of Directors (or municipal commission) sets policy, with tariffs and quality of service standards determined by those with ultimate decision-authority (generally the ministry or municipal commission). Regulation, ownership, and policy are all handled within the same organization—with the relationship between government officials and utility managers determined through the formal arrangements specified in law (or executive orders) and informal relationships among the various participants. Checks and balances that characterize other inter-governmental arrangements may not be very effective in the context of utility operations (in the absence of full transparency). When those interactions are heavily based on political relationships, Groom, Halpern and Ehrhardt (2006) identify four problems:

- selective representation of customer needs (with the poor, rural areas or marginal groups given less attention);
- short-term political aims (resulting in below-cost tariffs and financially unsustainable water utilities);
- capture of the water utility for personal ends (facilitated by the non-transparency of operating decisions); and
- provider capture (where utility managers do not act in the interest of customers, but of other stakeholders).

While a national regulator is not panacea, it does serve as a separate organization with expertise and a voice promoting efficiency. With appropriate legal authority and funding, its autonomy places the agency in a position to make decisions that balance current customer interests with those of future customers (recognizing the long term financial sustainability of the state-owned or municipal utility). In addition, with information collection and greater transparency, the regulator is in a position to monitor and publicize the performance of the utility. Finally, it can be insulated from undue pressure from powerful stakeholders. It can require managers to respond to citizen complaints, holding them accountable for cost containment and service quality. Note, however, the lack of sanctions reduces the ability of the regulator to put pressure on management: that requires political support for managerial and operating changes that improve KPIs. Thus, in the next section, we turn to improving utility governance as a complementary activity for sector reform.

III. SOE utility governance and substance

A. SOE utility governance

Several studies have documented the characteristics of well-performing utilities. Baietti, Kingdom and van Ginneken (2006) identify eight lessons for instilling good performance among public water service providers: (1) policy makers to correctly balance financial and political objectives; (2) success is often unattainable without reforming the external environment, with emphasis on the role of the owner; (3) fundamental regulatory and utility reforms are not a quick fix and cannot be substituted by privatization; (4) there must be an adherence to financial sustainability objectives; (5) other external stakeholders may be important to balance potentially conflicting objectives of politicians; (6) certain decisions must be left to managers; (7) separating functions and arm's length transactions are important elements of the institutional setup; and (8) customers can be an important voice for improving performance

1. Aligning incentives

The eight lessons outlined above are derived from a series of case studies, and thus are based on a careful analysis of many high performing SOEs (Yepes, 1990 and Cadmus Group, KPMG and NuWater, 2002). The fundamental point is that specific actions are needed to align “owner” incentives with those of customers. These actions include creating a central policy and oversight body for water services. There are many structures for such oversight bodies. For example, the Dutch rely on industry self-regulation instead of independent regulators. The Vereniging van drinkwaterbedrijven (VEWIN) is an association of water companies, providing a mechanism for monitoring sector outcomes. In an effort to postpone the establishment of a formal regulator, it has taken on responsibility for improving sector performance (including service quality and financial sustainability). It uses benchmarking as its main tool for promoting good performance (Marques, 2010).¹⁰ In addition, these municipal utilities

¹⁰ Marques (2010) provides an overview of the tasks undertaken by agencies in charge of regulatory oversight. Regulating service quality, promoting transparency, benchmarking performance and other activities are described in terms of best practice. After considering rate of return regulation and regulation based on performance incentives, Marques provides case studies of eighteen agencies from developed and developing countries. These reviews of each country include the historical background, legal and institutional framework, market structure,

have independent Boards of Directors which represents another way to place pressure on management. Half of the Directors of Governing Boards are independent outsiders, like academics and civic leaders. The boards can hire and fire managing directors, provide a formal mechanism for reviewing their accomplishments, and incentivize managers to achieve high performance.

As has been noted, many nations have created an autonomous regulator as an important first step in the reform process. The next action item involves establishing a national benchmark system to monitor performance. A third action item is to create incentives through intergovernmental transfers. Funds should not be made available to utilities without clear evidence that the public money will be utilized in a cost effective manner. While doling out money to politically powerful regions or cities may enhance the election prospects of politicians, such transfers are unlikely to truly improve utility performance since underlying incentives are blunted. Another recommendation is to promote workshops attended by multiple stakeholders. Genuine reform must be broad-based if it is to be sustainable. The fifth action is to establish government as a guarantor for utility performance. Of course, this step requires KPIs before and after new utility initiatives. The sixth action step involves the establishment of performance-based agreements between the owner (the state or municipality) and the utility (Board of Directors and CEO). This last point basically means that governance must be performance-oriented and transparent, rather than politically-driven and opaque (which characterizes poorly-performing SOEs).

As Love (2010) points out, there is evidence that linking governance to improved performance is not a simple process. Some analysts argue that governance improves outcomes, while others assert that improved performance leads to changes in governance. While the jury is still out on causation, it is hard to argue that governance does not matter. There are too many case studies in the water services sector where changes in institutional arrangements (including corporatization, independent Boards of Directors, and external oversight via regulatory commissions) are associated with dramatic improvements in performance to ignore this instrument for reform.

The governance structure of SOEs in water and electricity in Latin America and the Caribbean has been given some attention recently. Andrés, Guasch and Azumendi (2011) develop “an aggregate measure of corporate governance and six salient aspects of their design: board, chief executive officer, performance orientation, management, legal framework, and transparency/disclosure. The results indicate the need for improvement in areas such as the selection and appointment of directors to the board and the performance-orientation of the enterprises ... The paper finds a positive correlation between corporate governance and the utilities’ performance. Among the different aspects of corporate governance, performance orientation and professional management seem to be the highest contributors to well-performing ... [SOEs]”.

By restructuring the internal governance system of SOEs, corporatization may enhance efficiency by affecting the incentives and objectives of managers by tightly linking firm performance with the evaluation and remuneration of managers. Corporatized firms with low performance had greater turnover of managers than non-corporatized enterprises with comparably low performance. This finding suggests that separating the entity delivering services from the municipality or ministry leads to pressure for managers to perform at higher levels; those that did not perform lost their jobs (increasing managerial turnover). Unlike managerial turnover stemming from political pressures (and the associated lost expertise and institutional memory), firing managers whose companies have weak performance is a way to improve management (and corporate performance). The restructuring of Chinese SOEs provides empirical evidence that incentive contracts and corporatization can improve the performance of SOEs by strengthening worker incentives even without changing the ownership of enterprises (Groves and others, 1994; Aivazian, Ge and Qiu, 2005a and 2005b).

regulatory rules and an evaluation of sector performance. The concluding sections examine the public service obligations of utilities and the role of regulation in improving performance.

2. Elements promoting good governance

A study of the Ugandan case establishes a solid argument that reform initiatives can be effective in improving utility performance (Mugisha and Berg, 2008). The elements are summarized below and developed in greater detail in the way the principles were applied in the case of NWSC (see annex 1) and for the Phnom Penh Water Supply Authority (PPWSA) in Cambodia (see annex 2):

- **Independent directors:** The role of the utility’s Board of Directors is a topic that is under-studied, yet it surely belongs on the list of issues warranting greater attention. If those monitoring and evaluating management (on behalf of the owners—the nation or the municipality) are driven by political concerns, they will tend to have a short term view of outcomes: keep tariffs low, “do not rock the boat”, and leave technical management alone since “they know best”. Certainly, regular interference by Directors is to be avoided: let managers do their job. However, if business plans and executive performance are not monitored, then the Board’s governance responsibilities are abrogated. Little is known about the selection process, retention, and other aspects of the boards of state-owned water utilities (assuming that they are, indeed, corporatized).¹¹ However, best practice suggests that having highly respected representatives of different professions (law, engineering, business, and accounting, for example) can promote healthy discussions and more careful reviews of management performance (Vagliasindi, 2008b). Note that if Board members primarily come from (and return to) the realm of politics, they are likely to be more concerned with future political opportunities (and so will tend to be “captured” by those making the appointments) (Bohoslavsky, 2011).
- **Managerial commercial orientation:** If the utility is fully embedded in a ministry or within a municipality, the likelihood that its managers will have a commercial orientation is reduced. A focus on cost-containment requires that financial sustainability be emphasized rather than (current) social concerns, since future performance will be weak if the utility acts like a charitable organization. This point runs counter to the orientation of many water utilities. Yet waving the flag of “social needs” over utility operations does not justify the inefficiencies that characterize many SOEs and municipal water utilities. In fact, those who speak loudest on behalf of a “social orientation” are often the same ones who appoint politically-connected individuals to positions of responsibility in utilities: managers who lack the expertise and professionalism required for making sound business decisions.
- **Clarity of roles:** Within the utility, each job description requires careful work. An organizational chart is only useful to the extent that it reflects actual interactions. If the enterprise consists of silos that hardly interact (engineering vs. sales, for example) then customer-orientation becomes subservient to political in-fighting. Promoting interactions and learning among different units contributes to improved performance (Alfaro, 2009).
- **Coherence among objectives:** If managers have not prioritized objectives, there is likely to be some inconsistency in decision-making. Keeping tariffs low is one popular objective, but it is totally inconsistent with expanding service coverage to the poor (unless a donor or government provides funds consistently over time). Thus, there is a clear need for a business plan that reflects reality. Similarly, a customer orientation promotes community and trust and supports the legitimacy of the water utility activities.
- **Internal performance incentives:** Annex 1 documents how NWSC utilized incentives to meet targets. A strong case can be made that incentives and information are the

¹¹ See Bohoslavsky (2011) for more details on appointment processes and monitoring as applied to the state-owned water supply and sewerage company Agua y Saneamientos Argentinos (AySA).

cornerstones of good performance—both require that governance systems monitor trends over time and that Boards take action when there is weak performance. One objective of a benchmarking study is to measure productivity and efficiency so that the analyst can make comparisons: Productivity considers the link between utility inputs and outputs. Efficiency is related to productivity, but it involves establishing a standard and determining how close the firm comes to meeting that standard: how far is the utility from “efficient practice”?

- **Integrated information system:** Data represent the raw material for decision-making. Investment decisions cannot be made in a vacuum. Maintenance requires an asset registry and information about reported leaks and customer complaints. Multi-period information on operations and financial conditions is essential for sound decision-making. Retaining historical data provides analysts with the opportunity to identify trends and conduct more robust statistical analyses. When managers make investment and operational decisions, they need to be clear about the objectives of the project, the techniques being used, and the level of detail required for the dataset. The absence of such specificity limits accountability and diminishes organizational learning.
- **Business plan:** Together, objectives, past outcomes, and expected revenues, costs, and other outlays serve as the basis for a business plan. Customer usage data and population growth can be used for forecasting likely future demand. Business plans serve as reality checks for decision-makers: are the cash flows reasonable and will the operational and expansion targets be met under current financial constraints? Will quality of service be improved under the business plan? This element of utility governance reinforces the need for a commercial orientation and for trained engineers and managers who can develop a sound business plan.
- **Staff participation:** Staff buy-in is important for setting goals and developing incentives. Their support requires that they have input into the business plan, performance incentives, and other aspects of utility operations. A top-down approach is not an effective way to run a complex organization where information is widely diffused and those in closest contact with customers and operations need to have a voice in how things are done. Given the potential importance of political appointments, there can be a lack of continuity within the regulatory agency. Also, staff training and capacity building may be given inadequate attention by top management.

How these elements of governance and utility organization led to decisions that improved a utility’s performance is best illustrated by examining success stories. However, the task of regulation becomes more difficult if governance mechanisms are highly politicized, and non-transparent. An autonomous regulatory agency can still contribute to improving performance, but only to the extent that it can promote transparency unilaterally. However, if the government is intent on maintaining the status quo—resulting in poor performance—then the regulator is placed in a very weak position. The agency can at least attempt to evaluate business plans and to bring poor performance to the attention of citizens/voters. Even then, without political support for reform initiatives, there is likely to be a loss of agency funding, loss of skilled staff (who want more scope for their talents), and continued weak sector performance.

B. SOE utility substance

Clearly, the regulator needs to avoid micro-management. However, it is certainly legitimate for the regulator to monitor the processes utilized by managers to set targets and to evaluate the performance of different divisions within the utility. In some cases, the substance of utility decision-making has

been strong without the presence of an autonomous regulator, but with a Board of Directors that ensures compliance with annual performance contracts. Such cases underscore the point that sound regulatory institutions are not absolutely necessary for outstanding utility performance. However, external governance must then enter through the back door via a Board of Directors that is committed to de-politicizing managerial decisions.

1. High performing utilities

Berg and Muhairwe (2009) explored the steps taken by one water utility to become high-performing. Eight tasks were identified: (1) identify trends so that past performance is understood; (2) establish baselines documenting current performance; (3) select measurable goals as challenging (but achievable) targets; (4) design incentives to reward teams for meeting those objectives; (5) establish lines of communication to promote information-sharing internally; (6) develop and implement strategies for dealing with external developments and threats; (7) ensure accountability by assigning responsibilities to leaders and teams; and (8) review results within a reasonable timeframe to evaluate process implementation, which takes us back to identifying trends again.

There are many comparable “lists” of steps for organizational transformation: these happen to fit experience in Uganda. For example Baliga and Santalainen (2006) focus on “strategic reorientation, shifts in resource acquisition logic, workforce rationalization and renewal, and changing organizational configuration”. Thus, although the eight elements used here provide a framework for surveying strategies for change, other systems can be useful as well. The process of moving from a low to a high performing entity is disruptive for the organization and potentially dangerous to those who are committed to changing the status quo: although leaders are catalysts for creating a new organizational culture that promotes improved performance, many other factors also contribute to success or failure.

Rouse (2007) uses the case of private water utilities in England and Wales as evidence of how consolidation, corporatization, benchmarking (yardstick competition) and regulatory incentives for cost containment can yield benefits to consumers. As noted, those incentives are more easily established when owners pressure managers to keep costs down (and dividends up). Annex 1 contains a more detailed examination of the steps that can be taken to improve utility performance of a SOE, based on the Uganda case. Another example of significant achievements occurred Phnom Penh (see annex 2), where the management team understood that inefficiencies were neither due to the problem of scarcity of water resources nor to insufficient financing, but were caused by the lack of good governance. Now the water utility provides excellent service and has become financially self-sufficient in terms of operations and investments. Annex 4 summarizes lessons from South Asia, related to transparency and citizen participation.

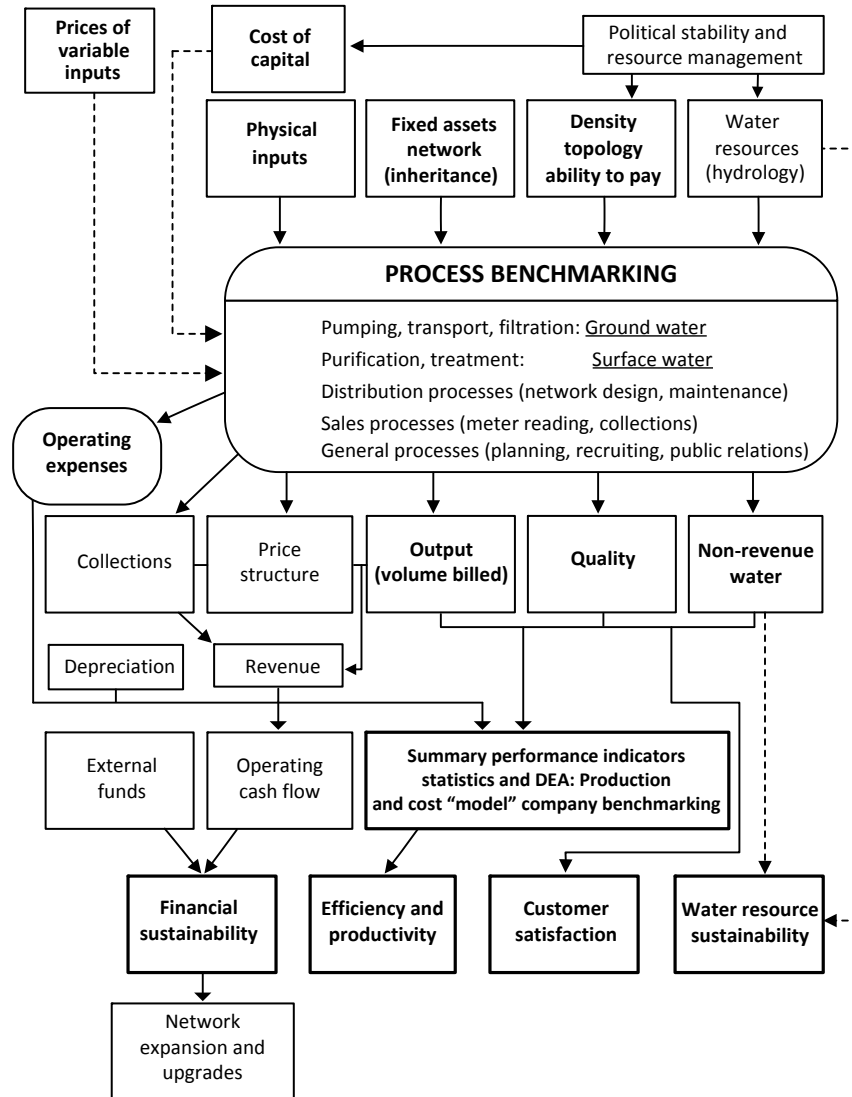
2. Capacity building

Figure 4 provides a more comprehensive flow diagram of the many decision-issues facing managers. It underscores the importance of strong capacity-building within the SOE if performance is, indeed, to improve over time. In particular, sources of data for performance benchmarking are highlighted, since these become the targets for managers and establish the foundation for good incentives. Note that the top part of the diagram identifies the key inputs utilized by water utilities: labour, energy, and other variable inputs, physical network assets (inherited by current managers), and water resources. As one expert said, “A regulatory requirement for public utilities to produce an auditable asset management plan with a clear understanding of the challenge of asset renewal (if not yet a clear funding route) is a significant step forward towards improved performance and one that can be achieved, at least to a relevant initial level of accuracy, even in situations with weak institutional capital. Without it there can be no confidence in any business plan or subsequent tariff setting”. This point underscores the need for certified auditors for the income statement and balance sheet, an asset registry, and for a

business plan. The condition of assets affects non-revenue water, water quality, and other dimensions of utility performance. A strong regulator is in a position to begin an evaluation as to whether production capacity is, indeed, being adequately maintained. Such regulatory monitoring programs do not involve micro-management: such activities are part of the organization’s oversight responsibilities.

Density, geography, topology, and customers’ ability to pay are all beyond managerial control, but these factors certainly affect costs and revenue flows. The production processes include pumping, transport, filtration, purification, treatment, network maintenance, billing and collections, and general processes (such as system planning, staff recruitment, and consumer relations). These elements comprise the “business” of providing utility services, with network expansion dependent upon external financial funds and tariffs (and collections) that bring in enough money to cover operating expenses. The rest of figure 4 looks at the “outputs” of the utility and the associated cash flows. KPIs are highlighted to show where data would need to be collected and reported.

FIGURE 4
INPUTS, PROCESSES, OUTCOMES, AND PERFORMANCE BENCHMARKING



Source: Berg (2010).

IV. Best practice: benchmarking and conflict resolution

The current report on SOEs and municipal water utilities has emphasized benchmarking as a tool for regulating (and managing) publicly-owned utilities: information can be used to develop targets (set by the regulator, consistent with public policy). For example, in the case of the Netherlands, KPI data collected by VEWIN is published resulting in “naming and shaming” those water utilities with weak trends in performance.¹² In addition, data can establish a foundation for resolving differences of opinion about actual and potential performance (in terms of network expansion, prices, and returns).

The promotion of improved SOE performance requires that conflicts be identified and resolved in a timely fashion. If the arrangements are not acceptable to political leaders and to citizens (or if disagreements are not addressed in open forums), the situation will not be sustainable. The key point is that while public policy is ultimately the domain of the government and current elected officials, its implementation is up to the regulatory agency. The task of the agency is to identify conflicts arising from different interpretations of information, different interests (like customers who are receiving service and those who are not), inconsistencies regarding policy objectives, and disagreements among government agencies (including SOEs and the regulator). Thus, one of the regulator’s responsibilities is to ensure that decision-makers have the necessary facts (regarding costs, demand forecasts, and capital flows) and that all options have been considered before decisions are made. Some might argue that these are not roles for a regulatory agency. Indeed, playing a leadership role in bringing water service issues to the fore can be dangerous.

Ultimately, public policy-makers must set the agenda. However, the water sector regulator can play a supporting role in educating the general public and policy-makers about water services issues. The regulator is a natural advocate for efficiency and for documenting performance trends. As such, participating in processes that promote conflict resolution is a task for the sector regulator.

¹² The Netherlands case provides another example of a country without a national regulator, but with strong institutional mechanisms that promote transparency. Consolidation of the industry also has contributed to improved performance as restructuring facilitated the achievement of economies of scale (Marques, 2010; Ferro and Lentini, 2010 and 2011).

A. Sources of conflict

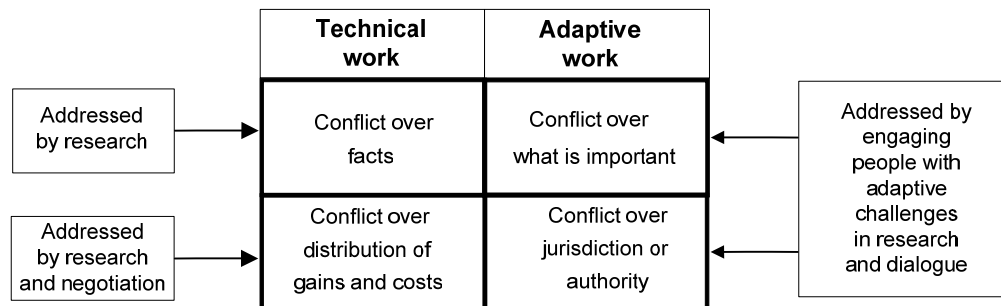
There are four potential sources of conflict in the design and implementation of water sector policies (Berg, 2007):

- **factual (cognitive) conflicts** (based on technical disagreements regarding the analysis and interpretation of performance data);
- **interest conflicts** (where different groups—utilities, customers, un-served citizens, sub-national governments, and unions—benefit or lose, depending on the decision);
- **values conflicts** (involving ideological and religious differences or differential preferences for water sector outcomes); and
- **authority conflicts** (reflecting jurisdictional disputes over who has the final “say”).

Identifying and resolving these conflicts is central to performance improvement. While the regulator of state or municipally-owned water supply and sanitation systems may not take the lead in resolving these conflicts, the regulator can play a role in the process. Stakeholders must have a clear understanding of facts, procedures, objectives, and responsibilities. The regulatory agency is unlikely to resolve the conflicts, but it must be in a position to articulate the issues, provide information where appropriate, and make citizens aware of the need for political resolution of issues. So the regulator must be politically aware, but not political. That is one key reason why autonomy is such an important principle in the design of the regulatory agency: if it is totally beholden to current political interests and subject to daily intervention, the leaders of the regulatory commission will neither be willing nor able to perform this important function.

Resolving the four conflicts involves two types of work: technical and adaptive. Figure 5 indicates how the four types of conflict are addressed by different types of activities.

FIGURE 5
CONFLICT RESOLUTION MATRIX



Source: Jamison and Castaneda (2011).

B. Regulatory governance for conflict resolution

The following points underscore how information and research provided by the regulator can play a role in promoting stronger governance and improved water utility performance.

1. Research: What are the facts?

It is said that everyone is entitled to their own opinions, but not their own facts. This report highlights data collection as essential if one is to document relative utility performance, reward those who are on the efficiency frontier, and identify those who are far inside the frontier. Given the political clout of SOEs and municipal utilities, the regulator's most important tool involves pressing for transparency: information on trends and relative performance brings dialogues back to reality. Public hearings bring out information regarding performance, business plans, and internal incentives. Information can mobilize public opinion and hold government ministries or municipal boards accountable for sector outcomes. Both national development banks and private investors focus on the likelihood that funds will be used productively, providing social (and private) returns on investments. International donors should apply similar standards to avoid wasting scarce capital and to provide incentives for utilities to move towards best practice. However, without facts, investors and donors are in no position to supply funds for the most productive infrastructure initiatives. National development banks and government budgets have other uses for funds as well—in education, hospitals, and roads. Without evidence of good performance in water services, other claims on scarce government resources are likely to be more compelling. In addition, allocations across sectors also consider evidence regarding the direct and indirect benefits associated with expanded water services. Four areas are particularly important:

- **Public information:** Making information available to the public promotes better performance. Customers' awareness of baselines and trends improves their understanding of what is feasible and can put citizen pressure on managers. If the utility is municipally-owned, data on trends for KPIs can direct attention to utility management in local political campaigns. For national or state-owned water utilities, the availability of comparative information can be used by political challengers as evidence of mismanagement. One rationale for public ownership (if not operation) is that water services are such important components of life: access to water services is a human right. At the same time, water services are commodities: if managers are driven completely by short term political considerations rather than commercial concerns (and financial sustainability), then the utility becomes a stagnant institution with low quality, high cost service. Even if the tariff is low, the system will be unsustainable; the business plan is inadequate to meet the needs of citizens. Service delayed is service denied.
- **Managerial information:** Small companies and entities need support to obtain and to use data for benchmarking purposes. Such data is first and foremost a managerial requirement—managers can only manage what they measure. Records document what has happened in the past: those data provide a baseline for future developments. Without underlying income statements, balance sheets, and operating statistics, feasible business plans cannot be developed. In highly decentralized utility systems, the lack of managerial capacity and absence of up-to-date information systems serves as a brake that delays performance improvements. With hundreds of municipal utilities, effective oversight by a national regulator is very problematic (given the difficulty of obtaining timely and consistent information and applying sanctions) (Jouravlev, 2004; Vergès, 2010; Salinas, 2011). Local regulation by the municipality has its own set of problems: lack of expertise (and sometimes authority) for evaluating performance. Small utilities lack scale economies and the engineering expertise necessary for good planning and operational efficiency (Ferro and Lentini, 2010 and 2011). In addition, the politics of local control (and excessive managerial turnover) limit the professionalization of top management. The evaluation of business plans and past performance is one regulatory activity that can put pressure on SOEs to improve performance.
- **Performance benchmarking:** Regulators should use benchmarking as part of tariff review; it can be used as a yardstick for comparing the performance of similar utilities.

Penalizing weak performance is difficult in the case of SOEs, since reducing tariffs will not put pressure on management. However, getting “league table” information (performance indicators and rankings) out to customers, the press, and to donors does change the information set available to important stakeholders. If the regulatory agency has the political independence (and leadership) that enables it to be an advocate for efficiency, a poorly performing system can be transformed—as external stakeholders put pressure on management. Bonus pools (from national or local budgets) can be distributed based on relative performance, providing an incentive for managers to apply greater effort towards cost containment and service quality improvement. If investment funds are allocated (in part) using the same criteria, there is likely to be more public pressure for better performance and more interest on the part of institutional owners.

- **Data timeliness, consistency and accuracy:** One important step for an agency is its adherence to schedules. If stakeholders are fully aware of deadlines and the consequences of missing deadlines are substantial, then the SOE is more likely to operate as a commercialized entity rather than a politicized organization. This means, of course, that the water authority, the finance ministry, and other relevant government authorities must back up the regulatory commission. If utility managers do not meet deadlines, the ministries should take appropriate actions to replace the current utility Board of Directors. In the case of municipal utilities, if funds from the national government are being allocated to utilities for investment, funding could be contingent on replacing managers. It should be clear that internal governance is crucial for the improvement of data quality. Of course, improvements cannot be instantaneous, but they should be documented. Relevant decision-makers from accounting and information systems need to be included in the process to promote both accountability and sound business practices.

2. Research and negotiation: How should benefits and costs be allocated?

Stakeholders have different interests, despite sharing a concern for the sustainability of the water sector. Analysts have found much support for the political economy of regulation (Berg and Tschirhart, 1988). This mode of analysis argues that regulatory decisions impose costs and create benefits. Even if the net present value of the costs is greater than that of the benefits, if the former are spread over many citizens, but the latter are concentrated on a few, then the detrimental decision can be adopted. The beneficiaries are knowledgeable and well organized: they have the incentive to lobby and argue their case, using financial and political resources at their disposal. Those bearing the costs are dispersed, poorly organized, and face considerable transaction costs for collective action. They are either unaware of the full long term consequences of the regulatory decision or the costs are small on a per capita basis. Similarly, even if the benefits are greater than the costs, those bearing the costs (such as a union’s loss of rigid work rules) are in a position to block change.

Here, the role of the regulator is to ensure that parties are aware of the full implications of decisions. Wide participation coupled with regulatory advocacy for efficiency and fairness can improve the likelihood of beneficial rulings. The price of water services to different customer categories, rate structures, network expansion and other elements of SOE behaviour all come under the oversight of the regulatory agency. This means that the regulator is in a position to balance the interests of different stakeholders, including those not sitting at the table: both at present (those without access to services) and in the future (the children and grandchildren of today’s citizen-voters). An excessively low tariff may be politically popular today, but it means that the SOE either must obtain funds from other sources for investment or that service quality and coverage will deteriorate.

- **Data definitions and business plans:** Regulators can insist upon the establishment of a uniform system of accounts. Clear definitions of operating and financial terms enable

comparisons to be made across utilities and over time. Without a robust accounting framework, external audits will not be feasible. Furthermore, any data provided by the utility will be inconsistent and not reflect the underlying economic valuation of the assets. The annual reports for some SOEs in the region have not been audited for five years or more. This situation is shameful. Information helps both the operator and the regulator; furthermore, this process need not be adversarial (although managers and politicians may feel threatened by transparency). Nevertheless, clear definitions and a logical structure for data collection and verification are key factors for performance enhancement. Without asset management planning, the utility's future production capabilities will be weakened. These financial and operating reports become the foundation for transparency, which is fundamental for achieving citizen confidence in the system.

- **Performance improvements and incentives:** Water supply and sanitation services present win-win possibilities for various stakeholders. As better information becomes a by-product of operations, the process leads to improved performance. Analysis of performance indicators helps managers save resources by identifying possible problems in the production process: efforts can be directed in a more focused manner. Economic incentives used by regulators work differently on private and public companies: this observation should influence what particular regulatory policies are pursued. Some policies will be similar, such as those related to accountability, transparency, and citizen participation. Some regulatory policies will be different, like those associated with social objectives and supporting government policy to corporatize and then commercialize a SOE. All areas require careful analysis, including evaluating the impacts of different types of incentives, for example choosing between cost of service regulation and high-powered incentives based on price caps. The initial tariffs, opportunities for cost containment, and risk allocation all affect this choice. If current prices are far below operating cost for the SOE, the issue is not limiting the exercise of market power, but convincing key stakeholders that the long term sustainability of the water service depends on raising tariffs over time and on improving production efficiency. A good first step involves focusing on collection rates and non-revenue water, since they enhance cash-flows, improvements can be targeted and rewarded (via management and staff bonuses), and their associated KPIs can be tracked. Finally, if water service is under-funded, then the problem of access to sewerage services and wastewater treatment becomes much more difficult to address.
- **Comprehensive performance evaluation:** The sector regulator is in a position to provide reports to public policy-makers on how the nation's water utilities perform relative to those in neighbouring countries in comparable socioeconomic situations. Such reports should include the consequences of these differences for the country in terms of public health, conditions for economic development, environmental protection and poverty reduction. Benchmarking using KPIs for water utilities at a country level yields rankings that provide policy-makers with a factual basis for analyzing, evaluating, and rewarding service providers' performance. However, benchmarking needs to be comprehensive; it should cover social information as well as utility financial and operational data. Social information goes beyond production processes to include coverage, access for the poor, water resources sustainability, and environmental impacts of inadequate mechanisms for sanitation. In addition, data on local conditions affecting costs that are beyond management's control need to be taken into account for comparisons to be robust. If water services are declared to be a national priority in developing nations, the trends on hydrological and environmental sustainability need to be incorporated into the public discussion. Best practice involves a specialized agency for managing water resources (Solanes and Jouravlev, 2006; Hantke-Domas, 2011 and 2013). Although the sector regulator should not normally be responsible for water

allocation, it can serve as a lead agency in creating task forces that hold the political system accountable for comprehensive system performance. For example, related reports could provide a full assessment of all the benefits and costs of new water quality and pollution standards; such studies should consider the effects of new standards on water supply and sewerage tariffs. In addition, such task forces should seek input from agencies who have to monitor the standards and from consumers who have to pay for environmental upgrades.

3. Adaptive work: What is important?

People in government ministries, utilities, regulatory agencies, non-governmental organizations, and with other affiliations place different emphasis on the pace and pattern of network expansion and service quality improvements; however, there is no doubt that it is important to maintain dialogues within nations so stakeholders can understand the concerns of one another. Thus, a potentially useful role of the regulatory agency is to provide opportunities for stakeholders to engage in conversations that address fundamental issues.

- **Establishing priorities:** Identification and prioritization of goals is crucial in the regulatory process: if improvements in sector performance cannot be documented, the system loses legitimacy in the eyes of citizens. Furthermore, targets need to be realistic and specific, so decision-makers can be held accountable for sector performance. Those in charge of formulating public policy establish priorities and regulators implement those policies. Politicians sometimes identify broad objectives (fairness/social justice and efficiency) without considering how those objectives are to be measured, balanced and monitored. The regulatory agency can at least develop guidelines interpreting the law, leaving it to the political system to add precision if the agency has not balanced objectives in a way supported by the citizenry. Over time, if SOE performance is improving and other sector indicators are moving in the right direction, citizens will gain confidence in policy-makers and in the way the regulator is implementing public policy. Related to the issue of priorities are the necessary interactions with other agencies. For example, the sector regulator should emphasize to the environmental regulators the importance of carrying out adequate economic analysis before the adoption of more stringent standards (Jouravlev, 2000). Taking initiative for inter-agency coordination is one way the regulator can exercise leadership in bringing issues to the fore.
- **Believing is seeing:** Our preconceptions shape (and even determine) our perceptions. Getting fundamental values out in the open can help stakeholders see areas for collaboration and consensus. Being grounded in the reality of business plans, best practice, and financial constraints can help stakeholders understand what must be given up to achieve particular objectives. This point underscores the need for both the regulator and the SOE to communicate with stakeholders. Reports, workshops, news interviews, hearings, and public statements—there are many venues for keeping a spotlight on water services. “When nothing is said, little gets done”. Thus, the regulator should encourage water utilities to research the views of their customers—to determine customer priorities. Also, the sector regulator must impress on both environmental regulators and water companies the need to arrive at efficient solutions in which quality and environmental objectives are achieved in cost effective ways (Jouravlev, 2000).
- **Cumulative improvements:** Data reveal whether we are meeting our goals. Benchmarking is a valuable tool for the operator; it is an incremental process involving steps that strengthen organizational capabilities. Once basic information has been processed, the experience yields improvements in procedures as managers better understand information flows and performance outcomes in segments of the utility. Clear

and timely information helps managers identify emerging problems—reducing delayed responses. All of this, of course, implies that internal incentives exist to act on information. Managers respond to incentives. If there are no rewards for meeting targets and no penalties for missing them, performance will be weak. Thus, the internal governance system must develop ways to move the organization towards a culture of professionalism and excellence. Such a change requires leadership within the utility and a Board of Directors that values and rewards high performance.

- **Urban/rural initiatives:** Whether resources will actually be utilized for network expansion and improved access depends on whether public policy actually supports such initiatives. The high costs and low political visibility of serving dispersed populations make it difficult to develop programs that impact rural areas (Carrasco, 2012 and 2011). Given the limited ability of the very poor to pay for water (let alone sewerage), some external funding (from national, state, local or donor budgets) will be needed to target the urban poor and rural areas. For managers, urban systems have the cost advantages of density related to economies of scale; for elected officials, large cities have political clout, as public protests are easier to organize. Small towns and rural areas are often neglected. Benchmarking should include rural areas to ensure that policy-makers are aware of resource allocation within the water service sector.

4. Adaptive work: Who has jurisdiction?

Currently, the jurisdictional overlaps and gaps are significant in many countries. That can result in duplicative (and sometimes, conflicting) rules that raise compliance costs. In other cases, both agencies hold the other one responsible for some tasks so problems remain unaddressed. The OECD (2012) report identified administrative and information gaps as two issues facing the water service sector—particularly in the context of SOEs. Capacity to collect and analyze data is weak. In addition, authority conflicts distract agencies and managers from doing their jobs: harming sector performance.

- **Data and governance frameworks:** Utilities need comprehensive information systems in order to improve data quality and provide timely information. Such systems need not involve highly advanced information technologies that integrate geographical information systems (GIS) with real-time measurement of system performance. Rather, a good starting point involves careful reporting of basic data to a centralized data library (according to consistent and standardized definitions and protocols). This point is particularly relevant in those nations that have moved to decentralized service provision. In principle, delegating operational and financial authority to municipalities has the theoretical advantage¹³ of placing authority closest to those affected by decisions. However, smaller cities, in particular, often lack the information systems and technical expertise to oversee municipal utilities. The lack of professionalism and weak governance leads to poor performance. Furthermore, within a municipality political patronage remains an issue: without transparency, local citizens lack the ability to compare their utility's performance with comparable systems, leaving politicians to use the utility for political pay-offs. One could argue that national data systems are essential if investment funds are going to be allocated to managers who use the money efficiently.
- **Information is an antidote to abusive use of power:** Those currently controlling access to information must be convinced of the benefits of a centralized (and accessible) database that helps avoid duplication of effort. A changed organizational culture is as

¹³ Decentralization of service provision, especially to the municipal level, has many important practical drawbacks (including loss of scale economies, difficulties for effective regulation, impediments for watershed management and disincentives for water pollution control) (Jouravlev, 2003b and 2004; Ferro and Lentini, 2010 and 2011).

important as developing technical capabilities. The latter can be accomplished via training programs; however, these are necessary, but not sufficient, for performance improvements. To put this in simple terms: the lack of ten years of audited data for a SOE can be used to place the burden of proof on management that it is performing well. It is generally best to presume “innocent until proven guilty”, but when public resources are being expended and there is minimal documentation on how those outlays on inputs relate to performance, managers should be required to explain why they are not treating the utility like a commercial entity. Are the bidding processes appropriate? Are recruitment and retention practices for staff reasonable? Do internal incentives promote efficiency? Finally, if the governance system involves elected officials (such as a municipal council) providing oversight, does that regulatory system truly promote good performance by the municipal utility and what evidence is there that performance is actually improving? These questions suggest that those controlling information may not want the general public to have data or that tariffs are so low that the utility cannot even afford to gather data necessary to make sound decisions.¹⁴

- **Clarify jurisdictional responsibilities:** Previous studies (OECD, 2012) underscore the importance of having clearly defined authority. When there are overlapping responsibilities, agencies either engage in turf wars or blame one another for shortcomings when evidence of poor performance becomes overwhelming. The regulator is in a position to organize task forces or to hold workshops to get the issues out into the open. Battles between national, state (provincial) and local (municipal) authorities are generally over which entity has the final say on issues affecting constituencies. The SOE may have historical ties to the sectoral ministry or to local political interests. Such links might be used to blunt or counter the impact of regulatory rulings.

Based on the observations presented here, legal frameworks applicable to a water utility regulator and a SOE should:

- **Facilitate fact-finding:** Require data reporting by operators (promoting transparency and reducing information asymmetries).
- **Ensure institutional capacity:** Provide authorities with the resources to attract and retain professional staff who can effectively interact with all stakeholders.
- **Identify and prioritize performance objectives:** Ensure that those setting public policy are clear about their goals and that they are held accountable for promises made regarding related initiatives.
- **Define the roles and responsibilities of different entities:** Promote clarity and accountability in the institutional division of labour.

Attention to these four features enables the legal framework for regulating water and sewerage systems to address fundamental issues, and ultimately, to reduce conflicts—contributing to a more stable and predictable public policy environment.

¹⁴ The fundamental problem of information asymmetry in principal-agent situations has been examined in numerous academic studies (see Estache and Wren-Lewis, 2009).

V. Key lessons and conclusions

A. Key lessons for utility regulation

The first rule of medicine is “Do no harm”. The same rule applies to public policy reform. Careful diagnoses of problems and analyses of the likely impacts of different policy options can limit the likelihood that truly “bad” policies will be adopted. The standards for sound analysis include objectivity, consideration of institutional constraints, and benchmarking against the performance of others. Ultimately, one would expect public policy recommendations by experts to play a positive role in the development and implementation of water services policy.

If the adoption of promising reform initiatives has been blocked by those who benefit from the current system, reform leaders need to identify allies who can neutralize the powerful beneficiaries of a dysfunctional system. Kingdom and van Ginneken (2008) note that a stakeholder analysis and scenario building represent good steps towards this process. They also observe that the key weakness of regulators involves limited availability of necessary authority: “Independent regulation of public utilities has often failed to deliver the expected outcomes. The principal reason is the inability to apply sanctions. Effective regulation requires the ability to reward good performance and punish poor performance ... Without rewards and sanctions, the regulatory mechanisms used to control private utilities are unlikely to be effective in changing the behaviour of publicly-owned water utilities”.

Devising rewards and penalties for managers of SOEs and municipal utilities represents a key challenge for those seeking to improve sector performance. Researchers have placed information at the top of the list of tasks for documenting trends, establishing baselines, and developing forecasts of cash flows. In particular, the financial sustainability of utilities cannot be determined in the absence of systematic record keeping. Nevertheless, there are substantial barriers that must be removed for incentives to be aligned to actually collect useful information. Abysmal performance in information collection and dissemination is understandable: knowledge (and access to information) is power. Key stakeholders who do not want reform know that one way to delay it is to ensure that information on financial, engineering, and economic performance is not available. In large cities with local regulation, the utility management may not wish to publish information that reveals poor levels of performance. Managers of smaller utilities have that same incentive; and, in addition, such systems are likely to lack the capacity and resources to develop decision-relevant information systems.

The political economy of regulation suggests that the benefits of the present system (which are concentrated upon those in positions of privilege) need not outweigh the aggregate costs to those paying for inefficiencies or poor quality service. The costs of a poorly performing regulatory system are disbursed across the general populace (and not widely understood at that, given the general lack of transparency and information). Thus, regulators need to seek allies in addressing governance issues. In some cases, allies will come from outside the water services sector; for example, irrigation, tourism or agribusiness—all should be interested in efficient service provision because of positive synergies.

The linkages between water services and fiscal reform set up a natural alliance between those supporting serious measures to improve sector performance (via cost recovery and financial sustainability) and the Treasury. Also, water supply and sewerage service improvement and expansion facilitate development and promote civic cohesion. One potential role of the sector regulator is to establish a clear record of past performance, and the benefits (and costs) of the current situation and of the proposed reform for the nation (Hantke-Domas and Jouravlev, 2011). This task includes communicating to both the legislative and executive branches the implications of maintaining the status quo.

Few leaders are elected on the basis of promises to enhance economic efficiency. Most make promises regarding the importance of social justice: fairness and meeting a variety of stakeholder objectives (low tariffs, network expansion, improvement of service quality, and jobs) are usually more salient to voters. After elections, the funds and institutional reforms required for performance improvements are often set aside. Thus, it is important for the regulator to help the political elite understand how existing incentive mechanisms affect sector performance and societal welfare. In addition, workshops can help key stakeholders understand the extent to which conflicting policy objectives are the source of conflict among different governmental agencies. This study has underscored the importance of achieving clarity in the division of responsibilities between the sector regulators and the respective ministries.

Since water service reform is (at its best) accompanied by greater transparency and participation by stakeholders, attention must be given to the involvement and education of non-governmental organizations and various consumer representatives. Of course, there is always the danger that such groups be taken over by special interests which then have a platform and social legitimacy. That platform might be subsequently abused. Nevertheless, as Dubash (2002) emphasizes, it is important to engage civil society in reform initiatives that strengthen the regulatory and corporate governance. The promotion of public dialogue is a first step towards getting more comprehensive support from key stakeholders. It is also helpful to engage the support of professional groups, such as the AIDIS. In some cases, timing is everything.

The term “window of opportunity” is sometimes used to explain why initiatives are on some occasions taken prematurely, without full buy-in from all stakeholders. However, even the presence of a reform champion may be inadequate if supporting factors are not present. Economists often downplay the role of personalities and leadership in the reform process, preferring to focus on broad technological and economic forces. Yet, if institutional constraints are at the core of the problem then people who have the charisma or contacts (influence) and motivation to change the system are important (McCraw, 1984).

Reform is, by nature, a “work in progress” that relies on strategy as “a pattern in a stream of decisions” (Mintzberg, 1978). The ideas presented here are intended to plant seeds in the minds of those who are reflecting on when, where, and why particular reform initiatives worked. Hopefully, the observations will lead to some case studies that can document the relative importance of the different strategies described here. It may be that country-specific institutional features doomed or supported initiatives to improve governance and to increase economic incentives for efficiency. There is still a great deal to be learned about with regard to water utility regulation and reform in the presence of SOEs and municipal utilities.

Rosenzweig, Voll and Pabon-Agudelo (2004) have attempted to explain why international reform experience has been relatively unsuccessful in many countries. Their explanations range from inadequately planned transitions to the difficulty of changing entrenched mindsets among those who are asked to manage restructured or privatized utilities. Their most relevant conclusions are listed below to outline the difficulty of reforming regulatory governance and developing better procedures for managing utility operations:

- **Recognize the complexity of reform:** “Reform ... is a highly complex technical activity in a sector of very high political interest and in the midst of strong public antagonisms, and involves the transformation of bureaucratic agencies with long histories of political interference”. Basically, they emphasize that there are no unique recipes for success.
- **Target early beneficiaries:** “Reform has often been directed by parties that are not technicians or specialists and that have agendas that go well beyond reform of the sector and only limited interest in economic efficiency or improving sector performance”. For example, some nations chose privatization as a technique for maximizing revenue for the Treasury; however that can slow network expansion, since it takes funds that might otherwise have gone directly into water sector infrastructure. Thus, there is less investment in improving service quality or increasing connections which would have provided political support for reform. In other cases, the need to attract private investment was given priority over other considerations, especially the subsequent regulation of the markets involved, with a result of weak regulatory frameworks, incapable of generating strong incentives for efficiency (Jouravlev, 2003a and 2004).
- **Understand government strengths and limitations:** “Reform is often pursued by governments that lack a clear understanding of the models, their requirements, and the implications for the necessary and proper role of government. Not surprisingly, the attempts mostly failed”. Just as market failures can justify government intervention, potential government failures should be recognized when developing the reform package. For example, government failures arise if agencies lack human capital, if the judicial system cannot handle appeals promptly, or if the legislature (or executive) is unwilling to delegate authority to those implementing reforms.
- **Appreciate the roles of funding agencies and governments:** There is evidence that funding agencies tend to pressure for reform (supply-push) even when national and local governments (or citizens) do not support it (absence of demand-pull). Institutional arrangements that are imposed from the outside are bound to lack strong support. It is useful to ask whether particular governments are truly interested in meeting agreed-upon commitments. Investors and other stakeholders will look at the government track record to determine whether there is a genuine interest in (and support for) reform. Similarly, international financial institutions often have multiple objectives associated with country water infrastructure programs: “Funding agencies must rely on technical experts rather than agency imperatives or preconceptions in setting their prescriptions for reform”. This observation underscores the undesirability of forcing reforms through grants or loans when there is no local support for change or for a specific reform. Neither ideological nor imposed policies are likely to be implemented in a serious way.
- **Base reform on reality and create a transition plan:** “Ground realities must be incorporated into the selection and implementation of a reform model”. A related issue is whether current water sector infrastructure managers should be retained or bought off. Poor performance can often be attributed to poor management and weak incentives. Some analysts argue that people who have continued to mess things up should not be asked to clean up the mess. The current situation represents equilibrium: some citizens, some politicians, some managers, and some employees are content with present

arrangements—even if the system is performing poorly for the nation. If this reality is not recognized, reform cannot succeed. Another issue is how the success of a reform is to be monitored: what are the indicators of success? “A transition plan must be developed that will allow the sector to move from its current state to the reformed end-state without alienating customers or undermining the reform”.

The link between today’s performance (the baseline) and desired performance (the vision) is totally dependent upon devising a reform strategy that is based on reality and reflects shared objectives—recognizing the roles of different types of institutions (formal organizations like the regulatory agency, social structures like political parties, and support systems, including civil service and citizen attitudes). Clarity about objectives is a key part of the governance reform process, requiring communication and the development of a consensus regarding what is both possible and desirable. Regulation is a mechanism for conflict resolution, although the mere existence of a new centre of initiative can also contribute to jealousies and petty power-struggles at all levels.

B. Conclusions

Sustainable sector outcomes generally reflect the principles of a sound regulatory system design: coherence, creativity, communication, collaboration, consultation, and credibility. These principles provide the foundation for effective strategies that strengthen governance and that engage the public and policymakers:

- **Coherence:** Revenues, sources of investment funds, operating costs, output levels, and service quality are interdependent. Regulators need to establish the tariffs according to projected water service delivery and levels of service quality. At the same time, regulators seek mechanisms for promoting access by low-income consumers: pro-poor agenda. Reality-based business plans are crucial for long term financial sustainability of water utilities. To set tariffs and evaluate performance requires data from the operating utilities and careful analysis by the regulatory authority. In the case of SOEs, historical accounting and operating records provide essential evidence regarding trends associated with key targets. Regulators must be in a position to certify (and monitor) business plans for moving forward. If future cash flows from operations (collections) and financing activities (bonds, public funds, or donors) are inadequate for maintenance and planned investments, then the regulator should reject the business plan and set up a public workshop to develop a realistic business plan. Stakeholders need to be informed of the consequences of unrealistic, incoherent plans. Furthermore, these plans need to be publicly available on a timely basis, so that affected groups can adjust to developments. Regulators have few tools for incentivizing high performance in SOEs, but they can at least draw attention to good practices and to ask why targets are not being met.
- **Creativity:** Regulators should support incentives for cost-containment and new technologies for service providers. If current regulatory arrangements are not yielding improved SOE performance, then reports to the legislature should contain recommendations that give appropriate tools to the agency. Social tariffs and subsidies are required to facilitate universal access to low-income consumers. The non-served groups also need to be reached with innovative solutions as operators expand access to services. Unrealistic targets only lead to frustrated managers and unhappy citizens.
- **Communication:** Regulators are in a position to serve as a catalyst for bringing together different water sector stakeholders. Proactive regulators can reduce social conflicts in these sectors. Agencies have to consider all stakeholders and their key concerns when making decisions. For example, consumers are the first (not the last) to be consulted in

network expansion decisions. Regulators need to be able to communicate strategically, without being perceived as stepping into the political arena.

- **Collaboration:** Regulators need to promote interactions with related agencies and organizations; for example, for water supply and sewerage this would include water resources managers, municipalities, social service organizations, public health agencies, and environmental groups. Furthermore, collaborations with agencies in other countries can strengthen regulatory capacity, as lessons and data are shared. For example, the Association of Water and Sanitation Regulatory Entities of the Americas (ADERASA) serves this role for Latin American water regulators. Such networking is a valuable source of experiences and data for international comparisons.
- **Consultation:** Promote the creation of consumer advisory boards at the local level. Such councils educate opinion leaders and obtain feedback regarding consumer perceptions. These groups will not parrot the “regulatory line” but can provide feedback on draft decisions. Members of these boards are likely to be opinion leaders who can help educate others regarding the trade-offs that must be made to maintain the financial sustainability of service providers. Quality choices and decisions regarding the expansion of service both require input from citizens. Note that un-served citizens should be included on such boards to give a voice to those currently without service. Without broad support, a technically competent regulatory agency will find itself marginalized by forces that are far stronger. Note, also, that such organizations can also serve as the platforms for political activists or others with special interests. So as in most situations, the downsides associated with such entities must be recognized.
- **Credibility:** Regulators should place a premium on transparency and consistency in the regulatory process, since cash flows will be driven by future decisions. The agency’s credibility depends heavily on data collection and analysis, adhering to schedules, keeping promises, and behaving with integrity.

These principles are neither new nor original, but when they are ignored by those developing and implementing public policy, the results can be damaging. For example, predictability and transparency are two elements lacking in many regulatory jurisdictions. Regulators need to be consistent in both the process and in the substance of decisions. Transparency implies clear rules and functions that give operators confidence in the professionalism of those providing oversight. The public is seldom fully aware of current water supply and sewerage policies and rules. Best practice regulatory institutions need to take a more active role in educating the public and in communicating sector developments to all stakeholders. It is said that “the fewer the facts, the stronger the opinion”. One way to reduce the divisive role of rhetoric is to introduce information about the costs and benefits of different policy options. In addition, improving governance is the foundation for establishing better incentives to promote efficiency. If the regulatory process is transparent, stakeholders (including political leaders) will better understand regulatory decisions.

Brown, Stern and Tenenbaum (2006) emphasize three meta-principles: **credibility**, **legitimacy**, and **transparency**. In addition, the authors implicitly recognize **efficiency** as a fourth meta-principle. After all, if policy can create a positive-sum game, then it is easier to get buy-in from stakeholders. However, without incentives and penalties poor performance is likely to result. With strong incentives (bonus pools, management performance contracts, bonuses for meeting realistic targets, and replacement of poorly performing managers), efficiency becomes a serious task for managers and staff. Increased efficiency in the sector means that more resources can be devoted to poverty alleviation (a pro-poor agenda) without creating new fiscal burdens. While far more politicians have run on a platform of fairness than on efficiency, the latter deserves to be highlighted in evaluations of regulatory performance.

Efficiency and equity are not mutually exclusive: rather, they are complementary objectives, though their achievement generally requires a sequential approach to expansion: financial sustainability is necessary (but not sufficient) for fairness (Jouravlev, 2009). In addition to the potential complementarity of efficiency and social equity, the author would like to underscore a few other points that emerge from this review of regulation of state-owned and municipal utilities:

- Well-performing institutions make information available, implement incentives, and evaluate performance.
- Insulation from daily political pressures and regulatory micro-management is necessary for strong performance.
- Access to benchmarking information provides a foundation for establishing better external and internal governance and incentives.
- Professionalism and engineering expertise are necessary for good planning and operational efficiency.
- Continuity and accountability for both utilities and their oversight agencies is essential for long term sustainability.
- The utility’s Board of Directors is a key component of the governance system: it needs to track and incentivize good performance.
- Stakeholder participation in the regulatory process promotes the exchange of ideas necessary to identify win-win options and develop consensus among key groups.
- Political support for reform initiatives helps agency funding and the attraction and retention of strong leadership and skilled staff.

The extent to which these activities are not occurring in any particular jurisdiction is evidence that reforms are necessary for improving utility performance.

The regulator (whether it be a municipal commission or a multi-sector national regulatory agency) is just one actor among many. That means that the agency must identify allies and opponents when trying to improve sector performance. Performance will not improve if the political will does not support reforms. In some jurisdictions, regulators tend to be very passive—not wanting to take initiative or just being apprehensive about becoming a target for politicians to attack. Yet, even if the agency is following “best practice” by being transparent, promoting participation (through workshops and hearings), and meeting deadlines, if it is not taking initiatives (within the law), then citizens will continue to experience poor service from water utilities. Similarly, the push for decentralization (to help utilities be more accountable locally) is unlikely to improve performance if the local governance structures are not strengthened and capacity building not given adequate attention. If local managers lack the technical skills and professionalism required for good performance, then the governance system should provide opportunities for training and upgrading skills. Publicly available data (benchmarking) would be one mechanism for evaluating, incentivizing, and replacing management.

Ultimately, the credibility and legitimacy of a government agency depend on the acceptance and understanding of the regulatory process by the consumers and other stakeholders. The population that is expecting to receive services is directly affected by tariffs and quality of service. The impact of water sector reform depends on national circumstances, income distribution and growth, and the legal system. Legitimacy, and some degree of social acceptance, will only be achieved on a record of accomplishments. Staff expertise, learning from regulatory experiences elsewhere, and the use of regulatory instruments like benchmarking are the basis for improving performance of SOEs and municipal utilities. In addition, as Ian Byatt (2013) the first water sector regulator for England and Wales noted, “Regulatory strategy, not detail, is the key to success”. His observation suggests that regulators of SOEs and municipal water utilities must be politically aware, without becoming political.

Bibliography

- ADB (Asian Development Bank) (2007), *Country Water Action: Cambodia Phnom Penh Water Supply Authority: An Exemplary Water Utility in Asia*, Metro Manila, Philippines.
- Advani, Rajesh (2012), “Using Credit Ratings to Improve Water Utility Access to Market Finance in Sub-Saharan Africa”, *Learning Note*, Water and Sanitation Program (WSP), February.
- Aivazian, Varouj; Ying Ge and Jiaping Qiu (2005a), “Can Corporatization Improve the Performance of State-owned Enterprises Even without Privatization?”, *Journal of Corporate Finance*, Volume 11, Issue 5.
- _____ (2005b), “Corporate Governance and Manager Turnover: An Unusual Social Experiment”, *Journal of Bank & Finance*, Volume 29, Issue 6.
- Akhmouch, Aziza (2012), “Water Governance in Latin America and the Caribbean: a Multi-level Approach”, *OECD Regional Development Working Papers*, 2012/14, OECD Publishing (<http://www.oecd-ilibrary.org/>).
- Alfaro, Raquel (2009), *Fomento de la eficiencia de las empresas estatales de agua potable y saneamiento*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/L.3010-P, Santiago, Chile (<http://www.cepal.org/>).
- Anbarci, Nejat; Monica Escaleras and Charles Register (2009), “The Ill Effects of Public Sector Corruption in the Water and Sanitation Sector”, *Land Economics*, Volume 85, Issue 2.
- Andrés, Luis Alberto; José Luis Guasch and Sebastián López Azumendi (2011), “Governance in State-Owned Enterprises Revisited: The Cases of Water and Electricity in Latin America and the Caribbean”, *Policy Research Working Paper*, N° 5747, World Bank, Washington, D.C.
- Baer, Walter; Edmund Edelman; James Ingram III and Sergej Mahnovski (2001), *Governance in a Changing Market: The Los Angeles Department of Water and Power*, RAND Enterprise Analysis, Santa Monica (<http://www.rand.org/>).
- Baietti, Aldo; William Kingdom and Meike van Ginneken (2006), “Characteristics of Well-Performing Public Water Utilities”, *Water Supply & Sanitation Working Note*, N° 9.
- Baliga, Rand and Timo Santalainen (2006), “Transformation of state-owned enterprises in Estonia and India: An Examination of the relative influences of cultural variations”, *Journal of International Management*, Volume 12, Issue 2.
- Berg, Sanford (2010), *Water Utility Benchmarking: Measurement, Methodologies, and Performance Initiatives*, International Water Association Publishing, London.
- _____ (2007), “Conflict Resolution: Benchmarking Water Utility Performance”, *Public Administration and Development*, Volume 27, Issue 1.

- _____ (2000), “Sustainable Regulatory Systems: Laws, Resources, and Values”, *Utilities Policy*, Volume 9, N° 4.
- Berg, Sanford and Claudia Vargas (2008), “Bolivian Utility Regulation: Lessons for a Water Sector Agency”, *PURC Working Paper*, University of Florida, Department of Economics.
- Berg, Sanford and John Tschirhart (1988), *Natural Monopoly Regulation: Principles and Practice*, Cambridge University Press.
- Berg, Sanford and William Muhairwe (2009), “Promoting High Performance in SOEs: Lessons from Africa”, *PURC Working Paper*, University of Florida, Department of Economics.
- Berg, Sanford; Chen Lin and Valeriy Tsaplin (2005), “Regulation of State-Owned and Privatized Utilities: Ukraine Electricity Distribution Company Performance”, *Journal of Regulatory Economics*, Volume 28, N° 3.
- Berg, Sanford; Liangliang Jiang and Chen Lin (2012), “Regulation and Corporate Corruption: New Evidence from the Telecom Sector”, *Journal of Comparative Economics*, Volume 40, Issue 1.
- Bohoslavsky, Juan Pablo (2011), *Fomento de la eficiencia en prestadores sanitarios estatales: la nueva empresa estatal abierta*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/W.381, Santiago, Chile (<http://www.cepal.org/>).
- Brown, Ashley; Jon Stern and Bernard Tenenbaum with Defne Gencer (2006), *Handbook for Evaluating Infrastructure Regulatory Systems*, World Bank, Washington, D.C.
- Byatt, Ian (2013), “The regulation of Water Services in the UK”, *Utilities Policy*, Issue 24.
- Cadmus Group, KPMG and NuWater (2002), *A Study of Best Practices in the Water and Wastewater Sector for the Ontario SuperBuild Corporation, Final Report*, Ontario SuperBuild Corporation, Ministry of Finance, Toronto (<http://www.moi.gov.on.ca/>).
- Carrasco, William (2012), “Provision of drinking water supply and sanitation services in rural areas”, *Circular of the Network for Cooperation in Integrated Water Resource Management for Sustainable Development in Latin America and the Caribbean*, N° 36, Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile (<http://www.cepal.org/>).
- _____ (2011), *Políticas públicas para la prestación de los servicios de agua potable y saneamiento en las áreas rurales*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/W.388, Santiago, Chile (<http://www.cepal.org/>).
- Casson, Mark; Marina Della Giusta and Uma Kambhampati (2010), “Formal and Informal Institutions and Development”, *World Development*, Volume 38, N° 2.
- Checchi, Daniele; Massimo Florio and Jorge Carrera (2009), “Privatisation Discontent and Utility Reform in Latin America”, *Journal of Development Studies*, Volume 45, N° 3.
- da Cruz, Nuno Ferreira; Sanford Berg and Rui Cunha Marques (2013), “Managing Public Utilities: Lessons from Florida”, *Lex Localis - Journal Of Local Self-Government*, Volume 11, N° 2.
- Das, Binayak; Ek Sonn Chan; Chea Visoth; Ganesh Pangare and Robin Simpson (eds.) (2010), “Sharing the Reform Process: Learning from the Phnom Penh Water Supply Authority (PPWSA)”, *Mekong Water Dialogue Publication*, N° 4, International Union for Conservation of Nature and Natural Resources (IUCN), Gland (<http://cmsdata.iucn.org/>).
- Davis, Jennifer (2003), “Corruption in public services: Experience from South Asia’s water and sanitation sector”, *World Development*, Volume 32, N° 1.
- Dubash, Navroz (ed.) (2002), *Power Politics: Equity and Environment in Electricity Reform*, World Resources Institute, Washington, D.C. (<http://pdf.wri.org/>)
- Ehrhardt, David and Nils Janson (2010), “Can regulation improve the performance of government-controlled water utilities?”, *Water Policy*, Volume 12, Supplement 1.
- Eisendrath, Allen (2013), *Water Utility Corporatization*, United States Agency for International Development (USAID) (<http://www.energytoolbox.org/>).
- _____ (2012), *Private communication*.
- Estache, Antonio and Liam Wren-Lewis (2009), “Towards a Theory of Regulation for Developing Countries: Following Laffont’s Lead”, *Journal of Economic Literature*, Volume 47, Issue 3.
- Ferro, Gustavo and Emilio Lentini (2013), *Políticas tarifarias para el logro de los Objetivos de Desarrollo del Milenio (ODM): situación actual y tendencias regionales recientes*, Economic

- Commission for Latin America and the Caribbean (ECLAC), LC/W.519, Santiago, Chile (<http://www.cepal.org/>).
- _____ (2012), *Infraestructura y equidad social: Experiencias en agua potable, saneamiento y transporte urbano de pasajeros en América Latina*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/L.3437, Santiago, Chile (<http://www.cepal.org/>).
- _____ (2011), “Economies of scale in drinking water and sewerage services”, *Circular of the Network for Cooperation in Integrated Water Resource Management for Sustainable Development in Latin America and the Caribbean*, N° 34, Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile (<http://www.cepal.org/>).
- _____ (2010), *Economías de escala en los servicios de agua potable y alcantarillado*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/W.369, Santiago, Chile (<http://www.cepal.org/>).
- Ferro, Gustavo; Emilio Lentini and Carlos Romero (2012), “Efficiency and its measurement in drinking water and sewerage service provision”, *Circular of the Network for Cooperation in Integrated Water Resource Management for Sustainable Development in Latin America and the Caribbean*, N° 36, Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile (<http://www.cepal.org/>).
- _____ (2011), *Eficiencia y su medición en prestadores de servicios de agua potable y alcantarillado*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/W.385, Santiago, Chile (<http://www.cepal.org/>).
- Groves, Theodore; Yonmiao Hong; John McMillan and Barry Naughton (1994), “Autonomy and incentives in Chinese state enterprises”, *Quarterly Journal of Economics*, Volume 109, N° 1.
- Groom, Eric; Jonathan Halpern and David Ehrhardt (2006), “Explanatory Notes on Key Topics in the Regulation of Water and Sanitation Services”, *Water Supply and Sanitation Sector Board Discussion Paper Series*, Paper N° 6, World Bank, Washington, D.C.
- Halpern, Jonathan; Charles Kenny; Eric Dickson; David Ehrhardt and Chloe Oliver (2008), “Water Sector Board”, *Water Working Note*, N° 18, World Bank, Washington, D.C.
- Hantke-Domas, Michael (2013), “Legislative progress towards sustainable and decentralized water management in Latin America”, *Circular of the Network for Cooperation in Integrated Water Resource Management for Sustainable Development in Latin America and the Caribbean*, N° 37, Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile (<http://www.cepal.org/>).
- _____ (2011), *Avances legislativos en gestión sostenible y descentralizada del agua en América Latina*, Commission for Latin America and the Caribbean (ECLAC), LC/W.446, Santiago, Chile (<http://www.cepal.org/>).
- Hantke-Domas, Michael and Andrei Jouravlev (2011), *Lineamientos de política pública para el sector de agua potable y saneamiento*, Commission for Latin America and the Caribbean (ECLAC), LC/W.400, Santiago, Chile (<http://www.cepal.org/>).
- Jamison, Mark and Araceli Castaneda (2011), “Reset for Regulation and Utilities: Leadership for a Time of Constant Change”, *The Electricity Journal*, Volume 24, N° 4.
- Jarvis, Darryl and Benjamin Sovacool (2011), “Conceptualizing and evaluating best practices in electricity and water regulatory governance”, *Energy*, Volume 36, Issue 7.
- Jha, Abhas Kumar (ed.) (2005), “Institutions, Performance, and the Financing of Infrastructure Services in the Caribbean”, *World Bank Working Paper*, N° 58, Washington, D.C.
- Joffe, Marc; Richard Hoffman and Melanie Brown (2008), *African Water Utilities Regional Comparative Utility Creditworthiness Assessment Report. Individual credit assessment reports for seven African water utilities by Global Credit Rating Co.*, Water and Sanitation Program-Africa Region, World Bank (<http://www.wsp.org/>).
- Jouravlev, Andrei (2009), “Introducción”, in Raquel Alfaro, *Fomento de la eficiencia de las empresas estatales de agua potable y saneamiento*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/L.3010-P, Santiago, Chile (<http://www.cepal.org/>).

- _____ (2004), *Drinking water supply and sanitation services on the threshold of the XXI century*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/L.2169-P, Santiago, Chile (<http://www.cepal.org/>).
- _____ (2003a), *Acceso a la información: una tarea pendiente para la regulación latinoamericana*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/L.1954-P, Santiago, Chile (<http://www.cepal.org/>).
- _____ (2003b), *Los municipios y la gestión de los recursos hídricos*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/L.2003-P, Santiago, Chile (<http://www.cepal.org/>).
- _____ (2000), *Water utility regulation: issues and options for Latin America and the Caribbean*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/R.2032, Santiago, Chile (<http://www.cepal.org/>).
- Justo, Juan Bautista (2013), *El derecho humano al agua y al saneamiento frente a los Objetivos de Desarrollo del Milenio (ODM)*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/W.536, Santiago, Chile (<http://www.cepal.org/>).
- Kingdom, William and Meike van Ginneken (2008), “Key topics in public water utility reform”, *Water Working Notes*, N° 17, World Bank, Washington, D.C.
- Krause, Mattias (2009), *The Political Economy of Water and Sanitation*, Taylor & Francis.
- Lentini, Emilio (2010), “Regulatory accounting for drinking water and sanitation services. The experience of the Metropolitan Area of Buenos Aires”, *Circular of the Network for Cooperation in Integrated Water Resource Management for Sustainable Development in Latin America and the Caribbean*, N° 31, Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile (<http://www.cepal.org/>).
- _____ (2009a), “Regulatory accounting for drinking water and sanitation services. The experience of the Metropolitan Area of Buenos Aires”, *Circular of the Network for Cooperation in Integrated Water Resource Management for Sustainable Development in Latin America and the Caribbean*, N° 30, Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile (<http://www.cepal.org/>).
- _____ (2009b), “Regulatory accounting for drinking water and sanitation services. The experience of the Metropolitan Area of Buenos Aires”, *Circular of the Network for Cooperation in Integrated Water Resource Management for Sustainable Development in Latin America and the Caribbean*, N° 29, Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile (<http://www.cepal.org/>).
- Love, Inessa (2010), “Corporate Governance and Performance around the World: What we Know and What we Don’t”, *The World Bank Research Observer*, Volume 26, Issue 1.
- Marques, Rui Cunha (2010), *Regulation of Water and Wastewater Services: An International Comparison*, International Water Association Publishing, London.
- Marques, Rui Cunha and Sanford Berg (2011a), “Risks, Contracts and Private Sector Participation in Infrastructure”, *Journal of Construction Engineering and Management*, Volume 137, N° 11.
- _____ (2011b), “Public-Private Partnership Contracts: A Tale of Two Cities with Different Contractual Arrangements”, *Public Administration*, Volume 89, N° 4.
- _____ (2010), “Revisiting the Strengths and Limitations of Regulatory Contracts in Infrastructure Industries”, *Journal of Infrastructure Systems*, Volume 16, N° 4.
- McCraw, Thomas (1984), *Prophets of Regulation: Charles Francis Adams, Louis D. Brandeis, James M. Landis, and Alfred E. Kahn*, Harvard University Press.
- Mintzberg, Henry (1978), “Patterns in Strategy Formation”, *Management Science*, Volume 24, N° 9.
- Mugisha, Silver (2011), *Utility Benchmarking and Regulation in Developing Countries: Practical Application of Performance Monitoring and Incentives*, International Water Association Publishing, London.
- Mugisha, Silver and Sanford Berg (2008), “State-Owned Enterprises: NWSC’s Turnaround in Uganda”, *African Development Review*, Volume 20, N° 2.

- Murillo, Maria Victoria; Carlos Scartascini and Mariano Tammasi (2008), “The Political Economy of Productivity: Actors, Arenas, and Policies: A Framework of Analysis”, *Working Papers*, WP-640, Inter-American Development Bank (IADB), Washington, D.C.
- Mustafa, Mohammad (2002), *Benchmarking Regulators: Making Telecom Regulators More Effective in the Middle East*, World Bank, Washington, D.C.
- North, Douglass (1990), *Institutions, Institutional Change, and Economic Performance*, Cambridge University Press.
- OECD (Organisation for Economic Co-operation and Development) (2012), “Meeting the Water Reform Challenge”, *OECD Studies on Water*, OECD Publishing (<http://www.oecd-ilibrary.org/>).
- Ostrom, Elinor (2010), “Beyond Markets and States: Polycentric Governance of Complex Economic Systems”, *American Economic Review*, Volume 100, N° 3.
- Phillips, Charles (1993), *The regulation of public utilities. Theory and practice*, Public Utilities Reports, Inc., Arlington, Virginia.
- Pollitt, Michael and Jon Stern (2009), “Human Resource Constraints for Electricity Regulation in Developing Countries: Has Anything Changed?”, *Cambridge Working Paper in Economics*, CWPE 0914, March.
- PURC (Public Utility Research Center) (2013), *Body of Knowledge on Infrastructure Regulation*, University of Florida (<http://regulationbodyofknowledge.org/>).
- Ramió, Carlos and Miquel Salvador (2008), “Civil Service Reform in Latin America: External Referents Versus Own Capacities,” *Bulletin of Latin American Research*, Volume 27, N° 4.
- Rosenzweig, Michael; Sarah Voll and Carlos Pabon-Agudelo (2004), “Power Sector Reform: Experiences from the Road”, *The Electricity Journal*, Volume 17, Issue 9.
- Rouse, Michael (2007), *Institutional Governance and Regulation of Water Services: The Essential Elements*, International Water Association Publishing, London.
- SALGA (South African Local Government Association) (2011), *Local Regulation Guideline: How municipalities can enhance local regulation of water services* (<http://www.salga.org.za/>).
- Salinas, Jorge (2011), *Retos a futuro en el sector de acueducto y alcantarillado en Colombia*, Commission for Latin America and the Caribbean (ECLAC), LC/W.379, Santiago, Chile (<http://www.cepal.org/>).
- Savedoff, William and Pablo Spiller (eds.) (1999), *Spilled Water: Institutional Commitment in the Provision of Water Services*, Inter-American Development Bank (IADB), Washington, D.C.
- Schein, Edgar (1992), *Organizational Culture and Leadership*, The Jossey-Bass Business and Management Series.
- Solanes, Miguel (2007a), “Formulation of new regulatory frameworks for drinking water supply and sanitation services”, *Circular of the Network for Cooperation in Integrated Water Resource Management for Sustainable Development in Latin America and the Caribbean*, N° 25, Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile (<http://www.cepal.org/>).
- _____ (2007b), “Formulation of new regulatory frameworks for drinking water supply and sanitation services”, *Circular of the Network for Cooperation in Integrated Water Resource Management for Sustainable Development in Latin America and the Caribbean*, N° 26, Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile (<http://www.cepal.org/>).
- Solanes, Miguel and Andrei Jouravlev (2006), *Water governance for development and sustainability*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/L.2556-P, Santiago, Chile (<http://www.cepal.org/>).
- Trémolet, Sophie and Diane Binder (2010), “The Regulation of Water and Sanitation in DCs: Literature Review, Insights, and Areas for Research”, *À Savoir*, 01, Agence Française de Développement (AFD), Paris (<http://www.afd.fr/>).
- Vagliasindi, Maria (2008a), “Governance Arrangement for State-Owned Enterprises”, *Policy Research Working Paper*, N° 4542, World Bank, Washington, D.C.
- _____ (2008b), “The Effectiveness of Boards of Directors of State Owned Enterprises in Developing Countries”, *Policy Research Working Paper*, N° 4579, World Bank, Washington, D.C.

- Vergès, Jean-François (2013), *Relevant European and Non-European References for Water & Sanitation Services Governance & Regulation in Europe*, draft.
- _____ (2010), *Experiencias relevantes de marcos institucionales y contratos en agua potable y alcantarillado*, Economic Commission for Latin America and the Caribbean (ECLAC), LC/W.341, Santiago, Chile (<http://www.cepal.org/>).
- WICS (Water Industry Commission for Scotland) (2011a), “Regulatory accounts in the Scottish water industry”, *Information Note*, N° 11, Stirling (<http://www.watercommission.co.uk/>).
- _____ (2011b), “The role of regulatory accounts”, *Information Note*, N° 10, Stirling (<http://www.watercommission.co.uk/>).
- World Bank (2003), *World Development Report 2004: Making Services Work for Poor People*, World Bank and Oxford University Press.
- WSP (Water and Sanitation Program) (2009), *How Can Reforming African Water Utilities Tap Local Financial Markets? Insights and Recommendations from a Practitioners’ Workshop in Pretoria, South Africa, July 2007 (Revised in 2009)*, Water and Sanitation Program-Africa, World Bank, Nairobi (<http://www.wsp.org/>).
- Yepes, Guillermo (1990), *Management and Operational Practices of Municipal and Regional Water and Sewerage Companies in Latin America and the Caribbean*, INU 61, World Bank, Washington, D.C.

Annexes

Annex 1

The National Water and Sewerage Company, Uganda, case study

- **Identify trends:** The first task of a CEO is to bring to light the elements that have led the organization to its current state. Awareness of trends provides a context for addressing emerging threats, allowing decision-makers to exercise both prudence and confidence in attacking the problems identified in the data-gathering process. Such information should reveal how the organization has dealt with past financial and market conditions. In addition, the process should identify the outcomes associated with past policies; some of those policies may not have been explicit but reflected the corporate culture of the time. The key is to distil the data into a framework that facilitates pattern analysis, which later can be used to develop effective strategies for moving forward. Threats that remain hidden can lead to either extreme caution or “business as usual”, neither of which is a good way to start a transformation process.
- **Establish baselines:** This report has emphasized the fundamental role of data. The leadership team of NWSC took this point seriously as it addressed the utility’s financial drivers. Parallel to collecting “hard” data regarding past performance, the CEO tried to develop a consensus among top managers regarding the consequences of a status quo scenario. The situation was basically unsustainable. Those closest to the problems understood some of the sources of weak performance and had ideas for changing procedures and organizational structures. These professionals knew that they had a stake in turning around performance and were able to suggest strategies for improving KPIs. When their strategies were accepted and became company policy, they were willing to implement “their” suggestions—even when the changes required greater effort and changes in responsibilities. By including them in task forces, they became resources for managing change: they documented past performance and were in a position to establish targets for the future.
- **Select measurable goals:** Resource limitations have a way of constraining organizations. Top managers have limited attention spans and information-processing capabilities. So it is important to decide early on what the targets will be and how success will be measured. To some extent, those closest to the problems may not be aware of possible solutions: they may be wearing blinders that limit their sense of what is possible. We know that people cannot manage what they cannot measure. However, everything is not of equal importance, and the costs of data collection become a drain on time that should be spent on analysis. NWSC leaders knew that when organizations attempt to measure everything, the managers end up understanding very little. Consequently, NWSC formulated only a few priority indicators relating to financial improvement, operational efficiency, and staff productivity. The selection of indices reflected the performance situation at that time. Of course, measuring what matters requires consensus on priorities. Furthermore, the focus should be on what is important, not just what is easily measured.
- **Design internal incentives:** Designing incentives involves making employees responsible for outcomes, delegating authority, providing information and resources, and promoting accountability. Although the CEO had ultimate responsibility for improving performance, he could not do it alone. The challenge was to empower decision-makers throughout the organization: managers responsible for delivering high performance. Identifying an individual’s responsibilities and holding him or her accountable is the central problem facing top managers. Thus, NWSC focused on delegating authority to

those with information and designing incentives that induced managers to meet reasonable goals. However, caution was needed, since autonomy can also be used for personal gain. Without creating a climate of suspicion, managers shared information (in formal and informal settings) to determine whether managerial autonomy was being used appropriately. Historically, abuse of office was accepted since salaries in SOEs were low relative to corresponding responsibilities. NWSC adopted the following: “strategic oversight means keeping your eyes on but your hands off”. Clearly, a case by case approach to intervention was necessary. The incentives affected all stages of production: (1) input acquisition (equipment selection and transparent bidding); (2) production processes; (3) system maintenance; (4) service delivery; and (5) service quality.

- **Establish lines of communication:** Internally, NWSC developed a program design outlining clear roles and responsibilities, including bottom-up approaches to strengthen program ownership and support. These specific, measurable, achievable, realistic, and timely (SMART) targets were later strengthened through the use of “stretched” (tougher) targets (reflecting the “stretch out program”). NWSC then introduced competition for managerial responsibility through business plan preparation and expressions of interest. Although incumbent managers had information advantages, the process forced incumbents to review their current processes and personnel. Their “competitors” gained experience in preparing plans and budgets. Furthermore, some switches alerted all managers that NWSC expected its professionals to deliver innovative programs. In addition, NWSC instituted strong incentive systems and equitable gain-sharing plans to minimize employee shirking tendencies. As the organization’s leaders gained a handle on past trends and baselines across the eight to ten local water distribution companies, they were able to develop tailor-made monitoring and evaluation arrangements and benchmarking activities. The performance contract with several ministries served as the ultimate guide for decision-makers.
- **Develop and implement strategies:** Developing strategies involved borrowing ideas from many organizations and people. NWSC wanted to avoid the “not invented here” syndrome where ideas from outside the organization would face particularly steep hurdles. The staff brought numerous excellent ideas to the table—many based on their graduate training, suggestions from customers, or contacts within other organizations. NWSC evaluated every idea that came in terms of its impact on short-term objectives and long-term goals. Giving attention to all ideas gave confidence to those who generated them. It gave a sense of ownership to strategies that were eventually considered, adopted, and implemented. This participatory approach had reinforced the new corporate culture that was emerging from the organizational reforms. The new governance system was making a difference.
- **Ensure accountability:** Accountability requires that tasks be well-defined and appropriately assigned. The outcomes are anticipated, reviewed, and evaluated. Just as in privately-owned companies, NWSC managers are rewarded for taking risks and creating efficient ways to deliver quality service. Executives attempt to practice active-listening so that circumstances behind failure are heard and evaluated in a meaningful manner. If this is not done, managers of the local water distribution divisions may not take risks for fear of reprimands. Such an outcome would be counterproductive to performance improvement initiatives.
- **Review results:** A continuing theme of the turnaround initiative has been that reform is a process, not an end in itself. The objective was to improve sector performance. As the data indicate, the transformation has been successful, but every manager knows that much more needs to be done. Satisfaction with accomplishments does not imply that new goals are unnecessary. In fact, past achievements signal that the organization has great potential for expanding the efficiency frontier. For example, NWSC has created an

external services group that serves as a consulting arm of the utility—teaching best practice to managers of water utilities in other nations (Tanzania, Kenya, Zambia, Ghana, and India). However, a good teacher is also a good student, learning from well-performing elements in other operations. Furthermore, creative solutions to problems in other countries lead to better decisions in the home organization: win-win. The results for NWSC’s reform that began in 1998 are impressive (see table 1).

TABLE 1
PERFORMANCE INDICATORS FOR NWSC, 1998-2010

	1998	2010
Water supply coverage (%)	48	74
Non-revenue water (%)	60	33
Collection efficiency (%)	65	98
Metered accounts (%)	65	100
New connections per year (thousands of connections)	3	25
Total connections (thousands of connections)	51	261
Turnover (revenue) (millions of dollars)	11	65

Source: NWSC.

Annex 2

The Phnom Penh Water Supply Authority, Cambodia, case study

The case of the Phnom Penh Water Supply Authority (PPWSA) documents the dramatic performance improvements that can be achieved by SOE (see table 2) (Das and others, 2010).

TABLE 2
PERFORMANCE INDICATORS FOR PPWSA, 1993-2010

	1993	2010
Staff per 1,000 connections (employees)	20	3
Production capacity (thousand cubic meters per day)	65	330
Service coverage (%)	20	90
Supply duration (hours per day)	10	24
Supply pressure (meters)	2	25
Number of connections (thousands of connections)	27	203
Non-revenue water (%)	72	6
Collection ratio (%)	48	99
Operation ratio (operating expense/revenue) (%)	150	39

Source: PPWSA.

The KPIs speak for themselves. For example, the ability to control non-revenue water (related to leaks and to illegal connections) has improved the utility's cash flow. A collection ratio of 99% reflects citizen confidence in (and appreciation for) service quality.

- **Improved finances:** The installation of meters and a computerized billing system (with penalties for non-payment) increased the collection efficiency. Tariff were readjusted.
- **Illegal connections:** Engagement with the local community generated support for other changes. Incentives were provided for citizens who reported illegal connections. In addition, a complaint resolution system was established.
- **Staffing:** Recruitment and retention is not a matter of political connections, but is determined by performance. Merit-based hiring and promotion resulted in an organizational culture that promoted efficiency. Salaries are better than before the reform.
- **Targeted subsidies:** To reach the poorest citizens, PPWSA created a revolving fund to finance connections, with poor households receiving subsidies of 30%, 50%, 70% or 100% of connection fees. The extent of the subsidy depends on family incomes—thus recognizing the importance of targeting subsidies rather than just “keeping prices low”.
- **Private funds:** In 2012, the company sold 15% of its shares to the public—indicating that sources of external capital will enable it to expand into neighbouring communities. As General Director Ek Sonn Chan has said, “it doesn't matter whether water distribution is done by the private sector or a public agency, as long as these institutions are transparent, independent from political pressures, and accountable” (ADB, 2007).

The story is similar to NWSC in Uganda: instead of being a department of the municipality, the utility became an autonomous public utility, with separate finances and operating rules. The case demonstrates that a public sector utility is capable of achieving high performance through business practices that emphasize results (meeting targets) and incentives. Of course, additional challenges remain: expanding sewerage service and extending coverage to peri-urban areas. However, the evidence to date suggests that management is fully capable of meeting these challenges.

Annex 3

Water Industry Commission for Scotland: regulatory accounting¹⁵

Scottish Water is a publicly-owned business, which provides water and sewerage services to households and also acts as the wholesaler in the market for business customers and public bodies. It is subject to regulation by the Water Industry Commission for Scotland (WICS).

Regulatory accounts were introduced into the Scottish water industry in 2005. They are one of the key sources of information that WICS needs to regulate the industry effectively.

What are regulatory accounts?

Regulatory accounts are a series of financial reports that are designed to provide regulators with information about the performance and financial health of the companies they regulate. They are compiled according to accounting conventions stipulated by the regulator.

In contrast to the statutory financial accounts that are consistent with international accounting standards, regulatory accounts are tailored to take account of the economics of the particular regulated industry. These accounts tend to require more detailed information about costs and revenues than statutory accounts, and are completed using different accounting conventions.

Statutory accounts are subject to changes in accounting practices and standards. Such changes had an impact on year-on-year monitoring of Scottish Water's performance. In order to align reported performance with regulatory targets WICS had to make significant and complex adjustments. This reduced the transparency, and made it more difficult for stakeholders to form a reliable view of Scottish Water's performance. Regulatory accounts make it possible to collect information from Scottish Water consistently over time.

Whereas statutory accounts are generally completed using historic cost accounting, regulatory accounts also use current cost accounting. Current cost accounting is a more useful measure for regulators as it allows them to take a view of the current value of the regulated company's assets and the likely cost of replacing them.

Purposes of regulatory accounts

Regulatory accounts are designed to take into account the specific circumstances of the water industry. They serve the following main purposes:

- **Monitoring progress.** Regulatory accounts make it possible to monitor annual progress against the assumptions underlying price controls and other regulatory decisions. These cover areas such as the amount of revenue received from customers, the level of borrowing, interest payments, taxation, financial ratios, operating expenditure, depreciation, spending on capital maintenance and other capital investment.
- **Informing future regulatory decisions about price controls.** The ability of the regulator to promote cost containment at a quality that is valued by consumers depends largely on setting prices that are consistent with challenging but achievable expectations on financial performance. In setting prices, it is very useful to compare the performance achieved by regulated utilities, but robust comparisons demand consistent information, which is only possible with regulatory accounts.

¹⁵ On the basis of WICS (2011a) and (2011b).

- **Revealing potential anti-competitive behaviour.** Water utilities perform both core (the provision of water services) and non-core activities (such as specialized wastewater treatment for industrial customers). It is in the interests of “core” customers that revenue collected from them is not used to subsidise non-core activities. In order to help guard against any cross-subsidisation, regulatory accounts clearly separate the costs and revenues associated with each element of the business. Where any transactions take place between the two, they must be completed according to a transfer pricing framework that is set out in regulatory accounting rules.
- **Facilitating competition.** Scottish Water sells wholesale services to licensed suppliers who “retail” them on to non-household customers. WICS regulates wholesale charges. It uses regulatory accounts to define retail and wholesale activities in detail and to capture the costs associated with wholesale activities. This helps give players in the market confidence that wholesale charges are soundly based and cost reflective.

Regulatory accounts are not only useful for the regulator. By completing regulatory accounts, the regulated company also generates information in a format that can be used to inform its own management decisions. The transparency generated by regulatory accounts may also be useful to customers, policy makers and other stakeholders.

Regulatory accounting formats

Each year Scottish Water provides WICS with an Annual Return submission, which includes regulatory accounting tables that collect the following information:

- Historical cost income and expenditure accounts and balance sheets.
- Current cost income and expenditure accounts, balance sheets and cash flow.
- Reconciliation of historical cost balance sheet to the statutory accounts.
- Five-year rolling summaries on current cost income and expenditure accounts.
- Regulatory capital value.
- Current cost analysis of fixed assets by asset type.
- Activity based costing of the water and wastewater service.
- Analysis of revenue, interest, net debt and taxation.
- Transfer pricing—both capital expenditure and profit and loss.

Regulatory accounting rules

WICS uses the following regulatory accounting rules:

- **Introduction:** Provides a brief overview of each rule and a glossary of terms.
- **Accounting for current costs and regulatory capital values:** Sets out the requirements for current cost accounts, limitations on uses and various simplifications adopted for application in the Scottish water industry.
- **Classification of expenditure:** Classifies expenditure by purpose category.
- **The contents of regulatory accounts:** Covers the requirements for accounting information, and the rules by which regulatory accounts should be completed each financial year.
- **Analysis of operating costs and assets:** Covers the form, content and principles of the analysis of operating costs, revenues and tangible fixed assets.

- **Transfer pricing:** Provides guidance on the procedures and methodologies to be followed when completing transactions between the core and non-core activities and associate entities.

Audit of regulatory accounts

Regulatory accounts are audited externally. The auditors form an opinion based on whether Scottish Water has complied with the regulatory accounting rules. Only where these rules are silent on an accounting issue would generally accepted accounting principles apply.

The auditor considers all of the information that he or she deems necessary in order to determine that the regulatory accounts are free from material misstatement. However, they do not assess the overall adequacy of the presentation of the information in the accounts. This is because the form and content of the accounts are determined by the regulator.

Scottish Water also provides a signed declaration alongside its regulatory accounts. This declaration states whether Scottish Water has sufficient financial resources for the next 12 months. It also declares whether or not transactions and activities with associated companies were completed on an “arm’s length” basis.

Annex 4

Citizen engagement, accountability, and utility performance

The focus of WSP (2007) is on how institutionalized citizen engagement promotes better accountability, improved utility performance, and customer responsiveness/awareness of the issues in the service delivery chain. The report alludes to the five elements that characterize successful public service provision, as identified in World Bank (2003):

- **Delegation** (setting of performance standards): the customer asks for a service and defines the terms on which it should be delivered.
- **Performance**: service delivery measured against these performance standards.
- **Finance**: the customer pays for the service.
- **Information on performance**: the customer (and public policy maker) assess service quality, efficiency and coverage.
- **Enforcement**: dissatisfied customers and public policy makers penalize poorly-performing providers.

World Bank (2003) also distinguished between the “long route” to accountability and the “short route”. In the former, elected officials represent the public (voters) in holding utilities accountable. However, as we have seen, politics can introduce a number of factors that do not enhance utility performance. The “short route” is possible when citizens (current customers and those without service) have mechanisms for engaging directly with service providers. These mechanisms include procedures for formal complaints, participation in regulatory hearings, or involvement in utility advisory committees. WSP (2007) concludes that “End users are key in determining which services they find relevant, convenient, and affordable”. It should come as no surprise that institutional frameworks for governance and citizen input, programs for enhancing staff capabilities, and benchmarking are three elements that tend to appear in the various case studies.