

Water services and the private sector in developing countries

Comparative perceptions
and discussion dynamics

Under the direction of
Aymeric BLANC and Sarah BOTTON

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* Aymeric BLANC (Project Manager, AFD Water and Sanitation Division, blanca@afd.fr)
and Sarah BOTTON (Manager, Educational Projects and Public-Private Partnerships, CEFEB-AFD,
bottons@afd.fr).

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* PPIAF: Public-Private Infrastructure Advisory Facility. <http://www.ppiaf.org>

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Director of Publications:

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Robert PECCOUD

Translation :

Marinus KLUIJVER and Warren O'CONNELL



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Preamble

During the past twenty years, participation of the private sector in the field of essential services has been a topic of much discussion, allowing the expression of very different viewpoints and the multiplication of disciplinary approaches around this question. However, little work has been done on the continuum formed by the search for equilibrium between public services and the private sector, from the origin of the development of services to the latest strategic shifts occurring in such services^[1]. In fact, the debate has exceedingly focused on the reform period of structural adjustments and on the great delegating contracts of the years 1990-2000, leaving little space for cross-cutting analyses covering different periods. This situation contributed not only to polarizing an ideological pro-/anti-privatization debate that was extremely harmful to the quality of sector-based reflections, but also to “*searching for an optimal model*” that accelerated when the “*great illusion*” (Stiglitz, 2003) gradually became apparent. In both cases, these dynamics led to losing sight of the true stakes to be decoded for embracing the sector-based reality as well as possible.

On the occasion of completing five years of research by AFD teams into public-private partnerships (PPP), we considered it useful to compare the analyses bearing on various periods and geographic areas, and made by different players in this field. This made it possible to try and construct the gateways needed for understanding the complex phenomena that compose the organization of essential drinking water services in developing countries. We were also fortunate to benefit from support from PPIAF for the translation of this publication, which allowed us to build an additional bridge between French- and English-speaking sector stakeholders. Fully aware of the pitfalls of the ideological debate, and attentive to the changes in this sector made by its social and political actors, we propose here a collective work that straddles the border between academic research and strategic reflections. As Schneier-Madanes (2010) noted, “the research scientist working on water has a ‘hybrid’ status between ‘intellectual’ and ‘expert’”.

[1] We should, however, note a few exceptions: the recent collective work resulting from the reflections of the CNRS group Rés-Eau Ville (Schneier-Madanes, 2010) and the special issue of the *Tiers-Monde* magazine in 2010 on the reform of the public service networks in developing cities (Jaglin and Zérah, 2010) both have led us to collectively weigh the pros and cons of orthodox privatization, by placing them in the wider context of urban management and governance.

Obviously, this work does not pretend to be exhaustive on the subject. However, through contributions of various disciplinary origins, it aims at illustrating a certain number of evolutionary changes that we consider as determinant for the practices and lines taken by the private players in the field. The final aim is to improve the understanding of the multiple conditions for improving urban drinking water supply services in developing countries.

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General introduction

In September 2005, the AFD Research Department started a programme investigating public-private partnerships (PPP) in developing countries. The programme focused on the infrastructures of public services in the fields of water, electricity, transportation, waste and telecommunications. This research finds itself at the interface between the field experience of AFD practitioners and academic R&D work.

The departure point of this work was an analysis of the participation of private international operators in the access to basic services, based on questioning the articulation between market logic and development logic. The observation of a certain management inefficiency and the alarming financial situation of numerous public companies responsible for such services had effectively motivated the creation of reforms in the 1990s. These aimed at involving the international private sector to contribute its professionalism and its financial capabilities, for accelerating the access by all to these services. In the water sector, the Dublin conference of 1992 marked the passage to “commercialization” and “commodification” of service (Bakker, 2009), by declaring water to be a social as well as economic good. As the concept of “privatization” nevertheless carried a strongly negative emotional and ideological charge, and as the public authorities wished to retain their sovereignty in politically sensitive areas, the PPP schemes—based on a logic of common interest and sharing the risk among partners—were promising. Many concession contracts in developing countries were signed in those days by major French companies, with the illusion that the investment capacity of the private sector would, *via* the commodification of services, lead to accelerating the access of all to water. This idea was voiced again at the 1992 Earth Summit of Rio de Janeiro, with the promotion of PPP models, and then at that of Johannesburg (2002) for reaching the Millennium Objectives, and in particular 7C: “Reduce by 2015 by half the population percentage that has no access to a public drinking water or basic sanitation services”. Even though this period allowed the experimenting with provisions for extending the access to services, the first experiences resulted in numerous disillusion, such as breaches of contract, disappointing improvements in view of the set objectives, unequal distribution among beneficiaries, or a poor perception by public opinion.

Following a few resounding failures of major water concessions in Buenos Aires, La Paz, etc., we saw a reorientation of the international institutions with the reintroduction of the “local policy” principle in the water domain and the return of local public authorities as main players in the field (World Water Forum, Mexico, 2006). The donor organizations proposed a “revisited” participation of the private sector, through a growing interest in small private entrepreneurs. At the same time a paradigm shift took place, from “access to drinking water services for all” to “improved access for the greatest number”.

The AFD research programme has tried to draw up a balance sheet for the two decades of PPP in developing countries by studying the delegated management contracts through four dimensions:

- Their economic dimension: What is the optimal scheme for providing services in view of the macro-economic constraints of a country?
- Their contractual dimension: Which incentives should be planned, in particular for the poor part of the population, to be taken into account by the private sector?
- Their institutional dimension: Which regulations are necessary for ensuring the equitable sharing of the resources generated by higher productivity?
- Their participative dimension: How to ensure that civil society will accept these reforms?

It also became apparent that a socio-political analysis was needed for comprehending the reality of PPPs, as the latter are inseparable from power play, the balance of power, and practices of political or economic domination. PPPs also have an undoubted societal dimension that goes well beyond the simple question of technical and economic access to basic services, thus posing a strong question concerning the sense of public policies.

During the research and according to the earlier mentioned sectoral changes, it became apparent that new subjects merited a particular investigation for renewing and continuing the debate on PPPs, such as the question of local and informal small-scale water providers (SSWP) and that of their integration in a public policy of access to services. This research, which covered a long time span at the donor scale, thus could incorporate the evolving questions on the subject and the initially unidentified problems. The private players providing public services have diversified their actions and their role has changed over the past decades. In addition, it seems that the boundaries between private and public in some cases have blurred (semi-public companies, public enterprises managed with private sector

methods or answering calls for tender from other countries with a commercial logic, corporatization^[2], ring-fencing, etc.).

This book proposes a synthesis of several of the works carried out for the research programme, as well as a comparison with other works treating a similar problem. It combines academic contributions as well as analyses by operational actors involved in reflections on how the sector evolves. The choice of the water and sanitation sector was motivated by the particular difficulty of funding investments that show little profit, when compared to telecommunications or electricity for instance, and by the highly sensitive political question of access to this particularly essential good (water rights; conflicts related to water management). Cultural notions, such as water that is a “gift from heaven”, etc., further complicate this field.

The question we ask here is that of evolving perceptions by the development work actors (donors, research scientists, experts), of the role of the private sector in developing countries for providing public water and sanitation services. This research question is directly related to the sector-based dynamics of “searching for an optimal model of water management”, which we will continue to question as this work develops. This approach, which has long been, and sometimes still is, presented as “the only way” for resolving all technical, economic and political questions posed by the access to water for all, has been at the origin of many “transfers” and hybridizations of models, which were more or less successful according to the context.

The objective of this work is thus to retrace the dynamics of reflecting upon the role of private actors. It shows the great diversity of situations as well as the viewpoint of the actors concerning the contributions of – and the problems created by – these interventions, analysing the consequences for public action. It also tries to show the different steps describing such dynamics; these evolved from economic and financial preoccupations to social and political problems, and from an initial focus on great urban centres to a questioning that integrates semi-urban and peri-urban contexts.

[2] Grouping of activities in a structure with a certain degree of autonomy.

Part 1 draws up an inventory of major PPP contracts with international operators. For this, we not only review the historical conditions under which the present-day models came to be, but also the economic, financial and institutional risks, the changes in contract types, and their performance.

The operators in the water domain of developed countries, either profiting from periods of high profitability or constrained by the saturation of their domestic markets, have developed an internationalization strategy that led to their positioning on the markets of developing countries. In 2001, five major operators shared 80% of the PPP contracts signed in the water sector of developing countries: 36% for Suez, 15% for Saur, 12% for Veolia, 11% for Aguas de Barcelona and 6% for Thames Water (Marin, 2009). These contracts represented over 100 million users in 2001, against barely 10 million in 1991. The number of PPP contracts signed each year in the water sector has continuously increased since 1990, until exceeding the number of 40 contracts in 2001. The first PPP “wave” ^[3] thus took place in 1990s. It was associated with the structural adjustment that took place in those years, to reduced State intervention in economic activities, and to the conditions of official development aid (ODA) that favoured a liberalization reform of these sectors and the “privatization” of services.

For all that, the literature on PPPs, which mostly started in the 1990s, might lead to believing that all water services were public before that date, whereas the history of private water operators is quite a lot older.

The first chapter, written by *Bertrand Dardenne*, reminds us that private companies, which during the 18th century had largely contributed to the construction of water networks in Europe and North America, in the 19th and early 20th centuries signed many PPP contracts in Latin America, around the Mediterranean Sea, in Asia and even in Sub-Saharan Africa. The water services thus created were, however, restricted to the elite; the later appearance of the “public service” idea was almost invariably accompanied by the nationalization of these services, the private operators earlier having practised steep rates and insufficient investments, typical of a monopoly situation. This phenomenon was further strengthened by the will of newly independent countries to construct a national identity around the management of their public services, being opposed to the involvement of foreign companies. The debate during the 1990s on the participation of private operators in developing countries, therefore, is but a reformulation, in different terms, of a question that had already been posed a century earlier.

[3] As we will see further on, a second PPP “wave”, in which the private sector assumed a less important part of the risks, has developed since about the year 2000.

This historical overview also highlights the specifics of the French situation. In fact, at the same time that the water services were nationalized in most developed countries, France highly benefited from the experience of its private operators, who assisted municipalities that often could not finance the investments needed for a general access to water. A “French model” was therefore exported by the three major operators that, during the 1990s, shared most PPP contracts.

Christelle Pezon and Lise Breuil further discuss this French experience, showing that the model of a concession and regulation *via* a maximum price – adopted in France in the 19th century for creating a free collective service and a fee-based domestic service – in reality has not succeeded in generalizing the access to water. As the private funding of investments supposes a recovery of the costs *via* tariffs, the service provided by the concessionaires remained limited to an elite and the municipalities progressively changed the contracts to lease/*affermage* contracts in which the investments were financed by taxes. A century later, however, this fundamental change was not considered in Buenos Aires (among others) where, notwithstanding a different situation, the funding by tariffs of a massive extension of the networks has found itself in the same impasse.

On the contrary, the success of the lease contract (*affermage*) model in French municipalities, including rural ones, seems to inspire promising adaptations, especially in West Africa, where recent decentralization laws are commonly accompanied by an objective of delegating water services to professionals. Up to now, such lease contracts only were successfully experimented in urban settings, as in Cote d’Ivoire since 1960 and more recently in Senegal and Niger. *Vianney Dupont* has dedicated a chapter to analysing the lease-contract case in Niger, set up in 2001. This institutional management mode was adopted as it transfers moderate risk to the private operator. It also limits the investment costs for the user by letting them be borne by donors, future users (by prolonging the repayment period) and the State that guarantees the loans. Though keeping the rates relatively low, the reform has led to a clear increase in the number of connections, in the volume of water produced, and in the technical and commercial yield, even though the connection cost has remained relatively modest because of strong urban growth.

This trend toward contracts in which the investments are less and less ensured by the private operators is confirmed by *Philippe Marin* in a chapter that evaluates fifteen years of PPP in the water sector of developing countries, analysing the performance of over 65 PPP contracts. Though the number of signed contracts has diminished slightly in the 2000s, the population served by private operators is continuously growing, with almost 170 million people in 2008. The retreat of the major international operators

from certain markets has been compensated by the entry of new regional operators from transition countries. In terms of performance, about 24 million new connections were made as part of PPPs, and lease contracts in general worked better than the concessions that often suffered from a lack of investment. Water rationing has decreased thanks to PPPs and operational efficiency has increased. Tariffs as a whole often increased, but the interpretation of this effect is complex, as the investments made in this sector have to be considered as well. This mass of data hides a great diversity of situations, among which one finds as many successes as failures. The analysis reveals in particular that the contribution of private funding was not the correct justification for using PPPs: the experiences were most homogeneous in efficiency gains, which requires looking for other funding modes (equalization with other services such as electricity or telephone, investors, etc.). In addition, to avoid that the poor lose out in the reforms, PPPs must integrate the cost of social objectives in their design. Even in the case of anticipated breach, PPPs have indirectly forced authorities to formulate a coherent sectoral policy associated with the necessary objectives and means.

Part 2 discusses in more depth the socio-political and cultural risks related to PPPs, as well as the manner in which the models originating in developed countries were – or were not – successfully adapted to developing countries, with their different settings and institutional, socio-economic and political environments. We analyse how and why the “transplant has taken”^[4] in some cases and why in others there was an “auto-immune” reaction. We also discuss how a PPP can reveal local political dynamics, or be the subject of political hijacking.

As we saw in Part 1, players in the water field consider the PPP established in Senegal in the mid-1990s as a success. This contract was inspired by French experience as well as, in a certain way, by the 1960s experience in Cote d’Ivoire of the operator Saur. The choice of the lease/affermage model seems to be pertinent in view of the economics of the Senegalese water sector. *Sophie Trémolet*, however, shows us that, if the graft has taken, it was also because this model was particularly suitable for the local context, both during the period when the reform project was designed and during the contract period. A stable reform steering committee allowed the contract to evolve when problems arose, combining several key persons from the Senegalese authorities, the operator and the donors, all having the same training and over time having built up mutual trust. A form of negotiation based on consensus and conciliation was established, when necessary calling upon outside experts, in the image of the

[4] To adopt Franceys’ (2008) metaphor.

widespread West African tradition of open dialogue and the assistance from “wise men”. Finally, a strong political will has carried the reform through the highest levels of government, and the donors durably invested in its accompaniment.

However, those in the know often present the PPP started in Mali– at the same time as in Senegal and again involving Saur– as a complete failure. In this case, the *Énergie du Mali* (EDM) company was responsible for the distribution of both water and energy^[5]. This particular situation in theory could create an economy of scale and equalization between the two sectors, the electricity sector being considered more profitable. *Béatrice Hibou, Olivier Vallée and Aymeric Blanc* discuss this experience over a period of ten years that saw two successive contracts between EDM and private operators, until public management was reinstalled in 2005.

Even though donor organizations thoroughly studied the deficiencies of the legal framework (in particular any confusion in defining the role of the regulator), errors in contract wording or the unsuitability of the chosen partnership models, an analysis of the socio-political logic and dynamics of this experience opens the way to other interpretations than that of failure. Despite friction, misunderstandings and conflicts between the main partners, the observed evolution has allowed rephrasing the questions concerning the supply of essential services, such as water and electricity. This led to adding new preoccupations – in terms of access to public services – to the initial, essentially financial, motivations of the reform. The sacking of the private partner also revealed the diverse positions on the EDM question within Malian society and helped change the viewpoints of the different players in terms of their position, strategy, alliances and interests. Though the PPP has finally acted as a catalyst in the sense of greater demands from public service, the misunderstandings and opposition, and the strength of social networks (as opposed to maintaining a viable coalition between the different actors) could not prevent the departure of Saur.

Pierre-Louis Mayaux compares two experiences of service delegation in Latin America and goes deeper into this analysis of PPPs in terms of political coalitions. He underlines the decisive importance of the capability of the actors to construct and maintain alliances for overcoming periods of uncertainty and the implacably voluntary character of the cooperation. Moreover, as with all coalitions, PPPs mobilize relatively ambiguous action principles that cater to different interests, and a search for “the” best contractual rule cannot replace a variable combination of cooperative strategies, unilateral actions and confrontations. Cooperation favours the institutionalization of

[5] This is a common situation in West Africa, where other PPPs with mixed water and electricity companies gave both positive (Cape Verde and Gabon) and negative (The Gambia and Chad) results.

partnerships through the sharing of resources (serving as a signal of credible engagement for the other partner), but also through taking a regular line that reaffirms the principles of common action. Cognitive analysis thus stresses the importance of the role of ideas in PPPs, which also illustrates the need for defusing the formation of adverse coalitions through a communications line that legitimizes the partnership. The consolidation of alliances then calls for an advanced hybridization of public and private logic^[6], even if this might increase the traditional dilemmas of PPPs concerning operator margins, financial transparency and, ultimately, the quality of local democracy.

Sarah Botton, Alexandre Brailowsky and Pierre-Louis Mayaux also describe this ambiguity of partnerships and cooperation modes in their comparative analysis of the Buenos Aires and La Paz-El Alto concessions. Though presented as two relatively comparable illustrations of “PPP failures” (the same operator [Suez], almost identical initial contract conditions, and the decision of re-nationalizing the services within similar timescales), the Argentine and Bolivian cases are in fact quite different because of the different political ambitions and levels of each context. This comparison thus shows the absolute necessity of carrying out a socio-political analysis of the situations so as not to confine the interpretation of PPP results to just the technical and commercial performance of the operator, which in any case were positive and not failures. They also discuss the contradictions of PPP ambitions in both conurbations as well as the progressive deconstruction of the “model” they were meant to represent, i.e. a “showcase” for the Suez Group in Buenos Aires and a “pro-poor concession” in the case of La Paz-El Alto. In addition, the chapter gives the floor to one of the key players in the sector-based adventure, by inviting the Suez-Environment Group to present its own analysis of the end of its Latin American concessions and of the planned strategic repositioning for the next period.

The “immune rejections” of some PPPs in developing countries can thus be explained by misunderstandings created by ambiguous institutional plans, by asymmetric information and competences between the contractual partners, and especially by power conflicts between the different actors, including among the authorities of the country where the reform should take place. The encountered difficulties can also be caused by a lack of considering cultural differences. The importance of cultural aspects in the success of PPPs shows how culture and development are linked, the subject of debates that are commonly marked by quarrels between “culturalists” and “anti-culturalists”, whereby the word “culture” has, without doubt, been over-used, over-interpreted, politically instrumentalized and associated with a fixed social rank.

[6] See the chapters on mixed public-private companies in Part 3, hereafter.

Anthropological and sociological studies, however, provide much material on the representations, codes and practices shared by social groups that seem to play a role in the development process^[7]. We therefore should not oppose cultural traditions against progress and modern universal values, as “tradition” in reality is an “invented subject” (Warnier, 2008) that will be reformulated in terms of specific historical settings.

Culture, in the words of Philippe d'Iribarne (2003), is “what gives a sense” to human life and which is incarnated in their manner of interaction with each other. His work on successful enterprises shows that ideas like cooperation or confidence are rooted in the “specific visions of society and mankind of each society” and that it is possible to construct, within the operations of each company, specific forms of social order that, though compatible with local culture, are favourable to performance. *Hela Yousfi* suggests this approach in a chapter that, based on an analysis of the life of a delegated management contract in Lebanon, illustrates the operational difficulties of a PPP contract related to cultural specifics. Obviously, this interpretation cannot cover the multiple dimensions of analysis exhaustively, and a complete understanding of the case as presented requires the particular consideration of the form of statehood of Lebanon, of the superposition of legal texts since the Ottoman Empire, or of the political dimension of this type of contract. Such a cultural illumination contributes, however, to widening the knowledge base of both donors and companies in order to adapt their operational practices to the variety of possible cultural settings, so that the PPPs set up in developing countries will be less shaped by the world view of developed countries.

Finally, another way of integrating the local cultural dimension from the start is to resort to PPPs with national operators, a solution that offers multiple advantages, such as the absence of exchange risks. The development of the local private sector is, however, too weak in many developing countries to satisfy the professional criteria of PPP calls for tenders. The adaptation of the latter and the creation of consortia combining experienced international operators and national enterprises might thus encourage the progressive development of modern operators in developing countries. In the transition countries, such local actors have already appeared in a spectacular manner during the last decade; almost inexistent in 2000, in 2008 they represented almost 40% of the PPP market in developing countries according to the number of inhabitants served. They are particularly active in the Philippines, Colombia and Brazil^[8].

[7] This role was illustrated during the conference organized in Paris in December 2007 by the AFD Research Department and the European Development Network (EUDN): *Culture et développement : la culture fait-elle la différence* (cf. *Afrique Contemporaine* 2008, N° 226).

[8] See the chapters by Philippe Marin and Pierre-Louis Mayaux.

The chapter by *Carmen Arévalo*, concluding Part 2, retraces the formation of one of these operators in Colombia thanks to a government assistance programme for small and medium enterprises in the water sector. It analyses the performances of the operator in eight small towns of Antioquia Province and discusses the comparative advantages compared to foreign private enterprises, but also compared to public Colombian water companies.

Finally, we see a growing interest among development actors for configurations initially judged as “unorthodox”, but which today are seen in a pragmatic light. **Part 3** enlarges the discussion to other types of private actor or other intervention methods of the private sector than those envisaged in the classic PPPs discussed in the first two parts. The private sector can effectively act in a much larger and more diversified manner than through the mere role of a multinational service agent, and we ponder the ways of constituting renewed partnerships that integrate this diversity and cultural mix. In addition, private actors – whose role was seen as limited in the major urban centres – are increasingly integrated in the planning process on how to provide access to water in semi-urban settings.

We saw earlier that the political coalitions needed for setting up PPPs in order to create true cooperation invite the reconsideration of the boundary between public and private partners. The orthodox principles of regulating the delegation of service recommend, however, a clear separation between the authority in charge of control and the service agent, in order to avoid a conflict of interest. However, the example of semi-public companies or of operating joint ventures, curiously enough absent from the literature on PPPs, seems to run counter to these principles: in this model, the service is delegated to a company whose capital is shared between the operator and the delegating authority itself. The chapter by *Vivian Castro and Jan Jannssens* analyses this hybrid form of partnership that has known a certain measure of success in Spain and Latin America, and tries to compare it with other types of PPP, especially in terms of risk sharing, the financing of investments and the stakes of regulation.

This reflection on semi-public companies continues with a chapter on China, in which *Dominique Lorrain* looks at the progressive opening of the country to the participation by private operators. This opening has taken several forms and China’s choice in the early 2000s was to opt for help from foreign firms to improve the technical system of its water distribution, by opening to them half of the capital of several municipal water companies. This essentially pragmatic approach, based on various European models of urban governance, redefines the relations between partners, the equilibrium of the contract, the access to information, and the weighing of the

interests considered by the semi-public company. It is also meant to be an evolving model through the transfer of competence to the water companies, the outcome of which is still uncertain.

Finally, in a chapter on Colombia, *Aymeric Blanc* and *Diego Zamuner* describe cases from the towns of Barranquilla and Cartagena. These tested the ability of the semi-public company model to provide answers to several classic PPP problems – such as asymmetric information or breach of contract before its expiration – thanks to an alignment of interests of the parties by associating them in the same company. The two semi-public companies studied, created as pragmatic responses to a deep crisis among the public companies responsible for water and sanitation in the 1990s, seem to show strong resilience to a difficult economic and political context, and the service provided was greatly improved. Nevertheless, the remuneration of the private operators in both cases seems to be too high in view of the risk level transferred to them, in part because of a national regulation that does not yet play an effective role. The semi-public companies, like the other PPPs, must depend upon a well-functioning regulation that equitably considers interests of authorities, operators and users.

Another relatively recent question concerning PPPs is that of the role of informal and local small-scale water providers (SSWP). Often seen as illegal and considered as too small and not professional enough for offering a competitive quality service, these unconventional actors have long been perceived as incapable of finding their place in a reasoned scheme of water supply. *Jérémie Cavé* and *Aymeric Blanc* review the international literature on these SSWPs that, when the official public service is deficient, can draw some legitimacy from their social usefulness. A particular SSWP category of growing interest is that of the independent operators who invest in the construction of mini networks for domestic water distribution. Their – still limited – consideration by public policy makers raises questions concerning their recognition, formalization and regulation, in order to organize a territorial complementarity of networks.

In some cases, this complementarity took the shape of an institutionalized agreement, as is illustrated by *Sarah Botton* in the chapter on the case of Hô-Chi-Minh City, where public authorities and donors very rapidly accompanied the spontaneous appearance of SSWPs exploiting mini water distribution networks. The result was an original regulation setup via a contract between the main operator and the SSWPs, framing the role of the latter that can take several shapes, such as assistance to water production, distribution in areas not served by the main operator, rehabilitation of the network, etc. Even though this experience was progressively abandoned and

today only concerns a small number of SSWPs, it provides the researcher with a wealth of information on the construction of public policy processes as, in this case, political thinking wanted to anticipate the development of informal operators.

In most developing countries, however, public water policy follows the opposite path and is based on a multi-actor public action. This is shown by *Aymeric Blanc* in the chapter on the SSWPs of Maputo, long ignored by the public authorities. Having appeared spontaneously in reaction to the deficiencies of the public service provided by the main operator and proposing a “low cost” offer, they developed in a spectacular manner. The alternative model they propose questions the optimal size of water operators, the sustainability of pumping from the phreatic aquifer, and the quality of the water provided. Still, the thinking on SSWP regulation by the Maputo authorities grew only progressively, accompanied by the evolution of ideas championed by the development community on this subject during international water conferences, and thanks to windows of political opportunity. Assisted by donors, an ongoing experimental project aimed at developing the access to water in outlying districts of the capital by using SSWPs, invites more thinking on the ways of accompanying informal actors and their inclusion in a multi-actor public action in a suburban setting.

Finally, the SSWPs seem to be able to play an important role in semi-urban settings, or large towns of several thousand inhabitants that present certain rural characteristics, but also see a start of urbanization. Such towns are often very much behind in terms of access to water when compared to major cities, and classic PPPs do not seem suitable in this setting. In the chapter on SSWPs in Cambodia, *Frédéric Naulet* stresses their dynamism over the past three decades in a context of strong development of private initiative and he analyses one of the first programmes for assisting such actors launched in 2000 by a development NGO, the Gret. The project aims at setting up a framework for negotiated action between the SSWPs and the public authorities, by defining the technical-economic standards suitable for small water networks and by introducing flexible contract-writing methods and financing mechanisms. The outcome of this approach seems promising: a professionalization process was started in order to progress from an informal trade service to a “public service” of general interest, and this institutional compromise has withstood the test of time. Nevertheless, the means for technical and financial assistance could be improved and a certain imbalance of power exists to the profit of the entrepreneurs rather than to that the public authorities or the poorly organized users. Finally, suitable regulation tools for this type of actors remain elusive, in particular for ensuring efficient monitoring and control of the services and thus accompanying the institutional transition of the SSWPs.

Our review of the types of private intervention in the water sector of developing countries over the past twenty years shows the increasing importance of medium-size towns, suburban areas, and even more-or-less developed market towns in semi-urban areas, where the intervention of private actors initially seemed unthinkable. In this respect, the situation of small rural centres seems to be even less attractive for a private operator; in such settings, water supply traditionally was autonomous (free use of wells) or centralized through public investments (often through funding organizations) in boreholes and networks of standpipes.

Nevertheless in rare cases operators from developed countries have sought to find an economic model allowing them to share in the exploitation of water networks in rural areas, though most of them considered this impossible. In the last chapter, *Christophe Leger and Janique Etienne* describe the recent experience of a French operator, Vergnet Hydro, in Burkina Faso, who through its local subsidiary holds leases for seven drinking water supply systems in rural areas. The assessment of the first six months of operation shows the advantage for the operator of mutualizing the exploitation of several centres and of placing itself as both equipment constructor and operator by seeking to minimize recurrent costs. Still, the continuity of this type of setup remains to be demonstrated and the consumed water volumes are still too small, in particular because of competition from traditional hand-pump systems.

This last chapter also evokes the appearance, in the 1990s, of a community-managed model, training water-user associations in a context of decentralization and transfer of competence in new communities of Sub-Saharan Africa. This model has shown new needs for regulation: avoid misappropriation by the political and economic elites and, especially, assist any structures encountering technical and financial problems for maintaining their installations and equipment. Original mechanisms have thus been set up in West Africa, such as the creation of local consulting cells that have led to improving water exploitation and ensuring the durability of investments, at the same time collecting data and exercising control for the central authorities. These consulting cells, initially created by the ministries of water, were progressively privatized. A new type of private actor has thus entered the rural scene, playing an intermediate role between consultant and controlling agent. As consultant, he provides the associations with expertise in bookkeeping and technical exploitation (he is paid from the water rates in a geographic area combining several centres), and as controlling agent he monitors the system for the various regulating authorities in the region^[9]. We should finally mention that in Mali and Benin, for instance, the municipalities must delegate

[9] This can be compared with regulation functions of major contracts that have been outsourced to private/independent experts and consultants (cf. Trémolet and Binder, 2010).

water management to user associations or to new SSWPs, whereby the latter can also be assisted by private support/advice cells. In this case, we see the coexistence of several types of local private actors playing complementary roles on the same scene.

From these various viewpoints, it has become clear that the field of intervention by private actors in the public water services of developing countries has grown considerably. In addition, the ideological positions generated by the first PPPs have given way to a more open and pragmatic debate, and for experiments that are more original, using private initiative for handling tasks as diverse as management, consulting, auditing, maintenance, sub-contracting, joint investment with local authorities, etc. The opposition between private actors and public authorities is not always as direct as was feared, the boundaries between the roles of either side turn out to be less clear and more complex, and we see a great variety of institutional “arrangements” that fall more in a continuum than in a series of antagonistic “models”. New experiments are being attempted at small territorial scales, such as rural towns and even villages, even if they still remain limited because of their still uncertain profitability.

Our choice of entering the debate through the different roles of the private sector and through the viewpoints of players in the field, aimed at illuminating several questions that go beyond the debate between PPPs and public management, but which obviously do not cover the entire field of research on public water services in developing countries. Nevertheless, these issues have led us to the rephrasing of inescapable questions concerning the research on urban services. It was seen that the sudden appearance on the scene of private actors often served as a catalyst – and even a pretext – for new queries into the definition of “public service” or “general interest”. More questions arose on its territorial insertion (with in particular the question of solidarity between users and that of socio-spatial justice), on measuring its performance, on the transparency and participation of users, and on the types of governance or the regulation of the service. Our work thus falls within the vast field of research on the relationship between water services and society. It acts as an invitation to continue research into the many questions that here were just touched upon, such as a return to the municipalization of services after PPP breaches, the modernization and professionalization of public water companies, public/public partnerships, social movements and constituting a right to water, etc.

Even though several experiences presented here mention companies responsible for both water and sanitation, especially in Latin America, most contributions concentrate on water supply. This leaves open a more specific field of research into sanitation now that most funding organizations have reoriented their strategy toward catching up with the sanitation sub-sector in developing countries compared to that of water.

The importance of the necessary investments for sanitation and the perception that users have of this service (in particular their reticence to pay) inevitably modify the relationship between public and private.

We also note the little work available on the linkage between resource management and drinking water service. The last chapter dealing with rural water supply, however, reminds us that the first associations of water users were created in irrigating communities that first coordinated the use of their resource. Today, user conflicts around water resources are multiplying – especially in cities because of urban growth – and the growing environmental worries related to climate change make it even more necessary to do research into the evolution of possible roles of private actors in terms of the link between water supply and resource preservation. This is particularly true in developing countries with limited water resources and for which these two strategic stakes might be a source of regional conflict.

Finally, the highly political character of public water service was strongly reconfirmed by all contributions, in particular in Part 2 of this work. This also reconfirmed the need for including these reflections in an analysis of the social construction of public service, of the understanding of how coalitions form, of the consensus or conflicts around such services, and of comprehending the multiple conditions for improving such services in developing countries.

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Part 1

Major PPP contracts
with international operator

1.1.

Private water networks preceded the public ones

B. DARDENNE

Introduction

The participation of the private sector in the management of public water and sanitation services has been a source of intense debate since the 1980s. Though in many countries this question seems recent, brought about by the new liberal ideology that asserted itself during the Reagan-Thatcher years, PPPs in the water sector have existed since the start of constructing urban networks. The active participation of private initiative has even been the common rule in many countries, both in the “developed” world of today and in developing and transition countries.

Private initiative knew a first hour of glory before fading away. Public management of water services gradually imposed itself as part of a long process that started in the 19th century in the most advanced countries and continued in the developing world during the 20th century. This went so far that, at the dawn of the new liberal area of the 1980s, the public status of water companies seemed a universal feature, with a few exceptions such as in France^[10].

Especially after World War II, it had become established wisdom that a private exploitation could not guarantee an essential public service to citizens. This meant that, from the 1980s onward, the new trend toward “privatization” or increasing delegation of service management to private enterprise in those days was seen as an innovating or even revolutionary fact, even though it was nothing more than a return

[10] See the following chapter for this subject.

of the pendulum, relaunching a debate that had been overshadowed during several decades. In fact, the initiative, the capital and the management of such eminently “public” services as water supply and sanitation initially were private rather than public affairs.

History shows that the creation of the first urban networks in modern time historically was preceded by several decades of crystallization of a “public service” concept in the modern sense. In the most advanced countries, the first collective networks saw the light in the late 18th century (London and Paris) and, more generally, in the early 19th century. In those countries where urban development took place later, the first notable infrastructure elements date from the first half of the 20th century. In both cases, the appearance of water services preceded the organization of modern public management. In fact, the need for creating and managing collective infrastructures for the most essential services, such as water and roads, followed by electricity, railroads, etc., gave the impetus for developing the public administration of towns, cities and the State.

1.1.1. The first European water networks

During the 18th century, London and Paris were by far the largest cities in Europe ^[11] By 1700, both capitals had almost 600,000 inhabitants. During that century, the population of London grew rapidly, whereas that of Paris stagnated. London had reached a million inhabitants by 1800, whereas it is estimated that the Paris conurbation still did not exceed 650,000 people at that time. Logically, the first drinking water networks thus appeared in London, the more so as the city, partially destroyed in the Great Fire of 1666, could be redesigned and modernized ^[12].

Since 1681, when the City administration awarded Peter Morris the use of the first arch of London Bridge for the use of distributing water for a period of 500 years (!), a succession of private initiatives have succeeded one another. As early as 1721, private companies such as the Chelsea Water Company had the idea of distributing water pumped from the Thames River through pipes. The advent of the steam engine, which could lift water from the river level, as well as the ability to manufacture cast-iron pipes – fruit of the development of the first blast furnaces – were the two funda-

[11] We will not mention older examples, such as Ancient Rome, that fell into disrepair for many centuries before organized collective services were “reinvented”.

[12] What Parisians did not dare do until Haussmann, fire had done almost two centuries earlier in London. In the space of 5 days, almost 13,000 houses were reduced to ashes. The medieval town having disappeared, new urban development could be planned from the late 17th century onward (Dardenne, 2005)

mental technological turning points in the nascent history of urban networks^[13]. From 1746, the Chelsea Water Company, one of the London companies, introduced cast-iron pipes that replaced the first wooden pipes.

By 1820, six private companies were managing the drinking water networks in London. The participation in this activity of municipal services did not start until that date, and by 1860 covered about 40% of all existing networks. The English debate about whether the State should take over water services truly started in 1880s. After that, the pre-eminence of the public administration became rapidly established and by 1900 the private services did not represent more than 10% of water supply.

In Paris, the brothers Périer founded the first water company in 1777 through purely private initiative (Dardenne, 2005). As born mechanical engineers, they wanted to install the first steam engine in Paris – the famous Chaillot “fire pump” – for lifting Seine water into a network that slowly spread over the right riverbank. Having obtained a royal privilege for 15 years, the brothers created a joint stock company and inaugurated the Chaillot works in 1781. Notwithstanding a certain technical success, the *Compagnie des Eaux de Paris* suffered a crushing bankruptcy in 1788, following a stock-market scandal that greatly occupied the Parisian mind just before the French Revolution. At that point, the administration of *Eaux de Paris* (Paris Water) became public. It remained so until 1984, when two affermage contracts attributed the water distribution on the left and right Seine banks for 25 years to, respectively, the *Générale des eaux* and the *Lyonnaise des eaux*. Neither contract was renewed in 2010, as the municipal government opted to place the service under municipal control again.

After London and Paris, the creation of water distribution networks gradually extended over other European cities and the United States, where 15 of the 16 distribution systems created in the early 19th century were private (Jacobsen and Tarr, 1995).

The private initiatives underlying the first networks generally were the fruit of local capitalists. However, the companies already established in their city of origin started to have eyes for the investment and operator needs of other towns, and then other countries. This way, an international market progressively came into being.

Most of the major private operators that would play a role around 1990-2000 in the expansion into the service sectors of developing countries were founded in the 19th century. The *Compagnie générale des eaux* (now Veolia) was set up in 1853 to

[13] The chapter on small operators in Maputo shows how the industrial manufacture of flexible pipes has fostered the appearance of a new type of network.

manage the system of Lyon. The Lyonnaise des eaux et de l'éclairage (now Suez) dates from 1880. Aguas de Barcelona (Agbar) was created in 1867 by Belgian and French investors, with the aim of constructing and operating the water system of Barcelona. From 1919 onwards, Catalan shareholders dominated the company and it has kept its private status until today^[14].

Box 1 *The Aguas de Barcelona operator*

Aguas de Barcelona (Agbar) today is the main private operator of Spain, with 26% of the national market (or 62% of the 42% in the hands of private operators). In addition to the 23 municipalities of greater Barcelona, Agbar also serves about 1000 of the 8000 Spanish municipalities, or over 17 million people.

Since the 1990s, an international expansion has led the Catalan group to take market shares outside Spain and in particular in Latin America (Argentina, Brazil, Chile, Colombia, Cuba, Mexico, Uruguay), where it has managed – or still manages – the services of about 140 municipalities in seven countries, covering a total of 24 million people.

The different companies very quickly understood that demand was becoming widespread. The Générale des eaux signed its first foreign concession in Venice, in 1879. After five years of financing and constructing the works, the private exploitation of the service started in 1884. The Venetian concession was maintained until 1973, when the services finally came under municipal control.

Générale des eaux signed similar contracts in Istanbul (1882) and Oporto (1883). In Oporto, the services remained as concessions to the French company for 44 years, until their municipal takeover in 1927. The private company that operated the Lisbon water service, mostly owned by Portuguese shareholders, kept its private status until the Carnation Revolution of 1974, when the former Companhia das Águas de Lisboa became the Empresa Portuguesa de Águas Livres (EPAL).

Other private enterprises from various countries also participated in the development of a concession market at the end of the 19th century. However, as their home markets became progressively smaller over time, they have generally disappeared from the international scene. The exceptions are the French and Spanish companies that have been able to maintain and grow until today. For instance, the British company

[14] Except for a short interval during the Spanish Civil War.

Easton Andersson in 1879 obtained a concession contract for water supply to Antwerp, which was terminated in 1930.

In Finland, private industrialists signed concessions in 1865 at Tampere and in 1871 at Helsinki. At Tampere, Abegg rapidly resold in 1872 its rights to a German company (Juuti *et al.*, 2007). Similar processes took place in Sweden, where private enterprise developed water services through concessions (Linköping from 1870 on for 30 years, Sundvall after 1874).

In Valencia, Spain, the private AVSA company operates the city's water service through a concession established in 1902 for 99 years. Initially, its capital was mostly Spanish, but later the French Saur Group bought the company. After the end of the contract in 2000, a new concession was signed for 50 years, but since then AVSA has become a joint venture between the private sector and the municipality.

At the same time as this multiplication of concessions, the public service concept of water distribution was refined. At the end of the 18th century, the notion of "public service" had a different meaning from that of today, meaning that it was opposed to the idea of "private service", *i.e.* the distribution of water to private dwellings. To be able to sell the water to private consumers, the entrepreneurs had to pass *via* public roads. For this, they needed a "privilege" or "concession" from the city government. In return, they were also obliged to provide a "public service" according to more or less well defined specifications. This "public service" included the installation of hydrants for fire fighting and street cleaning, and the free or paid supply of water to standpipes and public fountains, and to certain public buildings. Often it was the fear of fires – a constant threat in towns with many wooden houses – that was the primary motivation of municipal authorities for signing the concessions.

When the access to water *via* residential connections became more common, this "private service" progressively became a public necessity, though the problems related to the monopolistic nature of this service grew worse. Certain private companies refused to invest in the connection of low-profit districts, preferring to maximize their profits on existing assets. It became quite rapidly clear that the needs of cities, especially for generalizing access to water and codifying the quality of this service, did not coincide with the strategy of private investors. This made it obvious that many concession contracts were poorly designed. Economic regulation remained in its infancy and tariff adjustments were the subject of obscure negotiations between companies and politicians.

The private systems became synonymous with monopolistic abuse of power, at the same time that water distribution through private connections was increasingly considered as an essential requirement for public health. The end of the 19th and much of the 20th centuries saw a progressive takeover in most countries – more or less consensual or more or less conflicting – of private equipment by public authorities, as was the case in most other fields of goods and services whose public interest became explicit, such as electricity or rail transportation. The dates and type of intervention vary from one country to the next, or even between cities, but the trend was general.

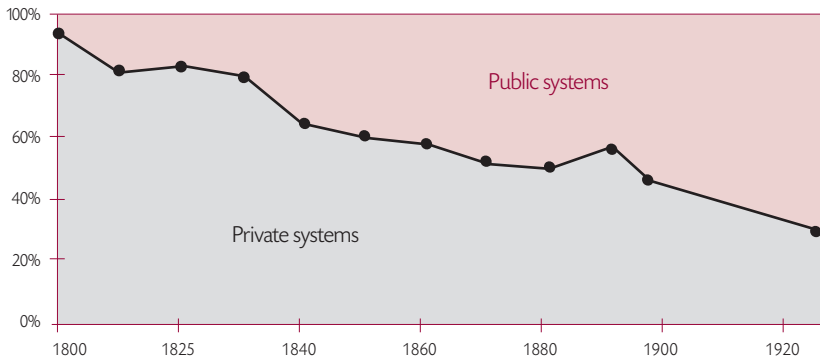
The North American evolution in the late 19th century is a good example. The expansion to the west led to the permanent creation of new towns, whose water services were typically constructed by private entrepreneurs. However, this accelerated urban growth rapidly overtook the financial capacity of the private sector. Once again and even more than the questions de public health and citizen comfort, the fear of fires was a major issue. Firefighting requires large-diameter pipes, larger than those needed for metered water distribution to paying customers. Such over-dimensioning was of no interest to private entrepreneurs, and the major American towns thus were rapidly forced to take over the private waterworks. The water service of Seattle, for instance, was taken over by the municipality after the great fire of 1889, which unfortunately showed the dramatic inefficiency of existing private networks for supporting the actions of the fire brigades.

According to Melosi (2000), the percentage of private waterworks^[15] in American towns declined continuously from 94% in 1800 to 30% in 1924. New York drinking water, for instance, was taken over by the City in 1843, and the same happened in 1848 for Boston. In 1900, only one of the eleven towns with more than 300,000 inhabitants still had a privately operated water distribution service.

[15] As the term “waterworks” indicates, the enterprises mainly focused on the construction of works and not on supplying a service.

Graph 1

Distribution of drinking water services between private and public operators in the United States, 1800-1925



Source: Melosi (2000).

A similar phenomenon occurred in Europe, where the State progressively took over many private services, even though they maintained a significant presence. In England and Wales they still served about a quarter of the population in 1979 when Margaret Thatcher, the new Prime Minister, started a deep reform of the system.

France presents a particular history. After an initial ebb, the share of the water utilities operated by the private sector was at its lowest point by the start of the 20th century, but then started growing again. In 1936, the private sector supplied about 17% of the French population, but this rose to 32% in 1954 and to over 50% by 1975 (Guerin-Schneider and Lorrain, 2004). In the early 2000s it had reached 80%, but this was probably a historic peak as the return of the city of Paris to municipal operation in 2010 significantly reduced the weight of private management in terms of population supplied.

The water sector thus presents a “French exception” in a double sense: exception of the “French model” compared to water management operations in most other countries, but also a “Water exception” compared to the other public services of the French system.

Box 2 The French exception

The birth of the French model of private management of water services is unrelated to liberal ideology. Quite on the contrary, it happened notwithstanding the Jacobin tradition of State intervention that has characterized the French public economy since 1789 until recently.

The French system springs from a municipal responsibility for water supply since the beginning, faced with repeated refusals from the State to help – especially financially – the municipalities with this increasingly heavy task. The delegation of this service “à la French” is fundamentally marked by pragmatism. For a long time deprived of access to State funds and often too small to create efficient services, French municipalities were forced to look for private initiative, with which they slowly built up a *sui generis* operating mode, that could certainly be improved but which, globally, gave relatively satisfying results.

Faced with the situation in other countries, the French exception is particularly caused by the extravagant number of municipalities (36,763 today), which is well over the 433 counties of the United Kingdom or the 278 Portuguese municípios. Notwithstanding a strong trend toward inter-municipal regrouping into Syndicats de commune, we still count over 15,000 entities responsible for water services in France (Dardenne, 2007).

The “Water exception” (and that of municipal waste processing) compared the other commercial French public services is related to the very Jacobin refusal by the national government of meddling in services that are considered as essentially local, and thus municipal. This refusal has often been repeated since 1789. The model of State capitalism that has almost constantly imprinted national government actions until recently, has thus spared the water sector, contrary to electricity that was nationalized and State operated. It is probable that the surprising fact of the Générale des eaux company escaping the last great nationalization wave launched by President Mitterrand in 1981 finds its explanation in the lack of aspiration by the State of taking over a sector that was deliberately left to the municipalities.

Whereas elsewhere nationalization seemed to be the logical response to monopolistic problems and diverging viewpoints between private interests and public needs, France – and to a lesser extent Spain – developed original schemes combining public investment and private exploitation, thanks to the use of sophisticated contractual engineering. In France, the affermage model allows a private entity to operate the service and collect the receipts from the final customers – something that a private company does best – leaving the planning control and investment decisions to the public authorities, in other words that which is essential for guaranteeing access to

all a quality public service. This is the viewpoint of those that defend this model. Spain, however, has tended toward the constitution of mixed companies, where a private operator takes a minority share in the water company and operates it under the control of the local public authorities, who remain the main shareholder. Though private companies specialized in urban water services have progressively disappeared in other countries, they have remained active in France – where they regained a market share throughout the 20th century – and in Spain, where they have succeeded in maintaining their position in a political climate that is rather the opposite of the Franco regime.

Box 3 *The Montreal example*

Barraqué (2005) mentioned the example of Montreal to justify the inevitable municipal takeover after an initial phase of private development. He shows how a private company obtained a concession for water distribution from the British Crown in 1798, before creation of the municipality. Once established, the latter started negotiations with the company that found itself in financial difficulties and provided a very limited service of poor quality. The objective of the municipality was to generalize water supply and to ensure that the distribution network was of the correct dimensions for protecting the town against fires. During a first phase (1843-1845), the municipal corporation of Montreal bought back the company shares. During a second phase (1850), an “obligation of use” was created through a legal measure forcing the citizens to connect their residence to the water service. With the growing number of subscribers that had to pay a water tax based on property tax, the local authorities could mobilize sufficient funds to build a new aqueduct and a pipe distribution network that extended to all roads of the city.

1.1.2. The first systems in developing countries

In developing countries, though a gradual transfer of water services from the first private investors to public management took place as well, it was often associated with questions of national sovereignty rather than with problems of monopolistic abuse. In fact, the companies that were responsible for the first infrastructure developments were not only private, but also in the hands of foreign capital.

In Latin America, a region that was politically independent since the early 19th century, foreign capital dominated enormous parts of the national economies a century later. The economic interests of the continent were not related to the former Spanish or

Portuguese colonizers, but rather to English, French and North American companies and banks. During the 20th century, the Latin American nations retook their economies into their own hands, first to the benefit of the local elites and then slowly toward a more democratic society. The dominant theory of the CEPAL^[16] advocates an interventionist State. Urban water, a symbolic service “par excellence”, was thus rapidly nationalized.

Uruguay is a representative sample of the process that took place in many large Latin American cities. In 1867 after a particularly dry summer, the Government decided to award a concession to create a drinking water system in Montevideo. At that time, this involved supplying water to about 9000 houses for a population of around 70,000 inhabitants. A consortium of three Uruguayan investors won the call for tenders and started construction of the network. These national capitalists rapidly resold their concession to a British company, The Montevideo Waterworks Co. Ltd. The Uruguayan government could only buy this company in 1950, as part of the debt the United Kingdom had accumulated in Uruguay during World War II. The concession expired in 1952 and the privately owned company held by the State then was transformed into a public enterprise, Obras Sanitarias del Estado (OSE), today still in charge of the urban water services of the country. The new constitution of 2004 forbids the participation of the private sector in the management of water services.

In Buenos Aires, the provincial authorities also became aware of the need to develop urban water supply and drainage following exceptional climatic conditions that caused serious epidemics in 1867 and 1871. To supply the population with clean water based on new public-health techniques, an affermage-type contract was attributed to a private company in 1887. This English company – Samuel Hale and Company and then Buenos Aires Water Supply and Drainage Company Ltd – had to finish the timidly started construction work by the public administration before managing the service. However, the serious financial crisis that shook Argentina in 1890 led to cancelling the contract in 1891. Contrary to its neighbour Montevideo, the Argentine capital did not manage to create a “partnership” with private enterprise. A “Special Commission for Salubrity Works” ensured the administration and implementation of the construction work, and it was not until 1912 that the Obras Sanitarias de la Nación (OSN) was definitely set up as a true public company. Its name “Obras” (works) and not “Servicios” (services) clearly shows its objectives, which were those of a builder rather than an

[16] CEPAL, Economic Commission for Latin America, created in 1948 as the regional arm of the United Nations Economic and Social Council. With figureheads like Raul Prebisch or Celso Furtado, CEPAL in the 1950s and 1960s had a strong influence on economic thinking in the continent, developing the theory of peripheral economies.

operator. OSN was disbanded in 1994, when the concession was attributed to a group led by Lyonnaise des eaux. The Buenos Aires concession marked the start of today's PPP phase in the water sector of developing and transition countries (Botton, 2007; Marin, 2009).

In Brazil, the first negotiations involving private companies started in 1833, when a company with Anglo-Brazilian capital bid for the water-distribution concession of Rio de Janeiro. This first affair never came to fruition.

It seems that the Companhia do Beberibe, administering the water in Recife as of 1837, was the first private enterprise that obtained the responsibility for drinking water development in a Brazilian town. Another private company, the Recife Drainage Company Limited, later obtained the responsibility for sanitation of the capital of Pernambuco in 1873. However, the local government had to take over the responsibility first for the sanitation service in 1908 and then water in 1912, faced with the pitiful performance of the concessionaires and in response to the terrible epidemics that ravaged the city.

In Rio de Janeiro, City Company operated the water utility from 1863 to 1947, whereas another private company, the Companhia Cantareira, developed the utilities of São Paulo from 1877 to 1893.

Box 4 *The example of Porto Alegre*

In Porto Alegre, the Companhia Hidráulica Porto-Alegrense was created in 1860. Holding the monopoly for private water sales from the river Arroio Dilúvio, it supplied 1082 residences in 1869, in addition to the free public service standpipes. Faced with the limitations of the first system, a second competitor, the Companhia Hidráulica Guaibense, in 1885 obtained the authorization of pumping directly from the rio Guaiba, the main stream traversing the city; in 1891 it supplied 1065 residences. Soon, popular protest arose against the insufficient quantity and poor quality of the water and, faced with the obvious incapacity of the private initiative, the city government had to assume water supply and distribution through buying Hidráulica Guaibense in 1904, and then Hidráulica Porto-Alegrense in 1926.

A similar process to that seen in Latin America took place as part of the decolonization of Africa and a large part of Asia, after World War II. To a large extent, the public-private debate on the management of water services was associated with the larger and more complex problems of the various models of colonial economy, and after that with the different decolonization processes.

In Egypt, for instance, the first initiatives took place after the visit to the Universal Exhibition of 1867 in Paris by the Khedive Ismail Pasha, who was greatly impressed by Hausmann's work. The water services concession of Cairo dates from that period and was attributed to a French engineer, Cordier, who was asked to create the *Générale des eaux du Caire*, a private company under Egyptian law. This was in the middle of the internationalization phase of the Egyptian economy. The Suez Canal was under construction and would open in 1869. Ismail Pasha called in the best European companies to modernize the country, constructing railroads, installing a telegraph network and creating a new town on the left bank of the Nile that had Paris as model and Baron Empain as main promoter. However, the bankruptcy of the State led the English and French to take over the situation, and then to occupy the country. The English became *de facto* masters of Egypt in 1882, which was formalized by protectorate status in 1914.

Until the end of the 1920s, the government avoided intervening in the incessant conflicts between the water distribution company and the Cairenes, who complained about high tariffs and abuse of monopolistic position. The law courts could not change the civil law clauses of the contract. However, the government had to abandon its neutral position in 1935, when political pressure obliged it to take sides. At that point, the *Générale des eaux du Caire* shares were considered most attractive on the Egyptian financial market. The trial of strength between the government and the capitalist interests involved was a noisy affair that ended in a new agreement, signed in 1938, and included a substantial lowering of tariffs. The State finally had a say in price fixing and the possibility of changing the operational specifications of the service as soon as the general interest justified such actions. It was not until 1956 that the Nasser government nationalized the company and placed the service under the direct responsibility of the municipal council^[17].

In Alexandria, private – British – interests dominated the water distribution company for long decades and, as in Cairo, Nasser put the company under State control during the Suez Canal crisis.

[17] See Coville (1996).

The history of urban water services in Lebanon is rather similar to the Egyptian example. The first developments of water distribution networks took place under the Ottoman Empire, which attributed concessions in several towns – including Beirut – to private entrepreneurs. The contracts were maintained during the French Protectorate, but the Lebanese government started to buy the concessions back by the late 1940s and early 1950s. The Beirut Water Authority was created in 1951, transforming the former private concessionaire into a public administration.

In China, too, the development of the first water utilities was marked by recourse to private foreign capital. The first water-supply system of Shanghai dates from March 1875, when river tankers distributed water. In 1881, English traders bought this service, adding a pumping station and a first pipe network, and resulting in a water supply company with British capital for Shanghai. From 1902 to 1937, this company did not have a monopoly. Chinese and French traders set up competing companies, while the municipality developed the utility in other parts of town. Upon the liberation of Shanghai in 1949, the city had five drinking water companies that were amalgamated by the Mao government, creating the municipal water-supply company of Shanghai that today has a production capacity of 503,000 m³ water per day (Valiron, 1996).

Box 5 *The Macao example*

The Macao water service has been under continuous private management since 1932, even though the contract signed with Suez dates from 1985. Initially, a 60-year concession was signed between the Portuguese territorial administration and the British company Macao Electricity Co., who created the Sociedade de Abastecimento de Águas de Macao (SAAM). This company had to make large investments in the infrastructure and progressively accumulated an insupportable debt level. A local private bank, which had become the main creditor, finally took over control of the company in 1982, in exchange for the debt. Company structure then further changed until the takeover of SAAM by the Sino French Holdings Limited consortium, a joint venture associating in equal parts a financial group from Hong Kong and Lyonnaise des eaux. At the same time, a new concession contract was prepared for a 25-year period, whereby the physical assets were transferred from SAAM to the territorial government.

The Macao contract, which in a sense was the pioneer of the new era of PPP development in the water sector of developing countries, thus was never the subject of a call for tenders, but was the result of direct negotiation. The concession contract is extremely simple, the English version comprising only 16 pages, but it has had the merit of functioning very well until its planned termination in 2010.

In many former French colonies and protectorates in Africa, private entities operated the water services, often subsidiaries of the groups that are now Veolia and Suez. In many places, such private structures remained in place after independence. In Morocco, for instance, Suez (Lyonnaise des eaux et de l'éclairage) has been the concessionaire of water services and electricity since 1914 in Casablanca, 1916 in Rabat and 1919 in Tangiers. In 1949, a 50-year concession was renewed by the Société marocaine de distribution d'eau, de gaz et d'électricité, a Moroccan subsidiary of Lyonnaise, which also involved the construction of an 80-km aquaduct from the Oum er R'bia (Lalhou, 1997).

Lyonnaise remained the Casablanca concessionaire for some time after independence. At that time, the Moroccan authorities were giving much thought to the future of water and electricity utilities. Two opposing political orientations existed: some wished a State centralization with an Eau du Maroc entity; others recommended structures that would be closer to the customers, with easier intervention by elected officials. Decentralization won, but incorporating the concept of autonomous municipal control over urban distribution – based on the Régie autonome des distributions (RAD) model created in 1962 in Casablanca – as well as the creation of the Office national de l'eau potable (ONEP) in 1972 for major water production and conveyance. In his discourse announcing the takeover of Casablanca water by a municipal authority, King Mohamed V explained that this did not mean a disavowal of the professional capabilities of the French company, but rather was a question of establishing coherence with the national management model implemented after independence. In fact, the Lyonnaise and its subsidiaries maintained a role of almost continuous technical assistance to the RAD during the State control period. This explains why, when King Hassan II decided in the early 1990s to return to a private concession scheme, the Moroccan government called Lyonnaise des eaux to directly negotiate a new contract, which has been under way since 1997.

In Sub-Saharan Africa, the development of water services in part of the French colonial empire was left in the hands of private enterprise until 1952. The Compagnie des eaux et électricité de l'Ouest africain was created in 1929, becoming one of most influential private enterprises of the Empire.

Box 6 *The Tananarivo example*

The distribution of electricity and water in Tananarivo (Madagascar) was initially confided to a French limited company, under the control of the Banque de Paris et des Pays-Bas. The company started works in 1906 with a 50-year privilege. A 170-m-long dam was built about 20 km from Tananarivo and a power plant was inaugurated there in 1909. Water started to be distributed from the first standpipes in 1911^[18]. The Compagnie de l'électricité et des eaux de Madagascar became the first company of the country. It mobilized large amounts of French private capital, but made no profit until 1939. The Société malgache des eaux that succeeded it was nationalized in 1972, to be incorporated in the present-day JIRAMA.

French public administration of water and electricity affairs in West Africa did not really start until 1952, with the creation of Énergie AOF, a semi-public company whose capital was shared between the French State (represented by the Caisse centrale de la France d'outre-mer) for 35%, local administrations and public establishments (including EDF) for 40% and local private companies for 25%. In practice, Energie AOF acted like a private company. It was in any case independent of the local administration and managed the services through agreements or concessions.

On the eve of independence, in 1960, Energie AOF changed its name to become the Société africaine d'électricité (SAFELEC), though keeping a similar status. As in Morocco, the private structure often remained in place for many years after independence. Only Mali decided to immediately nationalize most of the capital of the structure corresponding to its national territory after breakup of SAFELEC, thus creating Electricité du Mali (EDM) as of 1961 (Hibou, 2007).

In Upper Volta, the former name of Burkina Faso, SAFELEC stayed in place as VOLTELEC until 1970, when it was decided to separate the water and electricity activities. The new Société nationale des eaux (SNE) in charge of water production and distribution in the urban and semi-urban centres remained a semi-public company with a capital of 15 million FCFA, disposing of a management agreement with the State and operating seven centres. However, the operating logic of the company posed a fundamental problem. Through efficient management, it effectively proved that the exploitation of a water network can be profitable, but at the price of a development strategy that penalizes the most needy and distant parts of the population, favouring private

[18] In 1941, 175 standpipes and 2000 private connections existed.

connections at the cost of standpipes, and densifying the network in town centres to the detriment of extensions into outlying districts. The State thus decided to correct the orientation of its policies by creating an Office national de l'eau (ONE, then ONEA) in 1977 to replace the earlier SNE (Morel à l'Huissier, 1997).

SAFELEC was nationalized only in 1968 in Niger, and in 1975 in Mauritania. In Senegal, the new government decided in 1960 to maintain an affermage (lease) contract. Based on the contract, the Compagnie générale des eaux du Sénégal, a subsidiary of the French Générale des eaux, ensured public water distribution in towns from 1960 to 1971. Only after this eleven-year interlude did the State nationalize the utility by creating the Société nationale des eaux du Sénégal (SONEES).

Lyonnaise des eaux, equally interested in the management of utilities in Africa, had created the Compagnie africaine des services publics in 1954. This company worked more specifically in French Equatorial Africa, managing the water utilities of Congo and Gabon until independence (and even afterward). In Congo (Brazzaville), it was replaced by the Société nationale de distribution d'eau (SNDE) in 1967, after an expropriation process that gave rise to a long financial litigation between the French group and the African nation.

Cote d'Ivoire is a specific case, as a company with French capital, the Société de distribution d'eau de Cote d'Ivoire (Sodeci), has managed the water services of Abidjan continuously until today, signing a concession contract with the new national government one year after independence, in 1961^[19]. In fact, an international call for tenders had been issued a few months before independence, and President Houphouët-Boigny, a partisan of economic liberalism, confirmed the public service delegation contract upon his accession to the presidency. The French company Saur, which had won the contract, then created Sodeci, progressively opening its capital to private Ivorian partners. Sodeci progressively extended its action to all urban drinking water networks of the country, as well as to sanitation. Saur International (Bouygues Group) still holds 46% of Sodeci capital, together with private Ivorian shareholders who control about 37% of the shares. Sodeci has been listed on the Abidjan stock market since 1978.

In the former British colonies, the first private initiatives were generally replaced by public organizations before the end of the colonial era. The disappearance of a powerful water services industry at home rendered it more difficult to create private

[19] Abidjan then totalled 180,000 inhabitants, the distribution network being 180 km long with almost 4,000 customers.

water companies overseas. For that reason, the colonial administration had to operate the services, commonly because of a lack of alternatives. This was for instance the case in Mombasa (Kenya), where in 1898 it was attempted to award a licence to a private operator, but without success. However, in Nairobi, the other major city of Kenya, the Muthaiga Water Supply Company, created in 1914 to construct and operate a water supply system, maintained itself until 1923, before being taken over by the Nairobi Municipal Corporation.

The history of the Belgian Congo is quite apart. From the beginning, the colony was a private affair: the Belgian colonial adventure started under King Leopold, counter to the wish of parliament. The independent state of the Congo initially was a personal possession of the king, which officially became part of Belgium in 1908. The development of the colony remained characterized by the major role of private-law structures, such as the *Compagnie générale de Belgique*, a private company that was so strongly interwoven with national Belgian history^[20] that the classic public-private opposition becomes ill suited for understanding its true nature. For instance, the *Société de distribution d'eau de Léopoldville* water service was created in 1929 as a Congolese limited company headquartered in Brussels. However, the public authorities had to intervene rapidly, taking over the Léopoldville (today Kinshasa) service and establishing a state-owned water distribution company (*Régie*) for the colony. It thus seems that the management model for development of the Belgian colony through concessions and private initiative rapidly foundered in the water domain. The *Régie*, transformed into an autonomous public institution, after 1939 took the name *Regideso* which it still bears today.

[20] At least until the shareholders takeover by the Suez Group after the spectacular stock market battle of 1988.

Conclusions

It would be wrong to think that in the northern countries, as in developing countries, the debate on the participation of private actors in the management of water services is a new phenomenon. Private initiative has often been involved in the creation and exploitation of urban water networks before the public administration was able to do so. Nevertheless, the first generation of water service PPPs has hardly survived, barring a few well known exceptions. The hegemony of public management that then came to dominate the sector can be explained by two main factors.

First, the role of private intervention has changed. Urban drinking water effectively has two dimensions: It needs good equipment as well as good operations. The particularity of the sector lies in the fact that these two dimensions are about the same size: The cost of writing off infrastructure and the direct operation cost are roughly on the same order of magnitude, even though locally enormous disparities may exist. It cannot be said that one dimension overshadows the other, which thus would become only a sub-activity. The main problem of drinking water (and sanitation) PPPs is to clarify the expectations of the private sector: Are we looking for a financial partner who can supply the missing equipment, or for a professional who can manage the service? In the olden days, the main task was the construction of (net)works, as none existed. The *Lyonnaise des eaux et de l'éclairage* was before anything else what would now be called a "dedicated investment fund". Its name derived from the fact that this fund was managed by the *Crédit Lyonnais* bank, even though the company never ran the water service of the city of Lyon. The aim was to mobilize funds for the construction of networks. Once the first infrastructures were created, the debate progressively shifted to service management. This was when the concession model came into being.

Second, the techniques of contractual engineering have shown their limits. In many cases, the State was unable to formulate contract models that would allow avoidance of monopolistic excesses and would converge the action of private operators with public interest. The whole question of the renewed public-private debate during the past decades rests on the following point: Are we capable, today more than yesterday, of drawing up contractual frameworks that cover complementary public and private assets while controlling the contradictions of their respective interests? This is the real stake hidden behind the concept of regulation.

Finally, a historical review of the first concessions sheds light on another question, that of operator nationality. In countries without an experienced private sector that can guarantee the expected quality for an essential service, such as drinking water, resorting to the private sector means resorting to foreign companies. The liberal economists that advocated PPP development in the 1990s systematically ignored this nationality question. As far as the World Bank is concerned, the nationality of the operator is unimportant as long as they are efficient. However, this omits the fact that water is not a commodity like others, as it has an exceptional symbolic value in most social organizations. Antoine Frérot, director general of the otherwise highly pragmatic Veolia, in 2009 said: “To work in this field one has to understand the passions generated by the reflections on this service, and one has to grasp its symbolic value”. Confiding this type of highly essential service to a private operator is one thing, but confiding it to an operator from the other side of the world is quite another, independent of their technical competence ^[21].

[21] In this respect, we note that the French government, which was the first to push its multinational to go and conquer concession contracts in the four corners of the world, suddenly became very reticent when there was question of selling Saur, the third private operator in France, to a German group. Ultimately, it preferred a discreet nationalization of Saur, which was bought by the Caisse des Dépôts.

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1.2.

PPPs for drinking water services: Some lessons from the French experience for developing countries

C. PEZON and L. BREUIL

Introduction

We may remember the enthusiasm for delegated management of drinking water services in developing countries. This was in the 1990s, in a macroeconomic context marked by the return of liberal development theories, the programming of public budget reductions and, more generally, the reduction of State intervention in economic activities. Governments saw PPPs as being of immediate interest: the key to funding access. PPPs were effectively promoted by two powerful international actors: the World Bank that, in many cases, conditioned its loans to the opening of the sector to private operators, and the operators themselves, who sought international expansion. This coalition of interest thus formatted the first contracts, in Latin America and Asia, by hybridizing the French and British models. The French model has had a particular influence in developing countries. In fact, even though the market share of French operators was not more than about 50%^[23] in 2000, with a downward trend, it had been over 90% until the mid-1990s.

Still, when taking a closer look, what was promoted as the “French model”, the concession, was quite far from French market reality of the 1990s. A finer analysis of the evolution of the French PPP model would have allowed avoiding certain erring

[23] Share of the inhabitants supplied by a private operator.

ways, in particular in risk evaluation, considering the failure of the concession in its place of origin. In the 2000s, the concession was abandoned for the affermage/leasing model, especially in Sub-Saharan Africa. Such affermage contracts profited from the latest changes made in the delegation of public service in France, and represented therefore a modern and partly successful version of PPPs in the water sector.

The purpose of this chapter is to analyse the French PPP model from 1850 onward, through the changes in contracts and regulatory institutions, with the aim of identifying useful lessons for regions and municipalities in developing countries that today are tempted by the management concept. To start with, we show that the problems encountered by the concession model in the 1990s, especially in Buenos Aires, were predictable in view of the French concession experience a century before. This is followed by a review of how the urban affermage contracts signed in West Africa in the early 2000s profited from the most recent PPP improvements in France. Finally, we discuss the perspectives of transposing the affermage model from towns to rural areas (very widely programmed in West Africa), in light of the French affermage experience with rural water services.

1.2.1. Failure of the concession model for generalizing access to drinking water: comparison of the French and Argentine experiences

- *The impasse of private investment funding for generalizing drinking water access in France during the 19th century*

A tool designed for funding collective water points. The concession embodies the original French PPP model. French towns and cities in the 19th century tried to develop a “public service” of drinking water supply based on this model. At the time, this was limited to the collective distribution of water through fountains, public buildings and fire hydrants, and the concessions implied the financing mode of this service. The concessionaire committed himself to financing development of the public service and, in return for his investment, obtained the exclusive right of proposing a “private service” for residential water distribution within the municipality. Technically, the development of such private services implied either the extension of a primary water network ensuring public service and domestic connections, or the simple connection of dwellings to a primary network.

Obtaining the exclusive right for home delivery of water was thus conditioned by satisfying the needs of all, represented by the public partner, the municipality. The

latter also paid the concessionaire a subscription for collective water distribution. The “public service” was free for the users. The municipal subscription was 5% of the investments planned *ex ante* by the concessionaire for developing the public service. After about twenty years, when the total of municipal subscriptions would equal the investments made for developing the public service, the municipality could cease its subscription payments. The concessionaire had to continue supplying a free public service until expiration of his contract, for a total duration of between 60 and 99 years.

In this manner, the concession allowed a municipality to create a public water service without incurring debts and at a fixed price. This price had no margin for the concessionaire, who had to look on the “private service” side for remunerating his capital outlay. In the spirit of both partners, the “private service” was effectively designed to provide the concessionaire’s profit basis. In a certain way, the concession allowed for the creation of a solidarity between those that could pay for a “private service” subscription, the wealthy customers of the water carriers, and those that supplied themselves from the “public service”, the market of the former being of interest to entrepreneurs or private companies.

Complete contracts with little flexibility. Public and private partners very precisely defined their respective responsibilities in the concession contracts. Although for a long duration, such contracts were what economists call “complete contracts”, *i.e.* contracts that, anticipating a series of probable events, contain sufficient elements for avoiding possible conflicts of interpretation on the rights and duties of both parties. In terms of tariff regulation, the parties thus opted for what economists call a “price-cap” regulation. The prices were fixed for the contract duration, in a context marked by the absence of inflation. In terms of risk allocation, this meant that all industrial and commercial risks were borne by the private partner; if his effective investments exceeded the investments planned *ex ante* when signing the contract, and/or if his revenues from the “private utility” were less than the expected income, the concessionaire solely assumed the consequences thereof. However, if he invested less than the planned amount while obtaining the same result, and/or if the private-service subscriptions exceeded his predictions, the excess profit from the contract would be for him alone.

The first difficulties appeared after a few years. The municipalities and their concessionaires could not find common ground to modify their contracts, which were framed by rigid regulation mechanisms, and which the Council of State, the final judge, made to uphold to the letter. For the public service, the concessionaire had the right to a remuneration rate based on the investments planned in the contract,

for delivering a given quantity of water at well-defined water points that the concessionaire had to construct on municipal territory. The commitment of the concessionaire thus covered financing investments that would ensure the distribution of a limited quantity of water at contractually defined points. Therefore, when a municipality called for an increase in the quantities of water delivered and/or the construction of new water points for the public service, *i.e.* investments not planned for in the contract, the concessionaire could request an increase in the municipal subscription proportional to the additional water quantity. This invariability of the rate of remuneration ignored the existence of economies of scale: the regulator effectively considered that the production and distribution of, say, 1000 m³ of water per day presented the same unit cost as the production and distribution of another quantity. The problem was that the contractually defined quantities generally turned out to be insufficient, and that the standards expressed in litres-per-inhabitant and per day progressively increased from 20 to 200 between the 1850s and the end of the 19th century (Baudant, 1980). Even so, the Council of State remained inflexible in its interpretation of concession contracts and supported the concessionaires in their contractual rights, notwithstanding the increasing recourse of municipalities to administrative disputes.

Even worse, the municipalities failed to submit their concessionaires to an obligation of result concerning the quality of the distributed water, for both public and private services. Contractually, the concessionaire was either subject to an *obligation of means* – he had to implement the treatment processes defined in the contract – or to an *obligation of results* – the distributed water had to satisfy certain parameters, generally of a hydrometric nature. However, no contract required of a concessionaire that he commit himself to respecting changing water-quality standards. This would have introduced an uncertainty concerning the investments to be made, contrary to the “complete” character of the concession contracts. Therefore, when a municipality asked for changes in the contractual treatment processes, because either raw water quality had changed, or scientific progress had overtaken the validity of old processes, the Council of State would invariably deny the claim, arguing that the concessionaire did not have to finance investments not planned for in the contract. In that case, it was thus perfectly legal for a concessionaire to distribute water unfit for consumption.

On the private service side, the concessionaires had a total liberty of action. Contractually, a concessionaire was committed to proposing a service of domestic distribution of water defined in daily quantity and in quality. He had to record a minimum number of subscription demands (per street or district) before constructing the necessary network extensions for connecting inhabitants that were bound to keep their subs-

cription for at least three years. Technical progress caused the concessionaires to expand their service package, in particular by proposing a continuous supply of water in unlimited quantities. This type of subscription was not planned for in the concession contracts, and the concessionaires freely determined their cost. Their policy became to bill the “meter surplus”, *i.e.* the additional quantity of water consumed over that planned for in the basic subscriptions, at higher tariffs per cubic metre. To these additional takings should be added those generated by installing and renting water meters. Both subscribers and municipalities complained to the administrative courts, but the position of the Council of State remained clear and inflexible: the municipalities had no legal basis for intervening in the commercial contracts linking private service subscribers and water companies. The subscribers were free to refuse any additional services proposed by these companies; the companies could develop their service offer under the condition that their basic subscription offer as defined in their concession contract were conserved.

An unsuitable model for generalizing the domestic access to drinking water. After a half century of the concession system, the results in terms of domestic water distribution were meagre. In 1892, the 290 private services in France had 127,318 subscribers, covering cities with a total of 4.5 million inhabitants (Goubert, 1987). In Lyon, the second French city, the Compagnie générale des eaux had 16,000 customers, 30 years after the start of its concession.

In addition, the ideas of municipalities concerning their responsibilities in terms of public health had strongly evolved. Whereas in the middle 19th century they satisfied their task as “health police” by making standpipes available to the population, by the end of that century they considered that their public health mission included the generalized domestic distribution of water. This was influenced by hygienists, who were marked by Pasteur’s discoveries, and by engineers that had mastered pressurized water distribution and industrial treatment processes for rendering water potable.

As part of the concession contracts, this “private” utility was a luxury item that was not easily generalized. The concessionaires had well understood this: rather than increasing the number of private customers, which meant investments for network extension, they concentrated their efforts on increasing their profit margin on each subscriber through the promotion of additional services. The domestic water distribution market was thus quite limited, as few inhabitants could afford a network connection. In addition, as the concession was based on the integral recovery of water access costs from the customers, it went against the objective of the municipalities, who wished to generalize domestic water distribution.

The end of the concessions. As of the early 1890s, no more concession contracts were signed. Towns that had not developed their services in a concession framework massively turned to public management. They created public services proposing domestic subscriptions, but which did not recoup the investment costs from tariffs. These costs were financed from their own budget, paid for by the taxpayer.

From their side, the towns that were committed to concession contracts tried to terminate them early. Only the most important ones managed to settle the exploitation rights due to their concessionaires, as stipulated in the contractual redemption clauses. The other towns sought a compromise with their concessionaires in the form of an affermage contract, in which case the concessionaires progressively abandoned their role of investors to the benefit of the public partner. The municipalities, by assuming the financing of investments, then modified the risk allocation of the concession contract. The water companies no longer had to bear the industrial and commercial risks as the public partners now covered them, according to specific rules for public authorities exercising fiscal power. Rather than recovering the cost of domestic water connections *via* tariffs, they financed such general access to water from taxes, without the constraint of remunerating the invested capital. The concessionaires, though constantly protected by their regulator, the Council of State, only accepted such renegotiations because the execution of their contracts had reached an impasse.

The transition from concession to affermage was only completed after the macro-economic disruptions caused by World War I. Inflation appeared: the price of coal, the primary energy source, was multiplied by nine. Locked into fixed-price contracts, the concessionaires could not contain such cost increases and found themselves *de facto* bankrupt. At that point, it became in their interest to renegotiate their contracts and, in the specific case of water, that the type of regulation be completely reformed. From a legal perspective, this reworking is known as the “theory of unforeseeability”. This administrative-law concept admits that certain events can upset the economic basis of a contract and escape the control of the parties. They should therefore not suffer the consequences, but rather integrate adaptation mechanisms for such unforeseeable events into their contract. In economic terms, this meant abandoning a *price-cap regulation* in favour of a *cost-of-service regulation*.

This brief history of the first PPPs in France shows that the tandem of concession contract and price-cap regulation is incompatible with generalized access to drinking water, and that it is quite sensitive to outside shocks. Private investment financing presupposes the complete recovery of costs from the beneficiaries (including capital remuneration), which is difficult for a large part of the population within the limit

fixed by investment amortization. In addition, it is impossible to foresee all measures necessary for ensuring continuous service, and for adapting the contract to the technical, economic and social changes of its environment. The actions of the concessionaire cannot be covered by a complete contract, except through reducing its duration, which makes long-term equipment financing very difficult. The uncertainty concerning service cost evolution makes it necessary to reconsider the risk sharing between the partners. Schematically, the risks can then be borne by the public partner or by subscribers, depending upon whether the tax or tariff serves to adjust the receipts to the service costs. *De facto*, in France, as in most other developed countries, the public authorities take this risk for their account.

- *The failure of water service concessions in Latin America in the 1990s*

A different context: PPPs to face a crisis. The context of adopting PPPs in Latin America during the 1990s was very different from that in France. Faced with explosive and uncontrolled urban growth, shantytowns grew in many cities of developing countries that, according to the first UN-Habitat survey in 2003, contained 30 to 40% of the Latin American population and over 50% of that of Africa. Essential urban services, such as water and electricity supply and transportation, often were absent from such districts. The reasons for this absence were financial (high cost of extending networks), legal and political (what status should be accorded to such – often illegal – dwellings?), and organizational (how to durably manage services adapted to poor households?). According to Ménard and Shirley (2002), the context for resorting to PPPs resulted from a combination of three factors:

1. An urban sector in crisis with an intermittent offer of mediocre quality, an unfulfilled request for service and a defiance towards public management;
2. Macro-economic financial constraints (inflation, public deficits);
3. A political desire to change the equilibrium of established power.

A hybrid model putting a heavy financial burden on the operator. Under the aegis of the World Bank, the formalization of PPPs was based on a partnership model that combined the French and British experiences as perceived (or promoted) at the time. From the French delegated management model, the public service delegation contract was borrowed. This consisted in privatizing for a 30-year period the development and management of a service, whose infrastructure would return by rights to the community upon termination of the contract. From the British model of complete

service privatization, the regulation mode was borrowed; a price-cap regulation should incite the operator to be efficient. The regulatory mission was confided to a specialized national regulation agency, inspired by the OFWAT (regulatory body for England and Wales). Thus set up, a PPP avoids total privatization of the water services and is set in a contractual framework that was supposed to have proven its success in France.

The proposed concessionary model was based on private funding of the infrastructures that, together with a tariff increase (until then kept at a very low level) and increased efficiency in the service operation, should allow financing the network extension and provide access to water for all. The motivation for the transition countries for taking the "PPP route" was precisely this extension of water services and the resulting domestic connections, and not, as in French towns 150 years earlier, the creation of a collective service with free water. The aim was to extend domestic water supplies into the poorest districts, hence to do exactly what the concession models had not managed to do in 19th century France. Based on this model and with these ambitions, several concessions were signed in Latin America in the 1990s. These included Buenos Aires, the most symbolic (see Box 7), but also Santa Fe and Cordoba in Argentina, Manaus in Brazil, and La Paz - El Alto in Bolivia.

Box 7 *The Buenos Aires concession*

Very ambitious high-risk objectives related to assessment of the demand. In 1993, the Buenos Aires contract included ambitious supply objectives. They were restricted to underprivileged districts as formally recognized by the municipal authorities, representing a quarter of the population of such districts in the Argentine metropolis^[24]. In practice no specific means were planned for connecting poor households; they had to pay the same charges as everybody else. Like the others, they had to subscribe to the service if the pipes passed at less than 12 m from their dwelling. The subscription not being voluntary, the subscription revenues became foreseeable, allowing the concessionaire to commit himself to the service objectives. This ignored the fact that such compulsory connections were dimly viewed in the shantytowns. This obligation came to a sudden end: the households that had an alternative water supply source (a well directly tapping groundwater) refused the subscription and many households refused to pay their bills. The concessionaire had to stop an extension programme, as he had to conserve a certain ratio between his investments and the expected revenues.

The renegotiation, or cancellation, of the concession contracts. After four years, the Buenos Aires contract was renegotiated in 1997. The renegotiation process was directly managed by the State, outside the institutional regulatory framework planned for in the contract. It resulted in substantial modifications of the conditions for extending and financing the service. The timetable of service objectives was lengthened, and the service would be extended by means of a “universal” tax, which was added to the fixed part of the bills of the population already served, and relieved the future subscribers of paying for their connection. Finally, the State and the company agreed on the principle of a tariff revision every five years, so as to limit the risk of excessive replaced by a cost-of-service regulation. At the end of the negotiation, the risk allocation between partners had changed. All users now assumed the risks related to extending the network. Furthermore, the negotiation had stigmatized the regulator’s incapacity of proposing an institutional framework for renegotiating the contract terms. Finally, the operator could now consider the users in precarious districts apart, and try to associate them progressively in the process of deciding upon and implementing new connections.

It was at this point that the Argentine peso crisis happened. The company, with its foreign-currency debt, found itself in difficulties as its revenues were in local currency that suddenly was worth less. The tariff adjustment mechanisms planned for in the contract were not applicable to this type of crisis and the company incurred heavy losses. The failure of further negotiations between the operator and the State, in a climate of general political defiance towards foreign private operators, finally led to a breach of contract.

[24] According to the contract, the tariff should allow a rapid extension of the network, reaching within the concession area a drinking water service rate of 90% after 10 years and 100% after 30 years. The rate of connections to the sanitation network had to be 90% after 30 years.

The widely documented case of Buenos Aires^[25] is typical of the concession failures in Latin America. Most of the major concession contracts of the 1990s stumbled over the same type of difficulty. Three water service concessions out of four were renegotiated in the first years after signing the contract (Estache *et al.*, 2003). An analysis of the factors at the origin of such renegotiations shows that almost 90% of the cases had a price-cap regulation. The progressive and unavoidable phase difference between the risk level and its counterpart – the expected remuneration on the invested capital – sparked most of these concession renegotiations. Moreover, as was outlined by the World Bank (2003), institutional regulatory mechanisms were shown to be ineffective, leading to an ascendancy of political desire over contractual rationality.

Notwithstanding different economic, social and political conditions, an analysis of why the concession system in France declined at the end of the 19th century might have shown the probable unsuitability of this model for generalizing the access to water in Buenos Aires a century later. By disappearing, the concession invalidated the payment of costs by the beneficiaries as a financing mechanism for creating access to water. A mercantile character of a water service and its public service dimension are thus mutually exclusive items when creating or extending the service.

As of the year 2000, it was progressively admitted that tariffs do not permit financing infrastructure extensions, and that it is legitimate to use national or international public subsidies (OCDE, 2009). The idea of “total cost recovery” was thus replaced by the more pragmatic notion of “sustainable cost recovery”, including among the donors.

[25] Alcazar *et al.*, 2002; Botton, 2004; Botton *et al.*, 2005; Breuil, 2004; Estache, 2002; Estache *et al.*, 2003 and Schneier-Madanes, 2001.

1.2.2. The affermage success in France: Lessons for today's Sub-Saharan Africa

- *The factors for the success of the affermage model in France*

As said before, PPPs are not implemented through a concession in France. After World War II, PPPs spread through affermage schemes, first in rural and semi-urban areas, and then in the main towns after application of the decentralization laws of 1982. For 15 years, PPPs have covered about 75% of the population expressed in number of inhabitants, but only a third of the drinking water services.

Development of affermage service after 1945. Before World War II, France had about 6000 publicly-owned (*Régie*) urban water utilities and fewer than 1000 delegated services (concessions converted into affermage), and a further 29,000 municipalities had no water utility. The latter were a disparate lot, ranging from isolated rural villages to semi-urban municipalities, which bordered towns and gradually changed into suburbs that absorbed much of the demographic growth created by the rural exodus.

In 1949, 14 million inhabitants – a third of the French population – still did not have access to tap water, mainly in rural areas. Forty years were needed before the domestic drinking water supply to the rural population rose from 30 to 97% (Table 1.2.1).

Table 1 *Evolving domestic water supply of the rural population in France*

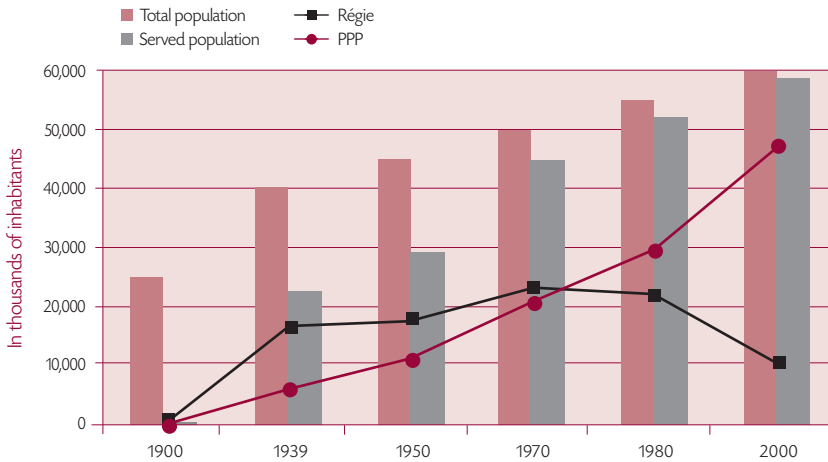
Year	1930	1940	1949	1954	1960	1966	1970	1976	1981	1985	1990
Rate of service (%)	5	25	30	37.6	47.4	65	75.2	88	94	97	98

Source: Pezon (2000).

The objective of generalized services was based on the development of affermage, first in rural areas, through the delegation of intercommunal rural services. In less than 20 years (1950-1970), the number of people served by an affermage utility doubled (Figure 1.2.2). Then, in the 1980s, when the French market was saturated, the delegation principle suddenly developed in the larger towns and cities. Still a minority in 1980 with less than 20% in towns of over 50,000 inhabitants, water utility delegation became the rule in most major towns, and gained access to 8 million inhabitants in less than 10 years.

Graph 2

PPPs and public management (Régie) for drinking water supply in France since 1900



Source: Pezon (2007).

Key factors in the affermage success for water services in France. In France, the delegation by means of affermage spread in the shadow of an administrative regulation on a national, rather than local bilateral, scale. This regulation was implemented on a provincial (*département*) level by decentralized services of the Ministry for Agriculture, in charge of the coordination of investments, and of advice to municipalities and the allocation of water resources. In addition, the Prefect of a *département*, as State representative and executive officer at this administrative level, ensured the control over water tariffs – replacing the municipalities in their theoretical regulatory role – and over the contract as primary regulation instrument.

1. The first key factor of the PPP success was based on the public, coordinated and harmonized financing of investments. The inherent uncertainty regarding costs caused by the public service status of domestic water distribution was assumed by the community. Most of the public financing came from a solidarity tax levied from the water service subscribers, in proportion to their drinking water consumption. This tax contributed to the National fund for water supply in rural areas (FNDAE), created in 1954 and managed by the Ministry for Agriculture; the latter transferred the necessary funds for equipment, as defined by its engineers, to its departmental services. Only municipalities whose investment plans complied with those of the government engineers were eligible for FNDAE financing. It was thus necessary to optimize the investments per inhabitant, and to distribute the available water

resources as well as possible, even if this meant that municipal boundaries had to be ignored through the creation of intercommunity services.

2. The second key factor for success lay in the administered price regulation through adjustment to the exploitation costs. As the risks assumed by the lessee were limited to the exploitation of installations and management of the service, the cost-of-service type regulation was applied to this range of activities. Contractually, adjusting the prices to the costs was based on a multi-criteria tariff formula indexed on the evolution of the various components of exploitation cost, *i.e.* energy, personnel and water-treatment products. With a price scale proportional to the distributed volume, increasing the turnover of the lessee means increasing the supplied water volume. Domestic water distribution became a bulk activity: As he was paid for the distributed water volume, it was in the lessee's interest to increase the number of subscribers, rather than seeking to increase the profits from a few. This was all the easier as they did not have to increase their capital. The Prefect, as State representative, administered this regulation on a provincial level. In fact, the price level resulting from the indexation clause had to be submitted each year for his approval. If application of the contract clause led to an unreasonable price increase, in particular in view of the current prices in the department, the Prefect could fix a lower price than the contract tariff. In this configuration, the communities very imperfectly assumed the usual responsibilities of public partners, regulating their services through adjusting prices to costs. Until the 1980s, the State and its decentralized services effectively exercised this control, guaranteeing a controlled evolution of water prices to the leasing communities.
3. The third key factor for success lay in a standardization of the affermage contract and in a reduced number of lessees. In 1951, a standard affermage contract was drawn up on a national level. This contract was mandatory for all communities that wished to create or develop their water service within this contractual framework. Contract follow-up and control was ensured by the Prefect's services, facilitated by a standard contract. This standardization took place in a context where only few operators had survived both the movement of municipal socialism in the early years of the century, favouring publicly owned (*Régie*) companies, and the economic slump of World War II.
4. The final key factor for success lay in the capacity of affermage to polarize the otherwise different interests of municipalities, operators and the State (Lorrain, 2008). The latter saw in the affermage contract a means for reaching two objectives: Achieve a rationalized development of hydraulic equipment in France and recover at least part of the service costs. The huge number of municipalities was an obstacle

to such rationalization, but delegation allowed getting around this problem as an oligopoly of operators could manage the services of several neighbouring municipalities without the need of them being formally grouped into a public establishment of inter-communal cooperation, thus creating a *de facto* geographic equalization. A cost-of-service regulated *affermage* also guaranteed the recovery of exploitation costs and the renewal of electromechanical equipment. From their side, the municipalities found that leasing their utilities to professionals was a simple means of avoiding the contingencies caused by the narrow base of their territory and their restricted human and technical resources. Finally, the interest for the operators lay in enlarging their market share.

Decentralization and the affermage crisis in France. In France, water utilities have always been the responsibility of municipalities. The decentralization of 1982 thus had little effect. However, it upset the way this competence was exercised. The standard *affermage* contract was invalidated and the administrative price regulation of water by the prefects was abolished. Moreover, the prices now had to allow a complete recovery of the costs for a balanced management of the utilities, regardless of their size and their management type. Still, this deregulation of the drinking water market did not last very long: as of 1988, the smaller services could again make losses. When a service served fewer than 3500 inhabitants, it was not expected that the revenues would cover exploitation and replacement costs.

Between 1992 and 1997, several laws and provisions, in particular the Sapin law of 1993, put an end to the excesses by towns and their service partners in concluding delegation contracts. Automatic rollover of contracts was forbidden, as were non-public delegation tenders. Paying an entrance fee when the delegation contract was awarded was forbidden: a municipality could no longer select an operator because of the entrance fee he was willing to pay, as if he was bidding at auction.

By formalizing the awarding of delegation contracts, the legislator created spaces for carrying out diagnoses, evaluations and planning. Tools, such as contracts with set objectives and performance indicators (Guérin-Schneider and Nakhla, 2003), were developed at a national level and then progressively integrated into the local contracts for rendering the expectations of the public partner more objective and for measuring the performance of the private partner. Organizations such as the National observatory for public water and sanitation services, created by the last law on water under the aegis of the Onema, also contributed to improving transparency in the sector.

• *What are the lessons for West Africa today?*

A new generation of PPPs for improving urban water supplies was experimented in West Africa during the 2000s. However, the main stakes for PPP development today lie in rural areas. Here, the new local authorities are invited to delegate the management of sophisticated water installations – such as mini networks – to specialized operators, in order to overcome their lack of competence.

Affermage of urban water services in West Africa. In Senegal (1996), Niger (2001), and more recently Cameroon (2007), affermage/lease experiments for urban water services were tried. In all three cases, the affermage took place between a public assets company and a private operator. The concessionary model of Cote d'Ivoire was also progressively transformed into affermage. The assets company owns all urban service assets and is in charge of investments. The lessee has the monopoly of exploiting the urban services for 10 years. He maintains and replaces some of the civil engineering and electromechanical assets according to a contractually defined programme of replacement. The operator invoices the service and collects the revenues. Tariffs are the same in all urban centres, allowing redistribution between profitable and unprofitable urban centres. It includes "pro-poor" mechanisms (Trémolet, 2006): a tariff range for guaranteeing the sustainability of connections to the poorest and a system for subsidizing connections to facilitate access to water. This contributes to the objectives of both social equity and economic equilibrium (increasing exploitation revenue). The lessee receives a fixed remuneration per cubic metre, regardless of its real tariff level, which is an incentive for supplying water to both rich and poor customers. The public assets company uses the balance of the revenues to finance new infrastructure, either from own funds or through loans. The price-fixing mechanism is of the cost-plus type^[26] and the lease price is regularly revised in terms of the input prices; it also comprises an incentives element by introducing performance indicators on leakage and bill-recovery rates. Contract regulation is not confided to an agency, the regulation function being ensured by different institutions. As this concerns price and performance regulation, a monitoring committee is created, if necessary assisted – an independent auditor monitors the contract in Cameroon –, and the financial model of the sector is supposed to act as a regulation mechanism.

Today, the affermage model in Senegal is considered a success. Without going into detail, this success is due to three major points of progress:

[26] Normally, two main types of regulation and risk sharing are distinguished: In the first, the *cost-plus* type, the private operator does not bear the risk of unit cost variations and his remuneration is indexed on the cost of several production factors. In the second, the *price cap* type, the private operator is remunerated by a ceiling price that, in principle, is valid for 3 to 5 years; he supports the cost risk but also derives profits from them in case he improves productivity.

1. *Improving operational performance*: The leakage rate fell 31% to 19% between 1996 and 2006, and staff productivity increased;
2. *Increasing the coverage rate*: Over 1.7 million people now are connected, with almost complete coverage in 2006 in urban areas, marked by a high access rate of 76% through individual connections;
3. *Financial autonomy of the sector*: After a transition period during which the State subsidized the public asset company, the latter was able to contract loans without a State guarantee based on the revenues generated by tariffs, thanks to the equalization between urban centres.

This success should be confirmed, though now in a context of greater uncertainty (continuity at the end of the contract to be ensured, major investments to be scheduled, etc.).

After a few years of operation, it is thus possible to draw the first lessons from the success of several urban PPP operations in West Africa. This success is based on:

- *Strong support from donors*, which is indispensable for supporting the reform, as the success of the private operator depends upon the capacity of the public-asset company to launch investments at the right time to increase its revenue base;
- *Regulation of the cost-plus type*, which minimizes the risk incurred by the private operator;
- *Competition through calls for tenders*, which allows selecting the operator who proposes the lowest water sales price;
- *A strong coalition of interest* between the State (guarantor of sector policy and main shareholder of the public asset company), the public asset company and the private operator, so that the sector will overall be more efficient;
- *A mechanism of solidarity financing* between urban service subscribers.

These factors for success profited from experiences and reflections on the French model, which led to greater transparency of the performance objectives and the economic equilibrium conditions of the contract.

Decentralization and affermage of rural water services. West African countries, except Senegal, decentralized their drinking water and sanitation areas of competence. Though urban municipalities turned naturally toward the historic urban operator, private or public, rural municipalities inherited a multitude of hydraulic installations for which they had neither the management skills, nor the ability of developing the

network. Village communities managed some, others were hardly or not at all maintained, and many became unserviceable. Increasingly, the equipment destined for answering water demand in rural areas consisted in simplified mini-distribution network systems, which are outside the reach of community management and young rural municipalities. In Burkina Faso and Benin, the reform programmes planned for differentiated management systems according to the level of sophistication of the service. Though handpumps could be maintained under a community regime, whether reformed or not, the management of a simplified drinking water supply system – including a reservoir and a mini-distribution network – should be delegated to professionals through an affermage or exploitation contract.

Can the lessons learned from the French experience of post-War affermage development in rural areas and, more recently, from urban experience in some countries, contribute (partial) answers to the questions posed in this context? The first question to be answered is: Should delegation be a palliative for strengthening the capacities of communal stakeholders, or should one, in parallel and at a municipal scale, develop the competence for negotiating and executing a contract?

Another question is: Which is the pertinent scale for developing the support functions for managing and delegating the service (technical, legal and administrative assistance, and social accompaniment)? And how should the intermediate levels – departments, provinces or regions – be consolidated to accompany the effective decentralization of competence in water and sanitation?

Finally, how should the access to water in rural areas be financed? What should be the billing base and thus that of solidarity? Today, the average real cost of water in rural areas is 500 FCFA/m³ and 180 FCFA/m³ in urban areas (social tariff^[27], ONEA, 2008), but cross subsidies between urban and rural users are difficult in a context where the coverage of urban water supply is not yet complete.

[27] In the “stepped rate” billing system, the “social tariff” generally corresponds to the cost of water per cubic metre for small consumption rates (typically between 6 and 10 m³/month). This cost is commonly less than the cost price, to subsidize the small consumers (through a surcharged bracket above 30 to 40 m³/month). This, however, can generate a negative skew, especially for connections shared between several families.

Conclusions

When studying PPPs in developing countries, the detour of analysing the PPP evolution of water services in France is pertinent in view of the strongly dominant position of French operators on the world market at the time such partnerships were promoted. The model was cross-bred at the contact with different local urban, social and institutional contexts, but without having considered the lessons learned from the long French experience in the PPP field.

Nevertheless, the pertinence of this experience seems verified for the first two PPP “generations” for which we have sufficient hindsight: The failure of the Latin American concessions (1993-2000) and the relative success of the urban affermage system in West Africa (1995-2010). The decentralization that has started in West Africa, accompanied by a movement for delegating water services in rural areas, seems to raise problems that remain unresolved. A better analysis of the French experience of generalizing access to water in rural municipalities might provide some initial teachings in this domain.

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1.3.

The affermage contract: A case study from Niger

V. DUPONT ^[28]

Introduction

Niger is a huge, land-locked Sahel country, with about 14.7 million inhabitants (National Statistical Institute estimate; INS, 2009). With an average annual per capita income of 262 EUR (INS, 2009), Niger is one of the poorest countries in the world; in 2009, it occupied the last place (182nd) of the UNDP IDH ranking (UNDP, 2009). With seven children per woman, two of whom do not reach the age of five, population growth – 80% rural – is high at 3.3% (INS, 2009). Notwithstanding low rainfall, from 0 mm in the Sahara to 600 mm in the Sahel, surface water and groundwater are abundant, but little used because of technical and financial constraints, especially in view of the depth to groundwater.

The coverage rate of water services is modest, though difficult to estimate. According to the adopted calculation hypotheses ^[29], it varies from 65 to 85% in urban areas, about half of which is from standpipes. It is difficult to estimate the use of wells, boreholes, or the river or backwaters, the last very common in the poorer areas, at least for non-food use or for watering cattle.

[28] This chapter is based on an assignment of the author to Niger from June to September 2009, part of an IRD research project, financed by the French Institute for Sustainable Development and International Relations (Iddri), which analysed the financing of urban drinking water and sanitation services in developing countries as well as the means for sharing the long-term general costs between actors.

[29] The first method consists in following the official criteria: 10 people per private connection and 250 per standpipe. This gives an average water consumption of 70 litres/day/person with a domestic connection, and 35 litres/day/person when using a standpipe. The second method consists in supposing that it is not the number of people using a standpipe that caps water use, but the water volume that one person can carry per day, or 20 litres/day/person.

Initially having a State-owned company (Régie) that managed drinking water supply in the main population centres, Niger started a profound reform of the urban water supply sub-sector (today 52 centres serving a population of 2.4 million inhabitants, or 16% the country's population), which in 2001 led to the creation of a tripartite affermage.

Hereafter, we discuss the reform of urban water services management in Niger and, in particular, the reasons that led the Nigerian authorities to decide upon this reform and to opt for affermage as the new institutional mode for managing their urban water services. It also presents a few key points of the contracts and their consequences on remuneration and risks for the partners. Finally, it describes the economic and financial conditions of water supply in the towns of Niger since 2001.

1.3.1. A reform to fill an investment need

Niger, a poor country, has always called upon donors for financing its investments in the water services sector, because of the incapacity of users to pay the complete cost of this service and of that of the State to subsidize or invest. At the end of the colonial period, the management of water supply in Niger was in the hands of a public company, coupled to that for electricity supply^[30]. At that time, the investment need of the sector led to a first institutional reform according to the recommendations of the World Bank. In 1987, this reform had three consequences:

- Separation of the electricity and water activities of Nigelec;
- Creation of another national public company, the Société nationale des eaux (SNE), specifically in charge of drinking water supply in the main towns of the country;
- The start of an investment programme of around 23 billion FCFA, mostly financed by donors (*Lettre de politique sectorielle*, 2001).

However, the political instability in Niger during the 1990s (see below) and the management problems of SNE (a seven-year delay in signing the contract governing its exploitation with the State, arrears of the State, etc.), put a brake on the investments by donors. The constant investments (in FCFA) of SNE decreased on average by 33% each year between 1989 and 1995 (Aquanet, 1996).

Water production suffered through lack of investment and increased on average by only 2% per year. Notwithstanding the emphasis put on urban growth, which allowed

[30] Compagnie des eaux et électricité de l'Ouest africain before independence in the 1950s, and then Société africaine d'électricité in 1961, a limited company for supplying electricity (Safelec) and, from 1968, the Société nigérienne d'électricité, Nigelec (Tidjani, 1999).

the number of SNE subscribers to rise by 6% per year on average, the coverage rate remained mostly stable and modest. At the end of the 1990s, the State thus tried to increase the investments and re-establish contact with the donors, with whom relations had been interrupted.

The donors, however, led by the World Bank, conditioned their loans and grants to the implementation of an institutional reform and recommended a certain amount of private participation for improving the efficiency of the service, even though SNE performance was far from catastrophic (Carcas, 2005), as demonstrated by a physical yield of the networks of about 80%. The State answered these recommendations by starting a reform of the sector in the late 1990s, with double objective of extending and improving the drinking water supply service, and of reaching financial autonomy without recourse to State subsidies (MH *et al.*, 2001, contract plan, article 2).

This reform also agreed with the “strengthened facility for structural adjustment”, as approved in 1996 by the IMF. This aimed at liberalizing the Niger economy in particular through a progressive disengagement of the State from a dozen public and semi-public companies (of which only a few became really autonomous) and the creation of a ministerial unit ^[31] in 1996 (Rohrbach and Gaoh, 2002; and Decree No. 96-062).

To this end, several consultations assessed the situation of SNE. This served to evaluate the capacity of users to pay, to determine and quantify the necessary investments, and finally, to set up a financial model of the sector. Opening of the sector to private participation now had been recommended by the donors and accepted by the State (Aquanet, 1996), but the option of the new institutional mode of water service management still had to be determined.

1.3.2. Adopting the affermage option for minimizing risk to the private sector

As in Senegal a year earlier, in 1996, the preference went to affermage rather than the concession model. The reasons were political (instability), demographic (strong urban growth), economic (endemic poverty), historical (no experience of public service delegation) and international (difficulties of the first PPP “wave”).

[31] In Niger, it was not a real privatization of water services, but rather a delegation of public service. However, this is the term used in Niger, hence its use here.

Niger effectively had experienced major political instability since the National Conference of 1991, which had tried to set up a democratic government in the country, after the successive reigns of presidents Diori (1960-1974) and Kountché (1974-1987). During the 1990s, the country was virtually bankrupt, due to a drop in the uranium price whose revenues covered up to two-thirds of the State budget. Other problems included: civil servants had not been paid, some for a year and a half; the administration was bloated (40,000 civil servants in 1997); certain politicians were under grave suspicions of corruption; the army was omnipresent with two coups d'État in the period; a latent Touareg rebellion smoldered in the north; and a succession of elections was often rigged. After the assassination of President Maïnassara in 1999 and the election of colonel Tandja, the country knew greater stability, but the privatization of SNE was prepared in this murky political context. The water companies that were consulted advised the donors against proposing a concession in Niger. This type of organization, even more than that of affermage, effectively required complete confidence between authorities and concessionaire over a long period – in view of the length of return on investments – for adapting the tariffs and service and coverage objectives to the local conditions (Lorrain, 2008).

The investment delays during the 1990s were aggravated by a demographic context of urban growth of over 4%/year because of a high birth rate and a strong rural exodus. This, too, pushed the authorities, advised by the donors, to choose the affermage option, in which the heavy investments are for the account of the public authorities, which normally are better able to finance such amounts.

In addition, the low revenues of most of Niger's population, especially of the new arrivals in town, risked preventing a complete recovery of the service costs by tariffs, through applying the strict principle of "water pays water". The reticence of donors to loan money at concessional rates to the private sector (responsible for investments in case of a concession), dissuaded the government from setting up a concessional regime in the country. The financial conditions of the International Finance Corporation or the European Investment Bank – commonly implicated donors in financing private-sector investments as part of a concession – were effectively less advantageous than those proposed by the International Development Association (IDA) or the French Development Association (AFD), in terms of reduced-interest loans, and repayment and grace periods. In addition, the IDA and AFD could also propose grants, unavailable from private sector investment banks. Niger, as a poor country receiving substantial aid^[32], also obtained a very favourable loan from IDA and a

[32] Even though public development aid has decreased since 2004, in 2006 it was 401 million USD, or 11% of the Gross National Income and 27 USD/inhabitant (OCDE, 2008).

grant from AFD. The conditions obtained by Niger were thus much more favourable than those that a private – even very solvent – operator could have obtained for investments for a concession in Niger. It was thus cheaper to finance the water service investments by donors *via* the State, than by users *via* a private operator.

Finally, the difficulties of large concessions in some countries during the late 1990s increased the aversion of operating companies to risks, especially financial and political^[33], and donors certainly also became more prudent during the reforms and the application of the principle of complete cost recovery by the users (Marin, 2009).

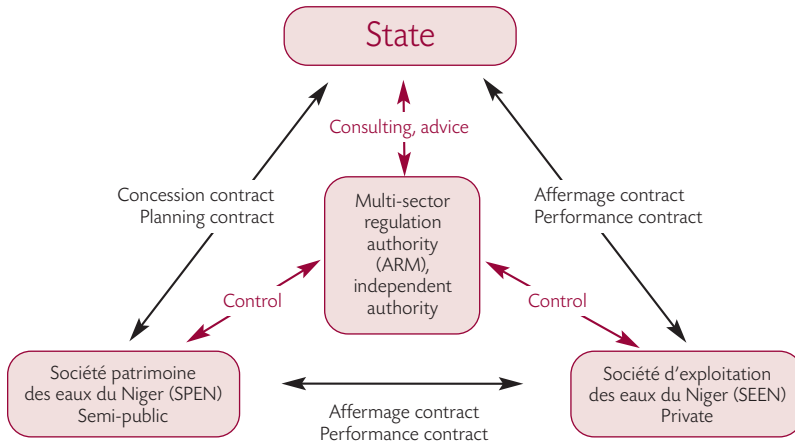
As of 1996, the State retained the option of a “hybrid” affermage, requiring the lessee to participate in the investments of the sector in addition to the exploitation (Akine and Ibrahim, 2000). Law 2000-12 of 14 August 2000 materialized this institutional reform by announcing the liquidation of SNE and the creation of an affermage around four main stakeholders with the following attributions:

- The State defines sector policy and water resource management, and draws up the legislative and regulatory framework. It also establishes tariff policy.
- The Société patrimoine des eaux du Niger (SPEN), a public asset company holding the water infrastructures, draws up and monitors the investment programmes (rehabilitation, renewal and extension) and finances the heavy structural investments (fund-raising from the donors, capital writing off, debt servicing, management of fixed assets, supervision of works). A concession contract links it with the State;
- The Société d’exploitation des eaux du Niger (SEEN), a private company, handles exploitation of the public services of producing, transporting and distribution water, infrastructure maintenance, and customer billing. Affermage contracts link it to SPEN and the State;
- The Autorité de régulation multisectorielle^[34] (ARM) oversees the application of legislative texts and regulations, protects the interests of users and operators, promotes the efficient development of the sector (in particular watching its financial equilibrium), and arbitrates any conflicts.

[33] The FCFA, even though pegged to the French Franc (and thus the euro since 2001), was devalued by half in 1994, or two years before starting the SNE privatization process. The risk of devaluation, though small, can thus not be excluded.

[34] Earlier created by Decree No. 99-044 of 26 October 1999, the ARM was not set up until March 2003 because of a certain administrative slowness and an unfavourable ranking of priorities.

Figure 1 *Institutional configuration of urban water supply in Niger since 2001*



Source: Author.

The exploitation company, SEEN, is a private-law company 51% owned by an operator selected through an international call for tenders, 34% by Nigerian private capital, 10% by its employees, and 5% by the State. This capital structure, similar to that of Senegal ^[35], allows:

- Predominance of the private operator, who supplies his expert knowledge, his competence and part of the personnel;
- Involvement of the employees, who did much to make the reform a success, to the profit of their company;
- Minority presence of the State, which controls the regularity of management;
- Participation of the country's private sector, which thus becomes responsible for the well-being of the service.

Contrary to Cote d'Ivoire, where the investments are directly managed by the Ministry for Water, Niger has a unit exclusively responsible for investments (SPEN) that was created along the Senegal model for the sake of transparency, and for monitoring investments and donors' commitments.

[35] With the difference that in Senegal private persons and employees hold, respectively, 39% and 5% of the lessee's capital (Tremolet *et al*, 2002).

SEEN and SPEN today manage the drinking water supply of 52 centres, 51 of which were under SNE's management. The 51 SNE centres were selected according to geopolitical – regional and provincial capitals even if decentralization was an unfinished process at the time – rather than demographic criteria. Some villages in rural water supply areas have more inhabitants than certain towns with urban water supply. Since the creation of the SNE, the perimeter of urban water supply has not been territorialized, but corresponds to a list of centres whose – undefined – boundaries increase with the urban growth.

1.3.3. Remuneration of the lessee depends upon his performance

Affermage and concession contracts govern the activities of SEEN and SPEN, respectively. In addition, they calculate (1) the remuneration of the lessee and that of the State and (2) the shares of the investments to be made by both operators, and (3) assign the cost risks the operators have to assume.

Remuneration of the State depends as follows upon the volume of water produced and the difference between the average weighted tariff and the operator's price:

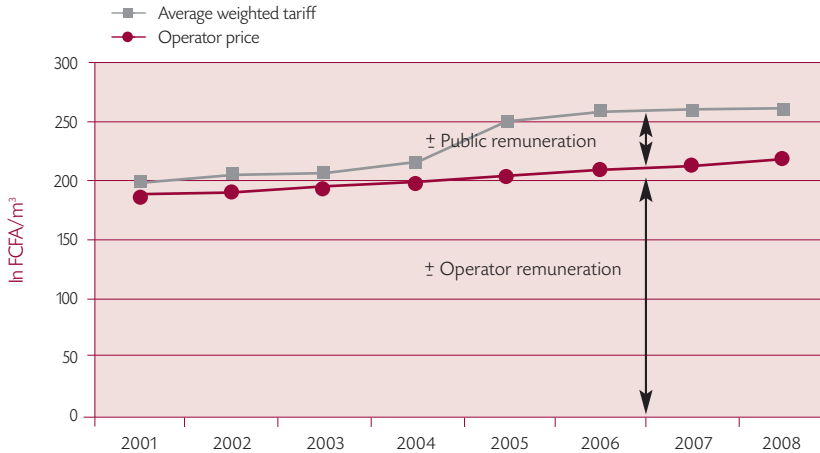
$$Remuneration_{public} = (Tariff_{average} - Cost_{operator}) \cdot Volume_{produced} \cdot \eta_{target\ network\ yield} \cdot \eta_{target\ coverage\ rate}$$

Remuneration of the lessee includes a bonus/malus system for inciting him to improve his performance in two key fields, the rate of water loss in the network and the billing recovery rate (including administration), and is calculated as follows:

$$Remuneration_{lessee} = Tariff_{average} \cdot Volume_{produced} \cdot \eta_{target\ network\ yield} \cdot \eta_{target\ coverage\ rate} - (Tariff_{average} - Cost_{operator}) \cdot Volume_{produced} \cdot \eta_{target\ network\ yield} \cdot \eta_{target\ coverage\ rate}$$

Graph 3

Evolution of the average weighted tariff and the operator price between 2001 and 2008



Source: data SEEN.

The operator's price was determined by the call for tenders. Veolia, proposing an operator's price of 190 FCFA/m³ (the lowest cost), won the call for tenders in 2001. Since then, the operator's price has been re-evaluated each year based on the costs of labour, electricity, various products and services, and civil engineering. This guarantees the lessee an exploitation under the same conditions as at the start of the contract.

The State receives the difference between the exploitation revenues (only from water sales^[36]) and the lessee's remuneration. This State remuneration is not a real rental fee: it does not depend directly upon the use of SPEN infrastructure by SEEN, and is not a fixed part of each cubic metre of water sold.

The financial incentives of SEEN for reducing the quantity of water not accounted for (leaks and insufficient bill collection) are seen by the actors as solid and as a strength of the affermage contract.

[36] Ancillary exploitation revenues (meter rental, connection construction) go 100% to SEEN and are not taken into account.

Table 2 *Consequences on SPEN and SEEN remuneration in the various type cases*

Typical case	Consequences for SPEN	Consequences for SEEN
The volume produced increases by 10%.	Remuneration increases by 10%.	Remuneration increases by 10%.
The objective of technical efficiency (reduction of water losses) is not reached with a margin of 5%.	Remuneration does not change.	Remuneration is decreased by 5% of the volume produced x average tariff.
The objective of commercial efficiency (bill collection) is exceeded by 1%.	Remuneration does not change.	Remuneration is increased by 1% of the volume produced x average tariff.
The operator's price is re-evaluated at 1% and the average tariff remains stable.	Remuneration is decreased by 1% of the volume produced x operator's price.	Remuneration increases by 1%.
The operator's price remains stable and the average tariff increases by 3%.	The entire additional profit is paid to SPEN.	Remuneration remains stable.
The State does not pay the bills of its administrations.	Remuneration does not change.	SEEN treasury is decreased by the amount of the outstanding bills.

Source: based on Blanc and Ghesquières, 2006.

1.3.4. Balanced risk sharing

The institutional mode of managing water services being that of affermage, the risks are shared between the private lessee and the public company. More precisely, the contracts are worded so as to divide the risks among the players that are reputed to assume them most efficiently. The adopted system gives priority to remunerating the exploitation over the State: the operator takes his share from water sales, the remainder going to the State. The contracts thus have put the risk of a tariff freeze on the accounts of the public company alone, and this public company alone should ask the State for tariff adjustments in terms of its financial equilibrium, the private lessee not being involved. Moreover, as the public company has taken out loans from donors, the adopted system allows the latter to put pressure on the State for readjusting the tariffs and enabling the public company to honour its debts.

On the contrary, the risk that the State will not pay its bills is entirely borne by the lessee, who should be able to put more pressure on the State to recover his invoices. However, there is a legitimate doubt as to whether the lessee can really force the State to pay its bills. In fact, even if the situation has much improved since the reform was adopted, the State might be even more vigilant to pay its own water bills: in 2008, the arrears in water payments by the State amounted to almost 1.4 billion FCFA, or 13% of total water sales.

In other cases, the risks are shared: SEEN is protected against certain price rises, such as for energy, chemical products, civil engineering, labour, etc., by the indexing formula of its operator's price. It thus bears this short-term risk, as the operator's price is re-calculated annually. Ultimately, with the indexing of the operator's price, this risk is thus borne by SPEN, which should ask the State for a commensurate tariff increase.

SEEN alone bears the risk of price increases on products not mentioned in the indexing formula of the operator's price.

The risk of water leaks is borne by SEEN alone. In order to provide it with the means for improving its technical performance, the lessee was asked to rehabilitate the old parts of the network at his own expense, according to a five-year rehabilitation programme of 63.9 linear kilometres of pipe ^[37]. In addition, he has to renew – at his expense – the material for exploitation, valves and connections, electromechanical equipment, and all other material whose nominal cost is below 19 million FCFA. At the start of the contract, in 2001, this hinge value was 15 million FCFA, but this was re-evaluated in 2006 at the request of SPEN to compensate for inflation. Notwithstanding these prerogatives confided to the lessee and his technical participation in the design of certain investments (SEEN has a better knowledge of the networks than SPEN), the technical performance still depends in part on work carried out by SPEN in this domain. According to SEEN, however, this work still is insufficient and prevents reaching the target performance of 85% (see below).

[37] Length expressed in linear metres equivalent. For instance, the affermage contract mentions the equivalence between 1 metre of PVC pipe of diameter 200, 3.33 metres of PVC pipe diameter 63, and 0.33 metre of cast-iron pipe diameter 400.00.

Table 3 *Sharing of other risks*

Risks related to the construction phase (cost overruns, delays, inadequate infrastructure design, etc.)	Borne, depending on the case, by the client (SPEN) or the contractor (builders or SEEN)
Risks concerning exploitation and maintenance (higher maintenance costs, increased operation frequency, etc.)	Borne exclusively by the lessee
Risks concerning water quality	Shared, depending upon the case, between the State (responsible for the quality of water resources), SPEN (responsible for installing water treatment equipment) and SEEN (responsible for the quality of the distributed water) (MH <i>et al.</i> , 2009)

Source: Author.

The 2001 reform in Niger was the latest of those concerning public services in West Africa (Carcas, 2005). Because of this, it planned for the creation of an autonomous, independent and multi-sector (water, energy, transportation and telecommunications) regulation authority, in accordance with World Bank expectations. This authority is often assisted by experts and consultants financed by donors. The multi-sector aspect of the authority reduces regulation costs for each sector through an economy of scale and allows cross-financing of the regulation of a sector with a social character (water) by that of other, more lucrative, sectors such as telecommunications.

ARM was created rather late, in 2003, almost two years after SEEN started operations, because of a certain administrative slowness and an unfavourable ranking of priorities. However, ARM plays an important role and is increasingly solicited by contract partners. By facilitating decision making between SEEN and SPEN and by improving the relations – sometimes difficult – between the two companies, ARM has played a beneficial and efficient role in the resolution of major conflicts.

1.3.5. Satisfactory technical results

The investments accompanying the reform—59.5 billion FCFA (90 million EUR) over the period 2001-2009 (or 3400 FCFA/year/inhabitant of the leased perimeter)^[38] – allowed unprecedented growth of the water volume produced in the urban hydraulics sub-sector. Whereas the 1990s saw an almost stable water production (average annual increase of 2.3%), it increased notably after the reform, from 35.6 million m³ in 2001 to 48.6 million m³ in 2008, or an average yearly increase of 4.6%.

The coverage also increased in absolute numbers: private connections went from 54,868 in 2001 to 89,424 in 2008 (an average annual increase of 8%) and the number of standpipes went from 2300 to 2672 (or an average annual increase of 2%). “Social” connections were 46% of all new connections between 2001 and 2008 and standpipes financed by donors represented 88% of those constructed during that period (SEEN, 2009).

Nevertheless, the investments only kept up with urban growth^[39] without really getting ahead of it: the national coverage calculated with official criteria (10 people per private connection and 250 per standpipe^[40]) went from 60% in 2001 to 64.6% in 2008, or an increase of less than five points in 8 years. Notwithstanding the emphasis on creating private connections through densifying the networks and social-connection campaigns, the coverage through standpipes remains very important and, depending upon the calculation hypotheses retained, varies from 28% to 49% (see above).

[38] 24.5 billion FCFA from the IDA as loan and grant; 12.6 billion FCFA loan from the West African Development Bank; 4.8 billion FCFA grant from AFD; 6.5 billion FCFA grant from the Chinese government; 1.4 billion FCFA grant from Belgian cooperation; 7.5 and 2.3 billion FCFA as self financed capital from SEEN and SPEN.

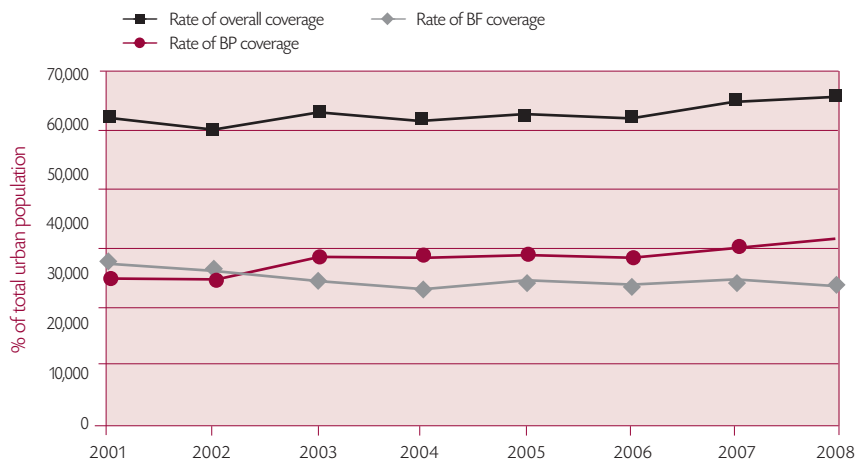
[39] For estimating the urban population, the hypothesis of Pöyry Consultants (combined scenario) was adopted (Pöyry, 2007).

[40] Notwithstanding the absence of reliable statistics for this subject, all observers agree that these figures are underestimated. However, their inexactitude (presumably constant) does not modify the analysis of growth of the coverage rate.

Graph 4

Evolution in urban water supply coverage between 2001 and 2008

(Calculated with official criteria: 10 people / private connection, BP, and 250 people per standpipe, BF).



Source: SEEN data and urban population from the combined scenario of Pöyry (2007).

In addition, though some towns experienced water shortages in 1999 (intermittent supply; chronic production deficit; ill suited, old or round-the-clock operating pumps^[41], cf. Mazars *et al.*, 1999), water is now constantly available at a correct pressure in most centres. For that reason and contrary to other Sahel cities such as Dakar or Nouakchott, no private water storage or pumping systems are found in Niger^[42]. However, 19 of the 52 centres are supplied from only one well, which means that their situation becomes critical in case of breakdown.

Before the reform, distributed water was potable in 90% of the centres^[43] but water-quality analyses were irregular or inexistent in secondary and tertiary centres (Vivendi Water, 2000). Today, water quality is regularly checked by SEEN: daily in the Niamey station (3 times a week in the network) and up to twice a year in the centres supplied by groundwater (SEEN, 2009).

[41] A well pumping round the clock often indicates an excessive infrastructure use: it cannot respond to an increase in demand and, in case of a shallow aquifer, may harm surface vegetation.

[42] With the very specific exception of the rare high-rises in Niamey that have their own pumps for supplying their floors, water at 1 bar on surface (the contractual pressure) cannot rise higher than ten metres.

[43] Well-known exceptions are Tibiri (fluor presence has caused bone malformations in children since pumping started in 1983), Téra (nitrates), Loga, Keita and Magaria (high iron content) and Niamey and Tillabéri (high turbidity about 2 months/year) (Vivendi Water, 2000).

The performance contract of SEEN requires that the physico-chemical and bacteriological quality of at least 96% of the samples taken satisfy WHO standards (MH *et al.*, 2001, annex 1, article 17). SEEN reached its bacteriological quality targets from the start of the contract. For the physico-chemical quality, however, SEEN has difficulty in reaching its target values because of high metal, fluoride or nitrite contents of the groundwater in some centres, and the absence of adequate treatment installations. SEEN thus begs SPEN to invest in such installations and, temporarily, obtains water-supply exemptions from the Niger government (MH *et al.*, 2009).

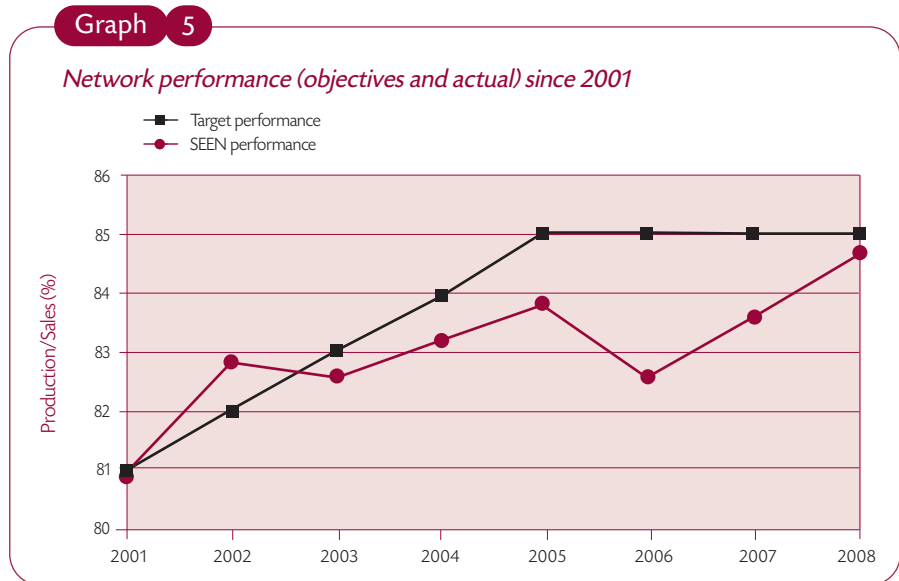
As already done by the SNE, SEEN has improved the efficiency of its personnel. Even though the staff has remained mostly unchanged in numbers (between 490 and 520 permanent staff^[44]), personnel productivity has increased with the extension of the water distribution systems and the increased accounting communication and management requirements. SPEN has 24 employees. The staff ratio of the sector for 1000 subscribers thus regularly increased since the creation of SNE and, in 2008, was 5.7, against 17 in 1989 and 9 in 2001. This number is still notably higher than that of the “good performers” of the region, Senegal and Cote d’Ivoire, with 4.1 and 2.4 employees for 1000 subscribers, respectively (Trémolet *et al.*, 2002).

1.3.6. Improving, but still insufficient, performance and coverage rates

Before the reform, network performance was around 80%, which was appropriate. The reasons for such a good result were three-fold: low pressure in the pipes (few buildings had more than two floors); soil type (network leaks are easily detected because most roads are not asphalted); and cultural considerations (leaks are quickly reported by the population that considers water as a precious good that should not be wasted) (Mazars *et al.*, 1999; Urbaplan, 2007). Since 2001, this performance has increased by about four percent, because of network rehabilitation and leak limitation campaigns by SEEN. In 2008, it was 84.6%, an “exceptionally high” value, much higher than the performance of water services in most other countries in the region: Benin (78%), Cote d’Ivoire (79%), Mali (75%), Senegal (80%), Togo (77%) (Pöyry, 2007; Marin, 2009). However, it remains below the target objectives fixed by the affermage

[44] SNE staff had remained almost unchanged in the 1990s: in 1989, the company had 537 employees. When preparing the company’s privatization, SNE overstaffing – evaluated at 25% in 2000 – had to be reduced. The call for tenders obliged the candidates to prepare a social plan at a cost of 1.5 billion FCFA. However, Vivendi and Lyonnaise des eaux, answering the call for tenders, preferred not to follow the call for tenders requirements in this matter, proposing to keep the entire SNE staff. For this reason, and according to an agreement between the two parties at the start of the reform, no staff was laid off for economic reasons.

contract. SEEN estimates it to be impossible to reach the objective of 85%, arguing that SPEN does not honour its network rehabilitation commitments planned for in the contractual investment plan.

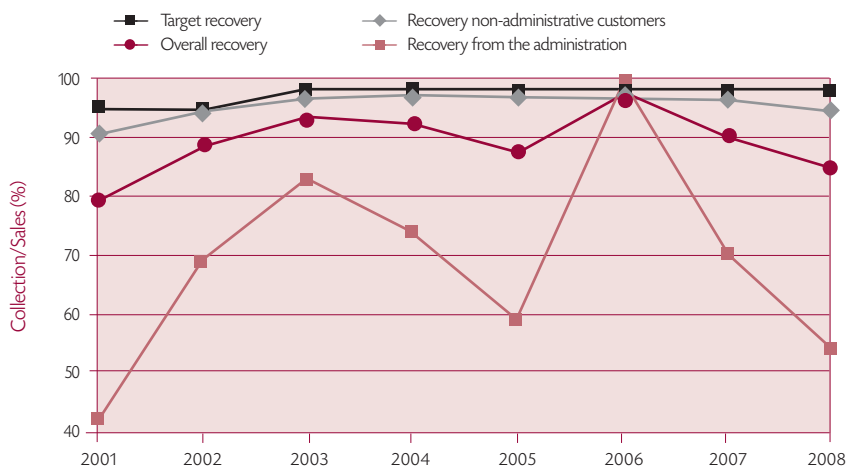


Source: SEEN data.

In addition, SEEN has the obligation of recovering at least 98% of the amounts billed to non-administrative customers for supplying drinking water, from the third year of the contract. Though the recovery rate does not reach the contract objectives, it is still good at 95% in 2008. This breaks down into: excellent for standpipes (98% in 2008) and good for private customers and shops (95% in 2008). That of administrative customers, however, is erratic and rather mediocre (54% in 2008). SEEN thus seems unable to impose the payment of bills by the State on their due date.

Graph 6

Bill recovery (objectives and actual) since 2001



Source: SEEN data

1.3.7. A sector in financial equilibrium for the moment

Table 4 *Tariff evolution before taxes as applied to customers since the creation of SNE, in FCFA/m³ or FCFA/current month*

Customer categories Tariff (FCFA/m ³)	1987/ 1990	1991/ 1993	1994/ 1999	2000/ 2001	2002/ 2003	2004	2005	2006/ 2009
Standpipe ^[45]	85	85	115	115	121	127	127	127
Private customers 0 to 15 m ³ /month	105	105	115	115	121	127	127	
Private customers 0 to 10 m ³ /month								127
Private customers 16 to 40 m ³ /month	173	173	196	207	234	246	246	
Private customers 11 to 40 m ³ /month								279
Private customers 41 to 75 m ³ /month	263	263	295	312	353	371	415	
Private customers over 40 m ³ /month								448
Private customers over 75 m ³ /month	300	300	330	349	395	415	415	
Administrations	260	260	268	283	314	330	403	425
Shops and industries	260	260	273	289	320	336	403	425
Meter rental 15 mm diameter (FCFA/month)		n.c.	n.c.	500	500	500	500	500
Explanation	Creation of SNE	Abolition of the Fonds national de l'eau	Devaluation of the FCFA	Start of the privatization process	State commitments as part of the reform and the PSE			New tariff schedule

Source: Author.

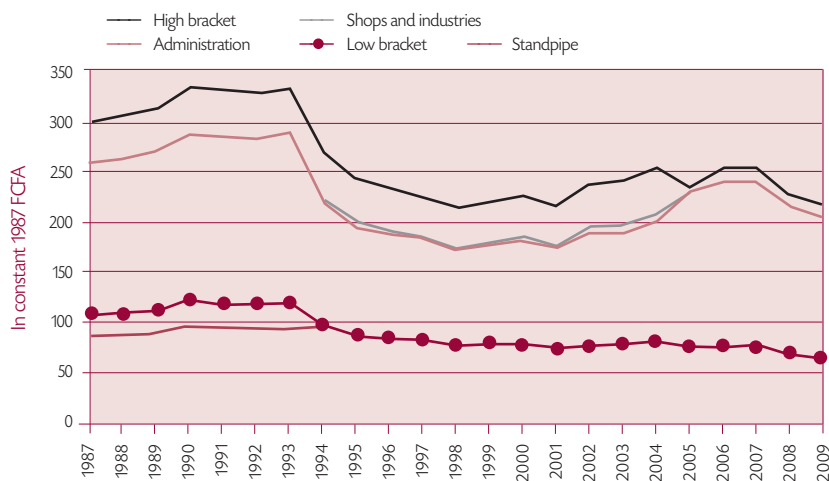
[45] This tariff corresponds to the price per cubic metre of water that the hydrant man pays SEEN. The tariffs applied to the final customers are much higher, commonly reaching 10-15 FCFA for a 20-litre jerry can (or 500-750 FCFA/m³).

Niger uses a tariff system of progressive brackets that allows crossed subsidies between customers: by considering that the sector globally is in financial equilibrium, it was estimated that in 2008, the low-income bracket was subsidized by about 50% whereas water in the high bracket was about 60% over its cost price^[46]. The tariffs, decided by the government in the Council of Ministers at the request of SPEN and appraised by ARM, have changed more often since the reform. Price increases have affected the high brackets (+3.2%/year on average since 2001) rather than the low bracket (+1.2%/year on average since 2001).

Nevertheless, the tariffs have remained considerably lower than those in neighbouring countries, and those of the low bracket have increased less than inflation: the low-income tariff, calculated in constant FCFA^[47], is slightly lower than in 1994.

Graph 7

Tariff evolution between 1987 and 2009 in constant FCFA



Source: Author, from INS data.

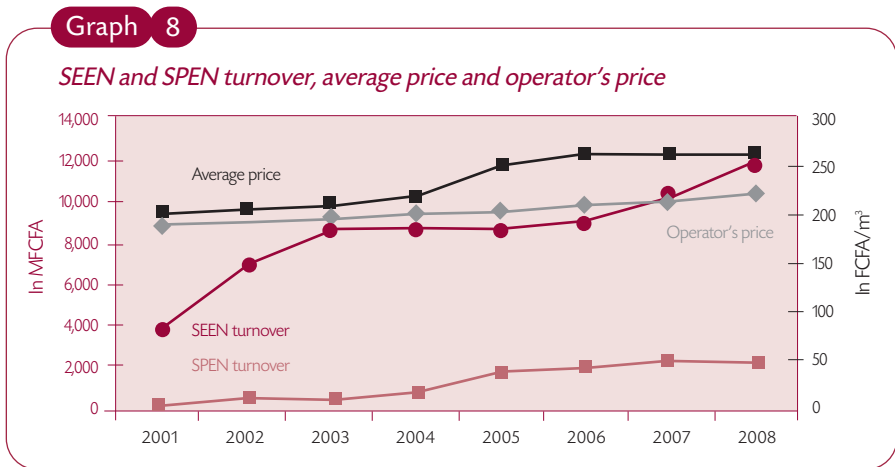
[46] Supposed to be equal to the average weighted tariff.

[47] FFCFA corrected for inflation.

By consuming less than 10 m³/month, one-third of SEEN customers with their own connections are billed no more than 2000 FCFA/month for water. This sum is modest for even the poorest^[48]. Nevertheless, many Nigerians are not directly connected to the water network and buy their water from intermediaries at a higher cost for less service. The cost of connection to the network, close to 100,000 FCFA and thus prohibitive for many Nigerians, is thus an exclusion factor for access to the network.

Furthermore, the turnover of the sector (water sales and meter rental) has increased without interruption, from 6.499 billion FCFA in 2002 to 11.415 billion in 2008, or an increase of 76%, whereas the average water tariff over the same period increased by 27%. Even though SEEN experienced two financially difficult start-up years^[49] (ARM, 2004; SEEN, 2009), its net result per year has progressed and, from 2005 onward, it has paid dividends to its shareholders (SEEN, 2009).

The objective of financial equilibrium of the sector was reached in 2006. Since then, the SPEN treasury – indicator of the financial health of the sector – has remained positive. However, with the stabilization of tariffs (and thus the average price) and the end of the grace periods for the loans from donors, the financial simulations of SPEN and ARM foresee that financial equilibrium could be compromised if no tariff adjustment is made soon.



[48] In comparison, a kilo of rice costs 350 FCFA, 150 km by bush taxi is 2000 FCFA and 10 minutes telephone communication 1 250 FCFA.

[49] It had an overstretched cash-flow situation under the quadruple effect of payment arrears by the State, of the need for paying Nigelec [national electricity company] advances on initially planned consumption as bank securities, of the start of rehabilitation work at the expense of the lessee, and of delays in defining the revision of the operator's price. (ARM, 2004).

Conclusions

In view of the results since the reform in 2001, it seems that affermage is suitable for supplying water to the towns of Niger, where the population cannot bear the full cost of this service and where the State does not have the capacity to contribute financially to the development of this service. Affermage allows deferring the infrastructure costs for the users and liberates from a tariff structure covering the complete costs. The objective of privatization was not to apply the principle of “water pays for water”, but to dissociate the service from the State. This means that investments are borne only 40% by the users, the rest being distributed between donors (33%) and the State (26%).

Niger’s strong dependence upon its financial partners should be added to the various elements of the context described above. In view of the strong population growth of towns, the present and future water supply coverage rates depend to a large extent upon the past and present commitments by donors, but especially upon the ability of Niger and its donors to maintain stable relations (political stability), and upon the ability of Niger authorities to legitimize its tariff-increase and privatization choices vis-à-vis users and voters.

The case of Niger illustrates how affermage can make use of public forces through combining them, for investing as well as minimizing private user costs, and for improving the technical performance of the service.

This arrangement should, however, keep some flexibility, for adapting to changes in service conditions, in users’ capacity to pay, in investment requirements, and in coverage and service objectives.

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1.4.

PPPs for urban water utilities in developing countries: Review of their performance over the past 15 years

P. MARIN ^[50]

Introduction

Water utility PPPs in developing countries: few objective data on performance. Back in the 1990s, many governments in developing countries embarked on ambitious reforms of their urban water supply and sanitation (WSS) services. This often included delegating the management of utilities to private operators under various public-private partnership (PPP) arrangements, with the active support of donors. This movement took place against a background of major liberalization reforms in many sectors, widely promoted by international financial institutions. Promoters of sector participation in water were driven by two major factors. One was the widespread disappointment of donors with reforms attempted under public management and the ensuing distrust of public utilities. The other was the hope that private operators would be able to turn around poorly performing public utilities by bringing new expertise, financial resources, and a more commercial orientation to service provision – for the benefits of governments and populations alike.

[50] This chapter is a personal contribution of the author, based on a summary of the conclusions of his recent work presenting the results of a World Bank study. The study examined PPPs in the water sector of the developing world, based on objective indicators collected from 65 projects (*Public-private partnerships for urban water utilities: A review of experiences in developing countries*/World Bank/PPIAF, Trends and Policy Options, No 8, Washington DC).

After almost two decades of experiences, water utility PPPs have proven a controversial topic in many countries. In recent years, several highly publicized contract terminations have raised doubts about the suitability of this approach for developing countries, and fostered the perception that water utility PPPs are in retreat. Yet, the lack of data on the yearly evolution of the size of the market served by private operators, as well as their actual performance in improving services, has made it difficult to assess the true value of this approach. Although a large body of literature exists on water utility PPPs, it has its shortcomings. Most papers provide little, if any, quantitative indicators for passing a fair judgment on the actual performance of PPP projects. Published case studies tend to focus on a few projects, ignoring the performance of many other important ones. As for econometric studies, they commonly rely on small datasets and fail to give details about the actual data they relied upon (the “black box” syndrome). As a result, the debate has unfortunately tended to be driven more by ideology than objective analysis.

Looking at the facts: a comprehensive review of performance. Between 1990 and 2008, more than 270 PPP contracts were awarded to private operators in developing countries to manage urban water utilities through management contracts, leases/affermages or concessions. After almost two decades of experience, the time has come to carry out a comprehensive assessment of the performance of PPPs as a tool for improving urban water services in the developing world. From 2005 to 2007, the Water Anchor department of the World Bank carried out a comprehensive review, with financial support from the Public Private Infrastructure Advisory Facility (PPIAF). The goal was to construct the water PPP debate on more objective ground, by gathering data and analysing the actual performance of a large number of water PPP projects in developing countries.

The study focused on projects introducing a private operator to run, through a delegated management contract, a utility that served a population of at least 25,000 people connected to the water distribution network. This thus excluded other forms of private sector participation, such as build, operate, and transfer (BOT) projects and similar arrangements limited to treatment facilities, as well as service contracts or small-scale private providers. Four dimensions of performance were analysed – access (coverage expansion), service quality, operational efficiency, and tariff levels – with the analysis focusing on the actual impact of each PPP (“before and after” comparison), rather than whether contractual targets were met.

Although the study could not delve into all the water PPP projects that took place in the developing world since 1990, it covered a very large sample. Performance data were gathered for more than 65 large water PPP projects, representing a combined

population of about 100 million people. This is a highly representative sample since it encompasses half of the urban population that has been served by private water operators at some point in time between 1990 and 2007, as well as 80% of the water PPP projects awarded in developing countries before 2004 and which had been active for at least 3 years.

1.4.1. Water utility PPPs in developing countries

The controversy over PPPs in developing countries has deep historical roots^[51]. Back in the 19th century, foreign private investors financed, built, owned and operated many urban water distribution systems in the large cities of Latin America, Africa and Asia. In the absence of proper contractual regulation, these private waterworks often ended up abusing their monopoly position, leading to widespread nationalization on all continents. By the late 1980s, they had virtually vanished from the developing world, the most notable exception being SODECI in Cote d'Ivoire, which had been providing water services nationwide under an affermage (service concession through leasing) contract since 1960.

Rapid development of water utility PPPs during the 1990s. The first "new generation" water PPP was an affermage contract awarded in 1988 for the national water utility of Guinea, with support from the World Bank, as an attempt to replicate the successful experience in Cote d'Ivoire. Yet the real impetus came from Latin America, starting with the groundbreaking award of the Buenos Aires concession in 1993. The improvements achieved by the concessionaire in its early years created much momentum, resulting in awarding many new contracts on all continents. Between 1991 and 2000, the population served by private operators in developing and transition countries grew steadily from 6 million to 96 million, and the number of countries with active water PPP projects rose from 4 to 38.

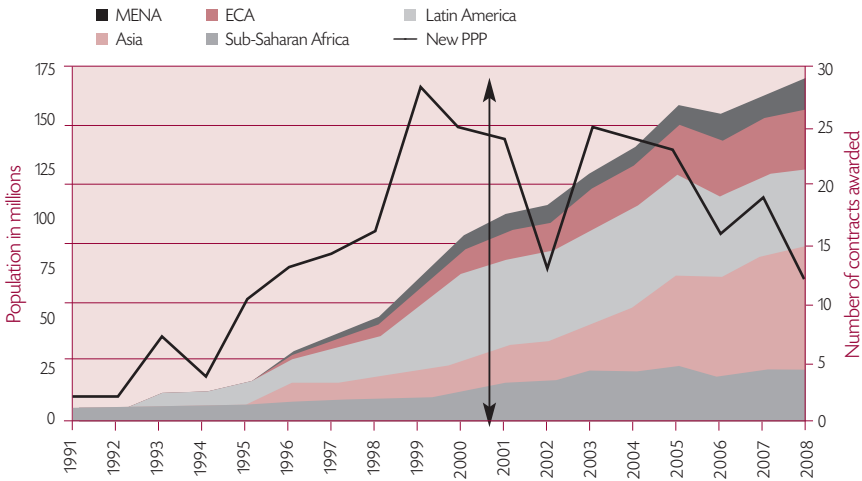
Since 2001: reduced number of new awards, but population served still growing. Although there is a general perception that water utility PPPs in developing countries are on the decline, the situation is more nuanced. In recent years, large countries such as Algeria, China, Malaysia, Morocco and Russia have started to rely on a large scale on private water operators. The total population served by private water operators in developing and transition countries has continued to increase steadily in recent years, from 96 million in 2000 to almost 170 million by late 2008. Out of the more than 270 contracts awarded since 1990, about 85 percent were still active

[51] See the chapter by Dardenne in this book.

by the end of 2008, with less than 9 percent suffering from early termination. Most cancellations were for projects in Sub-Saharan Africa, a challenging region for reform, and in Latin America (especially Argentina) among concession schemes.

Graph 9

Water utility PPPs in developing countries: Urban population served by private water operators and new PPP awards

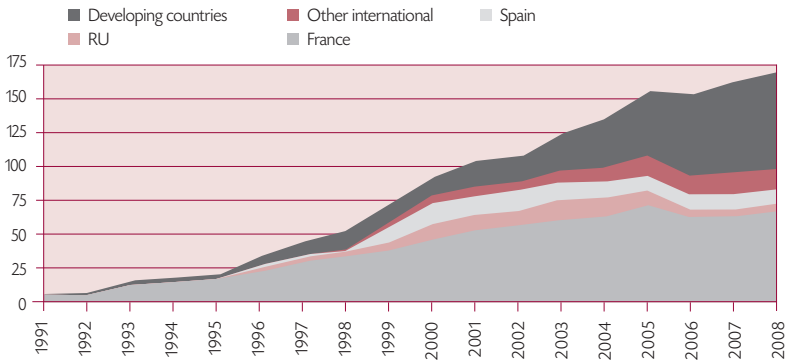


Source: Marin (2009).

The recent surge of private water operators from developing countries. Recent years have seen a major change in the “supply side” of the market, with a gradual surge of private water operators from developing countries, a phenomenon that went unnoticed by many observers. A few international water companies largely dominated the market during the 1990s, with five of them accounting for about 80 percent of the total population served by water utility PPPs in developing countries by the end of the decade. Since then, the situation has changed radically. While the total population served by these multinational companies has remaining broadly stagnant over the last 8 years, new investors from developing countries have entered the market, gaining significant ground.

Graph 10

*Private water operators in developing countries:
Urban population served by country/region of origin*



Source: Marin (2009).

Most new water PPP contracts awarded since 2001 have gone to private operators from developing countries, and this movement was amplified by the exit of several international operators who transferred ongoing contracts to local investors. Private operators from developing countries account for 90 percent of the growth in the number of people served by PPP projects over the last 7 years, and by the end of 2008 served about 70 million people, or more than 40 percent of the developing-countries market. Many of these new private operators from developing countries have won several contracts and now are significant players. Several have also shown good performance in improving access and service quality for the population (such as Manila Water in the Philippines, Conhydra in Colombia and Aguas do Brasil in Brazil). More than 30 of these new private operators from developing countries were identified as part of the study, each serving a combined urban population of at least 200,000 people (see Table 5).

Table 5 *Operators from developing countries operating PPP contracts serving over 250,000 people (early 2009)*

Country	Operator	Start year	Main PPP contracts (cities, states/provinces)	Population served (2009)
Malaysia	Puncak Niaga***	2004	Kuala Lumpur and Selangor State	6,500,000
	Ranhill	2001	Johor State	3,000,000
	Salcon	2004	Linyi (China)	1,000,000
Philippines	Manila Water (Ayala)	1996	Manila Eastern zone	5,000,000
	DMCI – Metro Pacific	2006	Manila Western zone	6,000,000
Indonesia	PT Aetra Air (Acuatico)	2006	Jakarta Eastern zone, Tangerang area	3,200,000
China	Hong Kong & China Gas	2005	Wujiang, Wuhu, Suzhou	2,800,000
	China Water Affairs	2006	Xinyu, Jinzhou, Gaoan	2,300,000
	Inter-China Holdings	2007	Hanzhong	300,000
	China Water Industries	2007	Danzhou	250,000
Singapore	Asia Water Technology	2008	Huangpi and Wuhan (sewage) in China	1,200,000
India	Tata Group	2008	Jamshedpur (since the 19 th century), Mysore	1,400,000
Russian Federation	Rosvodokanal (Alfa Group)	2003	Orenburg, Krasnodar, Tyumen, Kaluga, Barnaul, Omsk, Tver, Lugansk (Ukraine)	5,000,000
	RCS (Russian Communal Systems)	2003	Kirov, Perm, Tambov, Blagoveshtensk, Petrozavodsk	2,200,000
	EWP (Evraziyskiy)	2005	(Omsk), Rostov, Sochi, Krasnodark	1,900,000
Morocco	ONEP (public)** and Delta Holding	2007	Cameroun (national utility)	3,000,000
South Africa	WSSA	1992	Queenstown, Maluti	600,000
	Rand Water** Vitens (NL) (public)	2005	Ghana (national utility)	5,000,000

Country	Operator	Start year	Main PPP contracts (cities, states/provinces)	Population served (2009)
Brazil	Aguas do Brasil (Queiroz Galvao)	1999	Campos, Niteroi, Petropolis, Nova Friburgo, Resende, and five other towns (RJ)	1,600,000
	Vega	2006	Manaus	1,400,000
	Bertin – Equipav	2005	Campo Grande, Itu, Cabo Frio, Buzios and three towns (Prolagos)	1,200,000
	Odebrecht	2003	Maua (sewerage), Limeira, Rio Claro, Rio das Ostras (sewerage), Itapemirim	1,000,000
	Saneatins	1999	Tocantins State	900,000
Argentina	Roggio	2006	Cordoba	1,300,000
	Latinaguas	1996-1998	Corrientes & La Rioja provinces, Tumbes (Peru) (lost Salta in 2008)	1,200,000
	Sagua (Southwater)	1995-1997	Formosa & Santiago del Estero provinces	600,000
Colombia	Triple A*	1997	Barranquilla, Santa Marta, and eleven other towns (Atlantico Dept.)	2,700,000
	Aguaskpital	2006	Cucuta	700,000
	Conhydra	1998	Buenaventura, Turbo, Marinilla and seven other towns in Antioquia Dept.	500,000
	Sala	2003	Sincelejo, Corozal	250 000
	Aguas de la Guajira	2002	Calarca, El Banco, Riohacha, Ponedera	250,000
	Servaf	1997	Florencia and 6 other towns	250,000
	Uniaguas	2004	Sahagun, Cerete and two towns in Cordoba Dept.	250,000
Chile****	Fernandez Hurtado	2003	ESSCO (Coquimbo)	500,000
	Luksic	2003	ESSAN (Antofagasta)	500,000
	Hidrosan	2003	EMSSAT (Atacama), EMSSA (Aycen)	300,000

Source : Marin (2009).

* Triple A has a strategic partnership with public utility Canal Isabel II from Madrid, but is operated as a Colombian private company.

** ONEP and Rand Water are publicly owned utilities, operating in Cameroon and Ghana as private companies under PPPs.

*** The concession held by Puncak Niaga in Malaysia has been in difficulties since 2008.

**** Grupo Solari, which served 1.2 million people in Chile since 2004 through 3 regional utilities, sold its controlling share in 2008 to a Spanish fund.

A new, more mature market for water utility PPPs. The obvious consequence is that the 2009 water PPP market in developing countries is significantly different from what it was back in the late 1990s. It is no longer a business dominated by a few multinationals. The perception that water utility PPPs were on the decline can be largely attributed to the difficulties encountered by large international operators, focusing the attention of many stakeholders, while the gradual but steady expansion of local private operators went largely unnoticed. With both private investors and governments more aware of the difficulties and risks inherent to the PPP approach, and donors taking a more pragmatic approach to reforms, we now have a more mature environment. Even though water utility PPPs have not seen a comparable development to that of other infrastructure sectors, a slow but steady progress is seen that is a much healthier situation than when water utility PPPs were the “flavour of the day” for attracting private capital back in the 1990s.

1.4.2. What has been the actual performance of water PPP projects?

These findings about the gradual growth of water utility PPPs in the developing world since 1990 call for one essential question: is this slow but steady growth of private operators backed by a good performance of PPP projects? This issue obviously lies at the core of the debate.

In order to assess the performance of water utility PPPs, the study adopted a pragmatic approach, which covers a middle ground between econometric and case studies. Performance indicators were collected for a large number of PPPs, including through the preparation of specific case studies when no data were readily available. Instead of following the “black box” approach typical of econometric studies, the data sample was analysed while allowing a clear identification of the performance of each project. The advantages of this approach are twofold. First, connecting the data with well-identified projects is important for the reliability and objectivity of the findings. Second, it made it easier to draw conclusions about what worked and what did not, thereby providing valuable insight about how to make water utility PPPs more successful and sustainable as a tool for reform.

More than 24 million people have been provided access to piped water through PPPs. Overall, it is estimated that water PPP projects have provided access to piped water for more than 24 million people in developing countries since 1990. This figure is actually an under-estimate of the real contribution of water utility PPPs, since it covers the actual expansion in access achieved by only 36 large projects for which

data were available. While this figure may appear small when compared to the actual needs, it is significant when considering that private water operators served only about 1% of the urban population back in 1996, up to 4% in 2003 and close to 7% by 2008. On the other hand, this is negligible when compared to the needs of developing countries for meeting the Millennium Development Goals (MDGs).

The review identified some notable differences between concessions (where the private partner finances most of the investment) and leases/affermages (where the public partner mostly funds it) for expanding access. The performance of concessions for expanding access to service has been mixed and often uneven. The 30 large concessions under review provided access to piped water for about 17 million people, but many of them failed to invest the amount of private funding they were originally committed to (even though this was the main reason why the government had brought them in) and did not meet their original contractual coverage targets. The capacity of concessionaires to invest in coverage expansion proved also very changeable over time, with economic slowdown or crises usually leading to a halt in investment (as in the case of Manila). Remarkably, many of the best performers were concessions in which private financing had been complemented by public funding (as for many projects in Colombia, Guayaquil in Ecuador, see box below, and Cordoba and Salta in Argentina).

Box 8 *Spectacular increase in water coverage in Guayaquil, Ecuador, under a hybrid financing scheme*

The water and sanitation concession in Guayaquil, Ecuador, which began operation in 2001, has increased access to water in a spectacular way over the past five years. The concession's success has received very little attention, even though it is, after Buenos Aires, the second-largest water and sewer concession in Latin America by population served. Guayaquil is the largest city and economic capital of Ecuador, home to around 2.4 million people, representing one-third of the national urban population.

When the private international concessionaire took over in 2001, the Guayaquil utility covered only 60% of water supply through domestic connections, while the national urban average for 1998 was 81%. Starting with 270,000 water connections in 2001, the concessionaire installed 160,000 new connections in the first five years of private operation, equivalent to an average annual increase of 10% and three times the contractual target of 55,000 new connections. Those gains allowed city water access to rapidly catch up with the national urban average, which stagnated during this period. Overall, it is estimated that over 600,000 people in Guayaquil have gained access to piped water through a household connection during the first five years of the concession.

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This achievement is largely due to a special government subsidy scheme, the so-called “telephone tax”. This system, put in place by the central government in the 1980s, levies a 10% tax on telephone bills for transfer to water utilities as grants for expanding the water network in uncovered urban areas. New water connections are provided free of charge to new customers in areas not previously covered by the water-distribution network. The telephone tax financed most of the cost of expanding access to water in Guayaquil: of the total amount of US\$ 85 million invested by the concessionaire during the first five years, about US\$ 39 million came from tax receipts. This corresponds to a grant of around US\$ 240 per new water connection, compared with an average cost of US\$ 150 for installing a residential connection, meaning that, in addition to subsidizing the connection costs, some of the grant funding was used for financing part of the distribution network expansion.

In practice, the concessionaire in Guayaquil has been operating under a financial arrangement that is somewhat of a hybrid between an affermage scheme and a concession, rather than a true concession, but this distinction does not diminish the value of its contribution. It acted efficiently to use the grants it received for rapidly expanding its customer base, motivated by strong financial incentives as it increased its revenues. Resources from the telephone tax scheme are available to all water utilities in the country, and the fact that the national urban average remained stable at just over 80% during the same period suggests that the public utilities were less efficient in taking advantage of this scheme. Despite these good results, the new government elected in 2006 eliminated the telephone tax in 2007, and has been applying pressure to end the concession.

Source: Marin (2009).

The performance of leases/affermages has usually been more consistent and satisfactory. In Sub-Saharan Africa, the affermage approach, with investments carried out by a public asset-holding company, has been very successful in expanding access in Senegal, a country now enjoying the highest urban coverage rate through household connections of all Sub-Saharan Africa. In Cote d’Ivoire, almost 3 million people have gained access to piped water *via* household connections since 1990 – entirely financed through cash-flow generation from tariff revenues, without any government money. In Cartagena (Colombia), where the PPP is structured through a mixed ownership company under a lease contract with the municipality, water-supply coverage went up over a decade from 73% to almost universal service. This was achieved despite a massive inflow in Cartagena of poor rural migrants fleeing the guerrilla war in other parts of the country, resulting in a near doubling of the city population. Since the private operator took over in 1996, more than half a million people have gained access to piped water, and 85% of new household connections have benefited poor families.

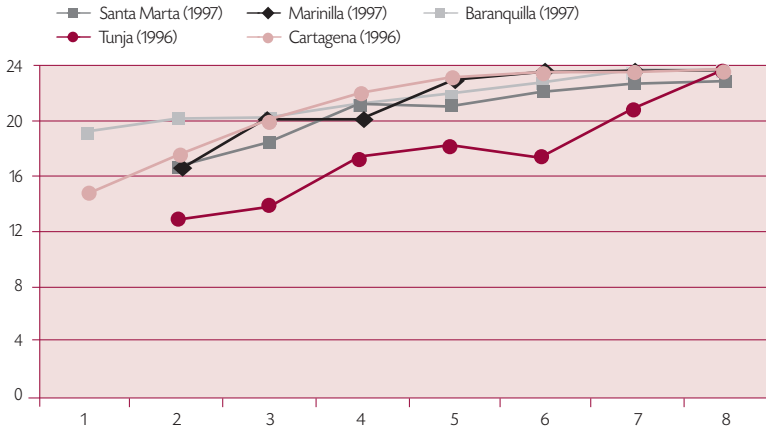
It is important to note that, despite the positive contribution of many projects, there is no evidence that PPPs are more efficient (or less efficient for that matter) than public utilities at expanding access to piped water to unconnected households. The ability to increase service coverage is largely driven by the availability of funding for investment in infrastructure expansion. This is directly dependent upon the financial design of each project (especially tariff policy and tax transfers, which are government decisions), as well as the evolution of economic conditions over time. It is also heavily dependent upon issues that are outside of the control of a utility, such as how to deal with slums and illegal settlements. In short, the issue of access expansion is independent of the public or private nature of the operator.

Significant improvements achieved in reducing water rationing. The study focused on the performance of water utility PPPs in reducing water rationing, which is the “number one” quality challenge for many water utilities in the developing world. When service is intermittent, it is impossible to guarantee compliance with drinking water standards because of the risk of infiltration in pipes. The poor, who often live at the low-pressure ends of distribution networks and cannot afford palliative equipment (such as private wells, roof tanks, and filters), are disproportionately affected by intermittent service. Furthermore, once water rationing becomes established, it is very hard to reverse; frequent pressure surges speed up the deterioration of the network, and any attempt to increase the average service pressure causes more burst pipes and lost water. In this context, it is remarkable that many of the PPPs that started from a situation of water rationing succeeded in improving service continuity, and that some even managed to re-establish continuous service.

A good illustration is provided by the case of Colombia, where rationing is commonplace in many cities, but reliable data are available from the national regulator about the evolution of the average number of hours of service per day for many utilities. The evidence shows that private operators in Colombia have consistently succeeded in improving service continuity in many cities and towns, often starting from highly deteriorated systems.

Graph 11

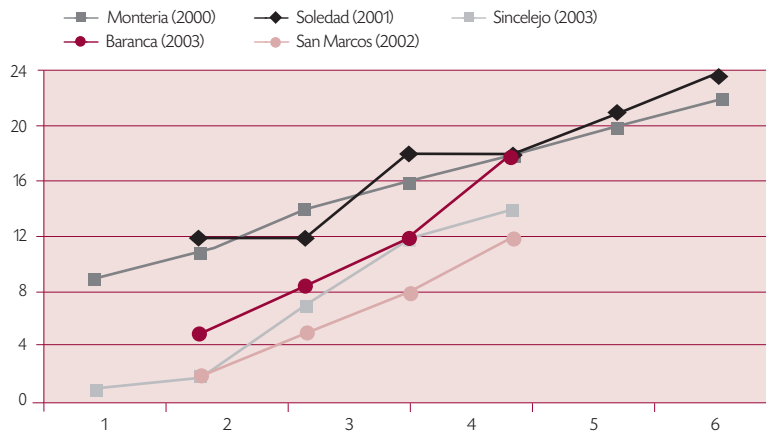
Colombia: Evolution of number of hours of service in five early water utility PPPs awarded in 1997-98



Source: Marin (2009).

Graph 12

Colombia: Evolution of number of hours of service in five water utility PPPs awarded since 2000 under the SME programme



Source: Marin (2009).

Private operators also have a good record of accomplishment for improving service continuity in Western Africa (Guinea, when the PPP was operational, Gabon, Niger, and Senegal). Many management contracts (12 out of 15 in the sample for which data are available) also achieved notable progress despite their short duration. However, not all PPPs were successful in improving service continuity. In Manila (Philippines) for instance, the concessionaire in the Western zone failed while the one in the Eastern zone succeeded, but little if any progress was achieved in Maputo (Mozambique), Guayaquil (Ecuador) and Jakarta (Indonesia).

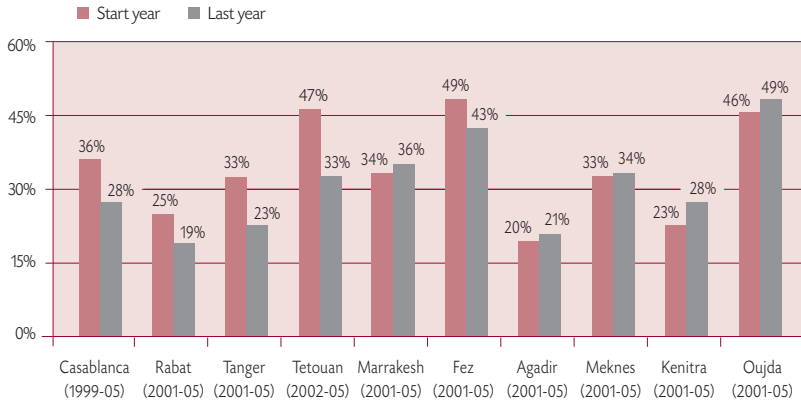
A clear edge in boosting operational efficiency. A key objective of involving private operators is to improve operating efficiency, based on the expectation that private operators have more incentives for cost cutting than public utilities. Though utility operation has multiple facets and efficiency can be hard to analyse, the overall efficiency of an operator can in practice be broadly captured by focusing on three main indicators: water losses, bill collection, and labour productivity.

- *Water Losses*

Controlling water losses – both technical (pipe leaks) and commercial (under-metering, illegal consumption) losses – is a priority for any well-run water utility. Recent multi-country studies by Andres and Guasch (2008) and Gassner, Popov, and Pushak (2008) found that private operators usually are effective in reducing water losses. Confirming their findings, this study found that many private operators succeeded in significantly reducing the level of water losses, notably in West Africa, Brazil, Colombia, Morocco, and East Manila.

Graph 13

Morocco: Comparison of NRW percentage for four concessions and six large public utilities

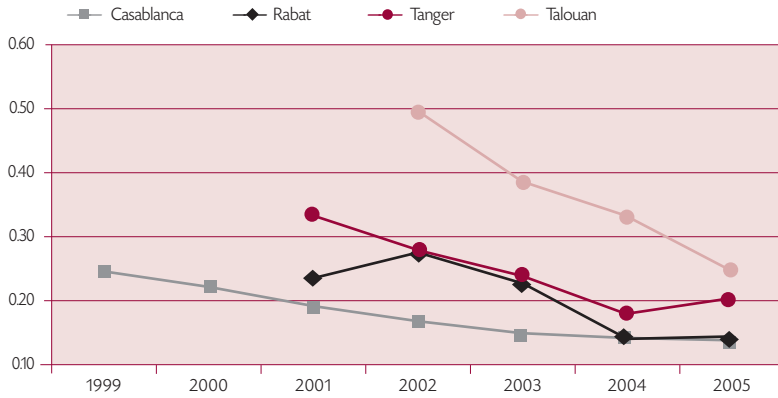


Source: Marin (2009).

Morocco is a good illustration of the efficiency of private operators in reducing water losses (NRW). The figures below show the evolution of water losses comparing four concessions (Casablanca, Rabat, Tangiers and Tetouan) with the six largest municipal utilities. As shown in Figure 1.4.5, all four concessionaires significantly reduced the percentage of NRW, while only one out of the six public utilities achieved a (minor) reduction (Fez, which was also the worst performer to start with). The positive performance of the private concessionaire is even clearer when looking at the evolution of water losses measured in cubic metres lost per day per connection (Figures 1.4.6 and 1.4.7): they were able to reduce water losses to a level similar or close to the best public performer (Agadir).

Graph 14

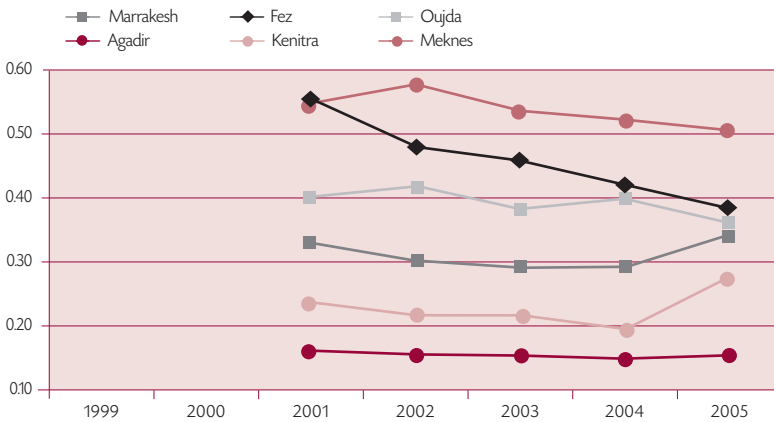
Evolution of water losses per connection (m³ per day) under private concessionaires



Source: Marin (2009).

Graph 15

Evolution of water losses per connection (m³ per day) for the 6 largest municipal utilities



Source: Marin (2009).

It would be wrong to conclude from this that private operators are more “capable” than public utilities of keeping water losses low. The public utility in Agadir is, for instance, an excellent performer. What these results show is that, when a public utility is plagued with a high level of water losses, contracting a private operator can be an efficient way to reduce them to acceptable levels. Also, not all the PPP projects reviewed achieved a significant reduction in water losses – as in some large projects such as Guayaquil, Maputo (Mozambique), and Western Manila – reflecting the fact that dealing with water losses is a complex and challenging topic.

Two important points concern the complexity of analysing and dealing with water losses. First, in several countries, including Argentina, tracking changes in water losses is difficult because a large proportion of residential customers are billed on estimated consumption, making it difficult to assess the true performance of PPPs. Second, the performance of management contracts for reducing water loss has often been disappointing, as less than half of the management contracts under review showed sizeable progress. This again reflects the complexity of dealing with high levels of water loss, which has many causes. Short-term contracts appear more suited to dealing with commercial losses (such as under-metering and illegal consumption), than with leaks, as time and investment are needed to rehabilitate a dilapidated network.

- *Bill Collection*

It is common for poorly performing public utilities to have low bill-collection rates because of lax enforcement and the fact that people often resent paying for poor service. Bill collection is an area in which it is widely assumed that private operators are efficient, because they have obvious financial incentives for collecting money from customers. Indeed, the study found that in most cases the introduction of a private operator resulted in a marked increase in bill collection rates. This was even the case for management contracts, with all the projects in the sample showing a significant improvement in bill collection under a private operator.

- *Labour Productivity*

Water utility PPPs have commonly been associated with massive employee layoffs. This was especially the case in Latin America, where staff reduction ranged from 20 percent to as much as 65 percent of the initial labour force as utilities were often over-staffed. Not surprisingly, these layoffs resulted in productivity gains, yet in many PPPs the improvement in productivity (measured as the number of staff per thousand customers) was as much due to staff reduction as to significant growth of the customer base. In fact, not all water utility PPPs resulted in major layoffs, as there are also many projects – especially in Africa – where productivity gains were achieved through a combination of coverage expansion and natural staff retirement.

It is important to remember that the question of the relationship between labour and private management goes well beyond the issue of staffing levels. The arrival of a private operator represents a radical change for workers. They usually lose their status as civil servants, and become paid and promoted based on performance. Employee profiles also tend to change, with an increase in more qualified staff. Many PPPs also turn to subcontracting to increase flexibility, so that the net impact on labour becomes very hard to gauge and is not necessarily negative. Water is a service business, and labour is both the largest fixed cost and the greatest asset of a water utility, the more so for private operators whose fortune ultimately depends on customer satisfaction. This is an issue that deserves more detailed analysis in future studies.

Overall efficiency. When analysing these three performance indicators in combination, operational efficiency appears to be the area where a positive contribution of private operators has been the most consistent. Almost all PPP projects showed overall improvements in efficiency, with many covering all three indicators considered. Some general conclusions by contract type (concession, lease/affermage or management contract) can be drawn.

- The overall efficiency of *concessionaires* is hard to judge: they are responsible for both operations and investment, and their investment efficiency was not addressed in this study. Limited evidence is available from Manila, where a detailed analysis by the regulator showed that the concessionaire in the Eastern zone had significantly improved operational efficiency, while the one in the Western zone had not.
- In the case of *leases/affermages*, the efficiency of private operators was easier to assess since their responsibility is concentrated on operational management. Detailed information on PPPs in Senegal and Cartagena (Colombia) showed that clear gains in operational efficiency were achieved, which were passed on to consumers over time through tariff reductions.
- *Management contracts* entail only a limited transfer of responsibility to private operators, giving them limited control over a utility's labour force. The study found that efficiency improvements under management contracts – measured using the global efficiency index (the ratio of water billed and paid for to water produced, a measure that combines water-loss reduction and improved bill collection) – was significant in most cases under review.

Impact of water utility PPPs on tariff levels: a complex matter. Analysing the impact of PPPs on tariffs is by far the most challenging of our four performance dimensions. Local factors such as raw water availability or topography greatly affect costs, and government policies heavily condition tariff levels. Water utilities do not use a single,

uniform, tariff for all customers, but instead use tariff structures that differentiate according to customer categories and consumption brackets, and can be extremely complex. Billing may be based on actual consumption or estimates, and the two approaches often co-exist in the same utility. Inefficient tariff structures of public water utilities are often revamped as part of the PPP reform, making before-and-after comparisons very difficult. What is more, public and private utilities rarely operate under the same legal and regulatory framework, and such different tax regimes and accounting rules make simple comparisons misleading.

Most poorly performing public utilities in developing countries have water tariffs that are well below cost-recovery levels. Therefore, raising them is often a necessary component of reform for ensuring the financial sustainability of the sector, whether the reform option chosen involves public or private management. In practice, the potential impact of a PPP on the tariff level depends upon two main factors: first, how far is the initial tariff level from the cost-recovery level and, second, what is the extent of efficiency gains that can be made by the private operator. The difficulty is that these two factors commonly go hand-in-hand, and can be of very large magnitude in developing countries.

The review of changing tariff levels of the PPP projects in this study showed that, in most cases, tariffs had gone up over time. However, it was impossible to assess the underlying reasons, as well as whether those increases were justified. Most utilities had tariff levels well below cost recovery before the private operator was introduced, and tariff increases are not necessarily a bad thing for customers when they also translate into wider access to better services (as did happen under many PPP projects). It is well known that in many developing countries, low water tariffs mostly benefited middle-class households – those with access to piped water – which left the utility with insufficient revenues to expand the system and provide access to poor families living on the city outskirts and in marginal areas. As a result, the unconnected urban poor ended up obtaining water from often unsafe and/or more expensive sources. Many of the poor households that gained access to piped water under PPP projects probably ended up paying a lower price for water than before they were connected to the network. It is also notable that in a few recorded cases, private operators did make efficiency gains that were large enough to allow for significant tariff reductions in real terms after a few years, as was the case with the PPPs in Cote d'Ivoire, Senegal, Gabon and Cartagena (Colombia).

The evidence from the literature on the impact of PPPs on tariffs is also largely inconclusive. The true impact of PPPs on tariffs cannot be gauged without controlling for a great many factors and variables, and a very large sample is needed to do so.

The only econometric study that approaches the mark is the recent one by Gassner, Popov and Pushak (2008), which uses a sample of more than one thousand utilities. In order to compare what is comparable, the average tariff levels of private water utilities are compared only with those of public utilities operating under a similar framework of financial sustainability, in other words fostering cost-recovery through tariff. It found no statistically significant difference in water tariffs between comparable public and private utilities.

1.4.3. Key Findings

- *PPPs are a viable option for reforming water utilities in developing countries*

Despite limitations related to data accessibility and reliability, and the ambiguity of indicators, the analysis across the four dimensions of performance (coverage, service quality, operational efficiency and tariffs) suggests that the overall performance of water PPP projects has been generally satisfactory. Several PPP projects performed well on coverage (access), service quality and efficiency combined. More performed well in one or two key aspects. Some brought sizable improvements to the populations they served, even though they proved unsustainable and were terminated early (as in Metropolitan Buenos Aires or La Paz – El Alto). A few others failed to achieve any meaningful results by most accounts.

It is important to realize that the developing world is a very diverse place, with very different social, economic, cultural and political environments. It is therefore not surprising that the development of water utility PPPs has not been uniform, being driven in particular by the pace of reform in the urban water sector in each country. While private operators have stopped gaining market share or have even suffered setbacks in some countries (especially in Latin America), other developing countries have gradually adopted the PPP approach. Out of 65 developing countries that embarked on water utility PPPs during the past two decades, 40 still had private water operators in place by the end of 2008. Private operators now serve most of the urban population in countries as diverse as Algeria, Armenia, Cameroon, Chile, Cote d'Ivoire, Czech Republic, Gabon, Ghana, Malaysia, Niger, Senegal and Cameroon. In Colombia, Cuba, Ecuador, Hungary, Morocco, Mozambique and the Philippines, private operators serve a third of the urban population. In recent years, water utility PPPs have made significant inroads in large countries such as China, Russia and Brazil. With about 85 percent of all water PPP contracts awarded between 1990 and 2008 still active, and the rate of early contract termination at less than 9 percent, the PPP approach has passed the test of time. However, 25 countries have experimented with one or more PPP projects at one point in time, and then decided to revert to public management only.

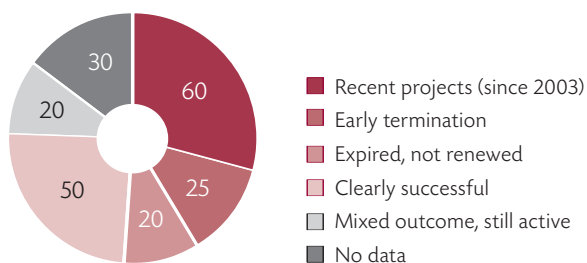
While these numbers do reflect that PPP is not a panacea for every possible situation encountered in the developing world, they also contradict the idea that the water PPP is a “failed approach” for developing countries. A wide variety of contractual designs have been experimented since 1990, covering many different – and often challenging – environments, and giving rise to a wide variety of results. A clear lesson is that a PPP is not a magical formula: as with any reform options, success is never guaranteed, and details do matter much. Designing a PPP scheme well adapted to the specific conditions of each utility, together with the willingness of the public and private partners to make it work, proved to be key determinants for the final result.

• **Overall, water utility PPPs results are very heterogeneous**

The performance analysis presented in previous paragraphs was organized around specific indicators. Figure 1.4.8 provides a broad classification of the outcome of water PPP projects in the developing world, providing an overall picture. In all, about 205 million people in developing and transition countries have been served by water PPP projects at some point since 1990.

Graph 16

Water utility PPPs during the last 15 years: Project outcome by population served



Source: Marin (2009).

The first “line of demarcation” is between projects that are still active and those that are not. By late 2007, about 160 million people were still being served, while another 45 million people had reverted to public management, following a PPP experience that ended with either early termination or non-renewal of the contract. Many of the latter, corresponding to about 30 million people, had their performance reviewed for this study, but not all these cancelled PPP projects can be considered as failures. Several short-term management contracts, though not renewed, were successful in significantly improving the performance of the utility, as was the case for instance in Johannesburg (South Africa), Kosovo, Durrës (Albania) and Gaza. In some terminated concessions, the private operator left after having markedly improved the level of service (as in Metropolitan Buenos Aires and La Paz – El Alto), even though the PPP arrangement did not prove politically sustainable.

Of the 160 million people that were served by still active private operators by the end of 2007, the projects for which performance data were collected as part of this study represent about 70 million. Those that can be seen as broadly successful served about 50 million people. None of these are “perfect projects”, a concept that does not exist in the real world, but they are PPPs that provided clear and significant benefits to the population, and where a good working relationship has usually developed over time between the partners. Successful PPP projects exist in all regions of the developing world, including Latin America (Colombia, Chile, Guayaquil in Ecuador, and Brazil), Africa (Morocco, Cote d’Ivoire, Gabon, Niger and Senegal) and Asia (Yerevan in Armenia, Macao in China, Eastern Manila). In comparison, active PPPs for which data were collected as part of this study but whose performance proved mixed or disappointing, so far represent about 20 million people, including projects in Maputo (Mozambique), Western Manila (Philippines) and Jakarta (Indonesia).

Finally, water PPP projects whose performance was not reviewed for the study represent about 90 million people. This includes several large projects with many years of operation for which no reliable data are available, such as the PPPs in Mexico and Havana, Cuba, as well as many new PPPs awarded during the last 5 years. The performance of water PPPs in several large countries that have recently introduced private operators, such as China, Russia, Malaysia and Algeria, remains to be assessed.

- *Direct private investment is the wrong focus for water utility PPPs in developing countries, as the most consistent contribution of private operators has been improved efficiency*

In the 1990s, the main attraction of PPPs in the water sector was their supposed ability to attract private finance. Experience has shown that this was a largely wrong focus. The hope that the private sector would fund the large investment gap in water infrastructure of developing countries has clearly not materialized. Many concessionaires have failed to meet their contractual commitments, and the bulk of private investment in water has been concentrated in Chile, plus a few large projects. In practice, water concessions have proved to be much more vulnerable than other PPP schemes in the volatile and challenging environment of developing countries. As local financial markets, even in the most advanced developing countries, were not sufficiently developed to provide long-term debt in local currency, the concessionaires had to arrange financing in foreign currency, thereby introducing a significant foreign-exchange risk that made the PPPs even more vulnerable to economic shocks.

Not all this means that private investment should be discarded altogether. It is certainly desirable whenever possible, as it reduces reliance on scarce government budgets, and can be made to work in the more advanced transition countries, such as China, Brazil, Malaysia or Morocco, where financial markets are now sufficiently mature for providing long-term debt in local currency at acceptable rates. However, private investment is not yet the solution for most developing countries, where the magnitude of project risks and the lack of effective regulations make private funds very expensive. Governments and donors must accept that the water sector will still need public financial support for a long time to come.

These findings do not invalidate PPPs as a powerful tool for improving the financial sustainability of water utilities; quite the contrary in fact. The review of successful cases shows that the biggest contributions of private operators lie in improving operational efficiency and service quality. These improvements have a major impact on access to financing, but in an indirect manner. When service quality improves, customers become more willing to pay their bills, resulting in increased revenues. Similarly, operations that are more efficient result in cost savings, which generates more cash flow from operations. As creditworthiness improves, a utility can more easily access funding and invest in service expansion and rehabilitation. Whether the money for investment comes from public or private sources, or a mix of both, then becomes a rather secondary issue, depending on the conditions of financial markets, the funding availability of donors, and the government's budgetary situation at a given point in time.

The experiences in Cote d'Ivoire and Senegal show how an efficient private operator can play an essential role in ensuring that the water sector gradually becomes financially self-sufficient.

- *Water utility PPPs can be effectively regulated, even in developing countries*

PPPs are complex arrangements, and it is fair to ask whether they may be just too complex for weak governments in developing countries, especially when the contract involves a powerful multinational. This concern is certainly justified, but private utilities are not necessarily harder to regulate than public ones. The asymmetry in information between the delegating authority/regulator and the service provider remains, whether the operator is public or private. Sadly enough, many public water utilities in the developing world have been captured by special interests, resulting in overstaffing, perks for political appointees, and sloppy work practices, increasing costs unnecessarily and viewing customers as annoying outsiders.

Is the problem any worse when a government must deal with a private operator? The answer is not obvious, but one might observe that private operators at least operate under a framework that fosters accountability. There is a detailed contract that spells out performance targets and mandates regular reporting. Private operators can be fined for noncompliance and can even have their contracts cancelled. The intense scrutiny they receive from civil society means that it is certainly no easier for them to extract excessive profits, than it has been for special interests groups to “milk” public utilities for many decades.

The regulatory framework under which water utility PPPs have been operating in the developing world, falls broadly into two categories:

- *“Regulation by contract”* derives from the French and Spanish PPP tradition, and relies essentially on a detailed contract for spelling out conditions, with future adjustments resulting from direct renegotiations between the two parties.
- *“Regulation by agency”* rests upon the establishment of an independent regulatory agency (following the UK and Chile model) and was widely implemented in countries that adopted the concession approach, as in Argentina.

In practice, PPP organization commonly follows a hybrid approach, combining a specialized regulatory agency with a usually very detailed contract. How can we tell whether a given regulatory framework is working? The answer again is not obvious, but if one accepts that the ultimate goal of regulation is to ensure the delivery of clear benefits to the population and the contracting government in a sustainable manner, then some conclusions can be drawn.

Regulation by contract has worked well overall—and in places as diverse as Morocco, West Africa, Colombia, the Czech Republic, and Macao. In contrast, the “hybrid approach” that was adopted in many other places (especially in Latin America) has proved far less satisfactory. There has often been much confusion about the role of the regulatory agency and the extent of its discretion to interpret the terms of a contract. A decade ago, international financial institutions favoured the creation of “independent regulators” resembling those set up for supervising new private water operators in Britain and Chile, but establishing truly independent regulating agencies has proved extremely difficult in most developing countries.

Two main lessons can be drawn from this experience. First, the fear that governments in developing countries may not be able to properly regulate water-utility PPPs is rather overblown, as shown by the relatively good performance of regulation by contract, even in poor Sub-Saharan African countries such as Senegal and Cote d’Ivoire. Second, pragmatism is essential: regulating a private operator is difficult, and even though having a competent and credible regulator is of much value and a worthy long-term goal in terms of public policy, it takes a lot of time and effort to establish one. In the meantime, regulation by contract provides a simple and yet rather efficient approach: details are spelled out in a contract that, by its very existence, is a significant improvement in accountability compared with the absence of regulation that characterizes most public utilities. Renegotiations are unavoidable, but giving discretionary power to a weak and inexperienced regulatory entity does not necessarily help. What the contracting government must do is to set up a competent team to act as counterpart to the private operator, and ensure that all decisions are made in a transparent manner.

1.4.4. Lessons for designing water utility PPPs better adapted to the developing world

The findings of this study suggest that a new approach is emerging for maximizing the potential contribution of private water operators in the developing world. The focus should be on using private operators for improving operational efficiency and service quality, instead of primarily trying to attract private financing. The provision of public funding will in most cases be necessary to ensure affordability and access for the poor. A new generation of water PPP projects has already been gradually emerging, as these elements has been progressively integrated by the market.

To benefit the poor, PPP design must incorporate the cost of social goals. While the study found that many water PPP projects brought significant benefits to the

population as a whole, the lack of household-specific data at utility level did not allow assessing how many of these benefits accrued to the poor. There is much evidence that poor households did benefit significantly from coverage expansion in places as diverse as Ecuador, Senegal, Colombia, Cote d'Ivoire, Argentina, Bolivia and the Philippines. For instance in Cartagena (Colombia), the private operator now offers universal coverage in a city where 85% of the people are poor and 27% lacked access to piped water a decade ago. However, many other projects do not show much evidence of tangible benefits for the poor. Admittedly, there is a huge data gap, and many of the problems that prevent access to piped water for the urban poor (such as how to deal with illegal settlements and slums) cannot be solved at the level of a utility, whether it is public or private. However, it is also fair to say that PPPs as a whole fell short of expectations for solving the difficult issue of ensuring affordable access to piped water for all. This does not mean that PPPs cannot be a helpful tool, but to be effective they need to be designed with a clear pro-poor focus and as part of a wider government policy to support social goals.

Much has been written about the design of pro-poor PPPs. Private operators are merely agents acting under a set of incentives and obligations outlined in a contract, and on behalf of the contracting government. The most common recommendations – such as making connections and tariffs affordable through targeted subsidies, and including slums in the contract service area—are sound. Nevertheless, they can be implemented only if the contracting government realizes that good intentions must be paid for. How to finance the cost of coverage expansion might be where those who designed the first generation of PPPs made the biggest mistake. The capacity of unconnected users for financing part of the cost of expansion was often overestimated. The well-publicized problems in Buenos Aires and La Paz have shown that high connection fees are unworkable and unfair for the poor. At the same time, widespread resistance to tariff increases has shown that getting connected customers to subsidize connections for the unconnected through higher tariffs – so-called cross-subsidies – has its limits.

The improvement in operational efficiency often brought about by private management can generate more cash for investing in expansion, but the amount of investment that can be financed by tariff revenues alone is limited by the size of the customer base and how much can be charged for the water. It will rarely prove sufficient to fund a serious pro-poor programme, given the enormous needs of fast growing cities in developing countries. In this context, it is not surprising that the most successful PPPs in expanding access for the poor are those where the government was ready to provide public money for achieving social goals. This allowed the achievement of ambitious expansion plans in a much shorter time than if the utility had to rely on

the sector's cash flow alone. A competent private operator can thus be an ideal partner for the efficient execution of a programme, as in Guayaquil where connections and network expansion were subsidized by the central government, and in Cartagena and Senegal.

Wanted: Realism, collaboration and respect for local conditions. In a sense, the first decade of water utility PPPs was a testing ground for a new approach to reform, which represented a radical change over the traditional public model. Not surprisingly, mistakes were made on all sides. Private operators were often too ready to sign poorly worded contracts, in the hope of gaining market share. Donors were naïve in the belief that PPPs were some kind of “silver bullet” that could solve by itself the many problems confronting water utilities, and did not always put sufficient effort in adapting contractual approaches to specific local conditions. Finally, many governments did not clearly understand what PPPs meant and entailed, especially that this is no privatization but a partnership, and that they need to remain involved and work with their private partner. In addition to the earlier mentioned points, three elements for the proper design and implementation of water-utility PPPs deserve to be highlighted:

1. *Respect for realism.* Early PPPs were rife with unrealistic expectations and targets. Governments and donors must accept that improving water utilities in the developing world will be difficult, whatever the chosen reform option. We need to be realistic first about the cost of meeting social goals and the unavoidable trade-offs involved in deciding how to finance them. Then we must accept that progress takes time: Time for a new operator to understand the systems he will manage; time for utility employees to adjust to a new corporate culture; time for service-improving investments to be identified and made; and time for partners to get to know each other and make their partnership work.
2. *A deeper understanding of what partnership means.* Governments must internalize the notion that PPPs are about partnership, not privatization. They cannot act as if “passing the buck”, signing a PPP contract in the hope of transferring all their problems to the private partner, and then blaming the operator when obstacles appear. After all, the operator faces the same conditions that had frustrated the government for years. These difficult problems can be addressed only if the parties are ready to cooperate.
3. *Custom-made contracts to suit local conditions.* The move from traditional management of public water utilities to introducing a private operator under a PPP is a radical one. Local actors need to adjust, and replicating an off-the-shelf approach from elsewhere (where it might have worked, but the government culture was

different) is bound to compound the problem. The right approach is to take local conditions as a given and to design the PPP around them, not the other way around. The PPPs in Colombia and West Africa ended up delivering good results because special efforts were made for developing innovative approaches that took the best elements from outside experiences, but adjusted them to local conditions.

The promise of long-term PPPs is built on mixed financing schemes. In retrospect, most water concessions in the 1990s appear to have been built on a misunderstanding of the financial fundamentals of the water sector. In the industrialized world, water utilities can easily access private funding from banks and financial markets because they have a very low credit risk, enjoy stable cash-flow and evolve in a stable regulatory environment, but the same cannot be said for developing countries. Deteriorated infrastructure and fast-growing demand for services introduce huge uncertainties about future investment needs. Tariffs are usually below cost, and, even in the richest developing countries, great social inequalities mean that the ability of poor households to pay the full cost of service cannot be taken for granted. For concessionaires in the 1990s, the risks inherent in borrowing investment capital in foreign currency amplified these uncertainties. In the face of all these risks, it was no surprise that private financing proved costly and hard to find.

The maturation of financial markets in countries like Brazil, Chile, China, Malaysia, Morocco and China, by eliminating foreign-currency risk, may have breathed new life into the concession model, but this is only valid for the most advanced countries. Elsewhere, there is no escaping the fact that most of the huge investments needed for improving service and expanding access must come from public sources.

More and more countries are adopting a PPP model in which investment is largely funded by public money, with the private operator focusing on improving service and operational efficiency. In practice, funding for investment under mixed-financing PPP projects comes from a combination of direct cash flow from revenues, with a variable mix of government and private sources that makes the traditional dichotomy between leases/afermage and concessions increasingly obsolete. Several successful approaches have been developed over the past decade:

- *Concessions* rely largely on revenue cash flow for investment, with cross-subsidies from electricity sales (Gabon), tariff surcharges (Cote d'Ivoire), or both (Morocco).
- *Afermage*, according to the model developed in West Africa, combine strong incentives for operational efficiency, subsidized connections for the poor, and a gradual move to full cost recovery through tariffs (Senegal and Niger).

- *Mixed-ownership companies* share decision making and profits between the public and private partners, as in Latin America (Colombia, La Havana in Cuba, and Saltillo in Mexico) and Eastern Europe (the Czech Republic and Hungary).
- *Concessions incorporating public grants for investments* spearhead the expansion of access to water and/or network rehabilitation, while minimizing the impact on tariffs. This is typified by the PPPs in Colombia designed under that country's *Programa de Modernización de Empresas* (PME). Similar approaches were adopted in Guayaquil, Ecuador, and in a few concessions in Argentina (Cordoba and Salta).

Two important elements are common to all these variants. First, the operator itself identifies investment priorities, and has much say in the supervision of ensuing civil works, even where public investments are managed by a public agency. Second, where the private operator is responsible for managing the investment of public funds, specific mechanisms (such as a dedicated trust fund) are set up for ensuring that the funds are properly used. Obviously, schemes for channelling these public funds in an efficient and transparent manner offer the greatest promise.

Management contracts as tools for supporting public reforms. Like the distinction between concessions and leases/affermages, some old ideas about management contracts need changing. The potential of management contracts to help reforms has been limited by some persistent misunderstandings and oversights.

In reality, management contracts do not transfer a public water utility into private hands. A water utility under a management contract remains the same public entity. The utility's employees remain civil servants, and the idea that the utility becomes "privately managed" must be considered in context. Without the power to hire, fire and promote staff, the scope for the private operator to exercise traditional management functions is very limited. In fact, he is often more of a coach than a hard-nosed private manager, and his performance is heavily dependent upon the good faith and active cooperation of the contracting government, as well of the utility's staff. In practice, management contracts may be closer to service contracts – which were not considered as PPPs in this study – than to long-term PPPs such as affermages and concessions.

The confusion may stem from the fact that management contracts were implemented in situations where the creation of a PPP had been decided upon, but where the affermage or concession solution was deemed too risky. Such contracts thus were proposed as a first step before another PPP contract could be put in place. The paradox, though, is that, in most cases, they have not led to a deeper form of PPP, but rather to a return to public management. The perception of the management contract as some kind of "Trojan horse" preparing for a second, wider-scope PPP

often prevented full collaboration, which in turn affected performance. In a sense, many management contracts were doomed by the context in which they were introduced.

Another paradigm for management contracts, however, recognizes them for what they are: Unthreatening, low-powered instruments designed for efficient practice – essentially vehicles for the transfer of knowledge. Under this alternative approach, a private operator is brought in for a limited number of years, to manage and reorganize a public water utility until sufficient operational, commercial and financial improvements are achieved for allowing the public utility to continue on its own. As such, and for all their remaining limitations, management contracts could become valuable tools for the reform of public utilities, especially given the number of countries where governments are sceptical about transferring water services to private utilities, but are not against outside professional expertise to help to turn around their public utilities. This approach was successfully implemented between 2000 and 2006 for the turnaround of the water utility of Johannesburg in South Africa (Marin *et al*, 2009b), and is being considered by several donors in various countries.

Conclusions

The public/private debate should be transcended. It is clear from the many experiences of the past 15 years that a public-private partnership is not a magic formula for addressing all the multiple issues of failing public water utilities in the developing world. For many governments in developing and transition countries, PPP projects have proved to be complex undertakings that carry strong political risks and great uncertainties as to the magnitude and timing of the expected benefits. Contractual targets are difficult to set and baseline data are seldom reliable, generating many opportunities for conflict. Private operators do not always deliver and can tend to seek renegotiations to their advantage. Reforms can become easily subverted by vested interests, and private (and especially foreign) operators make easy targets for demagogical campaigns. Overall, many obstacles can lead to conflicts, disappointment, frustration and ultimately costly contract termination. Still, the study clearly shows that the overall performance of water utility PPPs is more positive than is commonly believed. PPP projects for urban water utilities have brought significant benefits to millions of people in the developing world. Not surprisingly, countries with successful PPPs are those where an effort was made to find a specific scheme adapted to local situation.

In the current context, transferring a majority of urban water services to private operators is unlikely to be the chosen option for most developing countries. Yet, paradoxically, this does not reduce the value of the PPP approach for promoting better water and sanitation services in the developing world. Having just a few water utilities managed by private operators in a given country can generate much-needed pressure on the existing public providers, and thereby play a major role in improving the performance of the sector as a whole. Complacency is the worst enemy of public utilities, it being rooted in the false assumption that poor service has no consequences and that there is no alternative management model. That attitude makes it difficult for even the most skilled and best-intentioned managers in public utilities to introduce and sustain improvements, faced with the many groups that have stakes in the status quo. The public water utilities that have succeeded in improving performance are those that have applied sound commercial management principles, emphasizing financial viability, accountability, and customer service. In countries such as Colombia and Brazil, the introduction of private operators has done much to create a general reform momentum, encouraging public water utilities to improve their performance

and become more accountable. In that sense, the actual contribution of water utility PPPs may be greater than that achieved for specific projects – through the introduction of a much-needed sense of competition and accountability in an erstwhile monopolistic sector. This also means that the recent move, in a few developing countries, of out-living private management of water utilities on ideological grounds may end up working against establishing efficient and sustainable public water utilities.

Recent developments increasingly show that the traditional opposition between public and private utilities is becoming obsolete. Dividing lines are increasingly blurred with a growing number of public utilities opening their capital to private investors, such as SABESP in São Paulo, Brazil. Others are being awarded PPP contracts for operating water utilities outside of their jurisdiction, or even outside of their own country, such as ONEP from Morocco in Cameroon, or Rand Water from South Africa in Ghana, where they operate as private entities. Many public water supply utilities in the developing world are also opening their doors to the private sector through practices that fall short of delegated management, but offer other forms of providing operational expertise, including:

- (i) Subcontracting large portions of their operations to the private sector (as in Bogota and Mexico City) following a well-developed practice in Northern Europe;
- (ii) Recourse to build-operate-transfer (BOT) and similar arrangements for the financing, construction and operation of treatment plants; and
- (iii) The increasing use of performance-based contracts whereby a private operator provides specific services (such as activities for reducing water losses) and whose remuneration is at least partly based on results (Kingdom *et al.*, 2006; Marin *et al.*, 2010b).

Stakeholders are also exploring new ways of providing technical assistance in developing countries, through initiatives like the Water Operators Partnership (WOP), which are supported by both public and private operators. Finally, most PPPs involving private operators also leave a large role to the partner government, as under affermage contracts where a public agency is often in charge of investment, as in Senegal. All this increasingly blurs the traditional boundaries between public and private water utilities, fostering a more buoyant and competitive market.

The complex problems affecting water utilities in the developing world, as well as the urgency of alleviating the suffering of the millions of urban poor who do not receive adequate water supplies and sanitation services, are considerable. So are the needs for outside help. To tackle the immense challenges facing the urban water sector in developing countries, policy makers need all the help they can get, and

there is no reason to be ideological and disqualify some players *a priori*. A variety of options are available to policy makers – involving private sector involvement, public management or a mixture of both – which can all either succeed or fail, depending on the conditions of a given utility at one point in time. The private sector has much to offer in many forms, and the moment may have just come for a new, wider, definition of partnership: one that includes all and excludes none.

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Part 2

“Grafting” models
from developed countries
on to local contexts

2.1.

Private sector participation in Senegal: a successful “home-grown” strategy?

S. TREMOLET ^[52]

Introduction

In 1995, the Government of Senegal initiated in-depth reforms of the water and sanitation sectors, leading to a Public Private Partnership with a private operator. A 10-year affermage contract was signed in 1996 and extended in 2006 for another 5 years, as allowed by the initial contract. This PPP experience is generally considered a success, especially compared to other contracts in Sub-Saharan Africa. The Government of Senegal is currently reviewing options for greater private sector participation after the contract expires in 2011.

Hereafter, we review the Senegalese experience through a particular lens^[53]. It analyses how the affermage model, taken from the French context, was tailored to the country's specific *circumstances* by considering local economic, social, political and cultural factors. Such “adaptation” took place both during the project design stage and during the life of the contract. Success factors included a strong willingness on all sides to see the contractual arrangements work, as well as the fact that the contractual and regulatory arrangements were well tailored to the circumstances.

[52] This article is based on a study entitled “Case Study on Senegal’s Water and Sanitation Sector Economic Regulation” by the author. It was commissioned by the World Bank (with PPIAF-financing) and completed in May 2006 (full text available on demand at sophie@tremolet.com). This case study is part of a series of case studies on regulatory regimes examining causes of regulatory success and failure, and studying the influence of social, institutional and sector-specific contexts on regulatory effectiveness.

[53] The Senegalese PPP experience in the water sector has been abundantly studied (see References).

After setting out the facts of the reforms and what happened during the life of the first stage of the contract (up to 2005), we evaluate the main factors for success. Additional references are included at the end.

2.1.1. The facts: The contractual arrangements worked and delivered

• *The process leading up to reforms*

The context. Senegal gained its independence from France in 1960. Since then, it has benefited from one of the most stable political regimes in the region, being the first West African country to experience a smooth democratic transition with the organization of presidential elections in 2000, won by the opposition leader, Abdoulaye Wade. It is unified culturally by a common language and religion, despite a very mixed ethnic background, and benefits from a strong administrative tradition. However, Senegal is predominantly rural, with limited natural resources. Poverty remains a serious issue, with 54 percent of the population living below the poverty line in 2003.

Reform needs. The urban water sector in independent Senegal started under private sector management. From 1960 to 1971, the *Compagnie Générale des Eaux* (the predecessor of Veolia Environment) was responsible for water services in the main urban centres under a lease contract arrangement. Water and sanitation services were nationalized in 1971 as part of a wave of nationalizations in the country. At that time, the public company SONEES (*Société Nationale d'Exploitation des Eaux du Sénégal*) became initially responsible for operating water and sanitation services in urban centres, and for both operations and investments following a reform in 1983.

Water services were relatively well managed by SONEES, but the physical successes masked some underlying problems. The planning contract agreed in 1990 between SONEES and the State actually weakened SONEES's financial position, leaving little funds for new investments. In addition, there was increasing concern for the sustainability of water supply in Dakar, the country's capital and its main economic centre.

In 1993, the Senegalese government and donor agencies recognized that significant investment and institutional reforms would be required for overcoming these difficulties. International donors were only prepared to provide long-term financing on the condition that a private sector operator be recruited, with the objective of improving both management and operational efficiency. Another key objective of the reforms was to introduce better discipline in managing investment and to reach financial equilibrium for the sector by 2003. Following the FCFA devaluation in 1994

and the initiation of sweeping macro-economic reforms, donor pressure on the Government of Senegal to end government investment in state-owned enterprises, improve their efficiency and prepare them for privatization, was even stronger.

Reform objectives. The water sector reform process started in earnest in 1995, with support from a number of donors including the World Bank and AFD. With reduced volumes of water reaching the capital city, intermittent supply and relatively low coverage levels, the main objective of the reforms was to increase water supplies for Dakar. Providing sustainable water supply over the long term required substantial investments to convey water from Guiers Lake over a distance of 240 km. As part of the reform package introduced in 1996, the pipeline capacity was to be doubled. Such large investments could only be funded by the public sector, calling for substantial donor support. External donors adopted a coordinated approach through two main assistance programs: the Water Sector Project (*Projet Sectoriel Eau*), which was supposed to cover the period 1995 to 2001 (although it officially ended in June 2004) and the Long-Term Water Sector Project (*Projet Sectoriel Eau à Long Terme*) that ran from 2002 to 2007. Donors requested the introduction of a private sector operator in order to guarantee the efficient use of such large investments. Besides, they estimated that investing in increasing water resources for Dakar could only be justified if losses on Dakar's water network were simultaneously reduced. This was a key factor for setting ambitious performance targets (and associated financial incentives) to the private operator for reducing network losses. Additional reform objectives included the definition of a revised legislative framework and the introduction of private sector participation in SONEES's management to ensure better management of the additional water supplies.

Reform process. In 1994, a steering committee comprising the Ministers of each government agency concerned with water supply and sanitation was formed and started analysing reform options. To prepare the reforms, the World Bank contracted a Dutch consultancy (Aquanet) to review private sector participation experiences in other countries, including Cote d'Ivoire, Guinea and the Gambia. Members of the government and donors accompanied the consultants on these fact-finding missions. Other consultants included Ernst & Young, who worked on the financial and legal design of the contracts, and an adviser who remained involved as the independent conciliator throughout the initial years of the contract.

Learning from regional experiences. Analysing the strengths and weaknesses of PPP arrangements in the region helped focus the discussions on very concrete points as well as design arrangements that were specifically tailored to Senegal rather than copied from French model contracts or other West African experiences. For example, it was found that in Guinea, a lease-type contract form had been adopted with mixed

results^[54]. Even though the private operator had delivered positive results, the private operator's contract did not provide incentives to decrease non-revenue water. According to the results of the evaluation, given that the operator's remuneration was calculated as a percentage of the tariff, the operator had applied pressure on the Government to increase tariffs without being encouraged to increase its own operational efficiency. The indexation formula, which had been copied straight from a French affermage model, had led to substantial cash flow for the operator, as the factors included in the tariff indexation formula did not adequately reflect changes in local prices.

Design of the arrangements. The contract form that was finally retained in Senegal was that of affermage, whereby the private operator is responsible for operations and maintenance, with some limited investment obligations. The public sector, via an asset-holding company, is responsible for major renewals and new investments, as well as managing the sector's debt, thereby significantly limiting risks for the private operator. This reflected two choices that were going to prove critical for the success of the reforms further down the line.

1. *Creation of an asset-holding company.* After examining the pros and cons of setting up an asset-holding company based on a review of experiences in West Africa (including in Gambia, Guinea and Cote d'Ivoire), the solution retained was to create an asset-holding company. In part, this was because it offered better security for donors in that the funds allocated to the sector would be spent in the sector rather than allocated to the general budget. However, this was a clear departure from the arrangements that had prevailed in France for water contracts (whereby the municipality lets a contract directly to the private operator) or in Cote d'Ivoire, the West African country with the longest history of uninterrupted private sector participation in the water sector.
2. *Choice of contract form.* The type of affermage contract retained in Senegal was not the classic "French affermage contract", through which a municipality, for example, delegates management in return for a specified fee (also referred to as a "lease fee"). By contrast, in Senegal the private operator receives a fixed amount per cubic metre of water sold. This proved critical in shielding the operator from part of the commercial risk whilst maintaining strong incentives to serve all customers, including poor customers who purchase water at the social tariff.

[54] See Box 9 for the difference between lease and affermage.

Box 9 Contractual forms: leases and affermages

The distinction between “affermage” and “lease” contracts sometimes generates confusion, partly because the words have often been used interchangeably in English. Although they relate to a similar allocation of responsibilities between the public and the private sector, they differ in terms of risk allocation. In 2006, the World Bank published a toolkit on private sector participation in the water sector in which it defined “lease” and “affermage” as follows:

- **Affermage:** A contract in which the operator receives a fee per volume of water sold and returns the difference between tariff revenues and its remuneration to the owner of the asset, which can be the contracting authority or an asset-holding company. This amount can be adjusted over the years for inflation.
- **Lease:** A contract in which the operator retains revenue from the customer tariff and pays the contracting authority a specified lease payment (usually fixed). The leaseholder thus bears the full commercial risk.

This distinction is useful because it relates to the amount of revenue risk taken on by the private operator and to the incentives to serve poor customers. In an “affermage” defined in this way, the private operator is partly shielded from revenue risk (although not completely) and earns the same remuneration per cubic metre sold, irrespective of whether water was sold at the social tariff or the industrial tariff.

However, it is important to note that common “affermage” contracts in France actually function as “leases” if such definition is used, as the operator would pay the asset owner a pre-specified fee to cover depreciation of the assets. When all assets have been depreciated, this fixed fee may only be for use of the public domain rather than for covering depreciation costs.

The bidding process. Almost two years elapsed between taking key decisions on the reform framework in July 1994 and the private operator taking office in April 1996. At first, the managers of SONEES were strongly opposed to the reforms and organized strikes and sit-ins in front of the National Assembly when Law 95-10 was debated in Parliament. In the end, the employees negotiated an agreement and requested that the number of employees remain constant and that the private operator be submitted to performance targets.

Following an international call for tenders in July 1995, the affermage contract was let on the basis of the lowest operator bid price, which is the basis for calculating the private operator’s remuneration. Although several countries had been contacted, all the bidders who responded were French: Générale des Eaux (now Veolia), Lyonnaise

des Eaux (now Ondeo), Saur and CISE (which subsequently merged with Saur). In November 1995, Saur International won the tender with a proposed operator or bid price of FCFA 236 per cubic metre (USD 0.42 at 2005 exchange rate), which at the time was equivalent to 62% of the average tariff. Saur was not new to Senegal, as it had been providing technical assistance to SONEES for many years before the bid.

- *Translating the reforms into legal and contractual arrangements*

The reforms were implemented through the adoption of a law in 1995^[55] which dismantled SONEES and created two national operators for urban water services. These were SONES (*Société Nationale des Eaux du Sénégal*), a public asset-holding company managing all water-related assets owned by the State in urban and suburban areas of Senegal and monitoring the supply of water services; and SDE (*Sénégalaise des Eaux*), a private operator in charge of producing and delivering water in urban and peri-urban areas, maintaining the network and collecting revenues from customers. ONAS (*Office National d'Assainissement Urbain*) was also set up at the time, to oversee the development of sanitation services in six major urban centres.

The law organized the transfer of assets, rights and obligations and staff from SONEES to SONES, and established that urban water services are the responsibility of the State and not of local governments. SDE was set up in 1995 as a private Senegalese company, which was majority owned by the French water company Saur together with national private investors. At the Ministerial level, the Water and Energy Ministry (*Ministère de l'Energie et de l'Hydraulique – MEH*) is responsible for overall policy setting, including approving tariffs based on proposals by SONES and ONAS.

Two inter-related contracts set out the arrangements in more detail:

- *A 30-year concession contract between the Senegalese Republic and SONES*, with an annexed planning contract between SONES and the State of Senegal (represented jointly by the Ministry of Water and the Ministry of Finance), outlines SONES's and the State's obligations. The concession contract (and its associated planning contract) define the service area of the concession (the entire national territory, but in practice, SONES has responsibilities only over the 56 urban centres as well as 272 villages that are connected due to their proximity to the network) and include a list of assets transferred to SONES. The contract specifies the rights

[55] The legal framework did not evolve during the first contract but a new sector law was adopted in September 2008. Its main purpose was to clarify the responsibilities of each party and to establish stronger mechanisms for regulating not only the private operator, but also the two remaining public entities in the sector, SONES and ONAS.

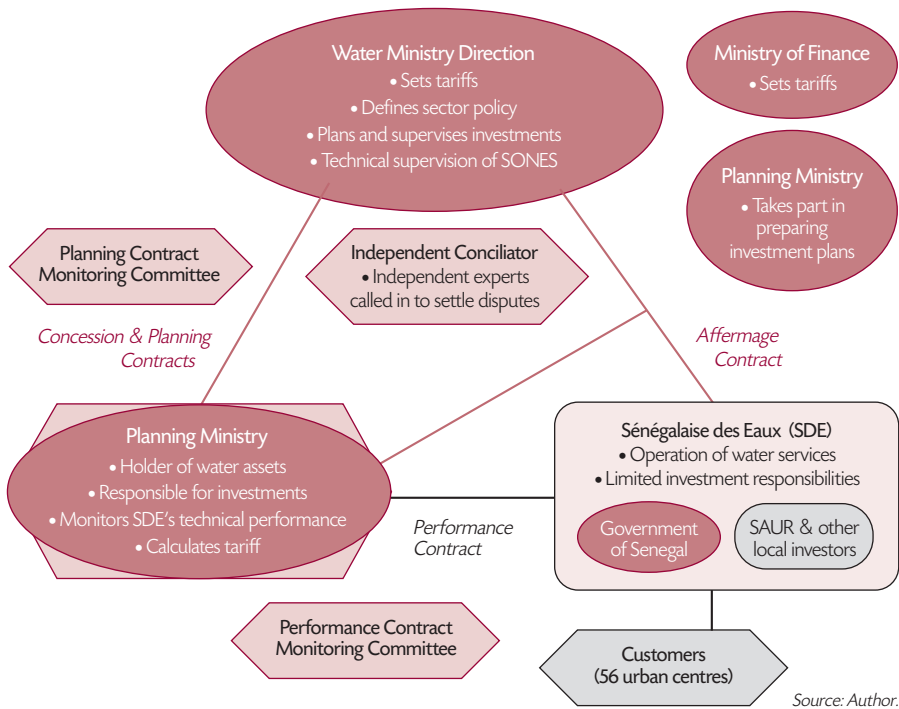
and obligations of the State and of SONES, and organizes their relations. The concession contract also stipulates SONES's remuneration and the monitoring regime. Under the concession contract, SONES is responsible for preparing 10-year investment plans, taking account of basic planning factors and SDE's views on investment requirements, and for financing of investments out of amounts set aside as a provision in a so-called "investment fund" required by the concession contract.

- *A 10-year affermage contract between the Senegalese Republic, SONES and SdE* outlines the obligations of the private operator (SDE). In addition, a performance contract between SONES and SDE only, is included as an annex to the affermage contract, which can be revised periodically. The Senegalese Republic is party to the affermage contract as it was deemed necessary to reassure the private operator since SONES had just been set up and some of its staff was hostile to private sector participation, at least initially. Involvement of the Senegalese Republic in the affermage contract also made the reforms more "irreversible". The affermage contract defines the asset regime, service standards and conditions, regime governing the works, remuneration regime for the operator, monitoring mechanisms, and sanctions. SDE has a monopoly over the supply of water services within SONES's perimeter. The population in this service area was estimated at 4.35 million in 2004, equivalent to 42% of the total population of the country. The main responsibilities of SDE as outlined in the affermage contract, are extraction, production and distribution of water; maintenance of all the materials used in production and distribution including the network; certain renewals and some limited investment responsibilities. SONES is responsible for technical, administrative, commercial and financial monitoring of SDE, ensuring the good execution of service and that it conforms to wider Senegalese, e.g. environment and public health, regulations. The performance contract signed between SONES and SDE specifies a number of performance targets, particularly with respect to loss reduction, bill collection, water quality and customer service, some of which impact the private operator's remuneration directly.

Such arrangements are shown in Figure 2, which also shows the additional arrangements that were put in place in order to settle conflicts, if any. Two Contract-Monitoring Committees were created, one under the Performance contract linked to the affermage contract and one under the Planning contract attached to the concession contract. The objectives of both Committees as set out in the contracts are similar, *i.e.* supervise the implementation of each contract, and revise and update the specific objectives contained in each. In addition, the affermage and concession contracts contain explicit two-step dispute resolution mechanisms, with conciliation followed by arbitration. Although the procedures for the first step ("conciliation") are rather loosely

defined in the contract, this mechanism has worked well to resolve and prevent potential disputes. If conciliation fails, the contracts require that the parties go to arbitration, but this mechanism has thankfully never been put to the test to date. An independent conciliator, Mr Jan Dirickx, has played a significant role in bringing the parties to agree on several differences in views, especially at the start of the contract (up to 2000).

Figure 2 *Senegal's institutional framework for water supply services*



2.1.2. What happened during the life of the contract?

Significant performance improvements were observed in many fields from the start of the reforms. Overall, the sector performed well between 1996 and 2005 (the study period for the case study on which this article is based):

- Water production and distribution have increased consistently throughout the period (+16% and + 26% respectively), reflecting improved water availability and network loss reduction.

- The number of staff went down significantly (-12%) and the number of staff for the water sector (including SONES) per 1,000 connections went down from 5.5 to 3.2, which is a very good ratio compared to regional averages.
- The bill collection rate remained very high and above contractual targets (97%).
- non-revenue water went down considerably to levels comparable with developed countries (20.2% in 2003), although this fell short of contractual targets.
- The number of connections increased by 53%: whilst population in the service area went up by 19% during the study period, the population served by domestic connections increased by 33% over the same period and the population served by public standpipes rose by 49%.

However, the percentage of available water resource utilization (taking account of available surface and groundwater resources) was high at around 90%, indicating that water resource availability will continue to impose constraints to further growth, and that available water resources and demand will require conservative management.

• *How was the contract adapted to changing circumstances?*

The contracts have been renegotiated throughout their life in order to incorporate changing circumstances. In some cases, the contractual arrangements were sufficiently clear (for example, with respect to required tariff increases), whilst conciliation was required in other cases. In this section, we review three regulatory events and seek to analyse for each the balance of power and the relationships that led to the particular outcomes.

1. *Overall tariffs increased in line with agreed principles.* Tariff levels evolved in line with the original agreements, although there were some delays with modifying the tariff structure and reducing cross-subsidies to market gardeners, which had been an objective of the reforms.
2. *SDE's remuneration evolved according to the contract.* The principles for estimating SDE's remuneration were clearly set out in a formula in the contract. According to the contract, SDE collects all customer tariffs and pays back a portion of those tariffs to SONES. The operator's remuneration is made up of two parts: the operator's bid price expressed in FCFA/m³ multiplied by the volume of water that would be billed if SDE attained its technical efficiency and collection targets, and the average tariff applied to the difference between the actual amount of water billed and collected by 31 May of the following year. The operator's bid price, set by the his tender and modified *via* an indexation mechanism and its actual performance, was not modified even though the contract specifically allowed for

renegotiation 5 years into the contract. In exchange, the operator obtained changes in the indexation formula and in depreciation rules, which significantly contributed to improving its financial position.

3. *SDE's performance targets were renegotiated.* SDE's difficulties in meeting certain performance targets led to the renegotiation of those targets in 1996 and 1998. Given the brevity of the Water Sector Law, there was no overall text setting out service standards for the sector or even general principles of public service, as this is traditionally done in the French legal tradition, based on continuity, universality and equality of consumers before the public service. Service standards were defined in the Concession and Affermage contracts (and their annexes) for services within SONES's perimeter.

The Performance contract specified several performance targets and indicators for SDE, aimed at improving operating performance. The contract designers sought to focus SDE's attention on meeting two critical targets: reducing technical losses (including losses related to leaks, misread meters, theft of water from the network, etc.) and improving bill collection. To do so, they attached financial incentives to those two targets, which directly drive SDE's remuneration. Such added incentives are usually not incorporated in traditional affermage contracts, as the fact that the operator is remunerated based on each cubic metre of water sold is generally considered to be sufficient. In Senegal, the "extra" incentive could be justified by the fact that improvements in leakage reduction and bill collection were specific objectives of the reforms ^[56].

Following the start of SDE's operations, it quickly became apparent that the base-year value for the technical efficiency target had been over-valued. The contract had explicitly allowed for renegotiation of the starting level within two months following the start of service by the private operator. This issue took 2 years to be settled, and it was only by November 1998 that a final agreement was reached. The parties failed to resolve those issues by themselves and they had to call on the independent conciliator, Mr Jan Dirickx, for reaching consensus.

After lengthy negotiations, the parties agreed that the objective of reaching 85% would be postponed by 2 years (from 2000 to 2002) and the path to meeting the 85% target was renegotiated. Besides, SONES agreed to compensate SDE for the impact of the difference between the contractual and the revised technical efficiency targets, expressed in terms of water volumes.

[56] Although performance targets were not commonly included in affermage contracts in France in those days, they have now become much more common, with leakage reduction targets being commonly included.

Nevertheless, a combination of factors, including the payment of penalties for failing to meet the loss-reduction targets, delays in SONES's investments – which had a negative impact on demand and therefore sales – and delays in payments from the administrations meant that SDE was in a precarious financial position even a few years into the contract. Conscious of the need to maintain SDE's financial viability to ensure the overall success of the reforms, the Government agreed to enter into further negotiations. As before, they were inflexible on both the loss reduction target and modifying SDE's remuneration. In the end, it was agreed to modify SDE's depreciation rules so as to avoid generating losses for SDE and to maintain SDE's financial standing with its bankers and creditors. This change in depreciation rules was the object of the first explicit and official amendment of the contract in January 2002.

Overall, although the negotiation process over performance targets and payment of compensation took a long time, it was a good example of cooperation between the parties, facilitated by the independent conciliators who helped establish a more serene discussion climate, and by donors applying pressure in the background. At no point did SDE threaten arbitration or withdrawal. It was willing to make the contract work, even though its financial position had suffered badly in the first two years of the contract.

2.1.3. What were the main factors for success?

It is impossible to point to a single factor that ensured success of the arrangements. Rather, a combination of factors created a virtuous circle of mutual understanding to deal with unforeseen events and circumstances and contributed to the stability of the arrangements.

The system of "regulation by contract" was probably a key determinant in the success of the reforms, as it allowed for negotiation between equals with conciliation. The contracts served as a strong basis to hold the various parties to their word and honour their engagements towards each other. More powerful than the contracts themselves, however, the good relations between the parties enabled them to reach mutually acceptable solutions to unforeseen events, based on the spirit rather than the letter of the original contracts. Political will and the participation of external parties, such as the independent conciliator or donors, also greatly helped in resolving differences in views.

- *The right types of contract given the circumstances*

The choice of an affermage contract, with high levels of public sector financing and sharing of commercial risks between the public and private sectors, was appropriate given the prevailing circumstances in Senegal where high levels of infrastructure investments were required, data availability was limited and problems with getting public entities to pay their bills were recurrent. In such a context, a concession contract would probably have been too ambitious, whereas a management contract may not have provided the operator with sufficient control to deliver substantial improvements. The decision to keep the contract relatively short (10 years) also appears to have been eminently sensible. The allocation of risks between the parties was optimal as well, given the circumstances.

The contracts were tailor-made and not imported without adjustment. Rather than recycling existing contract forms from France or other African countries, which had already experimented with private sector participation, the committee in charge of managing the reforms developed tailored-made contractual arrangements to meet all of their objectives. They wanted the contracts to focus on what really mattered for the sector: to get the asset-holding company to invest massively with public funds in order to address Dakar's long-term supply problems, and to focus the private operator's mind and energies on improving technical and commercial efficiency, so that none of this precious additional water would be wasted. The contracts were not developed by foreign experts in isolation, but together with the Senegalese members of the reform managing committee, and involved repeated consultation with local stakeholders. Such a process was probably critical to ensuring that the contracts were appropriated and well understood by all parties on an equal footing.

The creation of an asset-holding company contributed to clarifying the public sector's responsibilities, although its accountability still needs strengthening. The main objective of creating an asset-holding company was to create a financially sound and competent organization, with technical staff that would be focused on its responsibilities and able to mobilize other types of financing. SONES has largely met those objectives, though its lack of autonomy resulted in a fairly high turnover rate at the head of the organization. This rapid turnover was partially compensated by remarkable staff stability. As SONES was a real institution with a substantial budget, it has been able to retain highly-trained staff in attractive positions.

The financial model contributed to de-politicizing discussions around tariffs. The indexation mechanism was applied without discussion and the financial model – which can almost be considered as part of the contract since it was agreed during the transaction phase – was a critical regulatory tool for increasing tariffs in line with

pre-agreed principles and with minor political interference. One should put to the credit of the model designers – Ernst & Young, with AFD financing – that the model actually worked and accurately predicted the time at which SONES would find its financial equilibrium. Although the model was by no means perfect and updating became a little slack following personnel changes, the fact that it was fully appropriated by local policy-makers as a shared platform for taking decisions represented a significant advance compared to reform processes in other countries in the region.

Finally, all parties had strong incentives to make it work. As SONES and SDE share tariff revenues, they have a shared incentive in making the system work and in increasing revenue. The Government of Senegal was keen to see the reforms work to get rid of the ongoing embarrassment of inadequate water services in Dakar and to preserve its relations with donors, who supported ambitious economic reform. Donors had much at stake as well: they had invested much money over the long term, and Senegal rapidly turned into a flagship operation, as others in the region or elsewhere were destabilized.

- *The people behind the contracts made it work*

Although the contracts were quite precise, they did contain some areas that were imperfect or relatively vague, and which could have created problems under different circumstances. Therefore, observers concluded that the success of the arrangements was because “sound relationships” between the parties allowed adapting the contracts based on new information or problems identified in the original arrangements. Relationships usually formed between people, rather than organizations.

A small group of people was behind the reforms in Senegal and can collectively be credited for their success. This group was remarkably stable in its composition, particularly up to the Presidential elections of 2000. Several of them, such as Madio Fall at the Water Directorate, Mamadou Dia in SDE, Alain Rotbardt at AFD, or Jan Janssens at the World Bank, had been involved since the start of the reforms. They knew the full history of the reforms and understood the mechanics of the contracts well. This small group of people, almost all of them with an engineering background, were like-minded and got to know each other well. They personally had an incentive to see the reforms through for a variety of reasons, including reputation and the willingness to deliver results and improve the quality of public services. Both sides had the intelligence to change the heads of the organizations when it became clear that the relationships were not working. As we are now nearly 15 years after the start of the reforms, however, few people remain that were involved from the start. This, combined with the frequent changes of heads at SONES or at the Ministry, shows that the success of the reforms was not purely dependent on the people in place.

- *An idiosyncratic form of regulation, “under the palaver tree”*

Conflicts were resolved by negotiation and conciliation rather than through a legal due process. Perhaps a strongest factor of success was the development of an idiosyncratic form of regulation, which could almost be described as “regulation beneath the palaver tree” if one were to make the link with West Africans traditions. This was well-suited to the dominant culture in the country as detailed in Box 10 below.

Box 10 *A culture based on consensus*

Senegal’s population comprises many ethnic groups, the dominant being the Wolof that make up about 50% of the population. Yet, ethnic diversity has never been an issue in Senegal, which has managed to maintain its national identity intact since independence, despite some rebel activity in the southwestern region of Casamance.

Several factors have allowed maintaining national unity, including the widespread use of Senegal’s two official languages (Wolof, spoken by everybody and French, used mostly in government, business and official circles). Religion is also a powerful unifying force: 95% of Senegalese are Muslims and practice their religion in a way that is very specific to Senegal, similar to the mystical Sufi tradition. Islamic practice in Senegal takes the form of membership in religious brotherhoods that are dedicated to their *marabouts*, the founders or current spiritual leaders of these brotherhoods. The *marabouts* are believed to have the power to heal and grant spiritual salvation to their followers. Most of them inherit their position and their disciples from their fathers, and have considerable influence as religious and business leaders. Although not pervasive, their influence can be felt in the water sector and major stakeholders have respected their influence in their actions in order to avoid trouble.

Another type of powerful figure in Senegal are the *griots* (pronounced “gree-oh”), who are poets, praise singers and musicians rolled into one. They are considered to be the repositories of oral tradition and command considerable respect within Senegal and neighbouring West African societies (such as Mali, the Gambia or Guinea). *Griots* form an endogamous caste, meaning that most of them only marry another within their caste.

These cultural traditions, combined with the French influence during colonial times and the legacy of Senegal’s first President, himself a poet, have contributed to forging a culture where wise men’s decisions command respect, but where respect largely stems from their intellectual abilities and eloquence rather than being purely a factor of money or power. Even if they are respected, this does not preclude debate leading to decisions by consensus from the community as a whole.

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This tradition of eloquent and sometimes virulent dialogue, referred to as “*palabre*” is deeply rooted in the Senegalese psyche. In traditional West African societies, this *palaver* culture took the form of village discussions to resolve local disputes under a majestic tree, the baobab. Although the discussion would be led by wise old men or the village chief, discussion would be open to all and anybody could express one’s views, regardless of rank or privileges. Conclusions are usually reached by consensus, which may be a lengthy process, but often a powerful way of maintaining social order. If somebody is found to be at fault, public acknowledgement of his fault and payment of compensation to the affected individuals would generally suffice rather than any sanction or prison sentence.

Such cultural traditions can partly explain why a regulatory system based on open forums for dialogue and consensual decision may be better suited to Senegal’s (and West African) culture rather than one of “adversarial regulation”. In the latter, a third party reaches a decision somewhat in isolation from other stakeholders or after simple consultation rather than engagement, the way regulation by agency is often practiced in West Africa when it is introduced, as it was in Mali.

As conflicts emerged, either due to contract imprecision or to one of the parties failing in its commitments, they were resolved by negotiation and conciliation between SONES and SDE rather than through a legal due process. Several mechanisms of conciliation were used. What is important to realize here is that none of those mechanisms functioned exactly as planned in the contracts. For example, the Contract Monitoring committees have only played a limited role in resolving conflicts, because they did not have sufficient powers to impose their views and informal conciliation mechanisms were often preferred. The Planning Contract Conciliation committee hardly ever met, for example.

Rather, a specific type of ongoing conciliation developed so that solutions by consensus could be found for conflicts as they emerged, after appropriate time had been left to each party to express their views and present their arguments to the conciliators. As in the West African tradition of the palaver, a few “wise men” were called in to give their expert opinion and settle those disputes, not through firm judgments without possibility of appeal, but rather through the force of their arguments and the respect they commanded with both parties.

This type of regulation by consensus seems to fit well with the cultural context, but it clearly required a lot of patience on SDE’s part. Not all international private operators would be prepared to play along, but Saur had a long experience in Senegal where

it had been providing technical assistance and training to SONEES. Although all successive Directors General were French, the Senegalese Associate Director General, Mr Mamadou Dia, who had been involved in the reforms from the start, remained in place throughout the period and contributed to adapting the company to the Senegalese practices.

Several “wise men” acting as conciliators were called upon, depending on the type and length of the dispute. For routine matters, the parties sought the conciliating views of Mr Madio Fall, who was Water Director at the Ministry of Water from April 1992 to May 2003; even though he represented the Government, both parties saw him as an impartial figure and respected his judgment. For matters that required more in-depth technical analysis, Madio Fall could call on the services of Mr Jan Dirickx, who served as independent conciliator from 1996 to 2000 on an ad-hoc basis. His appointment was in the spirit of the contracts, but the contracts were quite vague about how such a conciliator could be appointed and what his mandate should be. With a long experience as a water sector operator and having been involved in the reforms from the start, Mr Dirickx commanded considerable respect on both sides. His role was particularly instrumental in setting new technical efficiency targets and in estimating the compensation due to SDE, because of the difference between the contracted and the revised efficiency targets.

Donors also played a mediating role on an ongoing basis. On many occasions, a conflict would only be resolved during the six-monthly World Bank mission, with the World Bank task manager insisting that the parties comply with their commitments. In that respect, they held the Government not only to their commitments in the contracts but also in the Sector Policy Letter and its annexes.

- *Strong political will as a key factor for success*

The reforms of the water sector in Senegal did not develop in a vacuum. They benefited from strong political will at the highest level of the Government. The same Water Minister, Mr Mamadou Faye, remained in place from 1992 to 2000 and provided full backing to the reforms in general, and to Mr Madio Fall in the Water Directorate in particular. He and his successors accepted the tariff recommendations estimated each year by SONES (and scrutinized by the Water Ministry and donors), largely because tariff increases were kept at reasonable levels (3% per year) and were therefore relatively safe politically.

Maintaining such political will after the Presidential elections required some work on the part of the World Bank and other donors, explaining the benefits of the reforms and the importance of maintaining a steady course. However, that task was made

easier by the fact that, by 2000, the contractual arrangements were already seen as a success and the water supply situation in Dakar had substantially improved. Therefore, the new President had no interest in upsetting the arrangements. On the contrary, he took advantage of the fact that the immediate water supply constraint had been solved in order to get SONES to increase the number of social connections more rapidly than had been done previously, gaining political support as a result as he was seen to be delivering in the area of public services.

- *Donors were involved in the long term in sector reform and financing*

Donors provided most of sector financing. Given the needs for system expansion and renewals, an affermage contract was only possible if a reliable source of public money could be secured. From the start, donors were ready to contribute a very substantial portion of those investments. The World Bank provided IDA financing to the Government of Senegal and led the preparation of the two main assistance programs to the sector (PSE and PLT). Other major donors, such as the Agence Française de Développement that was mostly involved in the PSE, provided much of those funds “at risk” via non-sovereign loans directly to SONES, and had a strong interest in maintaining the financial viability of the sector. The exchange rate risk was limited by the fact that the FCFA was first pegged to the French Franc and then to the Euro throughout the life of the contract. As a result, no major foreign exchange shock has affected the life of the contract (by opposition to other contracts previously held as “successes”, such as the Buenos Aires or the Manila concessions).

The use of public money for investments allowed implementing only moderate tariff increases, which remained socially and politically acceptable. That was to prove a critical factor, as the reforms and their aftermath were free of public protests. Even though the average tariff is relatively high when compared to other countries in the region, public money was used for subsidizing social connections, which were awarded based on a well-established process of self-selection and community selection, through local NGOs or community organizations. Between 1997 and 2002, the number of public connections (standpipes) doubled. As a result, the benefits of the reforms could be felt by all, including the poor, and the social risk was limited.^[57]

As the Senegalese experience started to be universally described as a “success”, donors such as the World Bank or AFD invested time and resources in promoting this experience as a model for other countries in the region.

[57] See Brocklehurst, C and J. Janssens (2004) and Blanc, A. and C. Ghesquières (2006) for more information on the impact of the reforms on poor consumers, via social connection or standpipe connection programmes in particular.

Conclusions

Success was certainly not guaranteed from the start: attempts at introducing private sector participation in other sectors of the country – such as the electricity sector – did not work, whilst other contracts in neighbouring countries, such as a concession for water and electricity in Mali, also failed. However, Senegal has now built a strong tradition of private sector participation in the water sector.

The initial contract was extended for 5 years in 2006 (with some modifications) and at the time of writing the Government was considering what to do next when the existing contract comes to an end in 2011. Although key choices have not been formulated as yet, early discussions seem to indicate that the Government is looking to maintain private sector participation in the water services field, and is even considering “deeper” forms of private sector participation, such as a concession. This would be in line with the original intentions of the reforms, which were to adopt a gradual approach and to rely on an affermage before considering a concession. However, given the current lack of appetite from international investors for concession contracts and investment obligations, particularly in Sub-Saharan Africa, it appears that some mechanism for maintaining public financing of major investments will be needed so as to ensure the long term success of the arrangements.

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2.2.

Énergie du Mali or the paradox of a “resounding failure”

B. HIBOU, O. VALLÉE and A. BLANC.

Introduction

Mali, through the Énergie du Mali (EDM) company, has experimented with two successive initiatives of private sector participation in water and electricity services, which covered a period of ten years and ended with the retreat of the main shareholder in 2005. The donors have tried to learn from this experience, which is potentially valid for all West African countries involved in PPPs, by using an economic, legal or financial approach. The AFD Research Department wanted to complete these analyses by incorporating political sociology, and asked Hibou and Vallée (2007) to carry out a study that would try to determine the social and political significance of the management procedures implemented at EDM. The aim of this study was to illustrate that PPPs are part and parcel of socio-political processes, balance of power games, and political domination and economic accumulation practices.

The first part of this chapter presents the history of the EDM PPP until its end, as well as the corresponding analyses by various experts commissioned by the donors. These are then put into perspective in the second part, with a socio-political approach.

2.2.1. The EDM experience: 10 years of PPP

by A. Blanc

Up to 2010, EDM was the company in charge of water distribution in 16 major urban centres – covering about 2 million inhabitants – as well electricity distribution in about thirty medium-sized towns*. Electricity revenues (160,000 customers of whom over 80% are at Bamako) represent about 80% of turnover (76 billion FCFA or 114 million EUR in 2006). The national coverage rates are about 30% for electricity in urban areas (2% in rural areas) and 60% for water (40% by standpipes and about 100,000 private connections).

Box 11 History of EDM's evolution

- 1940: Eaux et électricité de l'Ouest africain (EEOA), regional private concessionaire under French law
- 1960: Independence of Mali and nationalization: creation of EDM as a public company with assistance from Électricité de France
- 1993: Introduction of private participation in EDM as a condition for financing the Manantali dam
- 1994: Signing of a general management-delegation contract with Saur, Hydro-Québec, EDF, CRC-Cogéma
- 1997: Termination of the general management-delegation contract, one year before its expiration
- 1998: Paris meeting: the donors request concession management for EDM
- 1999: Energy crisis
- 2000: Two water and electricity concessions to Saur and IPS (Aga Khan) for 20 years
- 2001: Creation of the Commission for electricity and water regulation (CREE)
- 2002: Elections and political tension concerning prices
- 2004: Bouygues sells Saur (except for Africa and Italy)
- 2005: Termination of the concession contract
- 2006: Organization of the Bamako Workshop on the future of EDM

* The failure of the privatization of Energie du Mali and the resulting withdrawal of Bouygues in 2005 led to a deadlock situation which lasted several years. The context was unfavourable due to the deficit in its energy activity and Energie du Mali was unable to fulfil its investor role in the water sector. In 2008, the Malian Government took action by defining an institutional sector reform based on the examples of Cameroon, Niger and Senegal and in which: (1) Energie du Mali withdrew from the water sector to focus on electricity, (2) an asset management company, SOMAPEP, was set up for the drinking water sector, (3) an operating company, SOMAGEP, was also set up for drinking water infrastructure. These two companies were founded in December 2010 and have not yet been fully established. The main contractual documents governing relations with the State are currently under preparation. In fact, many regulation frameworks set up in developing countries try associating contract and regulation agency (Trémolet and Binder, 2010).

EDM experimented with two successive PPPs between 1995 and 2005.

- ***First period: 1995-1998, General Management Delegation (GMD)***

GMD is the least intrusive form of private sector participation in which the State retains ownership of the company and designates the members of the board of directors, but confides the strategic management positions to a private company with profit-sharing limited by performance. When seeking financing for the Manantali hydroelectric project, and in view of the poor technical and commercial performance of EDM, the donors stipulated the creation of a GMD. The aim was to improve the efficiency and sanitize the finances of the company, by the partial introduction of private management in the water and electricity sectors. At the same time, the sectors were restructured whereby the electricity sector was unified and the accounts of the two activities were separated. Attributed in October 1994 to the French-Canadian group consisting of Saur, Hydro-Québec, EDF and CRC-Cogéma, the GMD contract was terminated one year before its end, in February 1997.

The reproaches made to GMD partners were that the set objectives were not reached (poor technical choices and mediocre control over suppliers; lengthy power cuts in 1996) and that the private consortium suffered from diverging viewpoints among its members that adversely affected management, each consortium member being responsible for different parts of EDM (Schlirf, 2005; Ballance and Trémolet, 2005). The consortium in turn complained about its low level of autonomy, and about the lack of investments and the blocking of tariffs by the government in a context of energy crisis in Mali (devaluation of the FCFA and a drought that caused a sudden increase in demand).

Some analysts (e.g. Henry, 1999) also pointed out the insufficient consideration of the local context of Mali, right from the start of the GMD. In the latter, priority was given to respecting tight deadlines, leading to a lack of organized dialogue with the local authorities. This, in turn, led to an insufficient understanding of the operating process by them, the point of departure of the growing misunderstandings between the parties. Saur wanted to reproduce the successful model developed in Cote d'Ivoire, underestimating the difficulties in adapting this model to the specific conditions in Mali. In addition, Saur committed several blunders, such as refusing to remove the director general as requested by the minister, and a lack of forming political relations at the highest level. An affective dimension thus played a major part in executing the contract, as is shown by the vocabulary used by the Malian party ("embezzlement", "heartless"). The chairman of the board, the former director general of the national public company, for instance, suddenly changed his behaviour – going from complete confidence to nit-picking defiance – and these unstable relations

affected all players, without a neutral third party to arbitrate the conflicts.

Notwithstanding these problems, this experience resulted in a concession scheme with “privatization” in 2000, which was the initial objective set by the World Bank.

• *Second period: 2000-2005, the concession*

The Malian authorities opened the capital of EDM as of 1998 to a strategic partner after a transition period of two years. In 2000, a group consisting of Saur and IPS (Senegalese subsidiary of the Aga Khan Fund) won the international call for tenders to buy 60% of the company equity, and signed two concession contracts for 20 years for water and electricity. In late 2000, a new institutional framework was created for developing these two sectors with, in particular, the creation of the CREE. Conflicts between the parties appeared shortly after the start of privatization, becoming worse in 2003 and leading in mid-2004 to a renegotiation process that ended with Saur’s departure in October 2005.

• *The legal framework and the regulator’s role*

A basic weakness of water and electricity management in Mali seems to be that the legal system has made no clear choice between the two models that inspired this system:

- The “French” model is based on a contractual logic: the concession contract fixes the obligations between the administration and the operator exploiting the public service. The operator receives the right to exploit the assets over a limited period and is paid mainly from exploitation revenues.
- The “English” model is based on sector regulation by an independent organization. The regulator, strongly personalized, guarantees the quality of the service and the introduction of competition into the sector. He daily determines all characteristics of the service that the operator should supply, in particular the tariff, and he also plays a jurisdictional role. The contract, as a list of specifications that only define the operator’s role, is secondary in this type of model.

These are not the only two models, but they illustrate the difficulty of finding an acceptable middle road between contract and regulation agency, best to divide the interests between the parties.

It is possible to construct a hybrid regulation system borrowing from both French and English systems^[58], but this requires a major clarification effort that did not happen in

[58] In fact, many regulation frameworks set up in developing countries try to associate contract and regulation agency (Trémolet and Binder, 2010).

Mali in the context of urgency surrounding its creation (a grave energy crisis in 1999 aggravated by an economic crisis; start of operations by the concessionaire even before CREE was set up). The result thus was a juxtaposition of the two models: a public service concession contract between the State and EDM along the French model (in accordance with the legal culture bequeathed by France to Mali) and a powerful sector regulator based on the English model, without any links between them (Conseil d'État, 2005). The texts defining the role of CREE gave it effectively much power in tariff matters, and especially the possibility to directly set electricity tariffs by referring to the general pricing principles in the decree organizing the electricity sector. The concession contract, however, contains often imprecise and even contradictory tariff stipulations, but which the operator has always considered as binding, thereby contesting the legal basis of CREE's intervention. In addition, the concessionaire's control and penalty powers are distributed in an unclear manner between the State and CREE, and the methods for settling disputes do not coexist in a harmonious manner. This type of situation, whereby a new administrative unit is created whose competences overlap those of another unit, generates conflicts of power that can only lead to great tensions.

Therefore, since the start of the concession, the annual tariff adjustments planned for in the contract were never really implemented, and each time caused endless quarrels. In 2002, the situation became critical: after three years of intensive tariff readjustments (over 10%/year), the increase in the cost of diesel fuel very strongly affected production costs. Until 2002, reductions of the tariffs proposed by EDM were imposed by the government, with financial compensation of the operator (foreseen in the contract), whereby CREE played the role of intermediary. In early 2003, however, the chairman of CREE was fired for "serious offenses" and the size of the disagreement led CREE to directly fixing the tariffs based on its own analysis of sector costs (-9.6% instead of the +16% requested for electricity and -10% instead of +0.3% for water), excluding any possibility of compensation.

The role of CREE, essential in the mechanism for regulating the sector, thus apparently was unclear. Moreover, the principle of independence, which should have allowed CREE to arbitrate between the interests of politicians, the private operator and consumers, turned out to be inoperative. By refusing a public dialogue, the first CREE chairman did not succeed in convincing the Malian authorities of his neutrality, which led to his sacking by the President of the Republic. The second Chairman, however, seems to have been identified as rather defending consumer interests.

• *Choice of the PPP format*

The concession format was selected for the water and electricity sectors, in order to have the private operator seek and assemble the financing for the investments needed to extend the services. Today, this choice seems to be questionable, especially for the water sector, because of the high level of investments to be made and the absence of prerequisite conditions, especially a strong commitment by the State to pay its water bills or to increase tariffs to a level that permitted covering the investment costs (Ballance and Trémolet, 2005). As the operator was not ready to invest his own money, he started looking for long term financing with the help of Proparco in 2001. In 2003, however, the instability of the tariff regime had made it impossible to find private capital, which put the economics of the concession itself in question. One wonders if, in the case of EDM, the cost of the investment resources was not underestimated, and if it was not slightly unrealistic to think that this scheme would be compatible with accessible prices for the population. An additional problem was that the money received by the government for the sale of EDM shares was not allocated to the sector but returned to the State budget. In addition, the middle class that was already connected to the services opposed the strategy of tariff increases that were meant to pay for the network extensions.

For these reasons, the last negotiations concerned the evolution of the contract toward an affermage model. In this model, the operator (lessee) rents the assets that remain State property – grouped in a holding structure responsible for extension investments – and only manages the utility operation, though certain maintenance investments are possible.

• *Errors in contract wording*

The concession contract itself contains numerous inaccuracies and gross errors (definition of the maximum price, automatic tariff-indexation formula, etc.) The main errors concern the formula for tariff revision, indexed on the cost of diesel fuel whereas a major part of the Malian production is hydroelectric (Schlirf, 2005), and even more after the Manantali power station came online in 2002.

Furthermore, the objectives for the operator mixed target results (coverage rate) and target means (amounts to be invested). Although the results were meant to prevail, some confusion remained and the Malian authorities accorded more importance to the invested amounts.

• *Disappointing operator performance*

Though the first year of the concession brought some credit to EDM for its efforts to reduce power cuts and to improve customer relations, the users were critical of the tariff increases. This crystallized into major incomprehension in 2002 – which in addition was an election year – when the cost gains provided by the start-up of the Manantali power plant were not reflected in electricity prices because of the inapplicability of the formula.

The Malian authorities formulated their most valid criticisms in this context of insufficient investments made for extending the services. Though some objectives were reached, EDM was blamed for the fact that it had revised downward its investment plan in 2002, arguing that its treasury was insufficient for the “donor’s expectations”. In reality, the cause was its failure to obtain long term financing that made it impossible to invest in the extensions to which it was committed.

• *Polarization of the relations and a shift toward a political sphere*

Caused by a poorly controlled process of reforming the water and electricity sectors, the conflict rapidly took a strongly affective turn. The new CREE chairperson, appointed during the summer of 2003, accused the operator of over-estimating its costs and of hiding profits. After that, the relations between the parties became so tense that the question took a political turn^[59] and all attempts at limiting the debate to technical matters became impossible. This is shown by the failure, in October 2003, of an attempt to construct a shared tariff-simulation model (the legitimacy of which was not sufficiently accepted), or the recourse to a mediator designated by the World Bank to conduct the negotiations since late 2004. Faced with the insurmountable difficulties of these negotiations, Bouygues, which in November 2004 had already divested itself of Saur’s activities except in some African countries and Italy, officially announced in late August 2005 that it would drop out of EDM. After having studied a withdrawal solution through buying Saur’s shares by IPS (which would then have been the majority shareholder during the transition period), the Malian government finally opted to retake a 66% share of the company, after IPS had announced that it maintained its shareholding awaiting a new strategic partner.

[59] Olivier Bouygues, on an official visit to Mali with Jacques Chirac in October 2003, was chased from the office of the Minister for Energy; this event was widely reported during a press conference.

2.2.2. The EDM partnership put to the test of the social equation in Mali

B. Hibou and O. Vallée

As suggested in the first part, the PPP experience of EDM is generally considered as a “resounding failure” by the concerned public authorities, donors, professionals, and the entire Malian population. However, another reading is possible, especially when considering not only the economic and financial rationalities of the partnership, but also its socio-political logic and dynamics. Based on this vision, the reading of the recent EDM experience can become quite different, opening the way to other interpretations.

This is suggested by our research after Bouygues’ departure in 2005, which shows that normative and deformed readings rather overshadowed the complex ongoing processes (Hibou and Vallée, 2007). Notwithstanding frictions, incomprehension and opposition between the principal partners, the observed evolution was not necessarily negative. It generated a different status from the one expected and announced during the initial phase, and the reversibility of the process certainly left its traces. Nevertheless, we felt that the events around EDM allowed us to ask new questions of the decision makers, and to think about new approaches to solving the complex problems inherent in supplying essential goods such as water and electricity. This leads to a more macroscopic, but also more concerted, treatment of managing public services.

The divergent positions of the Malian partners turned out to be as diverse as the points on which conflicts were expected, and the discussions took place at several levels. This suggests that one cannot oppose confrontations between camps with well-traced borders. Expressions of such opposed visions differ so fundamentally that technical, financial or legal speech is gradually recomposed, displaced, reformulated or deformed. The fact remains that these heterogeneities also caused the break-up of the concession contract, *i.e.* of the core of the PPP construction.

Two main theories are often put forward to explain the contract termination: the election explanation and the nationalization explanation. According to the first, the concession was condemned once Amadou Toumani Touré (called ATT by most Malians) was elected President of the Republic in May 2002, thanks to his campaign promises to supply the population with water and electricity. The second explanation claims that the litigation resulting from non-payment of compensation to the concessionaire, because of tariff controls, was part of a deliberate strategy of the

Malian authorities, whose final objective was re-nationalization. According to us, however, the termination of the contract rather illustrated the impasse in which the authorities found themselves, who tried to implement a new policy within the framework of a concession contract that was signed under different auspices. This showed that disengagement by the State could not be done at any price. It was thus not so much nationalism as an attempt to integrate development – and sector – based logic into public service management. This change of the relations within the PPP was directly related to changes in political priorities, in visions, in recommended public policy, and in the ideas on development put forward. The ATT team preferred a social logic to a cost logic (adapt the price to purchasing power), and a development logic to a financial logic (lower the price for industry and, in a general sense, to boost economic development). In this way, another idea of the role of the State and of development arose, as well as another idea of the profitability of a public service company, and, finally, another idea of public well-being.

These conflicts and clashes between conceding powers and concessionaires are not surprising if one looks at the PPP history in Mali since colonization, the common difficulties afflicting such arrangements in the whole country (and particularly in drinking water distribution), or the major changes in national and international economic outlook. What caused the trouble and tensions in the case of EDM was the incapacity to negotiate and find an arrangement. We consider that several factors explain this situation. The differences in understanding, in interests, in analytical and perception levels, in positioning, and in sequences and interpretation between the parties were not only great, but also permanent. Over five years, the priorities (management *versus* investment), the action logic (commercial, financial, social, income, network preservation, etc.), the price-setting process (political, technical, accounting, marginal), the content of fundamental notions (profitability, governance, partnership, regulation), in short, everything differentiated the Malian partners from the foreign concessionaires. In addition, the behaviour of the stakeholders during this period was unstable and shifting according to the different time scales between the partners. The criteria for company evaluation changed over time^[60], just like the position of donors concerning the best way to manage a public service (oscillating, for instance, between promoting privatization, according concessions and true prices on the one hand, and Millennium Development Goals and a poverty-fighting strategy on the other). Because of this, the partners developed different interpretations of certain

[60] For instance: passage from evaluating by means of the growth of turnover and the internal rate of return, to an evaluation based on the profitability of invested capital and the capacity to distribute dividends.

decisions (dividend distribution, modification of the salary scale, payment or not of compensation) or certain evaluations (to begin with, of corporate costs), in other words of economic and social reality. Donor interventions and the intensive use of outside experts constantly fed these differences.

In addition, and we think this to be most important, the arrival of a private partner showed that there were much deeper internal differences between the Malian stakeholders than was apparent during the discussions on the choice and design of the partnership. These differences concerned the future of EDM, the institutional format, the role of the regulator and the client, the contract objectives, the behaviour towards the partner, or the interpretation of company accounts. The Malians were incapable of agreeing on these various points. The problem was that, instead of being the subject of debates (for instance within the EDM working group), these different Malian positions were consistently expressed in an off-hand manner before becoming widely cited opinions and judgments. These were then personalized and caricatured from all sides, including through the reinterpretation and instrumentalization of third parties, concessionaire and donors. The decisions needed for the proper functioning of the PPP benefited neither from a consensus, nor from clear expressions concerning the positions of the supervisory ministry, of EDM itself, or of the Presidency, the regulator, the national directorates for Water and Energy, the consultants, the directors, etc. On the contrary, these divergent opinions with time were transformed into new cleavage points between camps and factions. This “diffraction” movement – using a chaos theory term – never succeeded in assembling the different stakeholders with a clear viewpoint in a common and well-delimited position, rendering the positions of regulator, technocrat or politician unclear. This diffraction rather caused the association or formalization of temporarily coherent viewpoints that the stakeholders or networks belonging to the various groups could partially share. Such a coherence of general viewpoints, however, did not correspond to converging interests. This meant that, when a concrete and quite specific problem arose, the observers – donor, energy person, keeper of essential goods, politician in charge of the poverty file, or political advisor in charge of privatization, etc. – did not have the same priorities, nor the same constraints or visions. Therefore, an apparent dogma like the impossibility of financing an electricity concession, could but create a split between those especially interested in supplying essential goods that could be financed – in this case water – and others, or between those responsible for public finances and others. But these positions were themselves linked to the understanding – or not – of the relative disinterest of the concessionaire for water-related investments, because of their high cost.

The differences in viewpoint turned out to be infinite and the following examples only show the tip of the iceberg. For some, EDM could not be transformed and probably would have to disappear with time; for others, it had to be rapidly privatized; for again others, it lacked professional expertise more than private logic. Some pleaded for the separation of water and electricity, others were violently opposed to this idea. Some were for creating a new concession (politicians and high civil servants influenced by IMF ideas, essentially sharing a public-finances vision); others preferred affermage (politicians and high civil servants who explained the concession failure through a lack of investment); still others championed technical assistance; and a final group saw nationalization as the answer (the Third World Development current, in particular). Some wished scrupulously to respect the letter of the contract (the first CREE team, again corresponding to a certain segment of politicians and high civil servants in relation with international institutions and open to demands for regulation), whereas others wanted to modify the texts so as to reach the main objective of the contract – improve public service – (most of the direct management team of EDM). Some listened to consumer organizations and anti-globalization talk, rife in Mali, whereas others considered this to be unimportant. Some had developed a developmentalist logic, others a logic of adaptation to weak purchase power, still others a financial and management logic, an anticorruption logic, or a liberalization logic.

The interpretation and reliability of EDM accounts also caused disagreements. The Ministry of Finance, for instance, estimated that the company balance sheet was “virtual” because of the items “debt” and “taxes” that were both subject to negotiations, thus creating mistrust concerning the EDM accounts during the partnership period with Saur/Bouygues, but also during the management delegation period and even before. CREE no longer had confidence in EDM as well, but for other reasons. The Ministry of Mines, however, had little criticism. During the concession period, the State had little confidence in its own representatives on the Board and this seems to have continued through the PPP period until today. Even though these differences seem to have been exacerbated with a foreign private operator, they are in fact recurrent and intrinsic. The Malian stakeholders could not agree on the expected performance of the private partner, according different importance to such elements as cost, quality, delays, development, investment, adaptation to purchasing power, etc. Positions were also contrasting as far as the target population was concerned: some saw the partnership as maintaining the part of the population already connected to electricity and water, others saw it as part of a significant enlargement of access for the “middle class” to water and electricity. Some wished to favour the administration and private consumers, others industry and productive economic activities.

These opposing viewpoints again came to the fore in the understanding of regulation and partnership, the two key concepts of the concession. The regulation and its institutionalization by CREE were considered from various angles: chance of strengthening national capabilities, redressing disequilibria, watchman acting to the benefit of users, neutral player with the same distance to all parties, arbiter of the sector, stakeholder managing the sector, defender of government positions, anticipator of presidential viewpoints, guarantor of respecting legal texts, wise man reminding of common sense, etc. All these viewpoints omitted, however, that CREE – when it reacted or abstained from doing so – was part of a system that expressed neither complicity with the State, nor confidence in the private partner. CREE was financed by a tax collected by EDM and paid by the latter – as suggested by the World Bank and the promoters of its institutionalization, donors and private stakeholders combined. In the end, this led to the end of the natural monopolies and the emergence of several competitive water and electricity markets. The same was true for the partnership. A “good” PPP was in turn considered as a type of management guaranteeing the financing of services (though not giving the private sector an irreversible right based on confidence), mutual agreements and contracts that could be checked; as a transfer of State responsibilities to a private entity for a given perimeter; as an instrument for liberalizing a sector; as a technique for rendering a sector attractive for private investment; as an arrangement between partners with different objectives for reaching agreement on a given term; or as a balanced arrangement between parties, in particular for data systems and processing, and the sharing of decision making.

The listing of these opposing viewpoints and the observation of this heterogeneity make it clear that everybody defined himself in terms of his position, his strategy, his vision, but also in terms of his alliances, his interests, and the positions of his competitors. The differentiation between the generations, but also the roles played, occupied and aimed for, lies at the heart of the PPP implementation process, followed by its transformation. The EDM concession appears in its political significance: before anything else, it was the scene of power plays and aborted attempts at domination. The fact that CREE became so important from 2004 onward is no doubt due to the fact that the contracting authority, the Ministry of Mines, was passive and that the new unit, CREE, found the moment and the means to assert itself, helped by the goodwill of the President of the Republic. Under such conditions, it is easier to understand why the differences became so important and why it was so difficult to find a unified vision, policy and strategy, notwithstanding a seemingly unified discourse and an outwardly declared willingness to reach consensus. This was further aggravated by the confusion of roles between the authorities and the extreme complexity of the decision-making process. In the case of EDM – and beyond the texts that are

always open to different interpretations – daily practice suggested that the respective roles of CREE, the Ministry of Mines and its directorates, the Presidency, the Ministry of Finance, the services of the Prime Minister, of the consultant, and of designated (or so-called such) intermediaries, were never clearly defined. Notwithstanding the departure of Bouygues, the main private partner, in October 2005 and the *de facto* re-nationalization, such policies today are still hardly formulated. EDM has been more or less left to its technocratic management by a team installed in 2005 that meant to pursue some of Bouygues' policies, whereas the MDO and the Poverty Reduction Strategy Paper intend to promote better accessibility to water and electricity for the population, but without having set aside supplementary means in the State budget.

Conclusions

In a political system characterized by overlapping power- and resource-accumulation positions, and by a rhizome-like functioning of the State, the President of the Republic of Mali could not find the means for arbitrage. This incapacity explains that no decision was taken to “save” the contract. The interlacing nature of competing and complementary networks that structure the power play within the Malian government is all the more obscure as *“the players advance in an oblique manner, at chameleon pace”*, as a Malian expression has it. The conflicts and diverging interests around EDM should be seen in a context where sidestepping and pretence techniques seem to characterize the political game. In this multi-centred system characteristic of a rhizome State, it is especially difficult to discern the orientations and wishes of the Malian State, because of the numerous circles of influence and the proliferation of networks whose positions are as difficult to decipher as they are unstable. The work of the concessionaire was extremely difficult in such a setting. The impossibility of arbitrating in the conflict, or of better negotiating the partnership *ex ante*, may be due to the fact that the hybrid State privileges the internal compatibility of its tensions rather than an external coherence, regardless of the strength of donor pressure. Ultimately, one might think that the negotiations around alternate solutions, especially around affermage, were mostly fictitious and that they hid the reality of the discussion, to wit the departure of the private partner under the best possible conditions for both Bouygues and the Malian State.

The strength of the social networks is, however, not synonymous with the absence of all modification of the public space and with a transformation of reality. Our research shows that the EDM episode has changed “public” ideas, awakening in particular a demand for public service within the concerned administrations and State institutions in general. Government stakeholders have clearly changed their behaviour. They now have to ask questions that earlier could be ignored, concerning their financial obligations, the need to respect the rules set by the State itself, the urgency of investments, and the need to think about the future of a whole sector, rather than a single company. We have the impression that this detour *via* a PPP has not only allowed enlarging the view of the problems around the access to water and electricity, but that it has also led to considering the Malian population as a whole.

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2.3.

“Rejecting the graft” or the virtual reality of transferring the PPP model: the Buenos Aires (Argentina) and La Paz-El Alto (Bolivia) cases

S. BOTTON, A. BRAILOWSKY and P.-L. MAYAUX

Introduction

The international expansion of the major multinational operators during the 2000s^[61], was severely set back by the re-nationalization decree of the water utilities of greater Buenos Aires in March 2006 – leading to the exit of the Suez Environment (SE) Group – as well as by the withdrawal negotiated between the Bolivian government and the same Group from the La Paz-El Alto conurbation, signed on January 3rd, 2007. These two emblematic concessions had effectively been touted as a “showcase” concession for the first, being a truly “symbolic operation” in view of its size as the largest concession in the world, and for the second as a “pro-poor” delegation model (Komives, 1999; Foster, 2002). Both were initially seen as a demonstration of the potential contribution of major groups in enlarging the access to water in developing countries.

Comparison of the La Paz and Buenos Aires cases presents a specific interest as, beyond the different socio-economic, political and cultural settings, the governments in both cases decided to end the participation of private groups in the water

[61] A recent review for the World Bank (Marin, 2009) mentions 22 anticipated terminations and 18 contracts that were not renewed, among a total of 268 partnership contracts signed in developing countries between 1990 and 2008. However, this “institutional” accounting does not consider the instability and controversies around some active contracts. Annez (2006) mentioned that 38% of the projects in the World Bank database on private participation in investments (PPI) were considered as “having problems”.

sector in general. After all, the great project of private sector participation “coming to the rescue” of developing countries reputed “incapable” of organizing access to essential services – as promoted by international financial institutions (IFI) in the early 1990s^[62] – today no longer impresses anybody. This is a strong statement that requires an explanation.

In view of this change in attitude, it is very surprising to note the lack of analysis concerning the true reasons for these failures. Many militant viewpoints were expressed and there are analyses on the socio-economic performance of the concessions (number of connections, financial results, tariff evolution) and the institutional transformations accompanying them (types of regulation). However, there remains a field to be explored on essential subjects such as: the modifications in State-citizen relations or those between citizens – in particular the popular and middle classes – since the private sector appeared; the emerging citizen requirements since the return of democracy; or the translation of a social solidarity based on a management model “à la française” in different settings, such as the indigenous problems in Bolivia. A private company, caught up in the history and culture of each context, poses a political problem as it is by necessity part of a movement to construct access to water as a “public problem”, which favours its politicization and increased expectations by the population. Beyond the debate on the public/private statute of the operator and on the obtained results, the end of the La Paz and Buenos Aires concessions requires an in-depth analysis of the complex imbrications between water utilities, political representation and legitimacy, and citizen expectations. In this contribution, we present the various viewpoints and analyses of players from the world of social – and political – science research, and of stakeholders from companies, who have deciphered and analysed, each in their own way, the end of the two concessions, drawing conclusions for research and future action.

2.3.1. The Aguas Argentinas concession in Buenos Aires

The 1990s saw Argentina, like many neighbouring countries, enter a reform phase of neo-liberal inspiration, according to the recommendations of the Washington consensus. This implied massive opening to foreign capital, a monetary policy of peso/dollar convertibility, and a privatization programme of all major economic sectors of the country. As part of these dynamics, the multinationals had entered the Argentine market of urban services, deemed very profitable because, among others, of the exis-

[62] Especially at the end of the Dublin Conference in 1992 (Principle n° 4: “Water, used for multiple ends, has an economic value and should be recognized as an economic good”).

tence of a huge (moneyed) middle class forming the base of the Argentine salaried society. In the water sector, Aguas Argentinas S.A. (AASA), a “show-case” subsidiary of the Suez Group, was emblematic of a sector-restructuring project that went well beyond the search for new ways of financing water utilities. The largest water concession in the world with 10 million clients, which was strongly supported by international stakeholders, promised to become an example of an international PPP, coupling the economic efficiency of the historic operators from developed countries with social efficiency benefiting the receiving country. This was what was most desired and much needed in the great agglomerations of the developing countries, urban territories exposed to the dynamics of social polarization, fragmentation and marginalization.

More than fifteen years later, disillusion has largely replaced the enthusiasm of privatization partisans and most international groups have disappeared from the country, following the crisis of 2001 and the ensuing major political reorientation. Since then, a “post-Washington consensus” has emerged that goes well beyond the Argentinean context, characterized by a shift in the public/private boundaries and by the proliferation of alternative management models (Bakker, 2009). In Argentina, since 2006, this has taken the form of a concession that strangely resembles the model of the “Aguas Argentinas” period, with the difference that the company is mostly owned by public capital^[63].

How to explain this rapid reversal of the situation (on the time scale of urban services), from a context where the international private sector appeared as the only legitimate player for improving services, to a context of radical rejection of this player to the benefit of a return to public management (though using a renewed set-up)? We will try to answer this question in the light of the key moments in the AASA concession history: the financing reform of 1997, the Argentine crisis of 2001 followed by devaluation of the peso in early 2002, and finally the renationalization decree of the services in 2006.

• *Contextual elements*

The Buenos Aires conurbation has the characteristics of both a Latin American city that benefited from particularly vigorous industrial development during the 20th century, and that of a divided territory that is extremely disparate in socio-economic terms. Moreover, in the early 2000s, following the crisis that swept through the country, the high pauperization of the middle class – in a country where it had been constitutive of the idea of a nation and its historical-cultural model – added to the growing

[63] It belongs 90% to the State and 10% to the employees.

structural poverty of the capital and its suburbs, which we will discuss in more detail hereafter. This structural poverty was historically anchored in the underprivileged districts of the city that took many shapes (high-density slums, large degraded districts, precarious districts with utilities, etc.) and which contained about 20% of the population (2.5 million inhabitants), rather than in the economic poverty created by the 2001 crisis, even though given a lot of media attention. In the long term, the underprivileged districts posed the central political questions of integration, development and access to essential services, especially water and sanitation services.

Nonetheless, Buenos Aires is considered blessed as it is particularly well supplied with water. It benefits not only from an inexhaustible source of fresh water – the Rio de la Plata – which is more than enough to supply the city network^[64] but also of the huge phreatic aquifers below the Pampa húmeda (one of the biggest groundwater reserves in the world), on which the conurbation of Buenos Aires was built. In 1912, the abundance of the resource, coupled with a strong political will, had moreover allowed the development of an extremely ambitious public water management model in terms of social redistribution by the public enterprise OSN (Obras Sanitarias de la Nación). OSN in the end was not up to the needs of Argentine society and was progressively caught up in the very strong dynamics of urban growth. Access to the urban drinking water network thus is a major issue, even in a city that had never faced the problem of hydric stress.

When the utilities were privatized in 1993, coverage of water and sanitation services in the conurbation was 70% and 58%, respectively, though very unevenly distributed as the outlying districts were covered by only 55% and 36%, respectively, while the city centre had 100% coverage.

• *An ambition of contractual provisions*

In 1993, the Argentine government of Carlos Menem launched a call for tenders for the privatization of the water utilities of Greater Buenos Aires. The AASA consortium, led by the Suez-Lyonnaise des eaux Group, won the bid by proposing the strongest tariff reduction coefficient. The concession contract, based on the idea of “universal service”, planned for the eventual (after 30 years) connection of nearly the entire concession population (Capital and Greater Buenos Aires)^[65] to both water and sanitation networks. Every five years, the company had to present the new regulator

[64] The production is over 500 litres/inhabitant/day, reaching up to 650 litres/inhabitant/day during the hottest summer days.

[65] Where allowed by the urban configuration. We will return to this point, but the contract effectively excluded the slums as well as the great suburban housing projects.

(ETOSS^[66]) a plan for all expansion works to be carried out during the next period and the corresponding tariff adjustments. We should mention here that the redistributive tariff system from the public company period remained in force^[67]. AASA's technical and commercial stakes lay in the next network extension objectives that mostly covered the underprivileged and most distant areas of the concession, mainly consisting of impoverished neighbourhoods. The expansion objective, when accepting the concession (1993), was to integrate 3.5 million clients of which 2.3 million lived in underprivileged districts.

The contract stipulated several performance obligations (network evolution in five-year blocks and a quantified reduction in water losses), but also means obligations such as works to refurbish or construct. According to AASA, the necessary investments were for a sum of USD 4,000 million, of which 1,000 had to be spent in the first five years. In addition, the concession regime stipulated that all infrastructure elements (existing and future) remained the property of the Argentine State.

Table 6 *Performance objectives mentioned in the concession contract (in %)*

Concession year	Population served		Water treatment		Network renewal		Losses
	Water	Sanitation	Primary	Secondary	Water	Sanitation	
0	70	58	4	4	0	0	45
5	81	64	64	7	9	2	37
10	90	73	73	14	12	3	34
20	97	82	88	88	28	4	28

Source: Concession contract (1993).

[66] Tripartite regulation entity, the three regulation levels being the State (through the Ministry for Economy and Public Works), Buenos Aires province, and the Capital Federal municipality. It should be noted that the municipalities around the city of Buenos Aires were not represented, even though they were the main areas for extending the networks.

[67] The system was based on the "canilla libre", (free tap), rather than a metered system. This was a lump sum based on a calculation of indices, like a tax formula based on the rental value of the dwelling (surface of ground and construction, type and age of the construction, zone coefficient, etc.), allowing a redistribution between rich and poor areas, large villas and small suburban houses, etc.

Concerning the utility itself, the technical paradigm adopted for the concession – directly inherited from the OSN “engineering” operating principle – was that of an integrated network distributing surface water (from the Rio de la Plata and treated in the stations in the centre of town) according to a fanning-out system. Any wells within the conurbation had to be progressively condemned and the inhabitants were obliged to connect to the system once the network had reached their area.

As far as the social objectives of the concession were concerned, most of the outlying areas to be supplied were in popular districts, representing the “social stakes” of privatization. However, when taking a closer look at the technical specifications of the concession regulation framework, it is clear that certain districts (slums and housing projects) fell outside the obligation of supply: some because they were marked on the land registry as “empty fields” (without infrastructure), others because the management of their internal networks was delegated to the municipalities. No contractual obligation covered the management of these two types of district that, in population terms, represented almost 25% of the underprivileged districts within the concession area, or about 500,000 people.

• *Return to Argentine socio-economic reality and incoherence of the concession details*

We should briefly return to the three key stakes of the concession that either were complete failures in terms of the initial ambitions (conditions for financing the network extensions, exchange risk), or allowed a partial recovery of the contractual loopholes (pro-poor policy). In all cases, these examples illustrate the incomplete aspects of the contract and its being out of phase with the socio-economic reality of Buenos Aires society in the years 1990-2000.

First of all, the concession was reformed half-way through (in 1997), which profoundly modified the socio-economic equilibrium of the concession territory. Initially, the AASA contract stipulated that the network extensions would be financed only through new customers, *via* an “infrastructure and connection” charge according to the “user-payer” principle liked by international institutions. Because of flagrant economic distortions and a strong mobilization of the “unconnected”, who knew they could never pay for their connection, the financing methods of the concession were renegotiated in 1997 at the request of the company. This renegotiation took place directly with the government, thus marking the first symbolic marginalization of the new regulator ETOSS^[68]. Since 1997, the financing of the network expansion

[68] The composition of ETOSS never allowed representing the outlying municipalities (and thus the population outside the networks), which explains the obstacle formed by the regulator in the negotiation and the decision of the central government to “by-pass” them.

thus was no longer at the charge of new customers, but of all users of the network. This was done *via* two new concepts: incorporating the charge in the utility, CIS, replacing the CIC, and a new charge of “universal and environment service”, the SUMA. This resulted in a slight increase in the fees of already connected customers and a much lower connection cost for new users.

Table 7 *Average cost per two-monthly bill before/after the renegotiation of 1997*

		Before	After
Average cost for already connected customers	Water and sanitation services	30.00	30.00
	Regulation costs	0.80	0.80
	SUMA Tax	-	6.00
	VAT	5.46	7.72
	Total	37.26	44.52
Average cost for new users (only water)	Water and sanitation services	6.00	6.00
	Regulation costs	0.16	0.16
	SUMA Tax	-	3.00
	CIS charge	-	4.00
	Infrastructure charge	44.00	-
	VAT	10.53	2.76
	Total	60.69	15.92

Source: after Alcazar et al. (2002).

The creation of SUMA provoked several lawsuits, many manifestations (of the middle class in the city centre that refused to pay for the inhabitants of the suburbs) and highly publicized debates between local politicians (Schneider-Madan, 2005). In this respect, it is interesting to note that the idea itself of a certain social “catching up”, as allowed by this new form of cross-subsidy, was not shared by the anti-privatization analysts, who interpreted it as a way for the company for relegating its investment promises to the already connected users by increasing their fees (Aspiazu et al., 2004). The fervent defenders of the neo-liberal doctrine were against it as well, as they saw the SUMA as a “disincentive” measure for the company, and thus socially inefficient as it “suppresses the main motivation of the company for extending its service to the poor population (that would now pay below the marginal cost)” (Alcazar et al., 2002).

On this point, both approaches reveal an analysis that was far from the reality of existing dynamics as, in 1997, the concession had arrived at an impasse because of the impossibility that future users would be able to pay. This reality principle thus merited mention in the first lines of the analysis.

Secondly, as already mentioned above, the concession contract did not plan for provision (or for service management) of the slums and the housing projects. However, as part of the dynamics of the general Suez Group policy, AASA progressively set up a programme that was specifically adapted to this type of district, allowing the integration of the “poor” population in “traditional” utility management (Botton, 2007). Initially, the company’s efforts concentrated more on designing a methodology than on operational advances as, in 1999, the Community Development Unit was created. Its mandate was the definition and application of a method for social accompaniment of the works in underprivileged districts (search for innovating financial solutions, professional training, integration of the districts in the company’s geographic information system, etc.). Little by little, this teamwork led to adopting a “modelo participativo de gestion” (shared management model, or SMM) for the underprivileged districts of the concession. All working methods (decision-making process, operational phase of the works, and commercial management) were adapted to the specific requirements of the poor districts and were subject to a tripartite contract (between inhabitants, company and municipality) supervised by the regulator. The *inhabitants* of the district had to request the service (projects were only carried out if over 80% of the district population was favourable), after which they had to choose representatives and supply labour during the phase of works. The *municipality* committed itself in writing to ensure the actions of its responsibility in the works (opening of streets, etc.), to distribute tools for the work (gloves, shovels, etc.) and to organize the distribution of aid. The *company* had to ensure the technical feasibility of the project; it was committed to supplying the necessary materiel (pipes, wrenches, etc.), the technical training of the labour teams (training in working techniques and work-site safety aspects), and the communication with the community as a whole (community workshops for presenting the commercial aspects, answering the doubts and questions of inhabitants, etc.). In addition, a resolution validated by the regulator defined a specific tariff for the district.

The operator took advantage of this lack of contractual definition and of a coercive or even incentive social policy (from a perspective of a true project for universal access to services), by seizing the commercial opportunity to supply these underprivileged districts. This opportunity to extend the networks was based to a large extent on a strong demand of the concerned inhabitants. However, the results were disappointing: ten years after taking the concession and four years after implementation of

a social engineering programme, only 25% of the underprivileged districts of the concession area had access to the services.

The development programmes, notwithstanding a perspective of “market opportunity” for the operator, suffered from the absence of a general policy for the concession (efficiency of the regulator and definition of social policy). It suffered especially from the reconsideration of the PPP model after the peso devaluation of January 2002, the prelude to the unilateral termination of the concession contract.

After the SUMA “crisis” in 1997, the second major shock affecting the contract was the Argentine crisis of late 2001, followed by devaluation of the peso, which sounded the death knell of the initial definitions. The concession contract effectively had been signed in Argentine pesos, but since the Cavallo law of 1991 the peso had official parity with the dollar, this had initially reassured the international operator, allowing him to seek funds on the international market for financing the infrastructure investments. Was this a poor evaluation of the exchange risk or an excess of optimism? The fact is that, eight years after signing the AASA contract, the interim government of Duhalde, faced with an accelerating economic, social and political crisis in the country, decided to get rid of the stranglehold formed by the peso-dollar parity, thus provoking a *de facto* unilateral termination of the concession contract. The devaluation put the operator in great financial difficulties: AASA had not only taken out dollar loans on the international market, but it also saw its turnover suddenly divided by three as the customers continued paying their bills in Argentine pesos (tariff “pesofication”). This breach of contract because of the devaluation marked the start of a very long and fruitless negotiation period between the government and the operator.

Paradoxically, this crisis did not slow down the development of pro-poor projects. On the contrary, the year 2001 was a true springboard for the operational phase of “shared management models”. This astonishing situation was the result of three combined effects:

- The maturation effect: the crisis arrived at the moment when the company was finally ready to implement true projects in the districts;
- The cost effect: the expansion projects in the poorer districts were generally less expensive than traditional projects;
- The image effect: in a period of contract renegotiation and because of the numerous questions raised by civil society concerning private operators, the “underprivileged district” projects represented the “*cara humana*”, the human face, of AASA activity.

• *A socio-political explanation of the concession's end*

The monetary devaluation thus put the operator in a highly unfavourable financial situation and opened a period of contract renegotiation in an extremely tense political context, where the operator started a lawsuit with ICSID^[69] against the Argentine authorities, but where the new government confirmed that it did not wish to pursue the *"beneficial policy towards multinationals"* (sic) of the neo-liberal decade. In March 2006, after four years of difficult negotiations, the Kirchner government suddenly decided to put an end to the contract by issuing a decree announcing the creation of a new public-equity company: Agua y Saneamiento Argentinos (AySA). Suez then left Buenos Aires.

By renationalizing the water utilities of the capital in 2006, the Argentine government of Nestor Kirchner wanted to send a strong political signal, breaking the liberal agreement that had prevailed until then. This agreement had been the political brand of the Carlos Menem government in the 1990s, even though he, too, was a member of the Peronist "Justicialist" party. This new orientation sought to embody the opposite of orthodox privatization, of which the AASA concession operated by Suez was the paradigm. The question is, however, whether this really shook up the local reform complex of neo-liberal Argentina in the 1990s and 2000s. In a context of legal conflict between the national authorities and the former private operator, and of government talk around the idea of recovering national identity, what were the technical, commercial and financial options that the new public operator might wish to pursue or redefine?

The socio-political configuration of this period from the middle to the late 2000s was thus quite specific, as it broke with the preceding – so-called "parity" – period during which the middle class got into debt for entering the consumer and equipment society as proposed by the authorities. This was the main attraction for international operators. Notwithstanding this, AASA, at the explicit request of the Suez Group, had proposed a true pro-poor policy. Though this was far from the initial ambitions of the reformers, it specifically addressed – as its name indicates – the poorest people in the conurbation, and was based on upgrading the water utilities in their districts. AASA experienced major difficulties in implementing this policy, not because of problems created by the inhabitants or even by local municipal authorities, but because of resistance from the supervising authorities and even from within the company (Botton, 2007).

[69] International Centre for Settlement of Investment Disputes, a World Bank arbitration tribunal; the ICSID trial is still ongoing.

Nestor Kirchner's political reversal was thus based on support from an impoverished middle class that was disappointed with neo-liberal policies, though promoting projects aimed at the poorest (e.g. the "Agua mas Trabajo" programme in the Matanza) that had little sustainability^[70]. The rejection of the operator was thus by the Argentine State itself, rather than by a collective action from the dispossessed of the concession. This posed not only the thorny question of the continuity of public policy (at the origin of Suez's determination to start a lawsuit through ICSID against the government), but also the even thornier question of the lack of solidarity between the middle class and the poor, and the political gameplaying around these contradictions. Hereafter we will see that, notwithstanding the apparent similarity (Suez leaves both Buenos Aires and La Paz), the Bolivian situation was completely different, especially concerning the link to the State in the collective action.

2.3.2. The Aguas del Illimani concession at La Paz – El Alto

In 2005, the Press Officer of the Suez-Lyonnaise des eaux Group in Paris explained: *"The Bolivian concession has an only slight impact on the Group's balance sheet. The profits – 3.4 million dollars in 2004 – have until now all been reinvested in the country. This contract is important to us in terms of image: we wish to show that it is possible to work in a country like Bolivia."*^[71]

Though an exhaustive review of the reasons – as diverse as they are intricate – for terminating the contract falls outside the scope of this contribution, it is crucial to ask why the pro-poor arrangements were incapable of guaranteeing the social acceptability of the delegation: Why were these arrangements unable to create a relation of confidence between the users and the operator? Were they burdened by perverse homegrown effects, or were they just victims of larger contradictions that they could not overcome? What are the lessons from the Bolivian experience in terms of placing a contract in a specific socio-political context, including for non-private providers?

An analysis of adding pro-poor action plans to the general dynamics of a contract provides two lessons. The first is that such numerous plans were in fact based on contradictory incentives for the operator, which largely cancelled the benefits for the poorest once the network had been rapidly extended to the most solvent

[70] Since renationalizing the water utilities, the extension projects into the suburbs were much less than planned; the "shared management model" gradually was replaced by a more clientelist formula ("a return to electioneering in the districts" according to a Project Manager of the new company AySA, etc.).

[71] Maya Alexandresco, cited by *Le Monde de l'Économie*, 15 March 2005.

population segments. Though some errors in contract design could have been avoided, others were inseparable from inserting such action plans in an unbalanced economic model, almost entirely based on the persons receiving the benefits (through a strict application of the principle “*water pays for water*”), and not on more widely shared costs between the stakeholders.

The second lesson is that pro-poor action plans cannot be dissociated – like the rest of the contract – from the wider socio-political dynamics with which they interact. From this viewpoint, the “poor oriented” management should be considered for what it is: a set of contract and management arrangements for facilitating – under certain conditions – the access to services by the very poor. It is certainly not a “miracle solution” for bypassing the construction of a political legitimacy concerning the sources of financing the utilities. In a country where the access deficiencies are as glaring as in Bolivia, socio-technical engineering cannot – even less than elsewhere – substitute for political choice. A contrary illusion leads to a poor risk evaluation. To admit, for instance, that innovating connection and maintenance schemes in themselves do not constitute a “participating” tool for democratizing management, but a simple instrument for managing by demand, allows the clarification of responsibilities and stakes.

Before discussing these two lessons in more detail, a rapid review of the delegation parameters and the main characteristics of pro-poor action plans is needed.

• *Contextual elements*

The “Aymara City” (Garcia Linera, 2005) of El Alto lies on the Bolivian altiplano, overlooking at an elevation of over 4,000 metres the City of La Paz, seat of the political and administrative power. Even though the latter is highly diversified socially, between the popular habitat of “the slopes” and the economic elite massed in the valley below at its southern extremity, the lack of access to services is essentially felt at El Alto. In the 1950s still a simple rural suburb of the capital, the town since then has known exponential growth caused by the arrival of pauperized migrants (peasants or former miners of the Altiplano). From 11,000 inhabitants in 1950, it grew at an annual rate of over 5% to 600,000 in 1997, when the concession was introduced^[72].

Schematically, El Alto can be divided into three zones. The South zone (districts 2 and 3) is relatively industrialized with a mostly “lower middle class” population (office workers, minor executives), and the Central zone (districts 1 and 4) houses artisans and shops. The North zone (districts 5 and 6), hosts the poor migrants of the rural La Paz and Los Andes provinces, and most lacks access to services.

[72] Between 1982 and 1992, the rate of annual demographic growth was 9.4% for El Alto and 1.6% for La Paz (Censo de Población y Vivienda, 1992). In 1997, La Paz had about 740,000 inhabitants (Komives, 1999).

The conurbation is supplied with water through a largely gravity-fed system (notwithstanding the near-zero slopes at El Alto) that is subdivided in three sub-systems (El Alto, the largest, Achachicala and Pampahasi) corresponding to the three main springs feeding the network.

It is in this setting that, in July 1997 and with active participation from the World Bank, the municipal company Servicio Municipal de Agua Potable y Alcantarillado (Samapa) was replaced by the Aguas del Illimani consortium^[73], by means of a 30-year concession contracted with the Bolivian government. At the time, the cities of La Paz and El Alto were provided respectively 95% and 65%, with piped drinking water and 80% and 25% with sanitation networks.

As far as the national political context is concerned, the delegation took place at the end of President Gonzalo Sanchez de Lozada's mandate, marked by several "constitutive" political events^[74]: privatization, decentralization, "popular participation", and sector rationalization under the aegis of autonomous regulators. These reforms were presented as a form of "neo-liberal democratic" reference (Mayorga, 2007), very popular among Bolivian technocrats trained in American universities, for whom integration into and by the market also was a lever for social and political integration.

• *The main pro-poor provisions of the delegation*

The contract contained many provisions that were primarily oriented toward the very poor. The first – and by far the most important – concerned the utility objectives: these were not only ambitious, but also concentrated in the first five years. Aguas del Illimani committed itself to carry out 71,752 additional drinking water connections before end 2001^[75], in order to generalize access as of that date. At the same time, access to the sewerage system had to be raised to 41%, before gradually reaching 90% in 2021. A new aspect was the linking of this extension timetable to real-estate regularization.

The second pro-poor provision was that the contract retained the double tariff equalization of Samapa (progressive structure and transfer between user categories), though dividing by over four the lowest "social" tariff, that changed from USD 0.99/m³ to USD 0.22.

[73] After modification of the shareholder structure in 2001, the consortium composition was as follows: Lyonnaise des eaux 54%; Bolivian Investment Company (BICSA) 22%; Inversoras en Servicios S.A. 9%; CONNAL S.A. 5%; AISA employees 2%; IFC 8%.

[74] According to the classic typology of Theodore Lowi, "constitutive politics" concern the enactment of "rules on rules", or transformation of the procedures themselves that construct the public action (also known as procedural politics).

[75] By comparison, SAMAPA had created 35,767 new connections during its last five years of operation (1991-1996).

Table 8 Tariffs by bracket as planned for in the contract

Social bracket	Amount in USD/m ³	User category (m ³ of water consumed)		
		Domestic	Commercial	Industrial
High	1.1862	301 and over	21 and over	1 and over
Medium-high	0.6642	151 to 300	1 to 20	
Medium	0.4428	31 to 150		
Low	0.2214	1 to 30		

Source: Aguas del Illimani contract, annex 10.

A third provision, in compliance with earlier sector regulations, concerned the domestic connection with a meter, which remained the standard, permitting the poor to pay only for their low level of consumption.

These contractual provisions were completed by several socio-technical provisions not mentioned in the contract, which became the most publicised part of the model. The same day the contract was signed (24 July 1997), an agreement was signed between AISA and the municipality of El Alto for exploring the possibilities of connecting the low-income areas at lower cost^[76]. This agreement rapidly led to a pilot project for the years 1998-2001, funded by AISA, the Bolivian government and international cooperation (UNDP, World Bank and Swedish cooperation). This was based on two pillars: simplified technical standards and the contribution by users to the works in exchange for a reduction in the connection costs (along a similar logic to that of Buenos Aires). The technical model of this “condominium” system consisted in equipping side streets with pipes of smaller diameter and at shallow depth, linked underground to the network of the main streets (Paterson *et al*, 2007). This model, inspired by the conventional network of Brasilia, was completed by the participation of users in the works (*Obras con Participacion Vecinal, OPV*). This was either just for hooking up individual dwellings, or, more widely, for equipping the side streets. According to the initial estimates, this system would reduce the connection cost to the drinking water network by two-thirds when compared to the conventional connection system (USD 44 against USD 146 on average) and by three-quarters for hook-up to the sewer system (USD 62 against USD 242; Komives, 1999). It is thus not surprising that most users favoured this scheme, causing its generalization after 2001: “participative” and

[76] Acuerdo Entre El Gobierno Municipal de El Alto Y Aguas del Illimani, 24 July 1997.

“condominium” connections in 2005 represented over 56% of the new ones (Poupeau, 2007).

These different provisions explain that AISA’s action during the first five years was marked by a rapid extension of the utility, which – though below the initial objectives – was much better than Samapa’s earlier rhythm. The audit report demanded in 2001 by the sector regulator (Superintendence for Basic Sanitation, SISAB) mentions investments of USD 52 million and over 52,000 new connections^[77]. In particular, the consultant in charge of revising the tariff schedule for the next five years, estimated that the objective of 100% coverage in the area to be served was now reached^[78].

Nevertheless, the good results of the first five-year period did not hide the blind spots and ambiguities of these pro-poor provisions, which brought their full weight to bear after the contract renegotiation of 2001.

• *Contradictory incentives*

The first source of confusion, quickly identified by observers, was the distinction made within the concession area between an “area to be serviced” to which the expansion objectives applied, and an “area without services” for which the operator had no legal obligation (even though theoretically holding a territorial monopoly over such areas as well as over the serviced areas). The outlying areas consisting of such “areas without services” were obviously the least solvent and those with the greatest population growth. This led the social organizations to state that, in reality, 200,000 people were deprived of any connection in El Alto (Laurie and Crespo, 2007).

AISA, having no incentive for investing in such districts, asked for help from international cooperation in the North zone. Swiss cooperation released EUR 3 million in July 2004, funding a ten-year programme in District 7 for the installation of 112 public taps as well as the construction of a wastewater treatment plant. In May 2005, projects were started with Canadian cooperation in districts 5 and 6, and with the European Union in District 8.

A second source of confusion concerned the size of the social water supply bracket, which turned out to be as unfavourable to the operator as it was socially regressive. This bracket, for volumes up to 30 m³, included in fact almost all domestic users in El Alto and most of La Paz. It should be compared to the typical water consumption in El Alto, where – according to the first SISAB regulator – 50% of the dwellings consumed

[77] Delta Consult. Ltda, Auditoria Especial de Inversiones de la empresa Aguas del Illimani S.A., 10 January 2003.

[78] LECG, “Estudio de precios y tarifas de Aguas del Illimani S.A.”, Revision quinquenal 2002-2006, October 2001.

on average 6 m³/month^[79]. This inadequacy obviously affected the operator's profitability: though its real level was at the core of the controversies during the termination of the contract (we discuss this further on), the documents transmitted by AISA to SISAB mention an average (highly volatile) rate of return on investment of around 7%, much less than the capital cost. This meant that no dividends were paid to shareholders during the nine years of operation.

The low levels of consumption and the need to extend the network to an even less solvent clientele, led AISA, during the renegotiation of 2001, to ask for, and obtain, a drastic increase in the connection cost. This cost went from USD 155 to 196 for drinking water and from USD 180 to 249 for a sewer connection, or a total of USD 445, and this in a country where the minimum wage in 2001 was around USD 45^[80]. Combined with the strong decrease in amounts invested during the second five-year period, this increase gravely affected the very poor.

Yet another source of confusion was that, notwithstanding their widespread adoption, even the condominium and "participative" connections quickly showed perverse social side effects. The problem for the users effectively was their real cost, in addition to their potential technical vulnerability. The figures given by Foster (2001) mention a smaller reduction than those given by Komives (1999). By using Foster's (2001) figures, Laurie and Crespo (2007) chose to calculate the value of the work by users according to the salary levels of the sector, rather than by considering the effective connection costs. After adding the maintenance costs of the first five years and the costs for purchasing materiel, these authors concluded that the "participative" connections in reality were much more expensive than the standard ones (USD 404 against USD 335). Moreover, the costs of all connections were increased when the users took out a 2- to 5-year loan at an interest of 13% to pay for them. Such loans were mostly reluctantly accorded by AISA in view of the risks of non-repayment. Though these measures followed the pro-poor recommendations for flexibility in the type of payment to the letter, they turned out to be socially quite regressive.

It is evident that some costs of the condominium model could have been better structured and that the social bracket was too regressive in a social sense, and too penalizing for the operator. Nevertheless, the basic problem was the contradiction between the investment cost, the solvency of users and the consumption levels,

[79] Oral communication from Luis Uzin, 28 May 2006.

[80] Even though this figure gives an incomplete image of the real standard of living, marked by the weight of barter and an informal economy, it shows the striking order of magnitude of the difference between the monetary resources of a household and the efforts to be made for obtaining a connection.

which could not be resolved by the principle of complete cost recovery through tariffs. Any input from international cooperation could only be an insufficient complement: as European experience has amply shown, funding through taxation remains indispensable for financing access extensions, in addition to being the only effective guarantee against polarization of the utility.

Instead of this, the absence of real cost-sharing between the stakeholders provoked a vicious circle, as the strong decrease in investments by the operator affected the poor and aggravated resentment against the operator. In this climate of increasing conflict, virulent controversies appeared concerning the accounting mode of the investments in the service area. The final audit of 2006 accused the operator of having strongly over-valued his own capitalization, and thus having strongly under-evaluated his real profitability, which was thus estimated to be 15.1%^[81] (Pozo *et al*, 2006).

- *Widening the analytical focus: the management model tested by socio-political dynamics*

One of the specifics of the Bolivian case is that the concession difficulties rather quickly spilled over from a simple management problem into what specialists of protest politics call a “scale change” process. This is characterized by an extension of the contestation to an ever large number of players and the interconnection of earlier unconnected demands.

The socio-economic difficulties first activated latent representations, widely shared by El Alto users and very hostile toward the delegation. The latter was effectively regarded as the expropriation of a common good, the lucrative management of an essential good for life (“*el agua es vida*”), as well as a foreign takeover of a local and national resource. Such cognitive and normative frameworks, making no strict separation between service and resource, gradually crystallized as the investments slowed down.

However, the idea of a simple “politicization” of indigenous cultural identities requires a further nuance. First of all, these shared representations did not directly provoke the protest: they just fed it once the change in connection costs seemed to provide their empirical validation. Furthermore, such an analysis leaves out the fact that the popular labourer and peasant classes have since long been incorporated in Bolivian political life. At least since the revolution of 1952, the Andean “communities” have been integrated in the national political society, even though this was done in a somewhat authoritarian and corporatist manner. The mobilizations thus did not mark

[81] Presenting densification connections as extension connections, insufficiently credible documentary evidence, use of inflated amortization rates and capital costs.

a cultural “Pavlovian” reaction, but rather the demand for an alternative political project. They signalled in fact a crisis in the specific management mode of the State that was both authoritarian and technocratic, and was market based. The extremely centralized managing of the delegation supported this liberal interventionism: the intermediate organizations (municipalities and social organizations) had been marginalized during the process, to the benefit of the operator and the sector regulator for the ministry. In fact, everything happened as if the delegation was an instrument for recentralizing the utility and for weakening the local political representations. In this context, what was contested was as much a strategy of top-down rationalization by a delegitimized State as the principle of private management. This crisis marked a wish for re-appropriation (“el agua es nuestro”) that could not easily be satisfied by simply improving the management of the utility.

Finally, the battle against the operator was only possible through the structuring and mobilization work by the federation of neighbourhood committees of El Alto (the Fejuve). This played the role of a “mobilization structure”, providing organizational and argumentative resources to the users. The Fejuve had already strengthened its legitimacy during the “gas war” of 2003, but its influence remained uneven: most inhabitants of the most outlying districts 7 and 8, which were initially politicized “by necessity” (Poupeau, 2007), demanded an acceleration of investments and not the departure of the operator. The most strongly mobilized districts were the ones most integrated in the Fejuve, which were already connected at high cost and demanded a company under “social control” and distant from the so-called “participative” marketing devices.

Our analysis shows that the many pro-poor arrangements of the contract could not eradicate the partnership difficulties, because a socially regressive economic model was politically taken over by users who managed to polarize the stakes and change the scale.

As far as the economic model is concerned, the lack of adaptation of the social consumption bracket to the real consumption levels and the lack of incentives to invest in the poorest districts, have pushed the operator to a completely regressive increase of the connection costs. At the same time, the condominium and “participative” connections caused controversy in terms of their real cost to users, whereas fears were expressed concerning the risk of institutionalizing a polarization within the utility. Even more than these controversies, their resulting constraint is blamed: an economic model almost entirely based on a service provider (notwithstanding input from an international cooperation) who for the authorities plays the role of an instrument for taking their responsibility for financing of the utility.

The limits of this management model were interpreted by users and the Fejuve as a crisis of the State and its political legitimacy, as the latter had relied on the private sector for a top-down rationalization of the sector and at the same time marginalizing the basic political organizations. By using arguments that were deeply hostile to private management, the users were mobilized in the name of a desire to repossess the utility, which completely exceeded simple management considerations.

Having presented these socio-political explanations for the end of the de Buenos Aires and La Paz-El Alto concessions, we should now look at the way the social stakeholders interpreted the same situations to transform them into projects, or even in actions. Hereafter, we present the view of these experiences by the Suez Group, the operator of both concessions, the policy of the local stakeholders having recently been the subject of an analysis by de Gouvello *et al.* (2010)^[82].

2.3.3. Analysis of the Latin American experiences and strategic reformulation of the Suez Environment (SE) Group

In 2007, the SE Group started an in-depth analysis of why the Buenos Aires and La Paz-El Alto concessions were terminated, noting that *"its international experiences have shown to what extent water is a social good with a strong cultural dimension"* (SE, 2008). It joined the debate regarding the PPP model as promoted in the 1990s (Botton, 2007), thinking about the strategic reorientations that these reflections might lead to. The third part of this contribution now tries to reconstruct the company's line of thought in the approach, based on communications by company staff.

The Group retrospectively analysed the promotion of PPP models in the 1990s as an opportunity to call upon the services of major private companies, that – after almost a century of experience in the West – combined several essential qualities in addition to their technical expertise. These qualities included the know-how for managing a complex utility at the scale of a megalopolis, the capacity of gaining the confidence of donor organizations – and thus of collecting the necessary capital – and, finally, the use of a public utility model with several strengths, such as a universal service approach, a client-company relation based on rights and duties on both sides, and the responsibility of the local public authority.

[82] We should, however, mention the relative disinterest of academic and institutional circles (or, in any case, a sharp drop in the number of published analyses) in evaluating the technical, economic and social performance of these new public stakeholders.

The strong rejection of this model after almost ten years of operations thus led to questions within the company needed to continue its activities, if necessary in the context of developing countries. This was put as follows: *“The rejection phenomenon of Western groups merits analysis. As the technical and economic sides in our cases were satisfactory, with tens of millions of people having been connected^[83], we have to concentrate on the difficulty of exporting a model carrying certain values. We must consider the social, political and cultural specifics, and identify the right interlocutors within civil society in order to optimize our dialogue with institutional clients and with users”* (Suez-Environment, 2008).

• *A corporate reading of the end of the Buenos Aires and La Paz-El Alto PPPs*

Though strategic reflections are part of the daily routine of company directors, the fact of communicating on an error analysis as well as future strategy is less common. The SE Group wanted to take this latter road and tell about its Latin American experiences.

The main results of the multiplication of conflicts leading to a premature end to most contracts of the PPP type and of the dissatisfaction of all parties have been a return to public institutional schemes for the concerned contexts, as well as disaffection for this type of contract by private international operators. How does the SE Group analyse the failure of these experiences? Although a reading of the years of management and investment in Latin America obviously will have many sides, and though the causes for “failure”^[84] of the Bolivian and Argentine experiments are many and interconnected, we can nonetheless retain six salient points, presented in the analysis:

1. Poor risk management meant that many contracts could not weather the crises affecting new economies, such as devaluation and financial turmoil, changes in ideological direction, political crises, popular dissatisfaction, social crises, etc.;
2. The economic model for financing operations, especially that related to the theory of “full cost recovery”, meant that both financing the development of infrastructure and the cost of service in developing countries must be covered by the price paid by the customers, whereas no Western country had developed its services along such lines^[85];
3. The execution of both contracts, involving large equity investments, led to insoluble conflicts between the private operators and public powers;

[83] A total of 24 million people have been connected to a water utility by the private sector since 1990 (Marin, 2009).

[84] The term “failure” here indicates a failure to transfer the model as it was initially conceived (“rejection of the graft”) rather than a failure through poor results and bad company management during the period of operations.

[85] They all knew a first phase of public investment before the service and (partial) network maintenance costs could be covered by tariffs.

4. There was a lack of constant and confidence-based dialogue with the stakeholders in the field and the local communities, no shared evaluation of potential problems and solutions, and little or no preparation/training of the contract managers in how local society would approach such services;
5. The extremely symbolic dimension of water in Argentina or Bolivia was insufficiently taken into account, especially in the context of economic or political crises, and the debate rapidly left all operational reality or public health preoccupations behind, becoming a political-campaign issue;
6. Finally, a “local politicization” arose that was nourished by the campaigns of contesting global economics, and which made water a symbol of political combat.

Finally, SE deplores the fact that the experiences of major French groups in transition countries have been halted because of the imbrications of several factors, which in the end had little to do with performance in the field, and this to the detriment of people, especially the most vulnerable ones.

• *Strategic and operational reformulations by SE*

The communication of the Group around these experiences, from a viewpoint of wishing to start a dialogue with all players interested in this debate, should allow constructing a new strategic approach for its activities in developing countries: “*Faced with this conclusion, we have started work on new solutions*” (Suez-Environment, 2008). Internally, and based on the work by the Foresight Advisory Council (a future-trends committee that has been working with the Group for the past ten years), SE has studied all its contracts for their “management” dimension, sharing this self-criticism between the directorates and the business units in order to consolidate the Group (the “Operand’ Eau” operation). In addition, this internal study attempted to answer questions concerning its responsibility in providing access to water when participating in regulation work and governance, with the – according to SE – occasionally contradictory injunctions this involves (“*you must provide drinking water to the people, even when they are insolvent*”, or “*as a private player, you have no right to manage a public good such as a water utility*”, etc.) In this manner, SE has encountered a large number of players in this field and has participated in all debates organized around this subject, thus systematically seeking to establish dialogue.

An SE working group then started a formal process of dialogue with the stakeholders in Group activities, the “stakeholder sessions”, starting from the observation that debates concerning water have a tendency to take place in a closed manner between university researchers, development players, etc. Two dialogues were started simultaneously, one in New York for the Americas and one in Paris for Europe and Africa.

Eighty stakeholders (NGOs for relief and development work, researchers in social sciences, elected officials, experts, engineers, donors, etc.) participated in these meetings, during which two questions served as guidelines for the sessions:

1. "What is the responsibility of private operators for access to drinking water?";
2. "How can we strengthen the transparency and balance of powers on water utility contracts?".

This dialogue process has taken place twice since 2007. Initially, SE wanted to hear the analyses of the various stakeholders. During the second sessions, the Group presented the same panels with the complete results of these earlier diagnoses and their recommendations.

This dialogue process has allowed redefining the Group's policy of corporate social responsibility (CSR) by refocusing it on its core activities and by dovetailing it with overall Group strategy. This led to a new definition of market segmentation, not along geographic lines but through an approach of societal engineering that is specific to a certain context.

Box 12 *The intervention segments of the new commercial strategy of the SE Group*

1. The "business as usual" segment groups the countries where public utility delegation is the favoured way of managing essential services, with partnerships between the public and private sectors (concession, affermage, partnership contract, Build Operate Transfer – BOT, operation and maintenance contract, etc.). This segment essentially covers Europe, North America, Australia and China.
2. The "sponsorship and humanitarian action" segment allows providing a minimum water and sanitation service in very poor areas, where the habitat is too scattered to set up a commercial service. The humanitarian action is carried out through an in-house NGO, Aquassistance, or through other vectors (partnerships with operational NGOs, financing of humanitarian actions, technical contributions, etc.).
3. Between these two situations, an *intermediate zone* segment concerns medium-sized towns in developing countries. It is characterized by the impossibility of financing the renovation and extension of infrastructure by tariffs alone and, commonly, by institutional weakness and difficult planning of public policy concerning the access to water and sanitation. This segment requires a specific contract model that closely associates the operator, public authorities, NGOs, representatives of civil society, and the donors that fund the necessary infrastructures.

The main novelty lies in the definition of an “intermediate zone” segment for which the approach can be neither “business as usual”, nor “sponsorship and humanitarian action”. This concerns medium-sized towns in developing or transition countries, especially in Africa, for which no “off-the-shelf” solution exists because of deficient political and administrative structures, insufficient planning, fragile financial set-ups, etc. To answer the requirements of this segment, SE wants to develop a new intervention model that presently is being discussed with certain countries and with the international water community: the “4P model” (**participative** public-private partnerships). This model aims at integrating, from the call-for-tenders stage onward, an institutionalized process of dialogue and participation of local stakeholders. Dialogue with the latter has in any case been defined as the fourth pillar of SE’s sustainable-development policy during the recent autonomization of the Group in July 2008. This pillar covers the following stakes: 1) training of teams; 2) giving the teams the means to establish such dialogue (know how to identify stakeholders, organize the dialogue, ensure follow-up); 3) transferring competences for ensuring the equilibrium between knowledge and power; and, 4) providing suitable, clear, accessible and complete information to the local stakeholders.

This process has led to the setting up of a Directorate of Societal Engineering that has several tasks, including in particular:

- Continue the dialogue process between headquarters and stakeholders;
- Set up and professionalize the dialogue on a local scale in the subsidiaries, by means of technical assistance, making tools available, and setting up a platform for exchanges;
- Search for, implement and monitor partnerships with local authorities and civil society, especially with NGOs for partnerships in financing and competence in the field of relief and development, and for knowledge transfer work through the Suez Environment – Water for All foundation;
- Social intervention: assistance to the subsidiaries to reach the Millennium Development Goals and to access essential services. This activity is supplemented by actions to explain the social realities of Group activities and by setting up societal engineering training sessions;
- Define and implement suitable management models in terms of market situations: SEED (*SE Eau et Développement*), a structure for developing new intervention models around the “4P model” with bilateral and multilateral agencies (AFD, Inter-American Development Bank, Millenium Challenge Corporation, USAid, World Bank, International Financial Corporation, etc.);
- Participation of SE in the Water Development Alliance (WDA), an association of private operators and think tank on what form new PPPs should take.

Finally, what the operator retains from his experiences in developing and transition countries is the absolute need to act in a context of dialogue with the stakeholders in his environment and within a dynamic of co-constructing the proposal. In short, the “stakeholders’ sessions”, the “4P model” and the SE “Directorate of Societal Engineering”, send a strong signal to “future markets” that the SE Group wishes to abandon a logic of simple transfer or “veneering” of a management model, to be more open to the socio-political stakes of the contexts in which it operates.

Conclusions

At the conclusion of this overview of the socio-political and institutional (corporate) reasons for the departure of Suez Environment from Buenos Aires and La Paz, it is first necessary to stress the differences in the causes and rupture processes of the two contexts, abandoning the former – too homogenizing – story of a “retreat of the operators from Latin America”. The two settings present two different types of dynamics: in Buenos Aires, the exogenous shock of devaluation and centralization of a State seeking the legitimacy of a rupture with neo-liberal policies; in La Paz, endogenous dynamics (unsustainability of the economic model) and centralization of social organizations that acted against both the operator and the State.

After that, it is interesting to note the converging analyses concerning the general market dynamics: *“Where public utility delegation contracts have remained in force, they are often smaller and tend to be limited to countries with a dynamic capital market”* (Marin, 2009). This echoes the new market segmentation strategy of SE.

It is actually surprising to note to which point the evaluation of the operator of his concession experience in major cities of developing countries resembles that of certain “PPP-sceptic” researchers, even though the two may use different formulations. The latter effectively consider that the model of the great long term delegation contracts with international water companies, such as those of Buenos Aires and La Paz, are poorly adapted to the context of developing countries. The reasons given are many: strategy of bidding too low; absence of efficient regulation (Casarin *et al*, 2007; Bakker, 2009); exchange and revenue risk; political protest and control (Bakker, 2009). Finally, by focusing on the idea of performance, it seems that the debate on PPP models *“missed out on the true questions”* (Budds and McGranahan, 2003).

However, a major difference remains in terms of the objectives for action. On the one hand, the operator tries to *“redraw a participation model of the private sector in water utilities of the developing countries”*. Belonging to the register of business action, he is obliged to remain on the lookout for markets, as is shown by the following communication. *“The disappointment felt faced by the mixed results of these experiences might lead to rejecting the PPP concept itself. However, as the international private sector has proven its efficiency in other settings, we should today look for a new way of intervening. The lessons learned from past experience should help in drawing up a renewed model that avoids the earlier pitfalls, which should be more*

participative and more flexible, and should primarily ask of the private operator that he contributes his know-how” (Suez-Environment, 2008).

On the other hand, Bakker (2009) reminds us, correctly, that water in towns – often considered as a technical problem – is inextricably related to governance problems. This, seen as a *“process of coordinating stakeholders, social groups and institutions, with the aim of reaching objectives that were collectively discussed and defined”* (Le Galès, 2004), should not be understood as a simple management technique, but rather as *“shared power”* (Depaquit, 2005). From this perspective, the problem of providing water to urban populations will not be solved by better management “models” (Bakker, 2009), but through institutionalizing legitimate procedures for collective decision-making. From this point of view, we must insist on the shortened period for public action in developing countries that, moved by a desire for catching up with developed countries, try to innovate simultaneously on three fronts:

- Construct organizational capacity: professionalization of operators, independent and endowed regulators, strategic planning of sector ministries;
- Construct coordination mechanisms between a growing number of stakeholders: operator, several government echelons, regulators and sector ministries, health and environmental organizations, NGOs;
- Construct legitimacy formulas for urban governments that are commonly discredited because of management practices such as clientelism and patronage.

Finally, many socio-political analyses agree that “grafts” of PPP models for developing countries were “rejected” because they were preconceived in the developed countries. They ask questions on the ways of social transformation and collective action that will lead to basic readjustment of society, well beyond the level of technical or management choices for access to basic services.

From this perspective, it is easy to understand – notwithstanding the common objective of improving service – the differences in action patterns and frame of mind of each stakeholder, as the close and intricate relations between operator and municipality have their limits. In the matter of access to basic services, the degree of maturity of the society and the political will of the authorities are unavoidable prerequisites for the efficiency of companies, whether they are private or public.

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2.4.

Partnerships and reform strategies in water utilities. The experience of Cartagena (Colombia) and Campo Grande (Brazil)

P.-L. MAYAUX

Introduction

The great delegation contracts for drinking water and sanitation utilities, as implemented in Latin America during the 1990s, have known mixed results. The initial infatuation rapidly made place for several highly publicized contract terminations, which caused the main operators to leave the region or to redeploy to more restricted types of intervention. Nine of the ninety-nine major partnerships signed in the region – concerning towns with over 150,000 inhabitants – were terminated before their end (Marin, 2009)^[86]. This proportion, however, only gives a partial image of the instability of the new arrangements. Other indicators are the uncertainty around the frequent contract renegotiations^[87], the volatility of the shareholder structure of operator consortiums, and the regular mobilization of users. Clarke-Annez (2006) observed that

[86] Argentina, with five terminations (Buenos Aires, Santa Fe, and Tucuman, and another two in Buenos Aires Province) concentrates most cases. After that come Bolivia (Cochabamba and El Alto) and Uruguay (Maldonado, Aguas de la Costa and Uruguay). It might be interesting to add the cases of non-renewal of contracts for shorter operations, such as in Venezuela (Lara State and Monagas), in Guyana and in Trinidad. (Hall and Lobina, 2007; Marin, 2009).

[87] These concern 92% of the contracts in the region (against 41% for the electricity sector), and occur rapidly (1.3 years on average). (Guasch, 2004).

38% of the contracts listed in the World Bank database of 2005 were characterized as being “problem” ones, which is a much higher percentage than that for the transport and energy sectors.

At the same time, however, other contracts were perpetuated, the intervention schemes of the private sector were diversified, and new local or national operators started growing ^[88]. Rather than by a uniform withdrawal of the major groups, the panorama after two decades of reform is better characterized by a disparity in institutional paths taken by the water utilities in Latin American towns. As Murillo wrote in his work on the network industries of the region, *“the apparent convergence toward free-market policies in the last two decades of the twentieth century has given way to unanticipated divergence at the dawn of the twenty-first. Nowhere is this divergence more clear than in the realm of utility provision. While some Latin American countries have continued on the path to privatization, others have interrupted the march, and still others have turned back in their footsteps”* (Murillo, 2009, p. 12).

How to explain this uneven institutionalization of models imported from Europe, and in particular from France? Inspired by the developments in neo-institutional economics (North, 1990; Williamson, 2000), many workers have stressed the need for private operators to benefit from a stable and credible framework, to guarantee the respect of contracts and, if warranted, to ensure their evolution to preserve a sufficient yield from the invested capital. From this perspective, several factors determine the health of a contract. These include the existence of: an autonomous regulation agency provided with adequate resources; of an independent legal system; and of an executive branch that can commit itself in a credible manner over and above political fluctuations and special-interest group pressures (Levy and Spiller, 1994; Ménard and Shirley, 2001). In fact, most Latin American political-economic systems, except Chile, stand out because of the importance of their informal institutions and the low effectiveness of their formal ones (Helmke and Levitsky, 2004; Murillo, 2009).

These analyses, although correct, have the disadvantage of focusing too much on the interests of private operators, whereby institutions are seen in a restrictive manner as the whole of a set of rules that form a more-or-less favourable framework for their actions. The problem is that the stakeholders (potentially) affected by the privatization of a utility ^[89] are particularly numerous and heterogeneous, including

[88] Without mentioning the more numerous reforms concerning the public operators themselves (corporatizing, ring-fencing).

[89] The term “privatization” here is meant in the widest sense, referring to all processes of increasing private sector participation in the selection of resource allocation (cf. Glade, 1996).

municipal political elites with a clientelist distribution agenda, employees of the public operator, independent water suppliers of outlying districts, poor users, user associations and social organizations, regulation agencies, and donors. Moreover, in weakly institutionalized sectors and those being recomposed, stakeholders construct the rules that have to be respected as they progress. As Lorrain said, the resolution of problems thus supposes that *“the involved stakeholders must do two things at the same time: provide a service and regulate it, and invent an institutional framework for guiding the game”* (Lorrain, 2002).

The privatization of a utility thus gains by being re-conceptualized as one of the dimensions of a larger process of transforming the way in which the utility is regulated, which involves a multitude of stakeholders. This transformation of the political economy of water utilities takes place particularly in two dimensions: on the one side, the redistribution of operational, regulation and planning powers between the various stakeholders; on the other, the more-or-less advanced commodification of the utility (reorganization of cross-subsidies, evolution of subsidies, policy concerning bad debtors).

An analysis of the precise mechanisms for institutionalizing partnerships (or not), must be based on this broad understanding of the reform processes. Even though the “institutional sensitivity” of the water companies is without doubt, the question is how this “reciprocal taming” of stakeholders with completely different interests takes place (Dorier-Apprill and Jaglin, 2002). Is it possible to identify regular features in the processes that generate confidence between stakeholders, that is to say, the anticipation that the rules of the game, known to all, will be respected?

These are the questions we would like to answer, by comparing two partnerships that were institutionalized^[90], one at Cartagena (Colombia) and the other at Campo Grande (Brazil). The interest here is that the consolidation of these systems took two quite different paths, based on quite different contracts. Initially, the operator Aguas de Barcelona (Agbar) was, however, the same in both cases. These differences have the merit of rendering all the more interesting a possible discovery of similar logic patterns in the consolidation dynamics. Table 9 summarizes certain parameters of the two contracts.

[90] We consider a system as institutionalized when i) the contract rules predictably structure the behaviour of involved stakeholders, and ii) no stakeholder has veto powers, *i.e.* the effective capacity of blocking the implementation of the delegation, or contests its legitimacy.

Table 9 *Summary of the partnerships-contract parameters of Cartagena and Campo Grande*

	Cartagena (Colombia)	Campo Grande (Brazil)
Starting date	June 1995	October 2000
Population in the service area at the starting date	About 700,000	About 650,000
Earlier organization of the utility	Municipal multi-service company	Federal government
Type of contract	Semi-public company + affermage + operation & maintenance	Concession
Major changes after signing the contract	Distribution of investment financing	Replacement of Agbar by two Brazilian operators (2005)
Coverage of water/sanitation networks at contract signature (in %)	72/60	96/25
Coverage of water/sanitation networks in 2008 (in %)	99/82	98/57
Non-revenue water	41%	33%
Tariff structure	Socio-economic cross-subsidies between users	Progressive list; subsidies between user categories

Source: Author, from the original contracts.

The general line developed in this chapter is based on the premise that, ahead of any “good” contractual rules (which can be highly diverse), the decisive factor for a long-lasting partnership is the capacity of the stakeholders to form strong and durable alliances and to forestall potential opposition. For both cases studied, it was seen that such alliances were possible because of gradual reform processes that allowed compensating or integrating various interests. More specifically, the continuous intervention of the public authorities, and in particular central government, turned out to be decisive in ensuring the incorporation or neutralization of different groups of players, thus providing the partnerships with strong support in addition to guaranteeing a satisfactory financial yield to the private operator.

This strategy of gradual reform, particularly as promoted by a central government, is not the pure product of choice for enlightened reformers. Certain elements of the institutional frameworks favoured this option, such as the existence of an administration able to reason over the medium term, or the existence of numerous veto points requiring negotiation. But they were also motivated by specific beliefs concerning the role of the State and the public services (a tradition of moderate interventionism in Colombia, and the re-assertion of a developmentalist heritage in Brazil during the years 2000).

After developing this hypothesis and its implications in section 2.4.1, we show successively how this sheds light on the stakeholder dynamics when the two partnerships were prepared (section 2.4.2.) and then their implementation (section 2.4.3.).

2.4.1. PPPs and changing management principles

One of the central premises of neo-institutionalism (in economics as in political sciences) consists in underlining the importance of institutional rules as instruments for reducing uncertainty and creating preferences. From this perspective, the formal institutions in Latin America (legal systems, local and national authorities, regulation agencies) are quite vulnerable to short-term modifications of the political environment. This has often been cited as a major source of uncertainty for investors, particularly in strongly capitalistic sectors with non-redeployable investments such as water services.

This uncertainty is heightened by the inherent complexity of the stakes in urban water and sanitation utilities. These not only involve a great variety of players depending on the various methods used, such as local and national government, syndicates of the public operator, independent water suppliers of outlying districts, regulators, user associations, donors, etc., whose power – or even survival – is directly affected by the incorporation of the private operator. In addition, the “privatization” raises the question of commodification of the utility, of its impact on the structure and level of tariffs, as well as on commercial policy, all of which can affect the users, and especially the poorest, to varying degrees.

In other terms, the delegation of water utilities presents the paradox that, though often meant to “depoliticize” utility management through installing criteria of technical and mercantile rationality, it in fact directly politicizes by recomposing the distribution of power among the stakeholders. In such a context, creating large alliances is, more than ever, a prerequisite for the longevity of partnerships.

This type of construction is made much easier by processes of gradual change. Such gradualism first of all allows the identification of those who obviously or potentially stand to lose, at least in the short term, such as municipal political elites, informal suppliers threatened by the monopolization of the utility, or employees of the former public operator faced with the perspective of layoffs. For these, indemnification methods must be sought. A gradual approach also, and especially, allows limiting the commodification of the utility, and thus the impact of privatization on the poorest users.

From this point of view, the central government, *i.e.* the executive branch and administrative directorates of the sector ministry, plays a crucial role. Generally having taken the initiative of incorporating the private sector, it is the only body with sufficient administrative and financial influence to neutralize the losing parties, reorganize the tariff cross-subsidies, and supply the subsidies (particularly for investments) that will ensure the financial equilibrium of the partnership. In other words, its role is not restricted to providing a suitable incitation framework for the private operator, but, through continuous intervention that can take several shapes, it also guarantees the management principles to ensure the social acceptability of the new system.

How then to explain that, at Cartagena as at Campo Grande, the Colombian and Brazilian governments opted for strategies of gradual change, rather than for more rapid and normally less costly rapid reforms? Part of the explanation certainly lies in institutional factors, as in both countries the veto capacity of local and regional authorities incited the State to adopt negotiations rather than a more difficult forced acceptance. In Colombia, moreover, the relative stability and autonomy of the high civil service allow it to reason over the medium term, without feeding the obsession of “locking up” the reforms to render them irreversible for the next administration.

Nevertheless, the very restricted character of privatizations in both countries is also due to very specific beliefs concerning the role of the State in managing economic development. Colombia, during the 1990s and 2000s, was marked by the existence of a political benchmark that could be qualified as “moderate interventionist”, far from the radicalism of the Washington consensus (Posada-Carbo, 1998). In Brazil, after a period of massive retreat by the State during the second half of the 1990s, partly for reasons of heavy financial constraints, the public authorities during the years 2000 progressively returned to a “developmentalist” action framework, implying the direct intervention of the State in boosting economic development.

We will now analyse the way in which this gradualism has favoured the institutionalization of the partnerships, during both the preparation and execution periods of the contracts.

2.4.2. Contract preparation: between constructing an alliance and neutralizing opposition

• Carthagène

Crisis and termination of the traditional arrangement

Since 1961, the city of Cartagena had carried out most of its collective services through a multi-utility company set up along the model of the German *Stadtwerke*, the Empresa Publica Municipal de Cartagena (EPMC). During the 1970s, the city experienced strong population growth. Drawn by the attractions of a colonial town and stimulated by a construction boom during this period of cheap money, the tourist sector was developed in a spectacular manner. After the debt crisis that struck the region in 1982, drug-traffic money took up the slack in financing the building sector, but the public services were incapable of following the pace of urban expansion. The city more and more became a mosaic of separate spaces, whereby the colonial town and the residential quarters of the politico-economic elite increasingly stood out from the industrial town and the slums. The last had the strongest growth, but only marginally profited from network extensions: in 1994, the connection rate was 60% for the sewer system and 74% for drinking water^[91], the outlying districts getting their water from itinerant vendors, wells and rainwater recovery. Service quality was mediocre for all users, as shown by frequent interruptions, low pressure, and poor water quality. Network degradation caused an increasingly common overflow of black waters in the streets. The most worrying situation concerned environmental degradation, because of the discharge of 60% of the untreated wastewater into the lagoon surrounding the town.

The local government seemed incapable of reforming the utility. As an instrument of reproduction for the great local families, it contented itself with selectively investing on a clientelist basis. Arrangements of a neo-corporatist type (cooptation) with the powerful local EPMC union ensured the latter a privileged access to the urban government. Moreover, contrary to expectations, the decentralization of 1986 had hardly changed the behaviour of the local political elite: the direct election of mayor and town council rather incited the newly elected to broaden their clientelist base, openly buying votes in the popular districts. The type of mandate (three years non-renewable consecutively) and the local spoil system continued to impede effective urban planning.

[91] These figures may have even been too low, as the increased internal displacements due to the growing insecurity in the province led to a strong growth of the irregular districts. Cf. *El Tiempo, Crisis de Cartagena: 20 Años de ineficiencia administrativa*, 5 March 1993.

The central government, supported by the World Bank, then used this crisis situation to take the initiative of incorporating a private international partner. Preparation of the contract, run by high civil servants from the Planning Department (Departamento Nacional de Planeación – DNP) and from the Ministry for Economic Development (MDE), occurred gradually, both for managing the prerogatives of the different stakeholders, and concerning the commodification of the utility.

Since the early 1990s (and the writing of a new constitution in 1991), the Colombian government had made a priority of improving the so-called “domestic” public services (water, electricity, gas, telephony). This priority was reflected in the adoption of law 142 in 1994. This law did not restrict itself to the fashionable neo-liberalism of those days, but created a favourable climate for private operators through the ending of the public sector monopoly, a results-based management replacing that of target means, and statistical competition between operators. It effectively also reconfirmed the public service objectives, *i.e.* maintaining the national socio-economic “stratification” cross-subsidy system. This system subdivides the urban habitat into six socio-economic categories. Categories 1, 2 and 3 are subsidized, category 4 pays the basic tariff, and categories 5 and 6 are net contributors, according to the scheme shown in Table 10.

Table 10 “Stratification” system

Category	1	2	3	4	5	6
Subsidy for/contribution to water supply	50%	40%	15%	0	20%	20%

Source: Author.

As was remarked by Coing (1996), law 142 proposed “an interesting combination of privatization, of deregulation, on the one hand, and on the other a renewed form of the Welfare State”. It should be noted, however, that the objective of the high Colombian civil servants was not just an improvement of services. The delegation also answered a greater fear, that of seeing the financial transfers related to the decentralization feed the municipal coffers, outside all central control. In fact, and contrary to a widespread idea, the delegation was not implemented as a natural complement to decentralization, in the same movement of bringing the supply closer to demand, but it was rather a compensation, born from the wish of central government to better control the allocation of the new financial transfers.

The reform principle met with an increasingly favourable echo among the local business communities, in particular those of the tourism and construction sectors, whose growth was hindered by the poor quality of services. A “reforming” coalition was thus born, assembling national civil servants, international experts (mainly from the World Bank) and a fraction of the local business communities. This coalition still exists.

Confronted with these growing pressures, the local political elites quickly understood that maintaining the *status quo* had become untenable. In 1992, the mayor started a reform process, dismantling the multi-service company and creating an operator exclusively in charge of drinking water and sanitation. In 1994, a delegation project was negotiated with the Spanish operator Agbar, which had to include the creation of a semi-public company (SPC). In this setup, Agbar obtained 90% of the shares in the SPC, the 10% remaining being held by the municipality. Nevertheless, the following mayor, elected in 1994, had promised the union during his election campaign that he would reverse the delegation process; his later U-turn in this respect set off a violent opposition against him. The final arrangement concluded in June 1995 thus is not a pure product of economic rationality, but the fruit of a double political compromise between the different partners of the “reformist” coalition (especially between the State and the municipality) on the one hand, and between the coalition and the union on the other hand.

A complex contractual set-up

The contractual set-up of June 1995 is relatively elaborate as it was constructed at three levels^[92]. The first level was that of setting up the SPC, baptised Acuacar. The municipality obtained a majority shareholding of 50%, Aguas de Barcelona 45.9%, the remaining 4.1% going to local investors. The executive committee of Acuacar, composed of five persons (two representatives from the municipality, two from Agbar and one local investor) validated the plan of activities with a 4/5th majority, which induces a *de facto* necessity of agreement between the municipality and Agbar for all strategic decisions.

At a second level, a contract called “concession”, though in reality closer to an affermage, was signed between the municipality and Acuacar. The municipality thus continued to finance most investments. At a third level, a contract for the operation, management and maintenance of the network was signed between Acuacar and Agbar, whereby the Spanish operator was paid by means of a royalty fee (3.44% of the tariffs since 2004).

[92] For a detailed analysis of this contractual arrangement, please see the contribution by Blanc and Zamuner in Chapter 3.2, hereafter.

The terms of the contract were very favourable to the operator, which was a consequence of Agbar's position of strength during the negotiations, related to the political crisis and the need for the authorities to solve the deep crisis of the existing utility. The required equity input was low at COP 4,000 million, about USD 4 million at the time, and, especially, a reversion fund was set up that, after a grace period of five years, should gradually reimburse Agbar its entire input. The Spanish operator could thus count on three revenue sources: the reversion fund, its share of Acucar dividends and the royalty fee for managing the network.

It is not insignificant to have a look at the diverse motivations that governed the signature of the contract. Agbar wished to gain a foothold in Latin America, but in a prudent manner and based on its Spanish experience in semi-public companies. The municipality, pushed by the local business community, wished to revitalize the tourism and construction sectors, but, under the simultaneous pressure of the unions, to maintain its share in all strategic choices. The State wished to limit the access by the municipality to a clientelist source of income and to better control the management of the utility (according to the principle of "delegating for regulating").

Next, we should note the important place accorded to the municipality in the new arrangement. In addition to its blocking capacity within the executive committee of Acucar, it kept, like all other Colombian municipalities, the prerogative of assigning households to one of the six socio-economic categories that govern the tariff level for domestic services they pay. This instrument allowed it to influence indirectly the exploitation income of the operator, of which it is a shareholder. It also provides the operator with a non-negligible opportunity for distributing favours, by allowing it to place a building where political support is housed in a low level with reduced tariffs.

This gradual and limited divestment of the municipality should be related to the more general veto capacity of local government in Colombian public policy. It was, first of all, a historical heritage of the regionalization of the national political life^[93] that was formally reinforced by the decentralization started from 1986. In fact, Law 142 charges the municipality with the responsibility of creating a water and sanitation utility company (article 5).

As we will see hereafter, this veto capacity is even more evident in Brazil with the municipalization started by the constitution of 1988.

[93] The two hegemonic political parties of the country (the Liberal Party and the Conservative Party) have, until the advent of the 21st century, served as an instrument for articulating the interests between a central administration in a situation of institutional weakness and the powerful local oligarchies (Posada-Carbo, 1998).

• *Campo Grande, Brazil*

The heritage of earlier rationalization efforts. Compared to the water utilities of Cartagena and La Paz-El Alto, those of Campo Grande took a major new direction in the middle 1970s. At the time, the military regime transferred them for twenty years to the Federal State of Mato Grosso do Sul, as part of the National water and sanitation plan (Planasa). The new State operator, Sanesul, then drew up a system of tariff cross-subsidies between Campo Grande, the capital, and the rest of the State.

With the expiration of Planasa in the mid-1980s, and in a context of deep economic and financial crisis after the democratization, Sanesul started to accumulate exploitation deficits. In 1995, when the delegation contract linking the municipality of Campo Grande to Sanesul expired, the federal government, engaged in a withdrawal from its intervention in many sectors^[94], tried to obtain the privatization of Sanesul. Faced with resistance of the operator, it encouraged the State municipalities to take over the utilities to delegate them to the private sector if warranted^[95]. The mayor of Campo Grande took this opportunity to regain control over the utility in 1999. His official motivation was to accelerate investments in the sewer network, to which only a small quarter of the population was then connected (access to the drinking water network was almost universal, at around 95%), and to stop the tariff subsidies by Campo Grande to the rest of the State, which weighed heavily on the water bill of municipal users^[96].

However, in view of its lack of administrative capacity and the great budgetary constraints it faced^[97], the municipality rapidly decided, in October 2000, to award a 30-year concession contract to a consortium, Aguas Guararoba, led, as at Cartagena, by the Spanish operator Agbar, and composed as follows:

[94] In the early 1990s, Brazil started a vast programme for disengaging from economic activity (desestatização), in a context marked by hyperinflation, and favouring neoliberal thought. This disengagement rapidly affected the water sector: between 1996 and 1997, loans from the Union were halved, from USD 300 million to USD 150 million. Between 1998 and 2002, the share of GDP expenses affected to the sector decreased from 0.19 to 0.07%, forcing the operators increasingly to count upon outside financing and complete cost recovery through tariffs.

[95] Sabbioni, 2006.

[96] Simoes, 2006. A personal political rivalry between the mayor and the governor may have played a role as well: in 1998 and 1999, because of judicial actions, the legal operator of the utility changed not less than seven times.

[97] In particular caused, in 2000, by the vote of a law of fiscal responsibility (LRF) that forbade the infra-national echelons to expend more than they gained (rule of primary surplus) and forced them to spend over 60% of their budget on personnel costs.

	2000	2002
Agbar	51 %	57 %
Cobel	40 %	34 %
Sanesul	9 %	9 %

Cobel is a local constructor, active since the 1960s in water conveyance, electrical infrastructures, road construction, and heavy equipment, who in the late 1990s opted to diversify into exploitation contracts. The participation of Sanesul must be seen as an indemnification for the main loser of the reform process. Except for this, the delegation from the start had a favourable heritage, not only because of the small number of opponents but also of the first management rationalization efforts undertaken as part of the Planasa.

Delegation of the Campo Grande utility first benefited from the fact that the almost universal access to the drinking water network in the early 1990s caused the progressive disappearance of independent suppliers. In addition, this was accompanied by a takeover of the utility by the municipal government, which, far from progressively losing control as at Cartagena, on the contrary gained a renewed mastery in terms of regulation. As part of the Brazilian federalism, the municipalities (or States) effectively disposed over extended prerogatives in terms of setting tariffs, drawing up technical specifications, and planning. The municipality effectively created a semi-autonomous regulation agency with a dozen employees seconded from its infrastructure service. The creation of a new company, rather than the transformation of an old one, also meant the absence of over-staffing and the bypassing of the Sanesul union^[98]. Sanesul thus appeared as the only real loser, but which continued to supply the rest of the State with water without seeing its survival threatened. In addition, the operator was profitably indemnified by a minority shareholding in the new consortium, and by the reversal of part of the entry rights paid by Aguas Guarairoba to the municipality^[99].

Furthermore, the tariffs were already rather high in 2000, notwithstanding the abundant resource from the Guarani aquifer, at almost USD 0.50/m³ for drinking water and USD 0.40/m³ for sewerage in 2000. However, the available household income was rarely less than USD 300, rendering the bills acceptable according to international standards. This tariff level was the by-product of a first management

[98] Interview with Sergio Yonamine, manager of Aguas de Campo Grande in 1999 (municipal operator before the concession) 18/05/2008.

[99] 40% of the Reais 142 million (about USD 60 million) as entry fee according to the terms of the contract.

rationalization policy started by Planasa, that had already incited the operators to behave like private companies, progressively raising their tariffs^[100]. This initial modernization, stimulated by the Federal Government, was however not all the product of a fundamental belief in the allocation virtues of the market, but was rather part of a technocratic preoccupation with efficiency. For the State operators to be able to create the infrastructure needed by the country for its development, they had to be able to count on their own regular and sufficient revenues. Afterwards, this search for financial equilibrium of the operators was accentuated, pushed by necessity after the financial withdrawal of the federal state in the 1990s.

To this favourable heritage should be added the typical politico-ideological context of the region: Campo Grande, as a Brazilian “frontier town”, was the scene of recent development (the town went from 140,000 inhabitants in 1970 to 700,000 in 2000), based on a strong economic growth associated with large agro-business exploitations. Its population dynamics, fed by migrants looking for physical security and economic opportunities, far from the bureaucratic weight of the coastal cities, contributed to creating a general attitude that strongly favoured individual initiative and economic efficiency.

In all, Aguas Guariroba committed itself to investing Reais 275 million, especially during the first concession years, in order to increase the rate of access to sewer networks to 60%.

2.4.3. Progress of the partnership

- *Cartagena: utility management as a collective action*

Notwithstanding the responsibilities the 1995 contract conferred to the municipality, it became rapidly clear that the latter did not have sufficient resources for implementing the required investments. A new distribution formula was then drawn up, around two large investment projects financed by loans from the IDB and the World Bank. This formula, which lasted until 2011, illustrates the willingness of the State to finance a major part of the investments. This was done not only indirectly, through the mobilization of budget transfers received by the municipality because of decentralization, but also directly. Though Acuacar had a larger share in the financing (for which it formally shared the responsibility with the municipality), Agbar’s capital input was nil as this participation took place through affecting a determined percentage of the operational revenues^[101]. Management and financing of the utility were thus more

[100] Barraque *et al.*, 2008.

[101] For a detailed analysis see chapter 3.2 hereafter, by Blanc and Zamuner.

than ever the fact of a wide alliance, reconfirming the public service principles but profiting at the same time from the efficiency of private management.

In this scheme, the participation of the municipality is by far the most important, and is not limited to its contribution to the projects. As the financial result of cross subsidies must be neutral for a public service company like Acucar, the municipality equilibrates the balance between the contributions and subsidies from users, which is always negative. In 2009, the average monthly deficit to be made up was about COP 400 million (over USD 200,000).

This continuous intervention of the authorities allowed limiting the impact of the privatization on the users. For instance the increase of the average tariff – that paid by category 4 – was hardly more than inflation over the same period, passing from COP 900/m³ of drinking water (about USD 0.45) in 1998, to COP 1600 in 2008 (about USD 0.8). A family of six at level 1 typically pays a monthly water bill of COP 16,000, or about USD 8, for a disposable income of about USD 250, or 3.2%.

The limited character of the commodification was reinforced by the adoption of flexible commercial strategies, especially in the field of payment facilities. Acucar set up several payment centres in outlying neighbourhoods – about ten in 2008 – that significantly improved the rate of recovery. “Payment contracts” multiplied; such contracts roll over the amount not paid to the next month at a reduced interest rate, and bind Acucar not to cut the service. Such agreements can be contracted for periods of up to 10 to 12 years. It was thus hardly surprising that, according to a survey in 2007 by local NGOs, Acucar had second place among the institutions most appreciated by users (88% favourable opinion), far ahead of the telecoms (68%), justice (63%), or the neighbourhood town halls (57%).

In addition, several commercial innovations helped the operator obtain the support of independent suppliers, thus improving its social acceptability. Acucar thus could neutralize any potential conflicts related to its rapid monopolizing of the utility. The company initially had a tolerant attitude toward the reselling of water. Reservoirs were installed as well, and collective billing systems were set up by means of macro meters the tariffs for which were collected by community leaders who thus found themselves contractually bound to Acucar. The interest for the operator was to progressively install a “payment culture” in these neighbourhoods, which in return benefited from a more regular water supply. Furthermore, the planning of the works took place with neighbourhood committees (Juntas de acción comunal – JAC), and many inhabitants were recruited in the newly set-up payment centres in these areas. The financing of certain social programmes *via* the Aguas de Cartagena foundation completed the strategy that aimed at ensuring the social acceptability of the operator; the foundation funded schools, health centres, “local leadership” training programmes, etc.

The dynamic equilibrium between central impulse and local appropriation, as seen in Cartagena, has allowed stabilizing the arrangement, and this notwithstanding the lack of resources of CRA and the SSPD, the two central regulators. The commission for water regulation (CRA), an autonomous administrative agency placed under the aegis of the Ministry for the Environment, Housing and Territorial Development, is in charge of drawing up technical specifications and quality standards, as well as of formulas for tariff revision. SSPD, the Superintendence of Domestic Services, is an independent agency in charge of enforcing CRA regulations. Both institutions, which are being progressively modernized^[102], do not have the means, however, for carrying out in-depth financial checks of each operator. SSPD, for instance, has never audited Acucar until now, which makes the role of the auditor designated by the municipality since 2002 all the more important.

• *Campo Grande: opening of the partnership from 2005 onward*

The failings of the first five-year period

During the first five-year period from 2000 to 2005, the performance of Aguas Guariroba in terms of investments were among the worst in the country (Inecon/Fundação Getulio Vargas, 2008). By the end of 2002, it had become clear that the operator would not fulfil any of his contractual objectives, and that the delays in investment would be at least 40% over the period^[103].

In a difficult economic context marked by a devaluation of the Real (by 40% in 2002) and the increase in interest rates, the operator clearly opted for a strategy of minimizing his risks. As the utility would only become profitable after the eighth year, Aguas Guariroba investments essentially turned toward the reduction of water losses, billing and tariff collection, in order to generate profitability before that date^[104]. A tariff increase of more than 30% in 2002 displeased the users, even though application of the social cross-subsidies stipulated in the contract allowed attenuating its impact on the poorest households. In addition, stories in the local press about embezzlement and extravagant salaries for the Spanish expatriate executives did not help^[105].

The adoption of a classic concession scheme, without subsidies from outside, rendered the economic model of the concession quite vulnerable to degradation of the overall

[102] A national quality information now is accessible to the public (Sistema Único de Información de Servicios Públicos – SUI).

[103] Correio do Estado, 23/12/2003, p.13A.

[104] Correio do Estado, 23/12/2003, p.13A.

[105] Cf. Correio do Estado, 20/12/2003, p.13A. A municipal audit in December 2003 (when the municipality regained control over the operator for 90 days) found unjustified costs for a value of over USD 2 million, partly due to extravagant salaries of expatriates.

economic environment. These poor results forced the municipality into launching an audit in December 2003, which showed that the shareholders had wrongfully received Reais 7.062 million of dividends (USD 3.4 million), a sum that rather contrasted with the operating deficit of 1.5 million posted by the operator for 2002^[106]. As a result of this investigation, the consortium accepted retrieving the investment backlog during 2004, restructuring its executive board, and supervision by a new monitoring body, the “Committee for Economic Control” (Conselho Fiscal) assisting the regulation agency. However, Agbar, not being able to retrieve its investment deficit and faced with heavy debts related to the 2001-2002 crisis, finally included Campo Grande in the reduction of its Latin-American position in 2005. It sold its share to two Brazilian constructors, the Bertin and Equipav groups, for USD 21.2 million, imitated in this by its partner Cobel^[107].

The Bertin Group, created in the late 1970s and one of the Brazilian agro-business leaders, decided in 2003 to diversify into infrastructures. To this end, it set up a strategic partnership with the construction group Equipav from the State of São Paulo, which also sought diversification. The takeover of Aguas Guariroba was a first for both groups, and their collaboration was formalized the following year, in 2006, by creating the holding “Consortium for infrastructures Bertin-Equipav” (CIBE). CIBE now operates road, water and sanitation concessions, and power plants, in several Brazilian states.

• *After 2005, collective involvement in implementing the contract*

CIBE’s action after 2005 has been marked by close collaboration with the municipality and the federal government (which returned to the fray), and by a marked investment in customer-service relations.

As far as the municipality is concerned, the fact that the executives of the Bertin Group are educated in the same universities as the municipal elites of Campo Grande favours, according to the involved parties, a cooperation backed by a dense social interaction. In fact, the long term installation of the Group in the region, well beyond that of the concession, has incited it to reason over the lifetime of the contract, or beyond, and to create good working relations with its opposite numbers, which can also be mobilized for other activities of the Group. For instance, the Public Works service of the municipality now shares in the tracking of fraud, and it is the municipality that fines domestic users for illegal connections. Aguas Guariroba and the municipality carry out joint campaigns for the promotion of collective sani-

[106] Correio do Estado, 17/03/2004, p.6A.

[107] Cobel was deeply affected by its failure and has considerably reduced its volume of activities, going from 3,000 to 600 employees. Cf. www.cobeleng.com.br

tation works and participate in common social projects. At the municipal level, too, the operations of the Control Committee have been institutionalized. The Committee has nine members – municipal civil servants, engineers, and representatives from NGOs and the Chamber of Commerce – that meet each month to discuss the utility operations and make recommendations to Aguas Guariroba.

The federal government, on its side, has returned to the game through low-interest loans to Aguas Guariroba, *via* the Caixa Economica Federal (CAF) bank, as part of a vast investment programme in sanitation, called “Sanitize Morena” ^[108] (Sanear Morena), for an amount of Reais 198 million (about USD 68 million). The fact that the credit is reimbursed by tariffs explains the strong increase in the latter, from 0.87 to 1.70 USD/m³ on average between 2004 and 2008. This return of the State is explained by the renewed economic dynamism of the country, which has freed new resources for public investment, and, during the years 2000, has progressively returned to the traditional development-centred ideas that assign an important place to the State for managing economic development. Another point is the excellent mastery by the Bertin Group of political-influence networks, further strengthened the often-cited close connection between government action and the interests of agro-business groups during the past decade.

Finally, like Acucar at Cartagena, Aguas Guariroba “new version” has launched several initiatives for improving its customer relations: facilities for regularizing delays in bill payment, renegotiation of private-person debts, reduction of intervention delays. The call centre has been modernized, and a continuously operating control centre for operations has been set up.

As a result of this larger cooperation, access to the sewer network has risen from 32 to 57% between 2006 and 2008. A wastewater treatment plant was constructed, and CIBE has been awarded several national environmental prizes. The yield on its invested capital is estimated at 11% between 2004 and 2006, or slightly below the average weighted cost of capital at around 12%.

Therefore, after an unstable period of several years marked by macro-economic turbulence and the retreat of the authorities, consolidation of the Campo Grande system occurred through re-involving a wide range of stakeholders. This is demonstrated by low-interest loans from the federal government, and by participation of the local civil society in supervising certain aspects of the contract. High tariffs and service cuts without leniency towards bad payers are both relatively well accepted by the

[108] Campo Grande, because of the ochre-brown dust that covers it at all times, is called “la cidade morena” (brown town).

population, which can be explained by two sets of reasons. The first is that the management rationalization of the utility covered a long period, starting in the 1970s with Planasa. As a compensation for the progressive tariff increases, the users could see an improvement in service quality and an extension of the drinking water network and, recently, of the wastewater network. The second reasons concern the normative attitudes historically shaped in this “pioneer town”, which value initiative and individual rewards as well as technical modernism.

Conclusions

A comparative analysis of the experiences gained in Cartagena and Campo Grande demonstrates the point that successful partnerships are those that are part of a gradual and, in certain respects, limited reform process of the utility. This gradual approach allows the incorporation or neutralization of certain stakeholders whose control over the different segments of activity – operation, regulation, planning – is threatened by privatization. In addition, it avoids – through the reorganization of cross-subsidies, a flexible commercial approach and external subsidies – an abrupt commodification that could penalize the users, especially the poorest ones. It also ensures a reasonable profitability for the operators, or even a very high one as in the case of Cartagena. Finally, it ensures that the social image that has become established over the years, which makes water utilities into essential services, “different from the others”, will not be upset.

In Cartagena, the incorporation of Agbar turned out to be an instrument for extending the service and rationalizing its management, without upsetting the principles of strong socio-economic equalization, of public subsidies for investments, and of flexibility *vis-à-vis* bad payers. In Campo Grande, after a period of instability caused by the creation of an “orthodox” concession between 2000 and 2005, the arrangement was consolidated through low-interest loans by the Federal State, collaboration of the new Brazilian operators with the municipality on certain activities, and the supervision by outside groups from civil society. Commodification, however, progressed more in Campo Grande than in Cartagena, as seen in higher tariff levels, the absence of most socio-economic equalization – except one social level reserved for persons with a revenue at or below the minimum wage – and the regular use of service cuts of bad payers. However, this commodification was not a direct result of the privatization, but that of the much earlier management rationalization of the 1970s under the Planasa.

This reading of the partnerships shows how much recourse to the private sector was apprehended, in some contexts, as an instrument for modernization of the State. It also shows the shift in the balance of power, especially within government echelons, that is the inevitable result of incorporating a private operator. Between the lines, this poses the question of how the rhythm of reform is connected to the quality of public deliberations: though the pursuit of rapid and profound change is not neces-

sarily a guarantee for better social negotiations, the same is true for a gradual approach. The latter always risks being reduced to a series of transactions with certain special interest groups, without a wider-ranging discussion of the principles of utility management. At Cartagena, this pitfall could be partly avoided, as the Colombian constitution of 1991, and the ensuing laws, provided the opportunity for a vast debate on the nature, objectives and financing of public services. In Campo Grande, however, most of the changes occurred without informing the – largely apolitical – population.

However, an absence of mobilization of the users does not compensate for the weakness of local counterbalancing forces, especially those of the financial jurisdiction and audit cabinets. Any unclear areas then can become considerably worse: in Cartagena, until a new auditor was named in 2008, the contract had been externally audited only once, in 2002, and then by a professional with links to the local business community. In those days, the decision-making process within the semi-public company then functioned in “black box” mode, opening the way to all sorts of suspicions of shady deals between the municipality and the operator^[109]. At Campo Grande, the contract allowed the users to “receive all information necessary for defending individual and collective interests”. Its application was, however, subject to long and tortuous procedures, and the proximity between the operator and the municipality was hardly reassuring to those that knew the history of local management. In January 2007, the mayor who signed the contract was condemned for the fact that the public works paying part of the entrance rights had not the slightest link with the utility.

These considerations make it clear that, when delegation is just another rationalization for the State and the public services, its results closely depend upon concomitant changes in public institutions and policies. These include the mode of deliberation on management principles, clarification of the prerogatives of the various stakeholders, the capacity for local and national regulation, the consolidation of financial jurisdictions, and systems for social supervision. At the same time, a delegation, through its existence as well as the reactions it arouses, changes the institutions and their public policies. The point meriting further analysis is this dual relationship of partnerships that are not only embedded in the institutions, but transform them as well.

[109] Particularly strong concerning the management of great works, such as those on the submarine sewage outfall.

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2.5.

PPPs tested by cultural differences. A case study from Lebanon

H. YOUSFI

Foreword. This case study does not claim to cover all dimensions of contract analysis; it only presents some specific points with the aim of illustrating how a cultural analysis can lead to a better understanding of the difficulties of implementing PPPs in developing countries. As is usual in this type of socio-cultural approach that aims at reproducing the words of the stakeholders in their original form, the names of the institutions involved were changed.

Introduction

PPPs, actively promoted by international institutions in the developing countries, are presented as a privileged way of improving public service management as well as of enabling access to the often large needs for equity investment. The main preoccupation in this type of partnership is to reconcile two indispensable rationales that come together in a PPP: the *authorities* require the provision of essential quality services to the population, but *private operators* wish to maximize their profits while limiting the risks. This requires the organization of a regulation system for structuring the relationships between the protagonists. This, in turn, requires determining the rules of the game between the partners, monitoring their application, and controlling the obtained results (Racheline, 1997).

The problems in developing countries – where institutional change can be slow and institutional reforms are often imported – require, more than elsewhere, the construction of a viable and legitimate regulation system for organizing the relations between

the delegating public authority and the private operator. Now, even though donors generally consider that it suffices to draw up a good contract considering the specifics of the institutional context and making sure that the balance of power between the partners guarantees the desired actions, field experience shows quite a different reality. The first results often show that such countries can encounter many difficulties when implementing PPP contracts; such difficulties can be an uneven distribution of information and competences between the parties, ambiguous institutional set-ups, different stakes in power distribution, social and economic questions, etc. (Tétart and Le Bris, 2008). These reasons are significant everywhere and are certainly also valid for developed countries, but they cannot explain some of the encountered obstacles by themselves.

In addition, when the local context is considered for better explaining the difficulties met during the PPP-model “grafting” process in developing countries, the analysis in general focuses on the power play dynamics^[110]. Often, little attention is paid to the manner in which local culture shapes this power play and how this might explain the strategies pursued by the various political stakeholders. However, though power games are found everywhere, the pursuit of individual interests or the construction of a “common” interest will be legitimized and interpreted according to the specific reference frame of the country in question (d’Iribarne, 2003).

In fact, each culture has its own idea of a good cooperation and its own way of linking together the handling of interests and relations between persons. This perception governs what is considered “normal” and what is “shocking”, and is associated with a whole set of references for interpreting and judging situations (Geertz, 1973). Therefore, words like “partnership”, “delegation” or “autonomy” may have different meanings according to the cultural setting, meanings that are mostly implicit and that organize the practices of stakeholders and the manner in which they perceive those of others. This can easily cause misunderstandings between people of different cultures (d’Iribarne, 2000). Such mental images will shape the strategy pursued as well as giving a meaning to the PPP and the way it should be implemented.

The history of developed countries shows that the construction of a regulation system suitable for each sector took several decades before arriving at a set of rules that cover most situations. Each country has its own political and social traditions, and its own manner of organizing the relations between different stakeholders. The English, confident in the merits of market and competition, tend to carve up water distribution into as many services as there are distinct functions, such as customer management,

[110] Further explained in the earlier chapters of Part 2.

laying connections, meter reading, or network exploitation. The French, based on a professional tradition, tend to preserve the profession as a whole, confiding the entire network and its exploitation to one professional operator. The import of PPP models into a developing country thus poses the question of how each country, based on its social, political and cultural traditions, will interpret this type of partnership and translate it into applicable rules.

From this perspective, the questions raised by a PPP concerning contract negotiation and collaboration between partners cannot be analysed without considering the interference of the cultural setting in the operation of a partnership. How can the partners agree to best accomplish their mission? How will they succeed in distributing their respective roles and obligations? How will they interpret, together, the contract clauses and application rules? The partners, faced with these practical questions, will thus gradually discover how the “imported model” can be best adapted to the local reality.

We propose here to analyse a delegated-management contract for drinking water supply in Lebanon, as an attempt to answer the above questions^[111]. The objective of this study was to show how cultural analysis allows a better understanding of the implementation of PPP contracts in developing countries. We also show how this type of investigation helps enrich the still limited knowledge of donors on how to adapt their practices to the worldwide variety of cultural settings.

2.5.1. Context of the study

• *Contract architecture*

The contract for delegated management of the Sonate Water Board^[112] was the first project of global private sector participation in managing drinking water supply in Lebanon over the past five decades. The project thus comprised an exemplary aspect for Lebanon. Its objective was to assist the authorities in adopting a delegated-management model before extending it to the other water boards. It was presented as a learning phase that should be followed by the implementation of an affermage or a concession, and – in case of success – be extended to all water boards of Lebanon.

[111] This project was the subject of a Ph.D. thesis entitled “*Le contract dans les coopérations internationales : la rencontre des intérêts à l’épreuve de la rencontre des cultures*”, financed by AFD; Hèla Yousfi, University of Paris 10, Nanterre, May 2006.

[112] The name of the institution was changed, as is normal in this type of sociological approach.

The utility management contract was signed in 2002 for a duration of four years between Sonate and the Lebanese subsidiary of a French operator, Promostate. As part of the contract, Sonate should delegate the following tasks to Promostate:

- Exploitation and running maintenance of the installations;
- Commercial management, billing and recovery for the account of Sonate;
- Assistance to Sonate for setting up an accounting and financial information system suitable for its commercial activity, incorporating an analytical accounting system;
- Training of Sonate staff and, more generally, of the personnel seconded to the delegatee as part of its assignments.

Sonate had to make personnel available to Promostate, which could also recruit additional staff to answer its exploitation needs. Promostate had hierarchical authority over the personnel made available to it and had to submit to Sonate its proposals for staff management, such as working hours, leave, bonuses or sanctions.

Promostate was given an incentive for responsibility through a performance bonus reflecting measurable progress: service continuity, coverage rate, etc. Certain contractual obligations were affected by a penalty, if necessary, such as staff training, minimum technical performance, etc.

Contract supervision was in the hands of Sonate that, assisted by a neutral and independent technical auditor, had to:

- Ensure that Promostate would respect the contractual planning;
- Check the conformity of Promostate's performance with the contract specifications;
- Give, together with the technical auditor, an opinion on any adaptations to the contract clauses;
- Check the performance of the operator by means of indicators planned for in the contract;
- Verify the invoices presented by Promostate.

Sonate continued to be responsible for the service *vis-à-vis* clients and the authorities.

• *A disappointing result*

Two years after starting the contract, in an evaluation assessment half way through the contract period, a consultant^[113] confirmed that some encouraging results had been obtained, such as a permanent service provision, good-quality service, a trend

[113] The consultant in question wrote the contract and was asked several times by the Lebanese authorities to evaluate project progress.

toward financial equilibrium of the utility, and good acceptance of the operator by public opinion. However, Promostate had a delay of between three and six months on the projected planning. The initial achievement, which was planned as a coherent whole of improvement actions, had not yielded the expected results. This questioned the operator's overall performance for the entire contract and risked reducing his remuneration through the application of a penalty. A second assessment at the end of the third year, in December 2005, confirmed a minimum delay of two years in the execution of the contract^[114]. At the time, Sonate and the operator implemented the contract within the strict framework of public regulation. The "virtuous circle" of stakeholders' goodwill, one of the preconditions of success of the project as stipulated by the consultant, was not sufficiently primed. In addition, the much needed cooperation between the authorities, the contract supervision team (Sonate) and the operator had not been established. The two corrective actions^[115] undertaken did not suffice to establish the spirit of cooperation necessary to reach the contract objectives. In December 2006, the different parties thus decided to terminate the management contract on the planned date of end January 2007, without continuing with the option of renewing the contract and extending its perimeter of application^[116]. The management and exploitation of the water utility was again confided to Sonate. The delegated management was replaced by several technical assistance contracts signed with different private operators.

The history of how the contract between Sonate and Promostate unfolded, as told by the stakeholders, shows that the reasons for disagreement are always complex, mixing questions of interests, of people, of means, etc. The factors already mentioned by the consultant for explaining the cooperation deficit – a difficult legal situation, difficulties of communication, unclear responsibilities – may be significant in a general sense. However, their existence does not entirely explain the obstacles met. Similarly, a mainly political explanation as put forward by some stakeholders for the difficulties encountered, may seem simplistic in view of other, less visible, aspects that complicated the process of contract implementation. A closer examination of the remarks of our interlocutors, shows that to the strategic stakes of power distribution or institutional problems, we should add the different ways of explaining "the other's" behaviour as well as different perceptions of "his" role in the partnership. These points seem to

[114] This third year took place in a very tense political and social climate as a result of several political attacks in Lebanon in 2005.

[115] These actions followed a meeting for clarifying the contract in May 2003 as well as a meeting in the Ministry for Water and Energy in December 2003 in the presence of executives from Promostate Services head office.

[116] Only the components concerning engineering studies and supervision of the works for the investment programme continued and were completed in mid 2010.

have accentuated the cooperation difficulties encountered, fuelling the passion of the debates throughout the history of the partnership. The question is now: What are these divergences and how did they influence the process of implementing the contract?

2.5.2. *The history of the partnership as told by the stakeholders*

• *A deadlock that takes the shape of an honour conflict*

Sonate: "Promostate doesn't pay any attention to us"

When the Lebanese mention the difficulties they encountered with the operator, they insist upon a "behaviour", a "spirit", a "way of treating people" that they do not like. *"The contract may be flexible, but is the dignity of people flexible?... All points can be discussed, but what is important is behaviour, the way of treating people. Do they know my position?"*^[177]. The register used for describing the situation is linked to the "honour code". The Lebanese considered they lost face when the operator did not consider their opinion in executing the contract. This injury to their dignity manifested itself in different ways. It concerned both major decisions, such as recruitment, and details of day-to-day company management, such as correspondence with the national authorities or the language used for communications. This sensitivity toward the behaviour of the operator was all the sharper as the contract implied the delegation by the client of a certain number of powers concerning the day-to-day management of the utility. The lack of consideration felt by our Lebanese spokespersons was thus accentuated by an authority-distribution problem between the two partners that was difficult to manage.

The difficulty of translating contract terms into practical ways of collaboration was especially shown by the disagreements over several decisions that were taken unilaterally by Promostate. Regardless of whether they corresponded to the contract, these decisions were a source of misunderstandings with Sonate. According to the interpretation by our Lebanese spokespersons, this autonomous behaviour of the operator was not only felt as a lack of consideration, but it was also seen as a deliberate strategy to sideline them: *"They think we are at their beck and call... it isn't so much an absence of communication, they don't want us to know what they do..."*. Such feelings further complicated the cooperation between the two partners. To react to a situation felt as a lack of consideration, the members of the Lebanese administrative team, when carrying out their tasks, entrenched themselves behind increasingly bureaucratic practices that handicapped the establishment of cooperative relationships.

[177] Some of the Lebanese words were translated from the Arabic. The individual interviews with the Lebanese were carried out in Arabic, whereas the meetings were held in French.

Promostate: "We aren't subordinates!"

The Promostate members locate the origin of the blockage within the idea their Lebanese counterparts had of their assignments. According to them, the interference of the Lebanese administrative team in their work was the main problem. This concerned both major decisions and the details of day-to-day management. They said that this interference showed a lack of understanding of the *"spirit of the contract"* and explained that they were treated as subordinates and not as a service provider that contributes know-how. The lack of consideration felt by the Lebanese team, was interpreted by the operator as a resistance to the delegation of powers. Our French interlocutors thus estimated that the Lebanese team should have understood that they, the French, needed a minimum of freedom for doing their work. They should have been able to judge, as good professionals, what actions were needed for improving the performance of the utility.

Promostate, faced with this behaviour by the Lebanese that was felt as limiting its freedom of action, often used contractual arguments for legitimizing its position and for justifying decisions that were taken without informing the Sonate Board of Directors. This meant that both protagonists stood their ground and that the practical implementation of collaboration methods became increasingly problematic and difficult. The disagreements between the two parties commonly crystallized around questions of "honour", and both sides accused the other of a lack of consideration. This suggests a central position of the "honour code" in the idea of good cooperation (Pitt-Rivers, 1983). To be able to cooperate, the feeling of being respected is indispensable for both Lebanese and French. Nevertheless, it is clear from the above that neither side deliberately insulted the other, but that the perception of a lack of consideration lay rather in different concepts of how to behave to show respect. A closer examination of the words of the persons we spoke with shows that the origin of the conflict should be sought in the clash between two different ways of explaining situations. In addition, the collective interpretations of a *"dignified behaviour"* or *"good cooperation"* are quite different. What one will call *"autonomous management"*, the other call *"sidelining"* or *"contempt"*. What to some is *"helping out"*, others see as *"imposing conditions or management constraints"*. Such different perceptions touch upon vital questions and influence the relations between the parties. The question we thus ask is the following: When and why have such differences in the idea of "good cooperation" started to affect the behaviour of the partners, and how did this happen?

• *Different concepts of "good" cooperation*

The two partners established the same conditions necessary for good cooperation. From both sides, the need was stressed for *"having mutual trust"* or *"show willingness*

to make a success of the project". However, the obstacles met in the field showed the difficulty of translating these declarations of principle into practical ways of cooperation. Their different concepts of good cooperation increased the misunderstanding between the project partners, causing the recurrent question from both sides: "What is our role in the partnership?" The concept that each stakeholder had of his role seems to have determined his ideas on how he should behave and be treated in a cooperation effort.

In Promostate's opinion, the obligations of the operator are defined by the place he occupies in a partnership. As the operator, the sole fact of being a "service provider" seems to imply a certain number of responsibilities, without any authority having to tell him this. From this viewpoint, the autonomy of the partners is consecrated by their status. The partnership is seen as cooperation between two autonomous entities, each with its well-defined role. At the same time, the actions of each partner are not necessarily framed by rules and procedures that codify the boundaries not to be crossed. Such actions thus seem basically related to the ideas each partner has of his responsibilities, ideas that are themselves circumscribed by the "obligations" inherent in his "status". Because of this, the definition of roles is all the more important as it will guarantee to each the necessary autonomy for fully dedicating himself to the cooperation. This demarcation was expressed as follows in the interviews:

- *"There is a problem of demarcating the responsibilities that creates tensions. There is great confusion, and we need a boundary between the supervision based on performance and the request for information for day-to-day execution of the contract."*
- *"Me, I provide a service; if I don't honour my commitments they can fire me. I am not the plumber in this affair."*
- *"They tell me: you are the operator, you are responsible for everything, you can't ask from someone to be both client and supervisor; the tasks haven't been defined, the operators are autonomous and they are occasionally supervised."*

This sensitivity regarding questions of "place" and "status" derives from a French idea of social life based on "rank". In his book *The Logic of Honour*, d'Iribarne (1989) highlights the devotion to profession and status that governs the working relationships in a French company. Ideally based on a fair and egalitarian working relationship, each considers that his obligations are mostly fixed by the customs of the professional group to which he or she belongs, and has difficulty accepting that the boss claims he should set the objectives. It is expected from the superior that he will behave according to the requirements of his status. Therefore, obeying the rules of one's profession and fulfilling its obligations is a way of showing that one is worthy of it. To

keep your honour means staying worthy of the nobility of the status one has, through respecting the behaviour it requires.

From this perspective, the Lebanese idea of “working together” may seem antinomic with Promostate’s idea of the “autonomy of the manager”. The duty of unity required by the Lebanese idea of good cooperation seems to be opposed to the imperative of separating the roles in the French vision. According to the Sonate executives, good cooperation is obtained thanks to a “united” group of members that “help each other” without specific delimitation of spheres of action. Here, a role is not determined by an auto-definition of responsibilities linked to a profession, but is rather measured in terms of the strength of the “support” provided without limits, as is illustrated by the following excerpts:

- *“It is vital for Promostate that Sonate understands their problems: If I know them, I can answer the questions and I can provide my support to the operator.”*
- *“Today, I facilitate the work; I want to be a member that helps (...). At present, we are two teams, but to get ahead with the work we have to be single team, one hand. Right now we aren’t a single team; what can you do with them? Promostate has a secret; there are things they don’t want to show us.”*
- *“I try to help Promostate’s work in the technical field, but on the condition that my opinion is considered, and that we agree that, to get ahead, they should ask my opinion. I did give my remarks on the progress of the work, but they didn’t take any notice of them.”*

In addition, in a country counting not less than 18 different communities from the religious, cultural or ethnic viewpoints, the ideal society is marked by two trends that may seem antagonistic. On the one hand, we wish to preserve the integrity of the group by clinging to community solidarity, but on the other hand we wish that these communities can co-exist harmoniously in their diversity (Beydoun, 1984; Maalouf, 1988; Rizk, 2001). From this perspective, the defence of “unity” in the register of a “fusion of hearts” is all the stronger as it faces the great diversity that characterizes Lebanese society. The analysis of this conflicting alliance between a desire for “unity” and a passion for defending community specifics, no doubt lies as much at the core of understanding the concept of “good” working relations in Lebanon as that of how life in Lebanese society functions (Yousfi, 2008)^[118].

[118] Seen from this viewpoint, the policy of multiplying technical assistance contracts adopted by Sonate after the delegated management contract ended, obtains a new dimension. It can be interpreted as allowing the Lebanese to escape the dependence upon a single operator, thus invoking the game of negotiating the interests between several operators, like the operation of the Lebanese political system.

These two different concepts of “good” cooperation provide a better understanding of the difficulties for the partners to find a practical way of collaboration. We saw that, on the French side, the autonomy of the manager is primordial: He must be able to judge, as a good professional, what actions are needed for improving office management. The Lebanese party, however, sees the partnership as an association allowing it to play a role, have a place of honour, of “saviour”: he, who has to help and assist his partner in his actions. The Lebanese team thus reproached the operator to keep them out of the picture, but for the French this was not misbehaviour but the wish for independent management. The operator in fact interpreted the Lebanese attitude as an attempt to decide in their place and to assign them a subordinate role. What was expressed by the Lebanese as “they cold-shoulder us”, was interpreted by the operator as “they want to decide for us; we aren’t at their beck and call!”. However, contrary to what the operator seemed to believe, *i.e.* that their partner’s strategy was to alienate them from their responsibilities, this was not what the Lebanese sought. For them, giving their “vital advice” did not necessarily clash with Promostate’s autonomy, but was, before anything else, a means for occupying a place of honour, of equality, in this partnership.

This misunderstanding is clearly shown by the divergent interpretations of “supervision”. To the French, one cannot be both supervisor and day-to-day manager. To the Lebanese, what is considered by the French as interference is seen as inseparable from their task in the project. The perception they have of their role goes beyond simple supervision: they consider that they must “give their opinion” on daily operations and that their supervision allows a “better orientation” of the operator’s work in case of “errors”. This muddle, which originated in the different ways of giving a meaning to a cooperation situation, exacerbated the susceptibilities of both partners. The question of honour then became very sensitive, whereby the conflict was reduced to terms like “let’s see who is the boss!”. Contrary to the hopes at the start of the project (cooperative relations for the success of the project), the two parties found themselves forced to work together through setting up an increasingly stultifying bureaucracy. The essential point here is that these differences did not simply add to other difficulties encountered: on the contrary, they contributed to accentuating the normal misunderstandings found in all cooperation. The question now is: What precisely was the nature of the interference of these differences during implementation of the contract?

2.5.3. Different readings of the contract

When designing a contract, the mechanisms of supervision, remuneration and authority should push the parties into adopting a strategy for reaching an optimum collective result. The facts show that, even though there was no serious questioning of the capacity of the contract to outline the obligations of either party, the systems planned to this effect were unable to resolve the cooperation problems. This weakness was explained by institutional problems as well as by problems in the distribution of responsibilities. However, when we look more closely at the way the partners read their contractual commitments, we see that the misunderstandings in contract implementation were further accentuated by divergent interpretations of their role in the cooperation (Yousfi, 2010).

According to the French reading, a contract is a general framework for action that opens the possibility to a certain freedom to evaluate the actions to be taken. Regulation by a contract passes *via* the fact that the spirit should prevail over the letter. It is the spirit of the contract, the general sense of the project, that should guide field strategies. This opens the possibility to take initiatives that allow managing any contradictions between the text and field reality. A contract can therefore only be an efficient basis for regulation if the partners agree upon the overall aims and the general philosophy of the project. In addition, the agreement must be guided by a clear definition of everybody's role in the cooperation, the precondition for allowing all partners a free interpretation of the actions needed as part of their assignment. For instance, the introduction of the document handed over by Promostate during the meeting with the Ministry for Water and Energy contains the following passage: *"The signed contract is defined as a contract for service management and not for technical assistance to Sonate, and this to give the provider a sufficient leeway to carry out his assignment"*. If the partners do not share the same idea of their roles, it will be difficult to find the spirit of the contract to guide their work. The freedom of acting will be compromised by the vagueness of interpretation around defining the responsibilities of each party, and it will be difficult to draw a clear line between what is part of coordination and what can be qualified as interference. The risk is then high that the parties will resort to a strict respect of the letter of the contract, which generally hinders establishing the spirit of cooperation needed to execute the project.

According to the Lebanese reading, a contract belongs to a legitimate register of rules – strictly respected in the absence of a personal relationship between the partners – as well as to a more flexible register that can serve as the basis for discussions. Such discussions then can help construct a cooperation relationship that will allow

developing the necessary and indispensable role of the Lebanese, who will “fix” the problems and intelligently manage the pressure of action. For them, the action of each party is first of all related to the duty of contributing to the unity of the group. As said before, according to the French viewpoint, the freedom of interpreting the contract occurs within the framework of the tasks defined for each party and in the general spirit of the contract. For the Lebanese, however, this freedom of interpretation is governed by a wish to find consensus-based solutions that will cement group unity without a particular definition of fields of action. *“The Minister for Water and Energy insists upon the importance for the contract parties to renew their collaboration efforts to facilitate the implementation of the contract. He recognizes the existence of inherent difficulties within the contract and the relations these impose on the parties. However, in view of the importance of the contract, he invites the involved parties to show proof of goodwill to find solutions that will help implement the contract in accordance with public interest.”*^[119]

It is thus not surprising that the Lebanese party never questioned the clarity of the contract. Everyone manages and smoothes the rough edges, saying that the contract is clear, as a context of “good understanding” allows the Lebanese to “grow in status” by providing their indispensable help in solving the problems. They will thus say that the contract is clear, as this provides each party with a margin for useful blocking in the absence of a definition of the individual inputs to foster group unity. It seems thus that a political compromise on the interests does not necessarily imply the same reading or use of the contract. In fact, the reference for reading, interpreting and using the contractual commitment was governed by different concepts of “good cooperation”.

Therefore, and from the moment that one feels that one’s contractual commitment is part of a certain type of relation, many different representations become possible because of the beliefs these imply and that influence the manner in which one should act. When Promostate asked “*What is our role in the contract?*”, it clearly expressed a question of identity that generated a specific type of behaviour. The same is true when a Lebanese says: “*We should work as a single hand*”, implying a moral reference that inspires the way of doing (even if it is also adopted out of interest). The importance of these representations is so great that the stakeholders cannot construct a cooperative game simply because they think that it would be in the common interest to play this game, without an element of true legitimacy for the rules of such a game. This was seen repeatedly when the stakeholders reached a compromise on procedures

[119] Minutes of the meeting held in December 2003 at the supervising Ministry.

to be adopted. Though certain solutions were adopted by all parties, their subsequent reading of this solution was true to their idea of the contractual relationship. The ideas that the stakeholders had of their role in the contract have well and truly oriented their actions; and this orientation was, obviously, not independent of the pursuit of their interests.

By evoking the particular form of cooperation represented by a PPP and the importance of a good clarification of the obligations and roles of all, each of our French and Lebanese interlocutors implicitly showed the more general idea of an ordered society that underlies his vision of such cooperation. To say that the manner in which a regulation mechanism, such as a contract, is influenced by the culture of those for whom they regulate the cooperation relations, is to say that the relationships based on this contract only make sense in the reference universe of each partner. Different interpretations of the forms of relationship created by a regulation system can be mixed with questions of interests, thus marking its efficiency as a regulation tool.

Conclusions

The example of the delegated management of Sonate shows that one of the stakes in implementing a PPP contract is its cultural dimension. This should be understood less as a set of shared values and beliefs, than as the way in which the contract touches upon the governing of mankind as well as the administration of things. Considering a contract in its cultural context, questions the presumed autonomy of regulation mechanisms in terms of their local rooting; this is more useful than just a simple rationalization of the influence of the institutional, organizational or social context on the progress of a PPP. The question is to know how the cultural context should be perceived when setting up PPP contracts in developing countries.

When the forms of cooperation or visions of contractual commitment as established in developing countries are not materialized by immediately visible institutions, their properties will only be manifested in an indirect manner (Yousfi, 2007). This is what led to the somewhat hurray thinking that the difficulties observed in the functioning of PPP regulation were just an effect of local power play and arrangements. A history of the progress of the contractual relationship between Sonate and Promostate shows that, effectively, several “objective” factors hindered an efficient contract execution. These included a difficult legal situation, different stakes of influence distribution, communication difficulties, a lack of confidence on both sides, a complex institutional setting, etc. Though these reasons are generally significant, they did not explain alone the obstacles encountered.

In fact, other – less visible – aspects, related in particular to the different ways of making sense of the difficulties encountered, disturbed the process of implementing the contract and prevented the two parties from clarifying their misunderstandings. Without wishing to minimize the objective difficulties encountered, these differences in interpretation had a great influence on what, in practice, is implied by empowering, defending one’s interest, having confidence, or respecting contractual commitments. The cultural differences thus did not add to the encountered obstacles, but were grafted onto them by shaping both the reading and nature of the solutions recommended for overcoming them.

Setting up an efficient regulation is therefore impossible without a concomitant analysis of the meaning that stakeholders confer on the types of relations that induce the cooperation rules controlling the systems that one tries to put in place. Depending on location, the expectations of a regulation that respects the balance of power between partners, or the criteria of judgment that are used for evaluating its impact on the partnership, can be quite different.

From this perspective, it is not evident to try to codify the relations between the different protagonists in a PPP by means of regulation mechanisms, especially if their meaning falls outside the frame of reference of those that are going to use them. An essential lesson is that no “good universal regulation” exists: a “good” regulation is the one that allows the stakeholders to feel comfortable, because it is coherent with the ideas of a partnership that are shared by its members. This means that efficient regulation of the water sector, for instance, will not be the same in France, in Lebanon or in Mauritania. It also means that each society has its own way of answering the stakes of viability and efficiency, and of constructing efficient modes of regulation, because only home-grown rules, or rules that were specifically adapted to the cultural backgrounds of the partners, will be legitimate in the eyes of those upon whom they have effect.

Donors, which are commonly involved in reform processes, should pay attention these stakes, in order to avoid locking their interlocutors into systems that they cannot make their own, nor make to work.

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2.6.

Private operators in the water and sanitation sector in Colombia. The Conhydra case

C. AREVALO-CORREA

Introduction

During the last thirty years, the water and sanitation services in Colombia have experienced substantial improvement in terms of coverage, quality, continuity and other relevant indicators, as the result of structural reforms that started at the end of the 1980s with the decentralization of responsibilities and resources to municipalities. These reforms culminated in the approval of Law 142 of 1994 or “Domiciliary Public Services Regime” where the principles with respect to providing such services, established in the national Constitution of 1991, were developed.

One of the most important elements of these reforms is the opening up to participation by private companies of the sector. Such private companies were not only to act as providers of service components, but also as direct providers of water and sewage services through different types of contracts – operation and concession among others – with the municipal authorities responsible for assuring the efficient provision of these services.

In this environment, favourable to private sector participation, several private companies were created and began to compete for the water and sewage market in the country. In several cases, they competed with foreign companies with greater experience and stronger financial capability.

As part of these dynamics, the operation of 42 water and sewage systems in Colombia’s Antioquia Department and property of Acuantioquia were contracted

with a group of local private operators, among them Conhydra, between 1996 and 1998 with highly positive results up to now.

This paper describes the Conhydra experience, looking particularly at its development as a company, at the factors influencing its results and at the lessons to be learned from this experience, which could be replicated in similar contexts. Its objectives are: a) to understand the development and consolidation of the company since its creation in 1996 within the legal and institutional Colombian context; b) to provide information about its results and impact in terms of the service coverage, quality and continuity, user satisfaction and other performance indicators; and c) to analyse the role of local operators as an alternative to large companies operating at international level.

The paper is structured in three parts. In the first part, the situation of the drinking water and basic sanitation services in Colombia is presented, with emphasis on the institutional and legal frame resulting from the reforms of the 1990s. In the second one, private sector participation and specifically the Conhydra case is analysed. The third part compares the local private operators' advantages and disadvantages, and those of private international operators in the institutional, political, social, economical and cultural context of 21st century Colombia.

2.6.1. The water and sanitation sector in Colombia

• *The state of the sector in 2010*

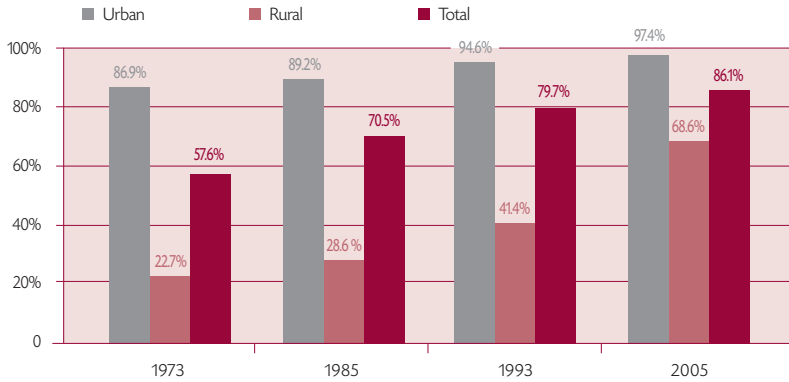
In the past thirty years, water and sewage coverage has substantially increased in Colombia, especially in urban areas as shown in Graphs 17 and 18. Nevertheless, in rural areas, it is still below average and a large percentage of wastewater is returned to nature without treatment. Other important sector indicators such as water quality, continuity of service, non-revenue water, and user satisfaction have also experienced important improvement.

Water and sewage services are provided in a decentralized way, directly by the municipality or through specialized operators, private, public or mixed ("semi-public"). The transformation and modernization of most operator companies is shown by an increasing participation of the private sector, especially in large cities.

Most of this improvement results from the reforms introduced to the sector since the end of the 1980s and the first half of the 1990s, when functions and responsibilities at each government level and for those state institutions participating in the sector, were redefined. Additional resources were also assigned for sector financing, and the rules and regulations for private sector participation were established.

Graph 17

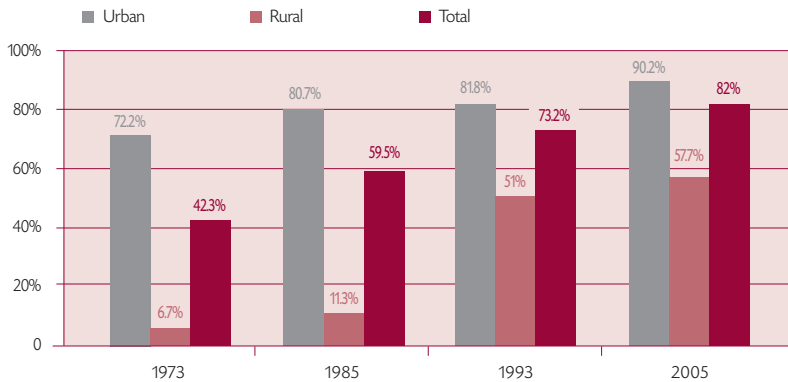
Evolution of water service coverage for Colombia between 1973 and 2005.



Source: CRA (2006), Dane (2005). Rentería, DNP (2008).

Graph 18

Evolution of sewage service coverage for Colombia between 1973 and 2005.



Source: CRA (2006), Dane (2005). Rentería, DNP (2008).

The situation before the reforms

Before the reforms, the provision of water and sanitation services was under the virtually monopolistic responsibility of the public sector. This model combined the existence of a public commercial model represented by the Empresas Públicas Municipales – relatively autonomous government institutions that served large cities and some provincial capitals – with a strongly centralized secondary model for serving medium and small towns and rural areas that was completely State financed.

The main problems of the sector before the reform were associated with strong political intervention in tariff definition, the inability to cover costs with tariffs, slow growth of coverage, poor service quality, high labour costs, and a strong dependence on public funds for financing investments.

• *Legal Framework: Sector Reforms of the 1990s*

The Political Constitution approved in 1991 established the institutional and legal bases for a definitive sector transformation and for the substantial improvement of access, quality and continuity of the services for the entire population. This transformation was based on the following principles:

1. Economic freedom and free private initiative within the limits of the common good and free economic competition are a right for all, but carry responsibilities.
2. It is the State's responsibility to provide efficient services, which can be done through organized communities, private companies or the State itself.
3. The State is also responsible for regulation, control and supervision.
4. It is the responsibility of municipalities to provide public services to all inhabitants.
5. Criteria for tariff definition include not only costs and economic efficiency, but also solidarity and income redistribution criteria.

Law 142 of 1994 established the domiciliary public services regime with the aim of guaranteeing effectiveness and efficiency in their provision^[120], but subject to the principles of free competition and free access to the market.^[121] According to this Law, provision of services should be made by public services companies (ESP), whether public, private or mixed, but subject to the private legal regime. Exceptionally, municipalities are allowed to provide services, as are community type organizations in small municipalities and rural areas.

[120] Law 142 of 1994, explanation of motives, Gaceta del Congreso, Año 1, No 162, 17 December 1992.

[121] Article 10 of Law 142 of 1994.

For the design of the tariffs regime, Law 142 introduced the criteria of economic efficiency, neutrality, solidarity, redistribution, financial sufficiency, simplicity and transparency^[122] aiming at the expansion of service coverage and quality improvement. Likewise, and applying the solidarity principle, Law 142 determined that users from levels 5 and 6 – with the highest incomes – and commercial and industrial users, had to subsidize users from the lower income levels 1, 2 and 3^[123]. It also created the Public Service Development committees,^[124] which are participation mechanisms aiming at guaranteeing the users' right for monitoring the public service management.

The last adjustments to reforms. In 2007, adjustments were made to the reforms, aiming at solving problems arisen from their implementation and related to the efficient use of resources. These problems had not allowed improving service quality, continuity and coverage in the same proportion as the resources assigned to the sector, especially through the General Participation System, SGP. The most important reform adjustments were by the approval of three legal texts:

- Law 1151 of 2007 that rendered provincial water management plans, PDA, into the leading sector strategy, making the allocation of public budget resources conditional upon commitments from municipal governments to comply with the SGP regulations regarding expenditures;
- Legislative Act N° 4 that created a specific participation for the water and sanitation sector in the SGP^[125]; and
- Law 1176 of 2007 that regulates this Legislative Act, assigning a specific share of 5.4% of the SGP to the sector. From this share, provinces will receive 15%, and districts and municipalities 85%.

• *Institutional Framework*

Sector Organization: Competences. As a result of the reforms of the 1990s, Colombia has implemented a decentralized sector scheme where municipalities must ensure the efficient provision of services through public, private or mixed Public Services Enterprises – Empresas de Servicios Públicos, ESP – or authorized community type organizations. At the national level, the National Planning Department, DNP, is in charge of designing, follow-up and evaluation of sector policies. The Ministry of Environment,

[122] Article 87 of Law 142 of 1994.

[123] See the paragraph on Subsidies and contributions of this document.

[124] Article 62 of Law 142 of 1994, modified by Article 8 of Law 689 of 2001.

[125] Prior to this Law the resources for the AP and SB sectors came from the SGP and were part of the 17% of the General Purpose item.

Housing and Territorial Development, MAVDT, is in charge of executing the policies and programmes for the sector, promoting efficiency of service providers and developing the technical standards required by the sector. The Ministry for Social Protection, together with the MAVDT, is in charge of determining water quality standards and assuring their compliance by service providers through the Health Services at departmental level. Finally, the Ministry of Treasury and Public Credit through the Territorial Development Finance Agency, Findeter, is in charge of financing and supporting the sector.

In this organizational scheme, the State exercises the functions of control, surveillance and inspection as well as economic regulation, though these functions are separate. The Superintendence of Domiciliary Public Utilities, SSPD, controls and monitors the operator companies and manages the Consolidated Sector Information System, SIU. Economic regulation is in the hands of the Water and Basic Sanitation Regulation Commission, CRA, which, among other functions, sets the tariffs, promotes competition among service operators, establishes methods for management evaluation, measures the service providers' financial, technical and administrative efficiency, and regulates the monopoly.

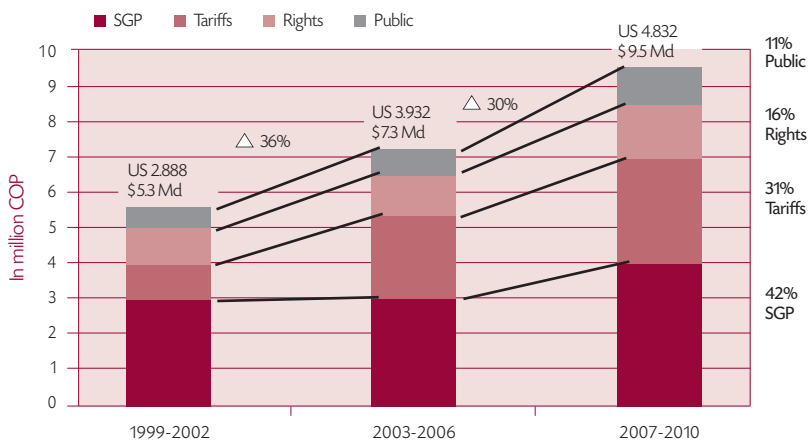
The provinces are responsible for implementation of the PDAs, which have among other objectives:

- To guarantee the inter-institutional coordination,
- To accelerate the modernization process of the sector and
- To take advantage of the economies of scale through the implementation of regional schemes for service operation.

Sector financing. Since implementing the reforms, the resources devoted to financing the sector have increased substantially, especially those transferred from the national budget to the municipalities and departments that constitute the General Participation System, SGP, mentioned above. These transfers represent about 42% of the resources assigned to the sector in the last ten years and they are equivalent to more than USD 2 billion.

Graph 19

Water and Basic Sanitation Sector Resources in Colombia



Source: Rentería, DNP (2008).
 Red: Operator investments / Green: Rights.

The second important financial source is tariff collection. This component has been steadily increasing, not only as a result of the new tariff schedule designed by the CRA in 1995 and 2004, but also due to the higher collection rates and the improved willingness to pay culture that is evident in most Colombian cities today.

Additionally to the transfers *via* SGP and the tariffs collection, the sector also has other sources of funding such as:

- Additional funds from the national government budget through MADVT’s sector programmes;
- Royalties directly received by the municipalities and departments for the exploitation of non-renewable natural resources and from the National Royalty Fund administered by the DNP for financing projects in specific regions;
- Contribution from the environmental authorities, the Regional Autonomous Corporations, coming from revenues and contributions charged to the operator companies for the use of the water resource; and
- National and multilateral credit institutions such as the World Bank, the Inter-American Development Bank, and the Corporación Andina de Fomento, CAF.

The Tariff Model. In Colombia, water and sewage tariffs are subject to the regulated freedom regime, which means that the operators fix their tariffs at will, but strictly following the calculation methods of the Regulating Commission, CRA. The first method for fixing tariffs, which came into force in 1995^[126], was based on the water companies' accounted costs. It aimed at recovering the administrative, operational and maintenance costs in the provision of services, which should cover the investments to be made for network extension and improvement as well.

The second regulatory stage started with the tariff methods approved in 2004^[127], which were more demanding in terms of efficiency as well as more transparent in assigning costs, facilitating the control on investments. In these methods, the management and operation costs of the company are compared with a benchmark value estimated from the information submitted by other operators.

Subsidies and Contributions. The Colombian subsidies scheme combines demand subsidies – covering lower rates charged to selected users – with supply subsidies that cover part of the investment costs, either through direct payments to the operator for investment projects, or by handing over to the operator infrastructure built by a different contractor. Demand subsidies are covered by the so-called “crossed subsidies” among users, who are ranked in six levels. Users of levels 1, 2 and 3 receive a maximum subsidy of 70%, 40% and 15%, respectively; users of level 4 pay the real cost of the service, and those of levels 5 and 6, as well as industrial and commercial users pay a supportive or solidarity contribution of, at least, 20% of the real service cost.

This solidarity scheme of crossed subsidies shows a highly negative balance due to the higher weight of low-level users in most Colombian municipalities. To cover this deficit, municipalities must create the Solidarity and Income Redistribution Fund that can be partially funded with the resources of the General Participation System (SGP) and other resources of local origin.

[126] Resolution 8 from August 11th.

[127] CRA Resolution 287 of 2004.

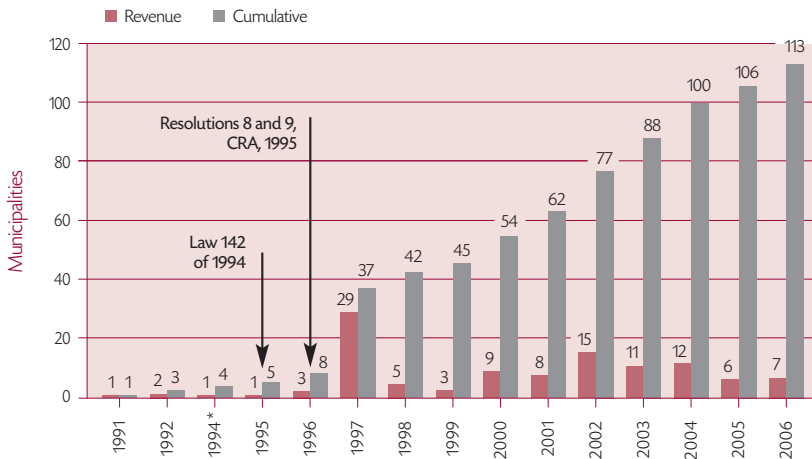
2.6.2. Private sector participation

• Background information

With the implementation of reforms, conditions were established for modernizing the sector and private sector participation in the provision of services under different contract modes. In 2006, the SSPD information system showed that private capital participated in the operation of 133 systems. (Graph 20). From these, a first group of four operators, semi-public companies with participation of private local capital, started operations in the sector before the approval of Law 142 of 1994.^[128]

Graph 20

Evolution of private participation in the operation of water and sewage systems



* No data for 2003.

Source: SSPD – SUJ, December 2006.

Another important group of private operators, motivated by the approval of Law 142 and the first tariff regulation methods, entered the sector between 1995 and 2000 to operate water and sewerage systems in more than forty municipalities of different sizes. Among these municipalities, was the group of 42, from Antioquia Province, where a public company, Acuantioquia, owner of the systems at that time,

[128] This is the case of Barranquilla, Santa Marta, Monteria and Florencia, where the crisis of the Public Municipal Services companies, forced the creation of semi-public companies to assume operation of the systems.

contracted their operation between 1996 and 1998 to a group of local private, small and medium-size companies. After the year 2000, another important group of towns started to be serviced by private operators within the framework of the MAVDT Modernization Programme.

To date, the SSPD registers around 25 operators with a private-capital participation. Seventeen of these are Colombian and eight are foreign. The latter operate in 28 cities, two of them, Barranquilla and Cartagena, with populations over 500,000 inhabitants.^[129]

• *Antioquia Province*

Antioquia is located in northwestern Colombia, with most of its territory in the Andes Mountains. It is divided into 125 municipalities and its size is about 65,000 km². Its capital is Medellin, the second city of the country in terms of population and economic activity, located in the Aburrá Valley, together with eight other – smaller – municipalities, where over 58% of the provincial population lives. According to the 2005 census data, its population then was 5,682,276 inhabitants or 13.25% of the country's total.^[130] Of these, 48.2% live below the poverty line,^[131] a figure larger than the country's average of 46.0%. In 2008, the provincial GDP was 68.2 billion pesos or 14.42% of the national GDP. The per capita GDP for the same year was USD 5,870, or USD 460 over the national per capita GDP of USD 5,410.^[132]

[129] Rozo Vengoechea, January 2007.

[130] Dane, National Census 2005.

[131] By definition, a person below the poverty line lives in a home with the following characteristics: inadequate home without public services, critical overcrowding, low schooling assistance, and high economic dependency, Dane, 2008.

[132] *Anuario Estadístico de Antioquia, 2010.*

Table 11 *The main socio-economic indicators of Antioquia Province and Colombia*

Socio-economical indicators	Antioquia	Colombia
Unsatisfied basic needs	16.2%	27.8%
Homes without public services	11.4%	7.4%
Poverty line	48.2%	46%
Access to electricity service	96.7%	97.2%
Access to sewage system	75.9%	73.9%
Access to water system	89.2%	86.7%
Homes with poor water quality	19.4%	10.1%
Illiteracy in population between 15 years of age and over	6.9%	7.4%
Annual Inflation rate	7.7%	7.7%
Unemployment rate	12.1%	11.2%
Employment rate	52.5%	50.9%
Traditional exports	USD 4,039 million	USD 37,626 million

Source: Dane (2005); Geih-Dane (2008); Icer (2008); SSPPD, Anuario Estadístico de Antioquia (2008).

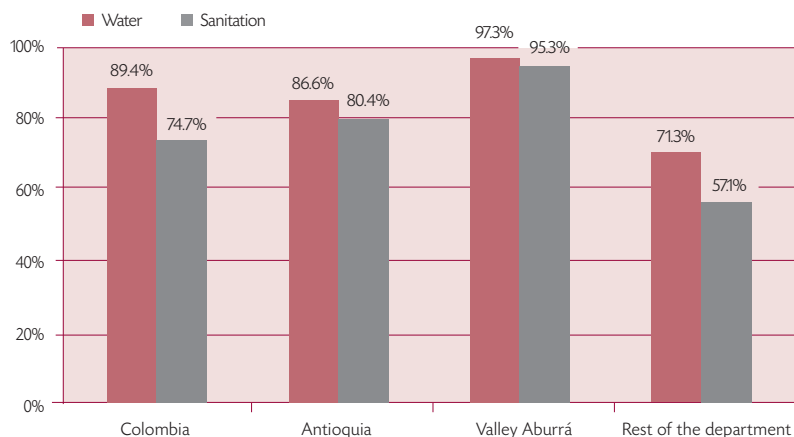
• *Water and sanitation services*

Antioquia Province has a slight lower coverage of water services than the national average, while that of the sewage services is over the national one (See Graph 21). Nevertheless, a more detailed analysis of these figures shows a lower coverage in municipalities other than Medellín and the eight towns in the Aburrá Valley, served by the Empresas Públicas de Medellín,^[133] than the country as a whole.

[133] *Empresas Públicas de Medellín* is the largest public services company in Colombia. Besides water and sewerage services, they also provide electricity, communications, domestic gas and other services to more than 500,000 users.

Graph 21

Water and sewage coverage in Antioquia and Colombia, 2008.



Sources : GEIH-DANE (2008), Cálculo DNP-DDUPA, SSPD, Anuario Estadístico de Antioquia (2008).

Until implementation of the reforms, the water and sewage services in Antioquia were under the responsibility of Empresas Públicas de Medellín, which served the municipalities of the Aburrá Valley, and Acuantioquia,^[134] owner and operator of the water and sewerage systems in forty municipalities and two villages. Other municipalities were served by provincial institutions. Rural areas and small localities were served through alternative community organizations.

• *Contracting of local private operators*

In 1995, and in compliance with the constitutional mandate, Acuantioquia transferred to municipalities the responsibility of water and sanitation services. As it owned the systems, the decision was made to contract their operation to specialized companies after asking the local authorities for permission. In a first attempt to hire a systems operator, Empresas Públicas de Medellín was offered the contract, but they declined the offer. They argued that they were modifying their structure and procedures to comply with the recent reforms. Later on, foreign operators were also invited to participate, but they did not show much interest due to the small size of the market and the security conditions of the country at the time. Finally, consulting

[134] *Acueductos y Alcantarillados de Antioquia, SA*, was initially a branch of INSFOPAL, and later, after its liquidation in 1987, it became a provincial public utility company, with the municipalities and Antioquia Province as shareholders.

companies were asked to present proposals for the administration, operation and maintenance of the 42 systems owned by Acuantioquia. Eight small and medium-size private companies were created, among them Conhydra. All 42 systems operation contracts were granted to them.

The Conhydra case

Origins of the company. In September 1996, at Acuantioquia's request, two companies merged: HYDRA, a consultancy company specialized in environmental management projects and with wide experience in water and sewage systems design, and SAGAS, a construction company with experience in the construction of public services infrastructure. It is important to point out here that the partners of both companies came from Antioquia Province. This particular condition will have a great influence on the company results, not only because of their in-depth knowledge of the area, but also because of the cultural characteristics of its population and their strong sense of regional identity.

Following the requirements of Law 142/94, they created a public corporation, the so-called Public Services Company (ESP, after its name in Spanish). Following the call-for-tenders by Acuantioquia, Conhydra was granted the administration, operation and maintenance of five water and sewage systems in five municipalities and of three water utilities in three other towns.

Table 12 *First contracts between Conhydra and Acuantioquia*

	Municipality/Village	Number of users	Operation starting date	Service contracted
1	Turbo	3,093	December 16 th , 1996	Water and sewage
2	Marinilla	6,092	March 7 th , 1997	Water and sewage
3	Sonsón	4,340	July 1 st , 1997	Water and sewage
4	Santa Fe de Antioquia	3,225	September 15 th , 1997	Water and sewage
5	Mutatá	699	October 20 th , 1997	Water
6	Chirodogó	2,914	October 4 th 1977	Water and sewage
7	Puerto Berrío	6,621	December 1 st , 1997	Water and sewage
8	El Capiro	313	October 3 rd , 1998	Water

Source: Conhydra S.A. (2009).

The contracts with Acuantioquia. All contracts signed between Conhydra and Acuantioquia were ruled under the private enterprise regime and according to the provisions of Law 142 from 1994 and Resolution 3 of June 8th, 1995, from the CRA. The objective of these contracts was “the operation, administration and maintenance of the water and sewage utility”.^[135]

The contracts were signed for a period of 15 years, with the exception of Marinilla where the mayor and users wanted to have a closer participation in the contract supervision process and agreed to a contract of only five years that should be renewed according to results. The amount to be paid to contractors for their management varied between 10% and 15% of the amount of money effectively collected monthly.^[136]

It is important to mention that these contracts were only for operation with no obligation from the contracting company to invest in system improvement and expansion. In this respect, the contracts established the creation of a Replacement, Expansion and Emergency Fund financed by the monthly income surplus remaining after covering the administration, operation and maintenance expenses, credit repayment, operator fees and other fiscal obligations. The resources of the fund had to be used “solely for system replacement and expansion projects and for emergencies”,^[137] after an investment plan agreed on previously with Acuantioquia or the municipal governments. The operator was also authorized to prepare a Water and Sewage Master Plan and to make the required operation, maintenance, replacement and extension investments, with funds from the previously described Fund or from other sources^[138], but charged to the system results or to the contracting agency.

Evolution of the company. Since its creation in 1996, Conhydra has experienced strong growth in quantitative terms as well as in the quality of its services and diversification in its business lines. This growth has been reflected in new contracts for the operation of water and sewage utilities (Buenaventura in 2002 and Hispania in 2008), for the distribution of water (Rionegro International Airport in February 2009), and for the operation of 16 wastewater treatment plants in another province of Colombia, Cundinamarca, since December 2009.

In other cases, only single components of the administration and operation process were contracted, such as the “Technical Assistance” contract signed with EMPOCALDAS S.A. ESP. for improving the commercial management of 70,000 customers in 23 municipalities of Caldas Province.

[135] Taken from the contract contents.

[136] Recently, the cost of Marinilla was renegotiated to 7% of the collected tariffs.

[137] Clause 6 of the System Operation, Maintenance and Administration Contracts.

[138] General Participation System, FNR, national resources. See: Institutional framework –financing the Sector...

In addition, the experienced gained in the operation of W&S systems and the knowledge generated through it, have allowed the diversification of Conhydra in four different business lines:

- EGEAGUA, devoted to the administration, operation and maintenance of water and sewage systems as shown in the above-mentioned contracts.
- ACOAGUA, devoted to technical assistance and consultancy for the management of water and sanitation services. This business line is based on over 13 years of experience and offers more than 150 procedures for each process related to providing water and sanitation services, as well as seven software applications to support water utility operations and a pack of methods and programs for reaching these goals. Through this business line, Conhydra has been hired by other Colombian municipalities, by the World Bank's Water and Sanitation Program and, more recently, by the Peruvian government for technical assistance and consulting contracts in the water sector ^[139].
- CONAGUA is Conhydra's business line through which it has implemented contracts for the construction, replacement and optimization of water and sewage infrastructure, including collection, transport and distribution networks, treatment plants, and storage tanks in the municipalities where it operates the systems.
- Finally, Conhydra has developed an information system, SIAGUA, to support the administration of public and private water and sewage companies, which will allow them to improve processes in their technical, commercial, administrative and financial areas through specialized software applications.

2.6.3. Analysis and evaluation of results

- *Company administration*

Since starting its operations, the company has had a relatively simple organizational structure with its headquarters in Medellín and branch offices in each municipality where it has been contracted. General management, planning and technical support take place in headquarters, as do billing and accounting. In the municipalities, local

[139] Among others, contracts for evaluating the experience of local private participation in public utilities in Guatemala, El Salvador, Nicaragua and Honduras where Conhydra participated as an associated consultant. It also provides technical assistance to 16 municipalities in Antioquia Province to improve water, sewerage and garbage collection services, and with the Empresa Multipropósito de Calarcá S.A. E.S.P., to evaluate its management model and user satisfaction of the water, sewage and garbage collection services. In 2009, a contract was signed with the Building, Housing and Sanitation Ministry of Peru to provide technical assistance for strengthening the management of water and sanitation services in Huando and Acostambo municipalities of the Huancavelica region.

managers are authorized to contract the small services and supplies required for the systems' operations.

To develop the process management, the company has implemented a Quality Management System under the ISO 9001:2008 norm, certified by ICONTEC and validated internationally by IQ Net.

• *Employee relations*

Regarding the relations with its employees, Conhydra is characterized by an entrepreneurial culture based on the generation of knowledge and participation as well as continuous training and capacity building. Of interest is the policy of contracting the highest possible number of employees in the municipality where the system is operated. This implies not only lower costs, but also employment creation in the municipalities, with the resulting impact on the local economy and, above all, a greater commitment of employees as they and their families are also users of the services.

In the implementation of this policy, the company had to face local realities such as a lack of qualified personnel with the required working competence, illiterate workers without the technological training to fill operational needs, and so on. For these reasons, the company was compelled to develop training strategies such as: worker internships in similar companies or in other systems operated by Conhydra; agreements with educational institutions to help workers complete their basic education cycle, or with other technological training institutions such as SENA.^[140] Internally, a special education program for improving the working competence of employees in water management is called "Cátedra Conhydra".

In ten years, the staff working for the company has tripled, starting with 100 employees in 1999 to 282 in 2009. During this period, the number of users has increased in more than 35% and other technical components were added to the operations, such as wastewater treatment plants in Marinilla and Santa Fe de Antioquia. In addition, new contracts were signed for the administration, operation and maintenance of water and sewage systems in municipalities outside Antioquia.

• *Performance indicators*

Performance indicators in most systems operated by Conhydra have experienced significant improvement since the company assumed their operation in 1996 until September 2009. Indicators such as coverage, water quality, continuity, non-revenue

[140] *Servicio Nacional de Aprendizaje* (National Vocational Training Service).

water losses (NRW), payment collection index, and the like, improved in all municipalities, surpassing than the national average. The exceptions are Turbo, Chigorodó and Mutatá, located in the Urabá region and Buenaventura; this is probably due to the geographic characteristics of these municipalities – low land with a hot climate, unreliable water sources, and higher treatment, piping and distribution costs – as well as their socio-economic characteristics. These municipalities are characterized by a large number of migrants and displaced people, with high poverty and unemployment levels, that were strongly affected by the conflicts in the country during the past decades (Table 13, below).

In general, when comparing these indicators with those of the rest of the country, all of them are over the national average with the exception of the Urabá municipalities mentioned before. In the case of service continuity, for example, only three of the eleven systems operated by Conhydra have a continuity below 100%, corresponding to 24 hours/day service, while in similar municipalities of the country, the continuity is only 89%, according to the information provided by the SSPD.^[141]

[141] SSPD, Sector Study of Water and Sewage Public Services. (*Estudio Sectorial de Servicios Públicos de Acueducto y Alcantarillado*), 2002-2005.

Table 13 Performance indicators in four systems operated by Conhydra

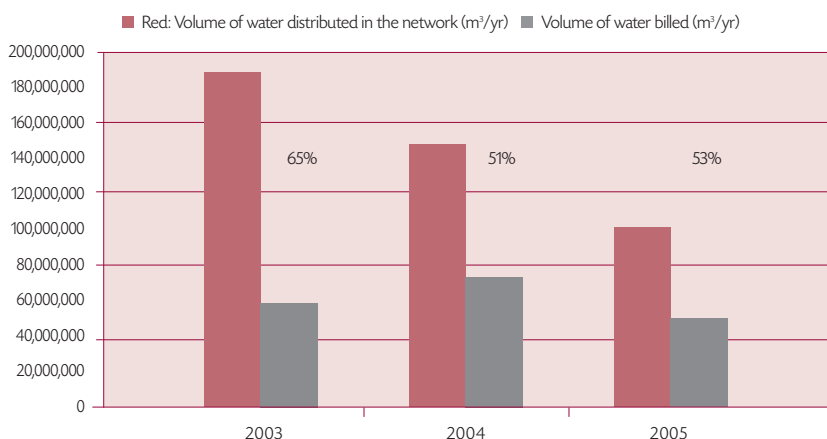
INDEX	Year	Marinilla	Santa Fe de Antioquia	Puerto Berrio	Turbo
Continuity	Starting	16	22	23	8
	September 2009	24	24	24	24
% NRW (water losses)	Starting	42 %	40%	49%	65%
	September 2009	22 %	17%	33%	61%
Water quality	Starting	Satisfactory	Unsuitable	Satisfactory	Unsuitable
	September 2009	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Water users	Starting	6,092	3,225	6,621	3,093
	September 2009	9,353	5,644	10,714	7,480
Sewage system users	Starting	8,029	4,286	6,076	N/A
	September 2009	8,433	5,029	7,382	N/A
Water collection index	Starting	90%	69%	57%	46%
	September 2009	99%	100%	89%	74%
Sewage collection index	Starting	90%	69%	57%	N/A
	September 2009	99%	100%	89%	N/A
% Satisfaction	Starting	76%	36%	57%	69%
	September 2009	86%	100%	82%	51%
Water coverage	Starting	96%	91%	80%	59%
	September 2009	100%	100%	100%	71%
Sewage coverage	Starting	84%	85%	46%	N/A
	September 2009	91%	97%	66%	N/A

Source: Information provided by Conhydra, December, 2009.

In the case of the non-revenue water index (NRW), only four municipalities: Turbo, Mutatá, Hispania and Buenaventura show losses that are much higher than the national average for similar localities; two municipalities, Puerto Berrio and El Capiro, show indexes slightly over the maximum set by the CRA, which is equivalent to 30%. In the other five municipalities, the NRW is much lower than the national average and the maximum set by the CRA, which is over 50 as is shown in Graph 20 for companies of a size similar to Conhydra.

Graph 22

Water losses in networks, 2003 – 2005, Group companies



Source: SSPD, Estudio Sectorial de Servicios Públicos de Acueducto y Alcantarillado, 2002 -2005.

• **Evolution of tariffs and subsidies**

Systems operated by Conhydra have a problem similar to that of the other small municipalities in Colombia, concerning the deficit generated from the tariff structure. The population of levels 1, 2 and 3, which have a right to subsidized water, is very much larger than that of levels 5 and 6, which must contribute to cover the subsidies. Table 14 shows this situation in four of the systems operated by Conhydra. In three municipalities, there is practically no population from levels 5 and 6 and 90% of the population benefits from subsidized water; only in Santa Fe de Antioquia, an important tourist destination, with many recreational farms, is it possible to find users from levels 5 and 6, but the population with a right to subsidies is 79%.

Table 14 *Users by socioeconomic category and type of use*

Use	Level	Turbo		P. Berrio		Marinilla		Santa Fe de Ant.	
		Water	Sewage	Water	Sewage	Water	Sewage	Water	Sewage
Residential	1	2,768	505	5,586	3,111	56	30	1,257	936
	2	2,304	1,137	2,752	2,482	1,776	1,426	2,087	1,926
	3	1,639	954	799	787	6,766	6,389	1,191	1,080
	4	63	47	1	1	70	46	59	16
	5							515	292
	6							155	15
Commercial		588	419	820	753	842	749	460	429
Industrial				2	1	3	2		
Official		61	30	87	74	60	55	65	55
Special		26	14	4	4	25	21	13	12
Total		7,449	3,106	10,051	7,213	9,598	8,718	5,802	4,761

Source: Information provided by Conhydra, December 2009.

Although this deficit must be covered by the resources from the SGO or other sources that the municipalities must transfer to the Solidarity and Redistribution Income Fund, very few mayors make this transfer. In the case of the four municipalities of the sample operated by Conhydra, only Marinilla submits its contribution to the Fund, although without covering the total deficit.

A formula that has been used by many municipalities, among them some of the operated by Conhydra, has been to decrease the percentage of subsidies for levels 1,2 and 3 under the maximum allowed by regulation as it is observed in Table 15:

Table 15 *Distribution of subsidies and contributions per level and use*

	% Subsidies			% Contributions			
	Level 1	Level 2	Level 3	Level 5	Level 6	Commercial	Industrial
Marinilla	30%	20%	-	50%	-	50%	30%
Pto. Berrío	40%	30%	5%	50%		50%	30%
Santa Fe	36%	29%	-	50%	-	50%	30%
Turbo	40%	30%	5%	50%	-	50%	30%

Source: Information provided by Conhydra, December, 2009

In all municipalities of the sample subsidies are below the maximum allowed by the CRA and in some of them, such as Santa Fe de Antioquia and Marinilla, level 3 is not subsidized. This situation accounts for the fact that some of these municipalities can generate important resources for investment, as we will see later.

Concerning the tariffs, their evolution has been similar to that of other municipalities in the same population range of those served by Conhydra. They all are estimated using the same tariff method established by the regulatory entity. Nevertheless, in the municipalities located in low and hot lands, with lower-quality water resources, a larger incidence of the “fixed cost” components is observed in the resulting tariff structure.

• *Investment sources*

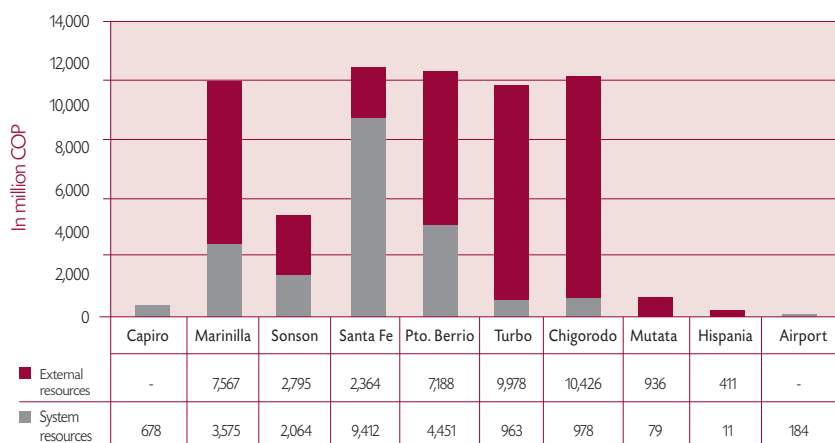
As was explained before, neither Conhydra, nor other operators contracted by Acuantioquia are responsible for investments in the system they operate, which continues to be public property ^[142]. The resources invested to date in improvement, replacement and extension of systems come mainly from the SGP and other national sources, as explained earlier. Nevertheless, even with the unbalance between subsidized users and contributors, the general trend in the country, particularly in the larger cities, has been an increasing share of resources for investments coming from the internal operation *via* tariffs.

[142] The operation contracts signed originally with Acuantioquia were transferred later to municipalities or to the Public Service Companies that were created.

In the systems operated by Conhydra, the share of resources for investments generated via tariffs represents about 30% of the total resources invested since starting the operation and is in the range of USD 36.5 million dollars. Other financing comes from national and local sources, especially from resources transferred to the municipalities by the SGP. Graph 23 shows investment amounts until September 2009 in the systems operated by Conhydra. The case of Santa Fe de Antioquia is worth mentioning, as investment resources generated internally via tariffs are four times higher than those from other sources, which is the opposite of most other municipalities where internally generated investment resources are very low.

Graph 23

Investment in systems operated by Conhydra



Source: Conhydra, December, 2009.

• Relations with the population

The first impact of sector reforms in almost all public services users was the billing increase, resulting from the implementation of new tariffs aimed at recovering costs and the elimination of subsidies over the legally allowed amounts. In this sense Conhydra as well as other private operators, especially in medium and small size municipalities, was forced to design special strategies for relating with the community. These strategies would allow them to mitigate reactions against the company and to ensure the on-time payment of service. In the case of Conhydra, this strategy was particularly successful, which is reflected in the high user-satisfaction and collection rates in almost all municipalities served by the company, as is shown in Table 13.

The Conhydra strategy for communicating with the population comprises two groups of actions: one implemented within the company as part of day-to-day activities of their employees, and the other implemented outside the company directly with the different population segments: clients, leaders, students, women, special-interest groups, etc.

- To the first group belong all activities oriented primarily to: 1) service improvement in terms of better coverage, water quality and continuity of service; 2) attention to clients, especially with respect to rapid answers to complaints related to service quality and billing. A specific activity facilitates the links between the company and the community and the local authorities: an annual survey by Conhydra measures user satisfaction in aspects such as water quality, continuity of service, employee attitude, timely response to complaints and requests regarding damages, company integrity, etc. The results of these surveys are coherent with the quality of the service provided. Additionally, it is clear that the users very much appreciate these citizen participation initiatives promoted by the company, the information supplied through different media, and the company support to cultural, social and community activities in the neighbourhoods.
- The external component of the strategy consists of several projects and events with the participation of a large number of users, such as:
 - *The water awareness project*, a set of informal education activities on water use for young people;
 - *Conhydra in the neighbourhood*, a citizen participation program, where the company goes to the community and offsets up social programmes and educational activities around water use and management, thus strengthening its relationship with clients;
 - *Environmental workshops in schools* with a broad participation of students of both public and private schools, and a wide age range. In these workshops, students deal with issues such as water quality, efficient use of water, global warming, the hydrologic cycle, environmental protection, rights and duties of service users, etc.;
 - *Guided visits to the system*, to introduce users to the drinking water production process, from collection at the source to wastewater treatment. These guided visits to the water and sewage systems have been one of the most successful strategies for building good relations with the community. After such a visit, the water resource is better appreciated and the usefulness of paying for its treatment and distribution to households is better understood.

• *Relations with local authorities*

For all private operators, the relations with local government, mayors and councils are of great importance if they want to carry on their contractual activities in a smooth way. As the Law gave them the responsibility for service provision, the continuity and management of the operational contracts depends on them^[143], as does the allocation of investment resources from different sources and the Income Solidarity and Redistribution Fund that helps to balance the deficit between subsidies and contributions. In this sense, Conhydra works continuously with the local authorities, looking not only to improve the water and sewerage services, but also to give them technical and administrative support to deal with the procedures for receiving investment funds from the national government and other sources. The success of this support is shown by the amount of funds – different from those generated internally through tariffs – that the municipalities served by Conhydra have been able to invest, *i.e.* more than USD 21 million as shown in Graph 23.

Additionally, at the end of each year, the company not only submits its annual report to the local authorities, but it also has many contacts with them and the population concerning the programmes and projects planned for the following year. Additionally, it supports the training of the Development and Social Control Committees, and promotes the work of citizen watchers regarding public services performance and environmental protection.

• *Relations with other operators*

Conhydra relations with other operators take place on two levels. One is of the professional association type aiming at influencing policy definitions and at defending common interests, especially those of local operators. The second one is of a commercial type, related to the commercialization of technical services to assist other systems operations.

In the professional association scenario, Conhydra and other operators from Antioquia are affiliated with the Colombian Chamber of Infrastructure (CCI), where they have been able to play an important role in setting up public service infrastructure. There are two other associations of this type in Colombia, Acodal and Andesco,^[144] with a greater number of affiliates and more effective capacity for influencing policy

[143] In the case of Antioquia private operators, the initial contract was with Acuantioquia: Later, after its definitive liquidation the contracts were transferred to the municipalities.

[144] Acodal, Colombian Association of Sanitary and Environmental Engineering; Andesco, National Association of Companies of Domestic Public Services.

decisions. Large operators and other sector companies are the leading forces within these associations and smaller local operators have less possibilities to influence policy decisions favouring them.

In the commercial framework, as was explained above, Conhydra has developed and systematized a series of technical, financial and commercial procedures and applications, as well as a specialized information system for the sector, which it sells to other operators with very good results. Likewise, the company has signed Technical Assistance contracts with public services companies in Colombia and other Latin American countries, aimed at improving different components in providing water and sewerage services.

Conclusions

Given the institutional, political and social environment of Colombia today, the first conclusion to be drawn from analysing the Conhydra experience and results is that a local private operator with similar characteristics and providing water and sewage services to municipalities of similar size, will be in better position than a foreign/international operator for obtaining more positive operational and financial results. In fact, five out of the eight operators hired originally by Acuantioquia, are still in the market with similar outcomes as Conhydra.

With an equal level of technical capability and service quality, the main advantage of such operators when compared with a foreign or international one would come from their detailed knowledge of and familiarity with local conditions. This allowed them to design and implement very effective strategies for relating successfully with a variety of sector stakeholders, especially clients and local authorities. Another important advantage of local operators is their detailed knowledge of the Colombian regulatory framework and their capacity of interacting effectively with the regulation and supervision authorities at the national level, such as CRA and SSPD, as well as with the authorities in charge of sector-policy design and implementation.

The effectiveness of this relational strategy is shown first of all by the fulfilment of the company's main objectives such as service improvement, extension of coverage, increase of bill collection, access to investment resources coming from government sources, participation in the sector's decision-making process at the local level, and others described above. An additional indicator of this strategic success will be the continuity of almost all operation contracts signed by Conhydra and other local operators. Changes in local governments generally pose a threat to this continuity. New mayors may want to end existing contracts and create a new public company to operate the systems or to hire a new operator closer to his/her interest.^[145]

Paradoxically, in spite of the undeniable gains and expansion of local private operators, their capacity for competing is getting weaker, not only faced with private international operators but especially with large national public ones such as EPM from Medellín. This situation is the most recent outcome from the adjustments to the reforms

[145] This was the case of Rionegro, another municipality in Antioquia, where the international operator Suez Lyonnaise Des Eaux was hired to operate the system. Later on, when a new mayor was elected, he ended the contract arguing non-compliance with some contract clauses.

introduced in 2007, which openly promote regional schemes, such as those of Triple A in Atlantico and EPM in Medellin, that extend their operations to neighbouring municipalities.^[146]

It should be mentioned here that just in Antioquia, five new regional companies have been created within the department's Water Plan. In three of them, Aguas de Uraba, Empresa Regional de Occidente and Empresa Regional del Oriente Antioqueno, EPM is the major shareholder owning over 56% of the shares. Conhydra operates in several municipalities associated with these regional companies, but it is expected that, once its contracts are due, the systems will be operated by EPM.

It is evident at this point that in this scenario, where water companies compete for larger markets represented by the aggregation of municipalities in regional schemes supported by the provinces, local, medium and small companies are at a clear disadvantage, not only for their smaller financial capacity^[147], but also from a technical and operational viewpoint. In this sense, one alternative scheme explored by small and medium companies of the Conhydra type, has been to seek a financial and technical association with larger companies, to be able to compete for larger markets. Such is the case of Conhydra itself, that has associated with Hidroestudios, Mejia, Villegas, HMV, LTDA, creating the new Hidropacifico S.A. company for contracting the operation of services in Buenaventura, a city with more than 40,000 users.

In summary, due to the new sector policies and in particular the provincial water plans, PDAs, small and medium-size operators like Conhydra, in spite of their experience in the sector and their excellent results, are today at a clear disadvantage. This is not only vis-à-vis international private operators, but also the large national public operators with whom they could have a competitive edge because of their knowledge of Colombian reality, but not regarding their technical and financial capacity.

This situation leads to a last reflection concerning the low capacity of companies like Conhydra for influencing public policy. It is evident that the large sector associations, Andesco and Acodal, with their strong lobbying capacity, are favoured by the interest of large national and international companies. This lobbying capacity is clearly reflected in the most recent sector policies stated in the 2007-2010 Colombian Development Plan, which encourage regional schemes led by the large water companies, as they are already implemented.

[146] Law 1151, 2007, Plan de Desarrollo 2007 - 2001, in its article 6, states that: "... the strategy of drinking water and sanitation will promote the entrepreneurial management and the regional schemes by the implementation of Departmental Water Plans." It also orders "... to carry out transformation processes with specialized operators, if possible under regional schemes."

[147] In Colombia, there is no special or dedicated fund for financing public service infrastructure. Operators only have access to regular commercial loans that must be paid back in five years and although Findeter theoretically should attend this market, they do it through a commercial bank that applies the same rules.

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Part 3

A new look at how
private players intervene:
the return of pragmatism?

3.1.

A specific type of PPP: the public-private company or “*empresa mixta*”

V. CASTRO and J. G. JANSSENS

Introduction

The importance of the water and sanitation sector is driving governments worldwide to seek innovative approaches to harnessing private sector management skills and investment capabilities. This review of the *empresa mixta* model was undertaken to better understand its structure, applicability and strength in mitigating risks in the water and sanitation sector. The last decade has provided many lessons on *empresas mixtas*, particularly in Latin America. *Empresa mixta* literally translates into mixed company and is the popular term for joint ventures between the public and private sectors. Its application to the water sector originated in Spain and has more recently spread to Latin America, most notably Brazil, Colombia, Cuba and Mexico.

The first *empresa mixta* in the water sector was Aguas de Alicante S.A., a Spanish company created in 1953 and today called the Aguas Municipalizadas de Alicante, Empresa Mixta (AMAEM). The private partner, Aguas de Barcelona (Agbar) then transferred its successful experience to Latin America. Experience has shown that the *empresa mixta* model is a PPP format that may be more acceptable to the public sector, as it allows the latter to keep a certain control over the PPP.

An *empresa mixta* operates like a share corporation in terms of governance and autonomy. In an *empresa mixta*, the public partner (e.g. a municipality) will create a new company and typically retains a majority share, and a private investor or multiple private investors hold the minority share, or vice-versa. In addition, the private partner enters into a management contract with the public partner for day-to-day operations.

Unlike a joint venture (JV), say, in the manufacturing sector, the water and sanitation sector has specific features that complicate the provision and management of services. These include a natural monopoly and the high cost of entry and expansion. The *empresa mixta* model can help mitigate major risks by drawing on the strengths of both the public and private partners.

This paper presents the key features of *empresas mixtas* in the water sector, focusing on the model's strengths in mitigating risks, and draws relevant lessons from an example in Cartagena, Colombia.

3.1.1. Rationale and legal basis

The significant operational and financial challenges of the water and sanitation sector provide the rationale for considering private participation. Where governments are struggling to meet current and future demand, there is potential for the private sector for contributing its managerial and technical expertise as well as its financial resources to improve services and expand coverage. A prerequisite is that the country's laws allow for private sector participation, including ownership in the water sector. The by-laws of the joint venture define the respective percentages of public ownership and private ownership.

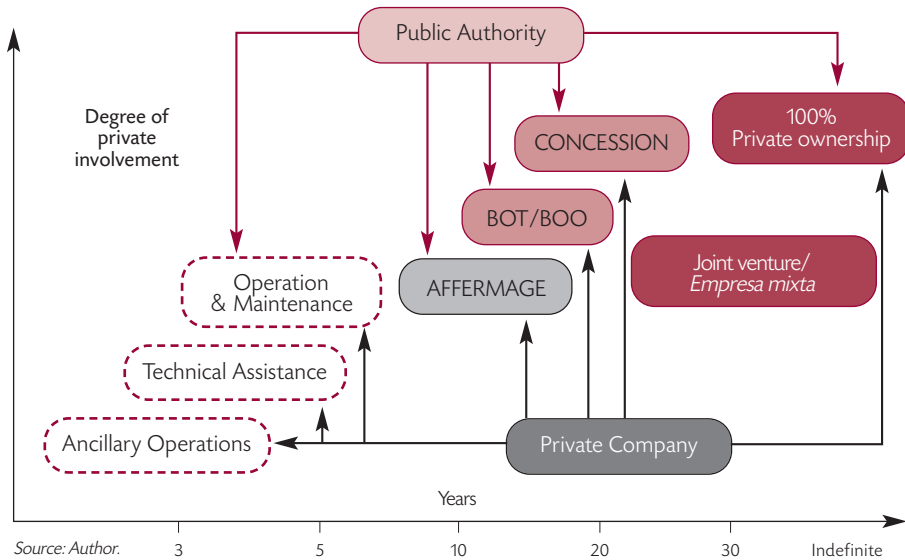
In an *empresa mixta*, the public partner is typically a municipality with the legal mandate to deliver water and sanitation services. Cuba, where services are centralized, is an exception and the public partner is the National Institute of National Resources. The public partner (hereafter referred to as the *municipality*) may be struggling with operational efficiency, low staff capacity or be unable to attract adequate investments.

Faced with these challenges, a municipality can create an *empresa mixta* and typically retains the majority share (e.g. 51%) although there are cases, like Saneantins in Brazil and Triple AAA at Baranquilla, Colombia, where the private sector has the majority share. The private shares may be held by a single investor or multiple investors. A unique feature of the *empresa mixta* is that the main private partner also enters into a management contract with the public partner for full control of day-to-day operations. This means that the private partner is simultaneously operator and part-owner. In Spain, the duration of the management contracts within *empresas mixtas* have typically been 50 years and even up to 75 years. *Empresas mixtas* operate like any share corporation in terms of governance and autonomy. Profits are distributed to partners in proportion to their respective shares in the company.

Municipalities that have opted for a joint venture approach with an experienced private operator usually seek to increase their professional capacity by tapping into the private partner's expertise (BNWP, 2002). At the same time, the municipality is looking to divest responsibility for water service delivery to another party while still maintaining a certain level of control through its majority share in the company.

Nevertheless, municipalities thinking about introducing the private sector in order to improve the efficiency of utility operations have a menu of public-private partnership (PPP) options to choose from (see Figure 1), each with its own advantages and disadvantages. Unlike a management contract, in an *empresa mixta* the contract duration is significantly longer (e.g. 50 years vs. 10 years). In an *empresa mixta*, there is a greater share of risk between partners as compared to a BOT/BOO project or a management contract. The *empresa mixta's* combination of a longer contract duration and ownership stake as compared to other PPP models, means that the private partner has a strategic sector view with a sustainable utility structure as the target. This vision goes far beyond the private partners' goal in a BOT/BOO project for example. Unlike a lease, in an *empresa mixta* the private partner can also own the existing/or new infrastructure relative to its shares in the company and is responsible for financing new investments from operational revenues. For investments, the responsibilities vary according to the context or the time the contract was signed, but they should be negotiated for and defined in the operator's contract. It is generally expected from the operator that he increasingly finances investments with increasing operating benefits. Generally, however, any investments for network expansion or for keeping pace with urban growth are the municipality's responsibility.

Figure 3 A comparison of PPP models – Time and degree of private involvement



3.1.2. Ownership, operations and oversight

As mentioned previously, the municipality typically holds the majority share of an *empresa mixta*. The company by-laws define (i) the percentage of public and private ownership shares, (ii) the amount of equity permitted and (iii) how new investments will be financed by the co-owners. The management contract for the private owner/operator specifies the operator's remuneration package, typically a percentage of the gross revenue. The municipality may also insist that the operator pay an annual lease fee from revenues for the use of, existing, fixed assets. A portion of each year's profit is distributed to the owners in proportion to their relative shares of ownership at the end of each fiscal year.

Figure 4 Key features of the *empresa mixta*



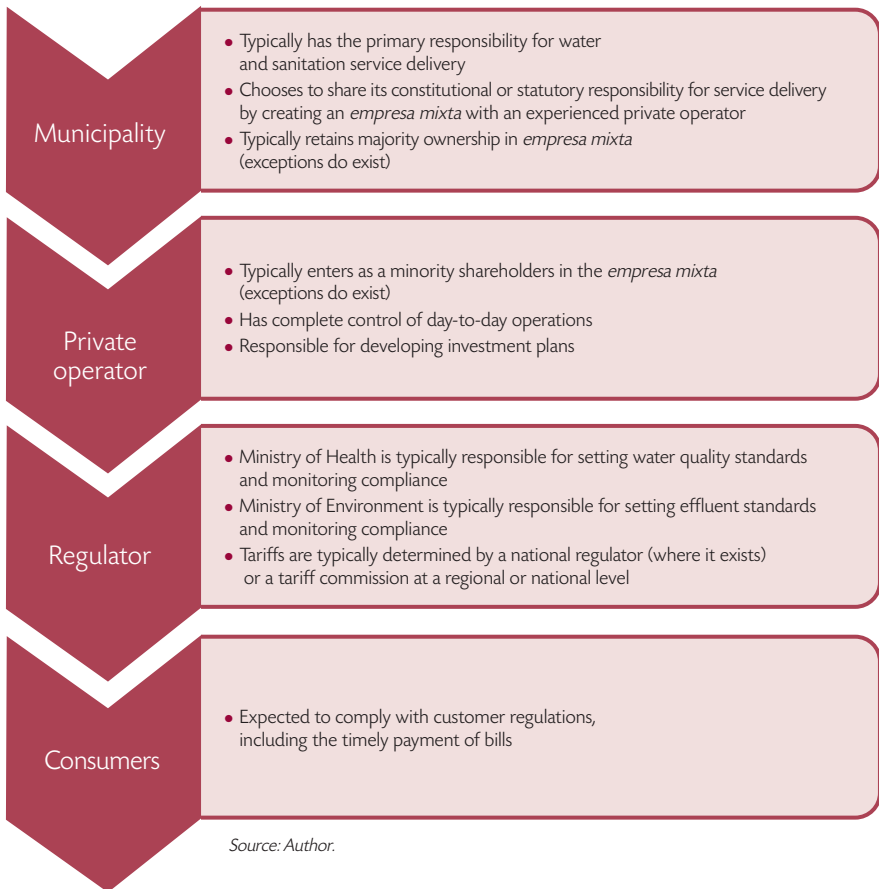
Source: Author.

The management contract provides the private operator/owner with a mandate for full responsibility and autonomy on day-to-day operations. Unless there is a separate bulk-water supplier, this typically includes water production, treatment, distribution and all customer-related services, including billing and fee collection.

Oversight of the *empresa mixta* occurs at two levels: (i) corporate governance and (ii) sector regulation. In terms of corporate governance, both the public and private owners are represented in a General Shareholder Assembly of (GSA). The GSA elects the company's Board of Directors. The private owner/operator may propose candidates for the General Manager's position. This is subject to approval by the Board that ultimately appoints the Manager. In terms of sector regulation, there are two separate considerations: (i) quality and (ii) economics, or pricing. Since quality is a health and environmental consideration, the Ministry of Health and/or the Ministry of Environment are typically responsible for regulating water quality. They do this by setting standards, and monitoring and enforcing compliance of drinking water quality and the quality of effluent discharged into the environment.

Economic regulation concerns the tariff. The responsible body for setting tariffs varies from country to country, depending on whether or not a national sector regulator exists or if the responsibility lies with the municipality or a Price Commission. In Spain, the municipalities suggest and ultimately authorize tariffs under the general regulation of a national Price Commission. This model may be a conflict of interest since the municipality is also part owner of the joint venture, a monopoly company. In Colombia, the sector regulator, CRA, develops the tariff method, and reviews and adjusts tariffs.

Figure 5 *Stakeholder roles and responsibilities*



3.1.3. Partnership arrangement, autonomy and accountability

The essence of the *empresa mixta* in terms of conceptual thinking and corporate governance is consistent. However, the inner workings of the relationship between partners vary from case to case. Some public partners may have the capacity for actively engaging and others may be more of a sleeping partner. However, the careful design of an *empresa mixta* helps to ensure that both the public and the private partners bring their strengths to the table. Private investors are primarily interested in a sound financial return. Politicians are interested in a well-running company that may positively influence their reputation. The *empresa mixta* model helps to ensure that the incentives are in place to motivate both public and private partners to achieve a sound financial return, operational efficiency and improved service delivery and coverage.

The *empresa mixta* enjoys full autonomy in its daily operations as outlined in its management contract with the municipality (BNWP 2002). This means that the private operator can make decisions related to staffing and outsourcing. The main lines of accountability in an *empresa mixta* are to the owners and to the regulators. In terms of accountability, the contracting municipality monitors the operator's performance. As with any share corporation, the *empresa mixta* is subject to external audits that help to protect creditors and investors and disseminate performance data to the larger public, including consumers and the media (BNWP, 2002). The company also publishes annual reports that subject it to public scrutiny. Some governments carry out in-depth analyses of such reports, in particular regarding their technical and financial aspects.

3.1.4. Regulation and financing

Empresas mixtas are regulated like any other service provider in the country. The rules and institutions that set, monitor, define and enforce standards and tariffs depend on the country context. They vary depending on the nature of the problems that need to be addressed as well as on organizational structures and capacity (Castalia, 2005). Environmental, safety, consumer protection, social and economic regulation are applied to varying degrees in different countries. In terms of economic regulation, some countries, including Colombia, have a national regulator that reviews and sets tariffs. In other countries, such as Spain, the municipality sets tariffs through the municipality with approval of a Price Commission. In most cases, the health authorities exercise statutory quality regulation. In Colombia, the quality of drinking water is regulated by the National Superintendencia de Servicios Públicos Domiciliarios, a public body with the mandate to regulate public services delivery.

Empresas mixtas may finance their investments through a combination of operating surplus, grants and long term credit available from governments, international financial institutions (IFIs) or well-developed financial markets. Governments in Latin America often provide guarantees for credit from the markets or from IFIs. The upper limit of the private partner's financial exposure is defined by its paid-in equity, which is defined in the by-laws. Typically, the private equity is only a few million US dollars, which means that the *empresa mixta* is best suited for systems with low performance, but also low investment needs. However, over time the company is expected to build up its operational surplus and support increasingly substantial investment programmes. The *empresa mixta* is expected to use its funds for maintaining and replacing existing assets as well as financing new investments. The contractual obligations are specific for each country and context, especially regarding the initial obligations or maintaining the necessary flexibility over time.

The equity model of the *empresa mixta*, although generally more expensive than debt, can reduce the burden on the cash flow required for supporting debt-service payments. This is especially important in a company's early development phase (Haarmeyer and Mody, 2008). In addition, the long term equity stake by the private operator/partner ensures that management does not have a short-term bias. As a result, the *empresa mixta*'s cash flow growth can create capital appreciation by being invested back into the company.

Another advantage of the mixed-ownership model is access to different sources of finance. The public partner can provide the political influence to help access low cost, public financing for the joint venture that would otherwise not be available to a private operator. Conversely, the private partner may be able to help access market finance that the public partner's credit rating would otherwise not allow (at least not on favourable terms).

3.1.5. Analysis of risks and difficulties

- *Risk analysis*

To start with, government commitment and support for mitigating risks is vital to attracting, or continuing to attract, private participation in the water sector for all PPP models, including the *empresa mixta*. The private partner will need some degree of comfort that the risks of expropriation, regulatory interference (including unilateral changes in contracts), early termination and change of law are minimal (Haarmeyer and Mody, 2008). These are risks that the private sector is not in a position to evaluate or shoulder. To mitigate such risks, the by-laws and the management contract will assign the rights and obligations of all parties, and hopefully provide for fair and workable contract and tariff negotiation rules (Crampes and Estache, 1996).

A key feature of the *empresa mixta* is the ability to draw on the strengths of both public and private partners for mitigating risks. Although the public and private owners' main objectives may differ to a certain degree, these are generally mitigated and negotiated because of the mutual interest in the company's long term success.

The nature of the water sector means that there are more risks than in the power, telecommunications or transportation sectors. One of the risks intrinsic to the water sector is water availability, among others. Two other high-impact risks concern cost recovery and political support – and the two are inextricably linked.

In term of cost recovery, there are two major issues to consider: (i) market risk and (ii) the tariff. Market risks in the water sector take the form of demand (*ability and willingness to pay*) risk and payment (*or credit*) risk (Haarmeyer and Mody, 2008). In an *empresa mixta*, the market risk is borne mostly by the operator, who sells services directly to consumers. However, all owners, both public and private, have an incentive to reduce market risk. Events that affect market risk include changes in demand and payment of services. For example, consumers may be less willing to pay for sewerage services than water services. The public partner can help mitigate this risk by bundling the tariffs for water and sewerage. In general, the private partner can count on the public partner to help mitigating market risks by building the political support for treating water as an economic good and ensuring that public policy reflects this position. The public partner also has a stake in the company's success and can help promote a policy of payment for water and sewerage services and support a policy of disconnection for non-payment. The operator's expertise is helpful in implementing strategies for efficient revenue collection and its revenue-linked remuneration is a strong incentive.

The public partner can also help navigate and influence government policy and lobby for a systematic and rational tariff structure. The partners will likely have to discuss in advance whether the operator will be expected to achieve full cost-recovery, including investments, or only operational costs – or a phased approach (e.g. full cost recovery within 15 years). In addition, the tariff methodology should have the flexibility to account for uncertainties in the condition of assets and the unexpected investment needs that will need to be covered by the tariff.

Another risk is related to civil society's backing of an empresa mixta for water services delivery. Privatization of the water sector in Latin America has been particularly sensitive (Urrea and Camacho, 2007). *The empresa mixta* approach can help to soften consumers' fears that water and sanitation supply will be completely handed over to the private sector. Politicians are acutely aware of this risk because it may lead to a loss of votes in the next election. However, experience in Latin America has shown that the design and bidding stages are not always transparent, possibly leading to greater problems with civil society down the road. Involving civil society up-front and sensitizing it to the issues may slow down the initial process, but may also help mitigate larger obstacles down the road.

- **Issues**

The adoption of efficiency and sustainability as key objectives are likely to lead to the success of an *empresa mixta*. Autonomy in operations is another important success factor. There are a few other issues discussed below that may help contributing to the success of the *empresa mixta* model. Table 16 summarizes the risks inherent in the different PPP models.

Table 16 *PPP models - a comparison of risk*

	<i>Empresa mixta</i>	Management contract	Lease contract	BOT concession	Full utility concession	Asset sale
Time horizon	20-75 years	2-5 years	10 years	10-20 years	20-30 years	In perpetuity
Customer	Retail customers	Government	Retail customers	Single buyer/ government	Retail customers	Retail customers
Cash flow profile	O&M fee paid directly from retail consumer (subject to market risk)	Fee paid by government	O&M fee paid directly from retail consumer (subject to market risk)	Post-construction purchase contract, typically with a government utility	Subject to market and regulatory risk	Subject to market and regulatory risk
Security interest	Not relevant	Not relevant	Right to part of cash flows generated by assets; no right to own or pledge assets	Right to part of cash flows generated by assets; usually no right to own or pledge assets	Right to part of cash flows generated by assets; usually no right to own or pledge assets	Ownership rights to pledge as security
Operations risk	High	Low	Medium	High	High	High
Regulatory risk	High	None	Medium	Low	High	Very high

O&M = operations and maintenance
 Source: Adapted from Haarmeyer and Mody, 2008

• *Design Phase – conceptual & contractual*

Services to the poor are an important aspect of service delivery that should be addressed in the design stage. As demonstrated with the *empresa mixta* experience in Cartagena, Colombia (Nickson, 2001), the private operator/owner is unlikely to focus on service improvements to the poor unless specified in the management contract. This is not unique to the *empresa mixta* model, but is noteworthy to mention. The contract should define the service boundaries for including low-income districts and targets for increasing coverage. Such targets usually benefit the poor since the non-poor are typically already connected to the network. Coverage expansion usually requires close cooperation between operator and municipality.

• *Award phase*

In an *empresa mixta*, competition to participate in the joint venture and operate the water and sanitation system through a management contract is supposed to take place through a competitive and public bid. However, experience in Latin America has shown that competition is actually quite weak and the evaluation and award criteria are not transparent. Once the *empresa mixta* has been established as a joint venture between the public partner and the private partner, all other private interest for management contracts virtually disappears for the duration of the contract, which can be up to 75 years in Spain and up to 26 years in Cartagena, Colombia (BNWP, 2002).

Another issue during both the design and award stages, can be a low level of transparency and involvement of civil society organizations. Experience in Latin America has shown that *empresa mixta* transactions often were shrouded in secrecy with little input from consumers, raising suspicions as to the public and private partners' intentions.

• *Implementation and monitoring*

Private sector participation through an *empresa mixta* may lead to significant benefits and improvements in the water sector. However, effective private participation requires that governments play a facilitation and regulatory role, to create a reliable and hence low-risk contracting and operating environment (Haarmeyer and Mody, 2008).

Another important issue to be aware of is the potential imbalance between public and private partners in an *empresa mixta*. The private partner is likely to take the lead on decision-making, unless the public partner has permanent, professional staff with the capacity of actively engaging in the joint venture as an effective partner and supervising the management contract. In Cartagena, the mayor leads meetings for the joint venture but does not have a team that otherwise engages in Acucar matters^[148]. The municipality is in fact considered a sleeping partner (Nickson, 2001). The benefits of the *empresa mixta* model are maximized when both partners are able to play their role effectively.

[148] See Chapter 3.2 by Blanc and Zamuner, hereafter.

Table 17 *Examples of empresas mixtas in Latin America and the Caribbean*

Country	Utility	City/State	Year <i>empresa mixta est.</i>	Ownership shares		Main private partner	Duration of management contract
				Public	Private ^[149]		
Brazil	Companhia de Saneamento do Paraná (Sanepar)	State of Paraná	NA	60%	40 %	Grupo Dominó (consists of Vivendi, Andrade Gutierrez, Opportunity Daleth & Copel)	NA
Brazil	Saneantins	State of Tocantins	1989	23.4%	76.6%	Empresa Sul-Americana de Montagem (EMSA)	NA
Brazil	Sabesp	State of Sao Paulo	NA	50.3%	49.7%	Listed on the NYSE and BOVESPA	NA
Brazil	Aguas de Guariroba	Region of Campo Grande ^[150]	2000	9%	91%	Bertin and Equipav groups	30 years
Colombia	Aguas de Cartagena (Acucar)	City of Cartagena	1995	50%	50%	Agbar	26 years
Colombia	AAA Baranquilla	City of Baranquilla	1996	35.1 %	64.9%	Canal Isabel II	20 years
Colombia	Acuaviva	Palmira	1997	40%	60%	Lysa	15 years
Colombia	Metro Agua Santa Marta	Santa Marta	1989	13%	87%	Canal Isabel II	NA
Cuba	Aguas de La Habana	City of Havana (partial)	2000	NA	NA	Interagua ^[151]	25 years
Cuba	Asociación Económica Internacional Aguas Varadero	City of Varadero	1994	NA	NA	Aguas de Barcelona	23 years (renewed in 2001)
Mexico	Aguas de Saltillo (Agsal)	Saltillo	2001	55%	45%	Agbar	NA

Source : auteurs.

ND : non disponible NA : non applicable

[149] The private shares may include several investors, including a combination of international and national investors.

[150] Campo Grande is the state capital of, and name of a region within, the State of Mato Grosso do Sul.

[151] Subsidiary of Agbar.

Conclusions

Overall, the experience with *empresas mixtas* in Latin America's water and sanitation sector appears to be positive. While not conclusive, there are emerging lessons: *empresas mixtas* have demonstrated their ability for improving operational efficiency in different countries under different types of regulatory regimes and contractual specificities. The Cartagena example demonstrates that a weak public partner can lead to a power imbalance between partners in an *empresa mixta*, and that services to the poor need deliberate attention in the design of the institutional arrangement and management contract.

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3.2.

The semi-public company for water and sanitation: the cases of Barranquilla and Cartagena (Colombia)

A. BLANC and D. ZAMUNER

Introduction

Private sector participation in the provision of drinking water services in both developed and developing countries (DCs) has given rise to abundant academic, rather ideological or even controversial literature. Although the different forms of PPP in the water sector have been analysed in detail, one form would surprisingly appear to be lacking in the literature: the “semi-public company” (SPC). Yet, companies whose capital is shared between public and private stakeholders are relatively widespread in the water sector of several European countries and in an increasing number of DCs, notably in Latin America. Some are held up as examples of efficient management that has allowed the service to be extended to a major part of the population, for example SABESP in Sao Paulo, which is listed on the Sao Paulo and New York Stock Exchanges, or Acuacar in Cartagena.

However, this model would initially appear to be rather heterodox due to the possible conflict of interest for the public authority, which is both responsible for the service and for its oversight, and a stakeholder in the Board of Directors of the company to which it is delegated. The proponents of an orthodox regulation of service delegation advocate, on the contrary, in favour of a clear separation between the service provider and the authority in charge of overseeing it. But, on the contrary, would it not be

possible for the SPC set-up, which aligns the interests of both parties and groups them within one company, to provide answers to a certain number of classic problems with PPPs, such as information asymmetry between the delegating authority and the delegatee (principal/agent), or the problems of contracts being terminated prematurely and of costly renegotiation?^[152] Moreover, does this model have specific features in the context of DCs?

We have chosen to study the two Colombian SPCs in Barranquilla and Cartagena in order to illustrate a number of issues raised by this model. Indeed, Colombia, with some thirty SPCs managing water and sanitation services, is the country that has used this set-up the most. In addition, Triple A in Barranquilla and Acucar in Cartagena are among the first water SPCs to have been created at the national and even regional level. The reform of the two companies was followed by a rapid improvement in most of the indicators on quality and access to the service, whereas both cities had been experiencing major crises in the water sector since the 1980s and their demographic characteristics made the challenge of extending public services particularly complex. Indeed, both cities have a population of roughly a million inhabitants,^[153] most of whom are poor, and they have had to face a massive influx of migrants and displaced persons from neighbouring rural areas for economic reasons, but also due to the conflict with the FARC.

The issues we shall be addressing for both of these case studies, in relation to the hypotheses formulated above, are as follows:

- What were the reasons behind and the origins of the creation of these SPCs?
- What has been the technical, commercial and financial performance of these two companies? Has the type of structure chosen played a role in the performances observed? What has been the effective contribution of the main public and private shareholders? What risks have been taken and what profitability have they achieved?
- What place does the SPC model have in the institutional environment of Colombia's water sector?

[152] Guash (2004) shows that in Latin America, 74% of PPPs signed in the water sector are renegotiated after an average period of 2 years.

[153] 1 million 150,000 inhabitants in Barranquilla and 900,000 in Cartagena, *i.e.* the fourth and fifth largest cities in Colombia.

3.2.1. The SPC as a pragmatic and flexible response to a crisis situation

- *A water and sanitation sector in crisis and having already resulted in reforms*

The first drinking water services in Barranquilla and Cartagena were private companies that mainly supplied the most well-off sections of the population, for example Cartagena Water Works Ltd., a British-owned company at the beginning of the 20th century, which sold 20% of its shares to Cartagenian entrepreneurs. Then, in the 1920s, most major cities in Colombia municipalized their water utilities, thus leading to the creation of the country's first municipal companies.

The Barranquilla municipal company was a model of its kind. In 1951, Barranquillas daily production capacity stood at 2.8 million m³ and its drinking water network had 93% coverage. In 1925, the American entrepreneur, Karl Parrish, one of the city's planners, had negotiated a USD 5 million loan from a bank in Illinois – the Central Trust Co. – to improve the city's public services. This agreement required an autonomous management of public services as a guarantee for the repayment of the loan. Empresas Públicas Municipales was therefore founded in 1925 and the American engineer Samuel Hollopeter was appointed as its manager. The three members of the Board of Directors were appointed by the municipal council on a proposal from the Barranquilla Chamber of Commerce and the Central Trust in order to ensure its independence *vis-à-vis* the local authorities. In the 1930s, Barranquilla suffered from competition from Buenaventura, the main coffee-export harbour, and foreign capital abandoned the city. In 1945, once the loan from the Central Trust had been repaid, Hollopeter and the American managers left the company and its management was subsequently subject to local political interests.

It was only in the 1960s that Empresas Públicas Municipales de Barranquilla (EPMB, in 1960) and Empresas Públicas Municipales de Cartagena (EPMC, in 1961) were set up. These two public companies were responsible for a wide range of public services in addition to water and sanitation: solid-waste management, road maintenance, public contracts, local tax collection, Barranquilla zoo, and for the firemen and mortuary in Cartagena. EPMC employed 1,200 people at the end of the 1980s and was the "*armed wing of the city council*", while in Barranquilla, EPMB had a staff of over 1,900 employees.

This model of a multi-sectoral municipal company was increasingly politicized in both cities and became both an instrument for local clientelism and a major source of income for local politicians. Corrupt practices, demands from extremely powerful

unions and the poor commercial and financial management^[154] dried up the finances of both companies and they were no longer in a position to maintain the facilities.^[155] *A fortiori*, network expansion was abandoned, whereas both cities experienced extremely rapid population growth, notably due to migration resulting from the armed conflict.

In the 1980s, the poor management and blatant lack of investment resulted in a major crisis in these two cities' water sectors. This prompted civil society – particularly professional and employers' associations – to take action in order to get recognized private sector managers appointed at the head of EPMB and to set up a publicly-owned company governed by private law and dedicated to water and sanitation services in Cartagena: Empresas Públicas Distritales (EPD).

• *SPCs: a compromise solution*

Despite the initial reforms that were conducted, the crisis in the water and sanitation sector in Barranquilla and Cartagena had not been resolved and a number of stakeholders were advocating a more active participation of private stakeholders, thus expressing their profound mistrust of a delegitimized public sector.

The national government, led at the time by the Liberal Party,^[156] promoted private sector participation in the provision of public services in general. This was reflected in the new constitution adopted in 1991, as well as in Law 142 on public services promulgated in 1994. The latter, however, was not designed to be a “discharge” for the central authorities, as was the case elsewhere, but was accompanied by financial mechanisms to cover the cost of social expenditure.

The main donors also promoted private participation: in Barranquilla, the World Bank's disbursements for the loan allocated to EPMB in 1985 were conditional on the company being restructured; in Cartagena, a World Bank study, entrusted to the consulting firm Helppower in 1993 to reorganize EPD, recommended the adoption of a semi-public form of company.

These projects harmed the interests of local politicians, who were using these companies to sustain clientelist networks or to finance political operations. Some of them

[154] The indicator for unbilled water reached 70% in Barranquilla and 60% in Cartagena, while the number of employees per 1,000 connections was approximately 13.5 in (Malia, 2004) and 12 in Cartagena.

[155] In Barranquilla, the only investments made were to raise production capacity, which explains the excess capacity that Triple A benefited from once the level of losses had been brought under control.

[156] There were two successive presidents from the Liberal Party at the time of the most important reforms in Colombia's water sector: César Gaviria (1990-1994) and Ernesto Samper (1994-1998).

owned tanker trucks and also had no incentive for improving public company services. The traditionally powerful unions of the two companies, for their part, were strongly against private sector participation.

In addition, the attractiveness of the local market and the potential interest of foreign private investors were limited by the significant investments required for network expansion and upgrading, the high proportion of poor households in both cities and by the high level of country risk, notably due to the conflict with the FARC that particularly affected the coastal region.

The SPC model would consequently appear to have been chosen, following tough negotiations, as a compromise solution to the specific political and economic constraints of the two cities studied, thus suggesting a solution that was more pragmatic rather than the result of a theoretical model.

• *Gradual construction of company structure*

The pragmatic nature of the SPC also led to a flexible model in both the cases studied: indeed, the form of both SPCs has radically changed throughout their existence, while ensuring continuous service provision.

In 1991, Barranquilla's municipal council authorized the mayor to liquidate EPM and set up an SPC, Sociedad de Acueducto, Alcantarillado y Aseo de Barranquilla S.A. (Triple A), where the municipality would have a shareholding of at least 85%. The remaining share capital was to be subscribed to by thousands of private shareholders. An agreement was signed in 1993 for the subscription of Triple A shares and for the 20-year infrastructure "concession"^[157] The *sui generis* nature of the agreement – which combines the creation of an SPC with public service delegation (PSD) – is explained by the fact that there was no appropriate legal framework at the time, as Law 142, which regulates PSD, was only promulgated in 1994. The municipality's contribution finally accounted for 89% of the share capital and was calculated by discounting future revenue flows from the ownership of the infrastructure network during the 20-year concession that would be awarded (USD 15.16 million).^[158]

A few years later, in 1996, as the crisis was still not under control (the company was losing over USD 100 million a month that year due to underpricing and insufficient

[157] In Colombia, the term "concession" is often used inappropriately as a synonym of PSD. In our two case studies, the "concession" contracts were more like affermage contracts.

[158] This amount has often been criticized for being underestimated, particularly by the current mayor of Barranquilla, Alejandro Char.

technical yields), the decision was taken to call on a professional private operator for improving in-house management. INASSA,^[159] majority-owned by Aguas de Barcelona (Agbar),^[160] consequently became the main operator. The new composition of the shareholding allocated 50% of the shares to the municipality and 43.31% to INASSA, with local entrepreneurs holding 6.69% of the shares. The agreement was established for the 17 years that remained for the concession under the agreement signed by the municipality in 1993. It also provided for the private operator to receive a remuneration of 4.5% of revenues during the first seven years. In return, Agbar undertook to ensure technology and knowledge transfers, notably with twelve expatriate Spanish executives.

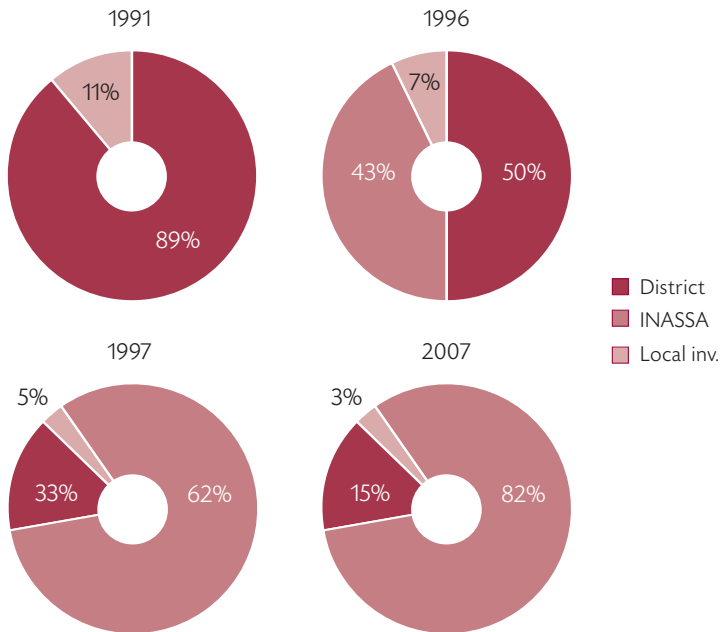
Successive capital increases in 1997 and 2007 increased INASSA's share to 82.15% of the capital, and the municipality's shareholding was reduced to only 14.51%. The situation was therefore the opposite of what had been planned by the municipal council in 1991 (see Graph 24). This situation raises the question as to above what threshold a shareholding in an SPC is considered as not being significant. Although a minority shareholding gives the municipality a certain right to monitor and oversee (golden share), it would appear that in practice the situation is quite different from a situation whereby the capital is more or less equally shared, as is the case in Cartagena.

[159] Sociedad Interamericana de Aguas y Servicios S.A., INASSA, set up in September 1996, was 51%-held by Agbar and 49%-held by the Fidugan fund (linked to Banco Ganadero, a major Colombian bank).

[160] The award procedure was criticized because several interested companies (including the public company in Medellin) were *de facto* excluded due to the restrictive conditions of the bid invitation.

Graph 24

Changes in the shareholding of Triple A in Barranquilla



Source: Triple A annual reports.

In the meantime, the operator itself had changed: after two years of very strained relations between the mayor, Bernardo Hoyos Montoya (a former priest with a quite sharp anti-private rhetoric), and the private operator, in 2000 Agbar withdrew in rather unclear conditions.^[161] Following a transition handled by local entrepreneurs, the Madrid-based company Canal de Isabel II (CYII)^[162] became the new operator in 2001 via its subsidiary Canal Extensia.

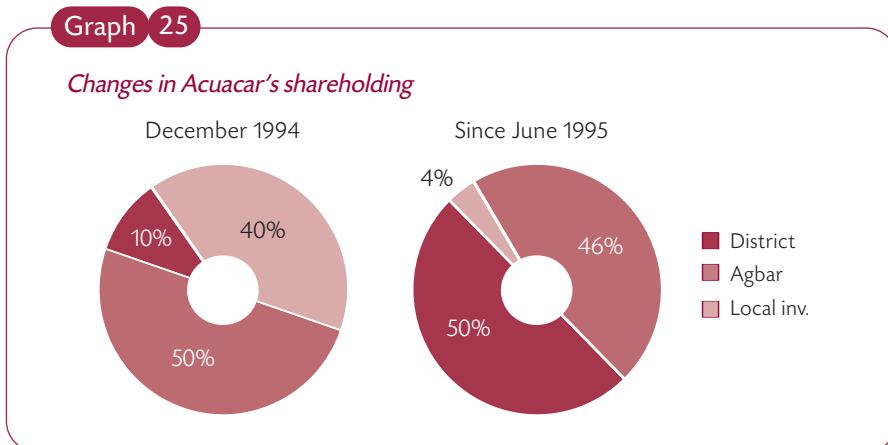
This early departure of the operator, along with the frequent changes in the composition of the shareholding, could be interpreted as a weakness of the SPC model. Nonetheless, the contract had not been terminated and service continued in such a

[161] Early extension of the Triple A contract, which was notably renewed for 20 more years.

[162] CYII is the public company responsible for water management in Madrid. It employs 2,200 people and has a strong international presence, notably in Latin America. In principle, the public nature of the Madrid-based company would recategorize Triple A as a “public-private partnership”. However, the conduct of CYII within Triple A would appear difficult to differentiate from the conduct of a private operator, which tends to blur the boundaries between public and private and justifies our study of this case as that of a classic SPC.

difficult environment. This, therefore, suggests to us that, on the contrary, the model shows some resilience to the conflicts between the public authority and the private operator, provided, however, that the remuneration of the operator remains consistent with the risks it takes.

In Cartagena, the capital structure has proved to be much more stable. However, some essential characteristics were changed between the first SPC entity established at the end of 1994 and the one that was finally adopted in June 1995. Under the original contract, ^[163] 50% of the capital was to go to Agbar, 40% to local private investors and 10% to the municipality, but following a renegotiation with the new mayor, Acucar's Articles of Association and the composition of its shareholding were amended to allocate 50% to the municipality and to distribute shares to the company's employees (see Graph 25).



Source: Beato and Diaz (2003).

• *Gradual change in the sharing of responsibility*

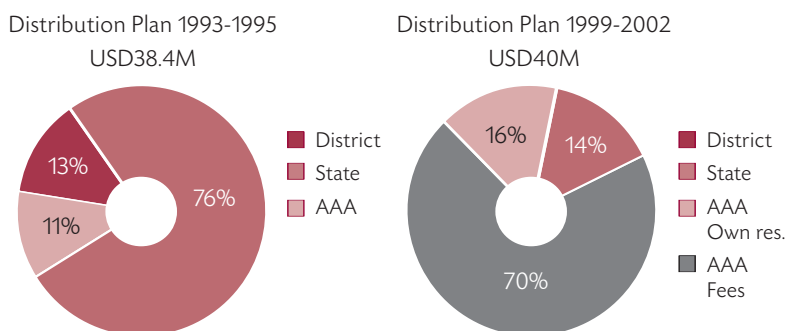
In addition to their structure, the responsibilities of Acucar and Triple A have evolved significantly since they were set up. Although neither of the two companies was initially supposed to participate in service extension investments, both of them have made a major contribution.

[163] The first contract for the creation of the Acucar SPC had been signed on 30 December 1994 between Agbar and the mayor Gabriel García Moreno (1992-1994), one day before the end of his mandate.

In Barranquilla, under the “concession” contract signed on 19 October 1993 (13 articles with a total of seven pages), the company undertook to handle service management, as well as the servicing and maintenance of equipment made available by the city council. During the first major investment plan (1993-1995: USD 38.4 million), the company consequently made an 11.3% contribution, which mainly corresponded to improving existing networks (76% of the funding was provided by the national government and 12.7% by the municipality).

Graph 26

Changes in the sharing of investment responsibility in Barranquilla



Source: Triple A annual reports.

A similar set-up had been scheduled for the 1997-1999 investment plan, but the latter was modified in 1999 so that the company could participate in investments to extend the network in the southwest area of the city. In exchange, it removed the obligation to pay fees to the municipality from September 1999 onwards. It is consequently Triple A that used its cash flow to make the bulk of the investments for the “1999-2002 Southwest Area Water and Sanitation Plan”. This was the most important plan that the city had ever seen and aimed at raising the water and sanitation network coverage rates to 99% and 96%, respectively. The central State provided 15.7% of the USD 40 million and the company financed the remainder^[164] (Graph 26). These investments were financed by a heavy level of debt (debt ratio of over 70% at the beginning of the 2000s). Since 2006, the bulk of the risks on investments (for

[164] Out of the USD 33.6 million provided by Triple A, only USD 5.70 million actually came from its own resources as defined in the original agreement, the remainder being a transfer of an amount that should have been paid in fees (shown in grey on Graph 26) for the investment.

the neighbouring municipalities of Barranquilla)^[165] have been externalized, Triple A having reduced its participation in investments to an average of 28%.

Acuacar, for its part, also had to bear the cost of part of the investments to extend the network after a few years of operation. Under the initial concession contract (49 articles for a total of 47 pages), the company was only supposed to handle service management and servicing and maintenance works.

USD 41 million of loans were negotiated with commercial banks by Acuacar during the first years of the company in order to fulfil the obligations provided for in the Acueducto y Alcantarillado Maestro Plan^[166].

This distribution of responsibility changed with the tariff increases planned under the new tariff provisions laid down by the CRA, used by the company for investments to extend the drinking water provided for in the Maestro Plan, with the municipality continuing to bear the cost for investments related to the sanitation network. However, due to the municipality's limited resources, and following negotiations with the Inter-American Development Bank and World Bank, in February 1998 the decision was taken for sanitation investments to be the joint responsibility of the municipality and Acuacar, to some extent to compensate for the fact that the operator paid no fees for using the municipality's infrastructure.

For the two major investment projects,^[167] donors lent to the municipality (with a State guarantee), which transferred the funds to Acuacar. Repayment was made by Acuacar through a percentage of tariff revenues or up to a maximum amount. The bulk of the risk therefore continued to be borne by the municipality and the State. In total, the share of the cost of investments borne by the company *via* tariffs stood at USD 79 million, *i.e.* 33% of the Maestro Plan (Graph 27).

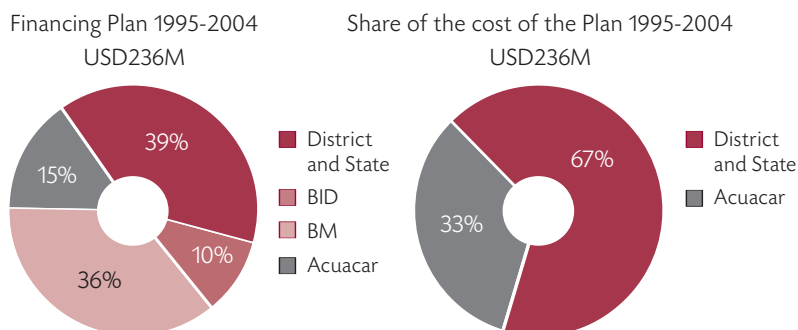
[165] Triple A extended its activities to the small municipalities of the department of Atlántico: Puerto Colombia (1997), then Soledad (2001) and Galapa (2002); Colombian regulation provides for equalization between municipalities managed by a single operator. Since then, the company has been awarded contracts in nine other municipalities, as well as operations abroad (Ecuador and Dominican Republic) that were subsequently transferred to Inassa.

[166] USD 236 million for the period 1995-2004, including 27% for drinking water.

[167] USD 40.5 million in 1998, with USD 24.3 million financed by IDB and the remainder by the city council; USD 117.2 million in 1999 with USD 85 million financed by the World Bank, USD 20 million by the national government, USD 7.6 million by the municipality and USD 4.6 million by Acuacar.

Graph 27

Changes in the sharing of investment responsibility in Cartagena



Sources: Beato and Díaz (2003), Pinzon (2002).

The experiences of Triple A and Acuacar therefore show a gradual participation of companies in investment financing, despite a limited risk-taking in the case of Acuacar. The level of participation in investments has therefore not been based on the principle of respecting the contractual obligations defined *ab initio* as for a classic PPP, but has rather been subject to a negotiation each time the main investment plans have been defined.

3.2.2. Positive service results, but unbalanced contracts

- **Improvement in service provision and corporate management**

On the technical, commercial and financial levels, the two cases studied show significant improvements in the water and sanitation companies (see Tables 18 and 19).

Table 18 Trends in network coverage indicators

Indicator	EPMB – Triple A					EPMC – Acuacar			
	1990	1993	1996	2003	2008	1994	1995	2002	2008
Drinking water coverage	60%	66%	78%	96%	92%	72%	73.1%	95%	99%
Sanitation coverage	50%	54%	68%	89%	83%	59%	60.6%	77%	82%

Sources: annual reports of the two companies, Malia (2004).

Table 19 Trends in management indicators

Indicator	EPMB – Triple A					EPMC – Acucar			
	1990	1993	1996	2003	2008	1994	1995	2002	2008
Employees / 1,000 users	13.5	6.8	5.4	2.9	2.3	15	4.3	2.3	2.3
Meter coverage	38.9%	n.d.	50%	84%	91%	30%	71%	99%	99%
Actual collection	65%	70%	71.3%	80%	95%	n.d.	45%	88.9%	97.5%

Sources: annual reports of the two companies, Malia (2004).

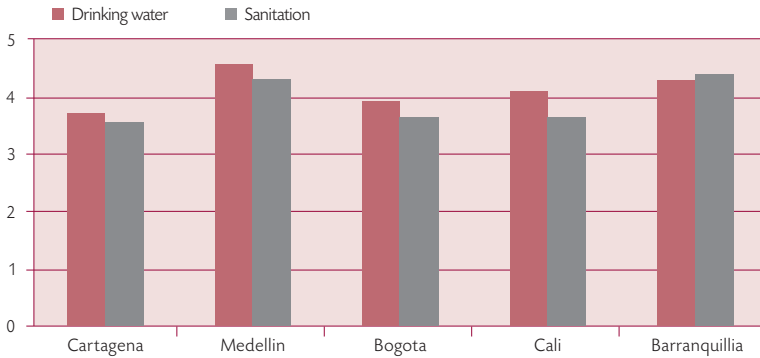
drinking water network coverage rose from 60% to 92% in Barranquilla and from 72% to 99% in Cartagena between the last years of operation for the public companies and 2008. For sanitation, coverage rose from 50% to 83% in Barranquilla and from 59% to 82% in Cartagena over the same period. Although these results are dependent on significant financial contributions from the public authorities, the improvement in the technical and financial situation of the companies made it possible for external investments to regain the requisite credibility (USD 60 million in Barranquilla and USD 200 million in Cartagena).

The two cities now have a 24-hour service (save in exceptional cases) and the two companies have obtained a quality certification (Acucar was the first Latin American public service company to obtain the ISO 9002 standard in 1998 and the first company in the sector in Colombia to obtain the ISO 14000 certification in 2003).

These good performances are reflected in the level of user satisfaction that the two companies enjoy, particularly in Barranquilla (Graph 28).

Graph 28

Level of user satisfaction with public services (2008)

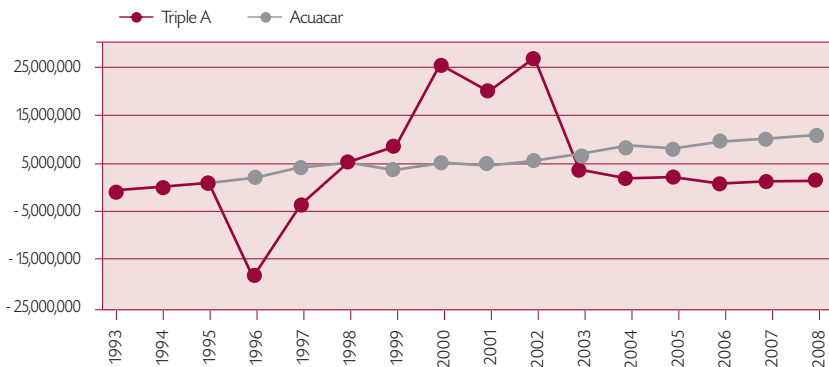


Source: Red Ciudades Cómo Vamos (2008).

The two companies have made significant investments in staff training, including stays at the operator’s headquarters in Spain or in its foreign subsidiaries. The fifteen or so Spanish executives sent by Aguas de Barcelona to both companies were all replaced by local executives, including the Chief Executive Officers in 2002. A number of technology transfers have also been made, notably for network automation (remote control, geographic information system and specialized management software). Finally, the net income of the two companies has improved (Graph 29), despite some volatility at Triple A (probably due to accounting operations related to the change of reference shareholder).

Graph 29

Changes in the net income of the two SPCs (in thousands of current COP)

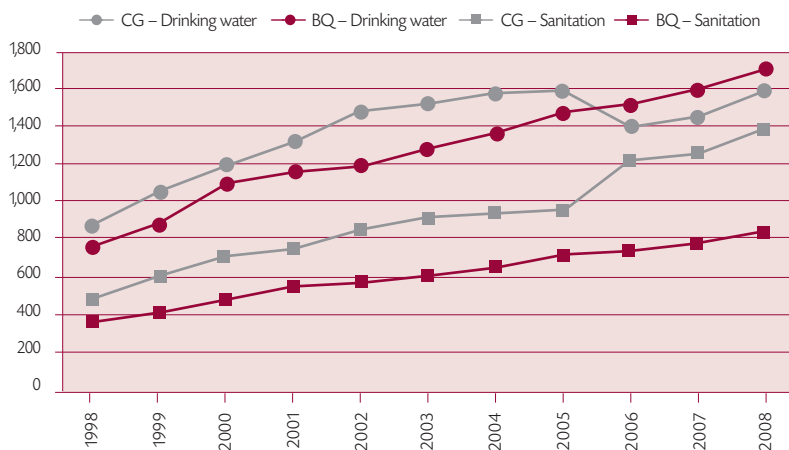


Sources: annual reports of the two companies.

Although these results can partly be explained by the efficiency gains made in the companies' management and by the increase in the number of clients, they can mainly be put down to the tariff increases in the two cities under the tariff methodology introduced by CRA in 1995. Its aim was to cover operating costs and an increasing share of investments (see Graph 30), which led to a particularly favourable tariff regime for all public service companies.^[168] This consequently limits the importance of the management method compared to the regulatory framework, especially for tariffs. The tariffs of both the companies studied therefore continue to fall within the average for major Colombian cities, and are even below it for sanitation in Barranquilla (Graph 31). Moreover, if cumulated inflation is taken into account – it reached 92% during this period – one can see that tariffs in constant pesos remained stable (except for sanitation in Cartagena).

Graph 30

Changes in average basic tariff (ABT) in Barranquilla^[169] and Cartagena (1998-2008)



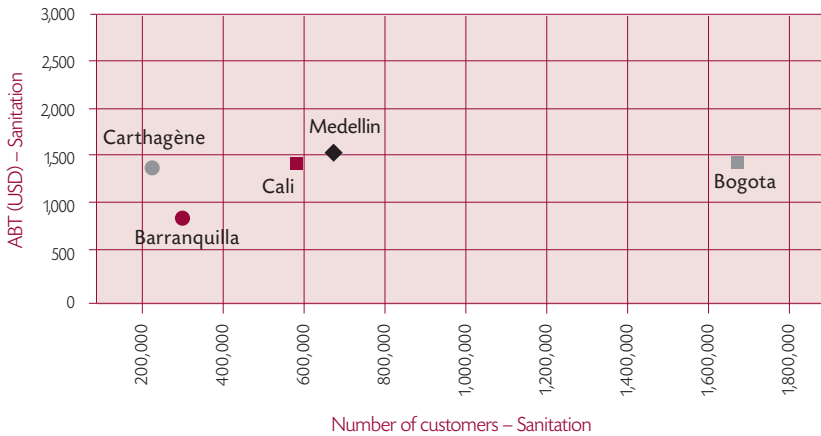
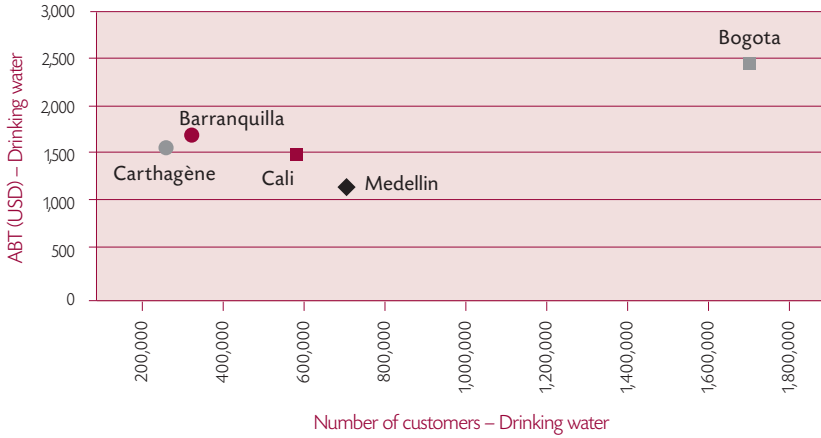
Source: data provided by SSPD.

[168] The second phase of regulation (since 2004) introduces notions of service efficiency and quality based on an incentive mechanism to compare companies' performances (yardstick competition) and the last phase (forthcoming) should open up the sector to competition.

[169] Average tariff per cubic metre, including the fixed part and variable part of the bill, on the basis of 20 m³ per month consumed by a household in Bracket 4 (median bracket with no subsidies or taxes).

Graph 31

ABT/number of customers ratio for each service in the five largest cities (2008)*



* See footnote No. 169 on page 300.
Source: SSPD (2009).

• **Some persistent weaknesses**

Despite the satisfactory trend of a number of indicators, the experience of the two SPCs studied is marked by some persistent deficiencies in terms of the expectations raised by private sector participation in both companies (Table 20). Indeed, although the indicator for unbilled water has decreased (it fell from 70% to 47% in Barranquilla and from 60% to 40.9% in Cartagena between 1990/94 and 2008), it remains well above the maximum

percentage established by Colombian regulation (30%), whereas the average in the other major Colombian cities stood at 36.8% in 2008 (SSPD,^[170] 2009). Acucar was strongly criticized for its inadequate performance in this area, which resulted in an amendment to the PSD contract in May 2004, including a programme to reduce this indicator and a reduction in the management fees paid to Agbar (from 4.85% to 3.44% of revenues).

Table 20 *The insufficient progress of some indicators*

Indicator	EPMB – Triple A					EPMC – Acucar			
	1990	1993	1996	2003	2008	1994	1995	2002	2008
Unbilled water	70%	67%	55%	39%	47%	60%	56%	46.1%	40.9%
Debt ratio	91.7%	55%	85%	70%	62%	n.d.	61.9%	56.3%	64.4%

Sources: Companies' annual reports, Navarro España (2001) and DNP (1993).

The debt ratios of the two companies remain relatively high (over 60% of assets in both cases, whereas the national average stood at 35% in 2008), even though this does reflect a participation in investments that increase revenues. Acucar was consequently criticized by local civil society for having distributed large dividends instead of reducing its debt, but the municipalities also shared some responsibility by not paying the subsidies due under the tariff equalization system.^[171]

• *Set-ups show imbalances*

Although the participation of private operators has effectively improved the water and sanitation sector, it is necessary to examine whether the SPC model has led to balanced contracts in both the cases studied. We saw that the SPC is characterized by the possibility of “trivialized” negotiations between the public authority and the operator during Board of Directors meetings, instead of being governed by delegated management rules including a clear separation between parties. This involves a high degree of flexibility, but also less transparency towards the outside.

[170] Superintendencia de Servicios Públicos Domiciliarios.

[171] The central government is putting increasing pressure on the municipalities to make good use of the resources earmarked for the water sector, with the possibility of direct payment of State resources to public service companies by Decree 3320 of 2008.

It should first be noted that the equity provided by the private operator of both of the SPCs studied remained extremely limited compared to the level of investments made (USD 35.70 million for over USD 180 million of investments for Triple A, and USD 4.44 million for over USD 240 million of investments for Acuacar).

In addition, the risks borne by the SPCs were limited in practice. Indeed, contractually, SPC participation in the major investment plans was not initially provided for in the PSD contracts, but was subsequently added to modify the SPC's undertakings, which appeared to be imbalanced (notably no fee payment). Table 21 shows the two companies' contributions to the investment plan, which benefited from the largest contribution on their part in both cases. Although Triple A financed 84.3% of the 1999-2002 Plan, only 14.3% were strictly financed by the cash flow generated by the SPC. In reality, the remainder came from fees that should have been paid to the municipality but were suspended under the 1999 agreement. For its part, the participation of the Cartagena SPC was refinanced by the municipality and capped^[172] in order to limit the risks incurred by the company.

Table 21 *SPC participation in the main investment plan of each city*

Indicator	Triple A (Plan 1999-2002)		Acuacar (Plan 1995-2004)	
	% Project	USD million	% Project	USD million
SPC contribution	84.3	33.6	15	35.4
(incl. own resources)	(14.3)	(5.7)		
City council refinancing			18	42.5

Source: Triple A annual reports and Pinzon (2002).

This limited transfer of risk to the two SPCs, whereby the municipal and national authorities bear a large part of the investment risk, should logically mean that the equity invested by the shareholders of the two SPCs will also have limited returns. And yet, on the contrary, there are extremely high dividends paid compared to the low equity level of the company.^[173] This leads to a particularly high level of profitability

[172] Its participation in the repayment of loans allocated by donors to the city council of Cartagena was capped at 4.8% of tariff revenues in the case of the project financed by the Inter-American Development Bank and at USD 15.4 million for the project supported by the World Bank (which shielded it from the significant cost overruns estimated at 65%).

[173] The initial investments of the two operators were respectively USD 2 million and USD 2.6 million.

in both cases, as shown in the calculation of a “composite” return on equity indicator,^[174] which stands at 29% for INASSA and 210% for Aguas de Barcelona.^[175] This high level of return on equity is, moreover, supplemented by the management fees received by the private operators, which, depending on the years, range between 4.2% and 6.3% of INASSA’S turnover (*i.e.* annual flows of between USD 4 million and USD 12 million), and between 2.4% and 3.6% for Agbar (*i.e.* annual flows of between USD 500,000 and USD 4 million). This exceptional profitability – which remunerates a high country risk and the difficulty in the 1990s to attract investors on the Colombian coast – does however seem to be disproportionate when compared to the low level of risk taken by the two SPCs studied.

Moreover, the creation of a private equity reversion fund in Cartagena, supposed to guarantee the equity repayment at contract termination,^[176] constitutes an additional limit on the risk for Agbar, which is, moreover, rather heterodox and strongly criticized by both the public authorities and the external auditor of the SPC. The valuation of the municipality’s equity injection in Barranquilla was also subject to criticism, which was all the more founded since no oversight of Triple A by an external auditor has been scheduled. Finally, the duration of the contracts (20 years, extended to 40 for the Barranquilla SPC, and 26 years for Acucar) would appear excessive given the low amounts invested and the risk-sharing. The set-ups that have been studied consequently have elements that benefit private operators, which would seem to cast doubt on the hypothesis formulated in the introduction that the public authority has a greater control over the operator through its participation in the Board of Directors in the SPC model. A possible explanation is the difference in competence between the teams in charge of overseeing the SPCs for the municipalities and operators,^[177] especially when there is no external auditor.

[174] It is the ratio of: [the discounted sum of all dividends distributed between the creation of the SPC and 2008]/ [the discounted sum of successive equity injections]. We take into account the capital reimbursement to Agbar through the reversion fund set up in Cartagena, but the result would remain extremely high (181.70% for Agbar) if we did not take this into account. The hypotheses that are made are conservative: 14% equity discount rate and non-inclusion of reserves blocked by Inassa pending their distribution as dividends once IFC’s restrictions have been lifted.

[175] The calculations of Agbar’s profitability only include its investment in Acucar. The profitability associated with its equity investment in Triple A is counted in that calculated for Inassa.

[176] Gradual repayment to private shareholders of the amount of the 20-year equity investment (including a 5-year grace period), without their share in the capital being reduced in proportion.

[177] A specialist in public services was only recruited at the municipality of Cartagena to supervise Acucar in 2008 and we have not identified this position at the municipality of Barranquilla.

Although the candidates for the city councils of both cities systematically promise to restore the balance to contracts that are presented as being “scandalous”, or even to terminate them before they reach completion (as the current mayor of Barranquilla, Alejandro Char, has done), these discourses are part of a political rhetoric, which then generally collides with the realities of the effective exercise of power and the difficulty of calling into question contracts that provide a service generally considered to be satisfactory, even if the price to be paid may seem high. In Cartagena, the current administration is committed to respecting the contract in force, while admitting that it will be necessary to rebalance the terms of the contract with the future concessionaire in 2021.

The lack of transparency would consequently appear to have encouraged unbalanced contracts in both the cases studied. Although civil societies in both cities are not very active, certain anomalies have nevertheless been criticized in Cartagena and, in 2002 for example, led to Acucar’s obligation of being controlled by an external auditor being respected. This had been provided for in the PSD contract in 1995, but had never been applied.

Moreover, the relations between the operator and the municipality do not simply amount to a meeting at the local level, but are part of a complex institutional system divided between three levels of public authority. Although the local level has been responsible for the provision of the water and sanitation service since 1987, and especially since the 1991 Constitution, since 2007, the departments have been playing an increasingly important role of coordination with the departmental Water and Sanitation Plans. In addition, national entities are responsible for regulation: CRA for economic regulation and SSPD is in charge of overseeing public service companies. One would have thought that the latter would identify the imbalances that have been mentioned. In reality, this multi-sectoral supervisory agency has only roughly forty civil servants and a hundred or so temporary employees to oversee almost 2,000 public service companies. It consequently focuses its activities on the companies that have the poorest indicators; the two SPCs studied have therefore not been subject to oversight. Moreover, SSPD does not have the right to inspect the terms of the contracts defined by the municipal authorities when they delegate services and its role remains relatively weak. In short, the tariff regime that is favourable to public service companies has generated revenues that have not been sufficiently invested in the sector for the two companies studied, and the Colombian regulatory framework, which is still relatively recent, has encouraged the imbalances that have been observed.

Conclusions

As in most cases of private sector participation in public service water provision in developing countries, in both of our case studies the decision to opt for semi-public companies (SPCs) would appear to be the result of a political compromise between the need to reform deadlocked public management and the reluctance of certain stakeholders in the sector, in a context of strong pressure from donors. The model has therefore appealed to municipal authorities, who were not fully convinced by the idea of classic delegated management and who, by holding on to the Chair of the Board of Directors of the entity that is entrusted with the service, thought they would maintain an effective means of control and would have a reassuring image in the eyes of their citizens. The diffident nature of the opening up of capital in Barranquilla and the bitter negotiations on the portion retained by the city council in Cartagena illustrate the reluctance to adopt a classic public service delegation (PSD) set-up. Given the uncertainties over the political situation in Colombia in the mid-1990s, and in particular on its Caribbean coast, the argument may also have worked for the private operator, as indeed the latter limited its risk by only participating in part of the capital. It also shared the SPC's profits with the public authority, which obviously fostered the relations between the two partners. The political and economic compromises are therefore to some extent part of this set-up, even including the shared capital structure of the company.

This model has brought fruitful cooperation, leading to a considerable improvement in the companies' management and accounts, a clearly visible transfer of skills and technology and the development of access to water and sanitation services in a context of urban expansion which, however, posed a major challenge. This development has particularly been made possible thanks to the participation of the SPCs in the major investment plans, whereas this had not initially been planned.

The analysis of the history of these two SPCs has also shown that this model has the advantage of being remarkably flexible and allows gradual changes in the distribution of the shares of each partner and of their responsibilities. This gives it an appreciable robustness in a context of economic and political instability and provides an interesting option to address the problem of the early termination of PPP contracts, particularly in DCs. Decisions to amend the original contracts have consequently been taken in a more flexible manner than for classic PPP renegotiations (which can give rise to lengthy

confrontations during which all management decisions are often suspended to the detriment of the service).

In this set-up, the renegotiations do not disappear, but they are “internalized” within the SPC’s Board of Directors. This does, however, lead to less transparency *vis-à-vis* civil society and the central State. Criticisms made by representatives of civil society in Cartagena and Barranquilla, although they may remain limited, suggest that this point may be a serious weakness of the model in an environment where the fight against corruption is a difficult task. More in-depth studies will, however, be required to compare what the possible additional costs would be for the public authority between the cases of renegotiating a classic PPP and amending rules decided by a Board of Directors of the SPC.

Moreover, due to the specific context in which the first two Colombian SPCs appeared (as a matter of urgency, whereas the institutional framework had not been stabilized and the country risk still remained high), both these set-ups show imbalances. The fact that there is no external auditor would particularly appear to undermine the position of the public partner, which lacks the skills required to make a detailed analysis of the SPC’s accounts, as can be seen by the anomalies revealed by the auditor appointed in Cartagena in 2002. This is even more apparent in the case of Triple A, where the share of the municipality was gradually marginalized compared to the private operator. In both of the cases studied, this has led to private operators having an excessive level of profitability compared to the risks that are transferred to them. The hypothesis that there will be more control and less information asymmetry thanks to the active participation of the public authority in the SPC’s Board of Directors would not, in this case, appear to have been confirmed, due to the lack of an effective institutional framework.

In short, the SPC model would not appear to be very different from other types of private participation in the public water service in that it requires effective regulation in order to ensure that the interests of all, including the users, are equally taken into account.

In this respect, the heterodoxy of the municipal authority’s position in this set-up (it is both judge and party) is only relative because the national regulatory authorities play a decisive role, who must rebalance the meeting between the mayor and the private operator. The promotion of private operators in Colombia is therefore part of the power relationships between the State and the municipalities, in a context marked by a long history of political patronage. The recent law allowing budget resources to be directly allocated to companies without passing through the city

councils consequently demonstrates the central government's will to limit the prerogatives that the decentralization laws had transferred to them.

Yet, Colombia's water sector regulation is today still being built and, as with other public service companies, there is room for improvement in the oversight of SPCs. In particular, their participation in the required investments is too low, despite a tariff structure that integrates an increasing share of investment costs. This point is one of the challenges of future set-ups for private participation in the water sector. After almost twenty years of institutional learning (which have allowed a new generation of better defined PSP contracts to be signed, but which have also seen effective public operators develop, as is the case in Medellin and Bogota), it is not sure whether the SPC model will continue to develop in Colombia.

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3.3.

Joint ventures for operations in China

D. LORRAIN

Introduction

The combination of public authority and the use of private companies in urban service management covers a wide range of contracts, from the simplest form of limited duration, to extended forms of concessions and BOTs.^[178] In order to reduce the risk of asymmetry and capture, regulation theory has recommended a separation between the principal who decides and the agent who executes.^[179] By combining the contract, the principal-agent theory and regulation theory, stakeholders have a complete corpus that – in principle – should allow striking the right balance between the public authority and the company. Yet this has not been sufficient. An important lesson that was learned over the past fifteen years is that the mortality rate for contracts remains high.^[180] It is, indeed, difficult to weather devaluations, changes in political majorities, and economic crises. International institutions are seeking remedies to classic solutions which, at inception, all showed robust characteristics.

China's experience is of particular interest in terms of these questions. First, in the early 1990s, the economics of China's urban issues came under direct administration, with no organizational autonomy for service operators, low tariffs, inventory accounting, and no experience of cooperation with private companies. Since then, in just over ten years, the country has been transformed and has had a series of experiences, ranging

[178] See the public transport toolkit published by the World Bank and PPIAF; see also Lorrain (2008).

[179] Cf. Jensen and Meckling (1976), Stiglitz (2001), Laffont and Martimor (2002).

[180] Cf. Guasch (2004).

from the simplest (acquisition of equipment and engineering services) to the most complex (exploitation joint ventures). The latter are interesting as they represent a public-private partnership that arrived after other types of contract, which were experimented to see what they would bring. Ultimately, the Chinese authorities decided that if private companies had skills, then they should be used for the entire value chain and not for a specialized service (maintenance work, or financing and management as with BOTs).

Secondly, with regard to theories, this joint venture set-up is completely heterodox. The core principle on which it operates is not that of a separation between a principal and an agent, nor that of a complete contract. Indeed, in a joint venture the partners cooperate at each level: they are shareholders of the operating company, they share the governing bodies, they jointly operate the network, and make the important decisions together. The core principle is that of co-production.

Thirdly, following two financial crises, China stood out from the international context between 2002 and 2008. At the beginning of the 1990s, international development institutions provided support to major concession contracts, which gave companies important responsibilities. They saw this as the best way for scaling up infrastructure upgrading. The failures or difficulties encountered by several of them led institutions to change their analysis and recommend operations with local (or medium-sized) stakeholders with more targeted contracts.^[181] China made the opposite observation. After having tested all forms of contract, its leaders ended up building partnerships throughout the cycle and with major companies as partners. What are the reasons behind this process in China?

3.3.1. First experience

Drinking water concessions entered this huge country by the back door.^[182] With the exception of the Macao contract signed in 1995 when this region was still under Portuguese authority,^[183] the first drinking water concession contract signed in China was in Tanzhou, a small town with 70,000 inhabitants under the authority of Zhongshan Municipality, located in the Pearl River Delta on the border of the Zhuhai Special Economic Zone. In 1992, Sino French^[184] and the municipality set up

[181] Cf. Brook and Smith (2001).

[182] Synthesis of our studies conducted in 1999, 2004 AND 2006.

[183] Cf. Rétaïli (1995) and Chu (2003).

[184] For the operating contracts in China, SINO FRENCH partnered with Lyonnaise des eaux (now Suez Environment) and New World (a Hong Kong-based conglomerate working in the infrastructure sector).

an equally-owned joint venture. This new company (Zhongshan Tanzhou Water Supply Company Ltd.) signed a 30-year concession contract with the municipality, which entrusted it with the construction of a drinking water treatment unit, its operating, distribution and revenue collection.

For a decade, this was the only contract of this type in China, since a regulation adopted in 1995 prohibited foreign companies from being involved in network operating. It benefited from tolerance as it had indeed been entered prior to this law and concerned an extremely small operation, since this town did not have the status of municipality. Consequently, the Chinese authorities did not step in to retroactively cancel it and the initiative was able to continue. Initially, the project (HKD 100 million, *i.e.* EUR 11 million) provided for the construction of four plants with a capacity of 240,000 m³/day.^[185] The first unit, with a capacity of 60,000 m³/day, began operating in early 1995.^[186] As its cost was higher than expected, and there was little flexibility in water pricing due to the fact it was governed by the public authorities, the readjustment was made on other variables. The contract was extended to 35 years and Sino French's shareholding in the joint venture rose to 58%. According to initial forecasts, this plant was expected to be rapidly followed by a second tranche for the same amount. In the autumn of 1999, when we visited the site, this extension was not deemed necessary and was suspended following the handover of Macao to China, pending a review of the planning projects in this part of the urban region. This type of gap in comparison to forecasts – already observed for other contracts – is common in a country where it is difficult to obtain reliable information. As it is necessary to make headway, partners enter into operations where they do not have control over all the components and they rely on their ability to adapt.

In 1999, the average water tariff stood at Yuan 1.35/m³.^[187] It was set in agreement with the municipality and according to economic criteria and benchmarks from neighbouring municipalities (indeed, whatever the quality of water, a city cannot take the risk of setting a much higher tariff than its neighbours as this may put off investors). The municipality was satisfied. The company had a very low level of unpaid bills (99% collection rate). It employed a total of 70 people (all Chinese) who received support from the Macao teams when necessary. This “small business” made a small profit after self-financing its development: the profit-and-loss account bore all operating

[185] Brochure: *Sino French, the Water People*, 1999, p. 8.

[186] Roughly 2.5 years between the first contact and commissioning. *Cf.* Leman (1996).

[187] This is an average price as four block tariffs apply under national regulations: tariffs for households, trades, industry and, finally, hotels.

costs, the depreciation of technical equipment, debt servicing, and payments for services to the subsidiaries it used. In terms of network operating, this operation was a unique experience in the field of conducting works that are *“well done if the work teams are well managed”*. The loss rate, initially at around 36-39%, dropped to 15% thanks to a network policy. The operation was also an interesting experience in commercial management as the group developed an accounting method in Chinese, tailored to their habits.

3.3.2. Change in doctrine

Ten years later, following numerous experiences, Chinese leaders changed the way in which they addressed these issues. Rather than focusing on upgrading a technical component, although this was important, they understood the importance of improving the entire technical system. This development led to a law being voted in 2002, authorizing foreign companies to participate throughout the process up to the final user. It also allowed investments to be financed through loans from Chinese banks rather than from international financing. This law changed the way in which the market was organized, by extending the scope of exchanges towards a more integrated approach. It allowed projects to make headway in the better structured cities (independent company, organized sector, etc.). Institutional quality became a factor in selecting regions.

This change in perspective was symbolically marked by a major operation. In 2002, Shanghai Municipality organized an international call for tenders for the sale of 50% of the share capital of the Pudong Water Corporation. If the Yangtse River symbolizes the dragon, Shanghai is its head and Pudong represents the eye. It is a new city located opposite the Bund, and a hub for the financial powers and high-tech areas, hosting a port and an international airport. The tender was awarded to Veolia, which was in competition with Suez and Thames Water. In November of the same year, Suez signed a similar type of contract with Chongqing Municipality to operate in part of the city. The number of these contracts increased in just a few years. Indeed, 16 contracts were signed in 2005, and Veolia had signed 21 three years later,^[188] while Suez, which had signed 9 contracts in 2000, had 18 four years later (the last four were all joint venture operating contracts) and 20 at the beginning of 2008. The phenomenon is three-pronged for the Chinese side. Several major infrastructure groups began to take an interest in this sector: China Gas diversified in the cities where it was operating,

[188] See www.chinawater.net. for a presentation of Veolia’s policy, see also China Daily Business, 20-26 March 2005, p. 5.

Cheung Kong Infrastructure, a specialized branch of Li Ka-shing Group,^[189] Beijing Capital Group and Citic all increased their number of contracts. Some public companies also developed in major cities.

Finally, private companies – which were previously unknown and had no experience – also submitted bids in cities with less than a million inhabitants, requiring a lower level of technical complexity. This testifies to the rapid urban change experienced by the country. One of the reasons behind their emergence is the availability of liquidity and their knowledge of decision-making networks. However, these newcomers do tend to overcharge as they have no experience in the sector and are therefore obliged to appoint managers. We shall see in a few years whether this type of entry into a new sector is possible. One thing that is certain, is that some will succeed and others will disappear or will call on professional help.

Although each of these joint ventures has their own specific features (related to the delegated mission, the parameters of the problem, the selection procedure, the policy conducted by the company, etc.) and could be the subject of a specific case study, it is nevertheless possible to identify common elements in these experiences.

3.3.3. How an operation is arranged

The very first stage is the choice of a city. This vigilance over the choice testifies to the way in which city economies have changed. Thanks to sustained growth since the end of the 1980s, capital is now available and China's elite have changed. A new generation today holds the decision-making positions (*“younger, more open and more educated people”*).^[190] This general change of context has an impact on the approach to business relations and is a far cry from when frontrunners had to explain and convince, when only a small number of cities were willing to sign a contract and project selection was not always rigorous. Since the beginning of the 2000s, the situation has changed and the number of potential projects has been constantly rising. Companies must therefore be selective; they can no longer protect themselves with “take or pay” type clauses or by a revenue guarantee, but have to bear risks. Consequently, it is now essential to choose the “right” city. Companies today have teams that assess general factors (growth profile for the decade, attitude of the elite and level of income of inhabitants), prior to making a more detailed analysis

[189] See *“Portrait d'entreprise”*, Flux no 36/37, April-September 1999, pp. 61-66. In the water sector, CKI bought Cambridge Water.

[190] British director of a Western firm in the sector, posted in Hong Kong, in June 2004.

of the specific parameters of the transaction (assessment of the asset value to be transferred, technical performances, investment programme to be implemented and expected productivity gains).

The choice of the company by the public party is made using different types of procedure: international call for tenders in Pudong (only foreign companies can participate), negotiation by mutual agreement in Chongqing (justified by the ties that already existed between the company and the municipality), open call for tenders for all types of operator in Changzhou (a city with over 4 million inhabitants located on the outskirts of Shanghai).^[191] The type of competitor and the form of competition change from one city to the next.

The municipality and the company generally set up an equally-owned joint venture. The Chinese party contributes to the share capital by providing existing assets and the company provides funds. This initial commitment (upfront fee) is generally financed by a capital payment (roughly 30%) and by a bank loan in yuan (70%). The firm participates on the basis of different arrangements, which also include risk hedging. For example, Suez still operates *via* Sino French, its equal partnership with New World, each partner financing 15% of the operation on its own equity. Veolia's contracts are more "tailor-made" as contracts always have different partners and different levels of sharing (for example, it works with Beijing Capital Group, Shenzhen Water Group, etc.).

This financial arrangement is important for the long term balance of the contract. One of the sensitive points for all these operations resides in the net asset value and the premium that the companies accept to pay (see Box 13). In principle, the assets are audited according to a well-honed procedure. However, we have observed that in some cases due diligence procedures were conducted very rapidly in contexts where the urgency was to "take a position" in a city with strong potential. Although this type of procedure is questionable, it has to be noted that the reliability of information and the knowledge of cities are not an exact science. The borrowed portion is now financed by local credit and repaid using operating income, and there are no exchange rate risks. This financing option is new for this type of project and Chinese banks are interested. Today, they have enormous loan portfolios with a significant share of "rotten debt" (*sic*); they are consequently seeking healthy and long term projects.

An internal shareholders' agreement provides for the division of responsibilities. Private companies are both co-shareholders and operators in the joint venture. As with

[191] Degrémont had built a drinking water plant, and the new mayor was from Shanghai and knew the group.

affermage, the company manages the entire service, using the technical system that has been transferred to it. These operations also have a concessional dimension, since the joint venture is responsible for the new investments. At contract termination, it has to transfer the facilities to the public authorities in good working order.

Box 13 Negotiations and premiums

In the competitive bidding organized to transfer 50% of the Pudong Water Corporation (a new Shanghai city), the three competitors made the following bids: USD 240 million for Veolia; USD 135 million for Suez; USD 130 million for Thames Water (i.e. respectively in yuan: 1 billion 968 million, 1 billion 107 million and 1 billion 66 million, for assets estimated at 800 million). The operator that was selected thus accepted to pay a premium – or upfront fee – over double the asset value, considering that in this case it was “*buying potential*”. The Director of the Shanghai Water Assets Operation and Development Company (SWAOD) estimated this premium at 2.66 times the value of the assets.^[192]

In 2004, Shinan Water – which, like Pudong Water, manages new neighbourhoods – valued its assets at CNY 2.5 billion in gross value and at CNY 2 billion in net value. In view of the fact that at the time the company had a fleet of 950,000 meters (against 553,000 for Pudong) and a maximum production capacity of 2.48 million m³/day (against 1.27 million for Pudong), the asset valuation of CNY 800 million for Pudong Water would appear to be reasonable.^[193]

3.3.4. The industrial approach

The joint venture approach is interesting as it testifies to an industrial analysis shared by the Chinese authorities that could be summarized as follows: the strength of a chain depends on the weakest link. The translation: in all technical systems, there is no use having equipment that meets the best international standards if the rest of the system does not. This is partly the criticism that could be made of BOT contracts for drinking water production plants, as a very significant effort was made to produce this perfect quality water, but it deteriorated in the dilapidated networks

[192] Interviews conducted in Shanghai (June 2002 and June 2004) at two firms that participated in this bid invitation and with Chinese officials. See also Liu Qiang, “Summary of International Investment, Transfer of Shanghai Municipal Waterworks Pudong Co.”, in “Sustainable Urban Services”, Shanghai Seminar, April 2003, PECC, Ministry of Equipment, Paris, pp. 149-155.

[193] Sources: interviews at Shinan Minhang Water Co., June 2004; Pudong presentation documents (source VE) and companies’ websites.

through which it flowed. This approach also involves leaving the operator the discretion to decide where and when efforts need to be made. This is a pragmatic method since the partners discover the problem in action and then establish their programme. This industrial approach can consequently be summarized in three terms: the value chain,^[194] negotiated freedom of the operator, and pragmatism.

If three links can be distinguished in a water system – drinking water production, distribution and customer service – what was the situation at the start?

In terms of drinking water production, according to the director of a joint venture, *“It is generally satisfactory, but they have no notion of the cost of capital; they oversize the infrastructure^[195] and do not build in phases”*. For example, if the planning establishes a requirement of 400,000 m³ over the next ten years, the entire plant is built on this basis, whereas there may only be an immediate need for a quarter of this. In this case, the contribution will consequently be phase new constructions and to provide better maintenance for the facilities that have already been built (asset management).

Many improvements can be made in terms of the two other links (distribution and customer service), because the Chinese Design Institutes (public engineering organizations) have a purely technical approach to the problem, which is implemented in the field by company managements. Network maintenance and customer relations are taken into account less than the investment in new equipment. This approach can also be seen in the organizational structure which hampers innovation. The organization of a Chinese water and sanitation company has traditionally been based on its different treatment plants.^[196] For example, the detailed accounts of Minhang Water (a Shanghai-based company that we studied) break down expenditure items into *“waterworks 1, waterworks 2 and overheads”*. Each plant operates as an independent unit with its own services (tariffs, accounting and maintenance). The water company therefore has a compartmentalized set-up in which the central services that can conduct service policies do not have full authority. It is also a hierarchical organization, combined with a system of individual bonuses that substantially modify the official salaries and create micro-benefits. Introducing change therefore requires addressing this type of obstacle.

[194] The production system can be broken down into different links associated with investment and operating costs that can be optimized.

[195] Interviews with the former Director of Chongqing Water in June 2004 and March 2006. We were able to see this ourselves during several of our studies. These plants designed by Design Institutes are impressive by their size and by the attention to detail, with green spaces between the treatment lines, chrome balustrades around the basins, a control room that is as large as an airport control tower (and it only contains three PCs for measurements and one or two other pieces of equipment). In the language of the financial sector, this is called an excess of “capex” (capital expenditure).

[196] For example, on the website of Minhang Water Co. (one of the four water companies in Shanghai) it says that it was set up in 1999 from a drinking water treatment unit in this district.

Under such conditions, the activities of these joint ventures focus on improving the technical system, on staff management and on customer relations. As soon as operating began in Pudong and Chongqing, the departments set up a database for mapping the network, a water quality laboratory, an office for receiving customers and a call centre. Mobile workshops were purchased for improving network management and emergency operations. The challenge was to demonstrate its know-how by improving the level of quality while respecting the financial equation, in other words, to demonstrate the added value of this approach to service operating. *“We provide few major technologies, but we do manage a major technical system, the quality of which is made up of many small elements, better than the public company. Part of the experience involves injecting operating skills on a daily basis.”*

Another immediate reform involved reviewing the set-up. *“Public companies suffer from compartmentalized management; this is where the problem lies. Today, the managers of these companies are aged 50 or over; they were trained at the time of the Cultural Revolution; their technical training is incomplete. The gap can clearly be seen with the new generation of 35 to 40 year-olds.”* An initial change involved structuring the set-up on the basis of three functions – production, network and customer service – giving each the same importance. The maintenance manager used to be at the lowest level in an office, well below the water treatment plant manager and his deputies; today he is at the same level. Extensive training was organized with “classic” training courses and on-the-job training in tandem with someone who showed what to do. It is this level of excellence in working practices that brings about modernization.

3.3.5. The contract and its balance

The contract signed with a municipality is generally incomplete. Although this contract defines some principles (guarantee service continuity, adjust it to technical changes and changes in needs, according to the principle of mutability under French law, set tariffs at a reasonable level between residents’ capacity to pay and the balance of the joint venture), it sets out few quantified objectives. It is defined as a starting point for 30-50 years of cooperation. In other words, *“everything is negotiable”*. *For the operator, the horizon is limited to the first three years because “it is difficult to foresee what will happen in 3/5 years, so beyond that it becomes a bit of a guessing game” (sic).*

From the perspective of standard economic theory, we therefore find ourselves in a sequence of action that combines a number of flaws, including the incompleteness of the contract and the constraint of continuous renegotiation between stakeholders. It is also full of risk for the public authority. The company, which has human, technical

and financial resources, must necessarily – according to the theory – take advantage of this asymmetry in order to rebalance the situation for its sole benefit.^[197]

How does the company respond to these criticisms? Is it possible to establish a complete contract, and at what price and within what period?

An answer by the former Director of Chongqing Water, interviewed in June 2004 and March 2006, is as follows: *“First, the Chinese market is a new market in local public services. There is little experience, little case law. Secondly, it is necessary to take account of the fact that the Chinese have a logic that involves negotiating”*. In this case, it is preferable to define principles and establish ties that allow negotiating a common problem, rather than seeking to define a framework and rules that specify all possible cases. This is precisely what the joint venture contributes by making both partners equal.

In theory, the incompleteness carries risks, but in practice it is offset by several mechanisms. If there is incompleteness, both partners can put it to their advantage and the Chinese authorities may very well change rules that alter the balance of the contract. This is not an illusion, as six months after the signing of the Chongqing contract, the local authorities decided to apply a national circular providing for the installation of individual meters. Consumption had, until then, been measured and billed using 50,000-60,000 collective meters, from which each building committee established the individual charges. The new rule required the installation of roughly 400,000 meters with their concomitant investment and operating costs. In the same way, the company can respond to having higher than planned costs by phasing out its investment programme. The risk of opportunism on the part of the company is also counterbalanced by its long term interest. If it wants to develop, it needs to be careful about its reputation and adopt practices that will have public support. It must consequently provide high-quality work and set reasonable tariffs and targets.

In terms of cost-effectiveness, these contracts are more price cap-type contracts as the company works with the constraint of fixed tariffs: *“No one has any control over tariffs, which are defined by political decision”*.^[198] Fully rational and planned economic tariff-review formulas are not implemented. In this case, economics are overridden by policy. For the moment, the Chinese authorities prefer to control public service tariffs, even if this leads to under-investment and, in the end, to average water

[197] Guasch 2004, *op. cit.*

[198] Our study in Shanghai on the tariff review procedure clearly confirms this point. Public service tariffs remain a major adjustment variable for public policies (Shanghai Urban Environment Project, Report on Institutions: Existing situation and proposals of strengthening, 2005, World Bank, Ministry of Finance, Sogreah).

quality, equipment delays (for sanitation), or power cuts. The company must therefore conduct its activities by relying on the short-term balance of the operating account. In such conditions, *“it is necessary to carefully choose land and have the ability of optimizing the operation very quickly”*. For such operations to function, it is also necessary to remove the exchange risk (no international borrowing), to work by considering the tariff as a fixed value, and to be able to generate cash flow from operating alone.

3.3.6. Transparency

In the joint-venture formula, both parties are shareholders and therefore have access to the same information. This arrangement partly resolves the problem of asymmetry, as this China director for a French company, interviewed in March 2006, said: *“The advantage of a joint venture is that it guarantees transparency. Both parties are involved in the management; there is no more suspicion; everyone knows the information.”*^[199] *The drawback to the formula is that one can only move forward through joint decision-making; this is not always easy on a day-to-day basis; there are always discussions and it can be an exhausting process”*.

For the company, the fact of maintaining regular relations with local politicians is *“extremely useful”*. Indeed, these regular exchanges do, of course, enhance the work that is conducted, but they are also a way of understanding what elected officials want. Executives and politicians do not necessarily have the same opinions and *“it is important to have information from both”*. The dichotomy between the politician and the manager is in fact not as strong, for the simple reason that, above a certain level, all managers are also members of the Communist Party. The situation can therefore be summarized as follows: *“The Party Secretary is number two in the joint venture; he sees all the company documents, but he also gives the vision of the Party. The Chairman of the municipal water company is an important member of the CCP. Their level of skills varies, but they do learn and the dichotomy between a political point of view and a manager’s point of view diminishes. What remains are the power relations between the leading personalities, the Provincial leaders and Beijing. Economic competition between cities is extremely strong and increasing; everyone is seeking to promote their major projects until the central government takes a decision. Purely political power relations exist, but the word “business” is increasingly used; the Party uses it, companies do too.”*^[200]

[199] A co-production set-up that is contrary to the separation of the principal agent.

[200] Interviews with the former Director of Chongqing Water in June 2004 and March 2006.

The dominant discourse is changing. The issue of profit is no longer a taboo. A few years ago, companies could find themselves in front of interlocutors who questioned the interest of making profits. This is no longer the case today: since the mid-2000s there has been absolutely no ambiguity over this point. *“The aim of the contract is to set up a profitable company in order to generate cash flow for developing the service. Today, utilities cannot keep up with the financing required for urban development; negotiation with the authorities has consequently been based on this issue: Help us to make money to develop the service”.*

Conclusions

With joint-venture partnerships becoming more common, China is currently developing a new formula that uses the three dominant urban-government models in Europe.^[201] First, it confirms the role of municipalities as the organizing authorities for the sector (principle shared by Germany, France and other countries). Second, it goes down the avenue of privatization (UK), but in a much weaker form (sale of half of the share capital), while combining it with the signing of a contract (as in France). Third, it innovates in terms of regulation by establishing a three-pronged mechanism: control by being present in the joint venture, control by contract and, finally, discretionary power to change rules and set tariffs. This formula also changes the way in which the interests considered by the company are weighted. In a production joint venture or a BOT, the company only takes account of the requirements of the local authority. In an operating joint venture there is a broader scope: the managers must listen to the public authority, the final customers, employees and, finally, to their shareholders. This form is likely to develop in view of the immense environmental problems.

That being so, if we look at China's track record on urban issues since the early 1990s, this solution is undoubtedly simply one stage in a more comprehensive change process. China is exploring its "socialist market economy" path. These operating joint ventures will probably not remain permanently fixed. In which direction could they evolve? Will they maintain the pragmatism they had at the beginning, or will the increasing number of rules have the upper hand? Are these partnerships going to work as they were designed to, by leaving companies the possibility to develop, or are they mechanisms for extracting the skills that were lacking in order to allow modernized Chinese companies to become operators themselves? Policies conducted in several industrial sectors – the automotive computer and railway sectors – would appear to reflect a strategy of acquiring skills that may backfire on the partners of yesteryear. In terms of urban issues, this would mean that Chinese companies would eventually become urban network operators with all the consequences that this entails in terms of exports. Otherwise, will China deem that the aim of a sustainable partnership is not to replace the partner, but for each and everyone to develop their skills? The answer to these questions is important, as it holds the key to the

[201] Cf. Lorrain (2005).

way in which China envisages its future cooperation with industrialized countries. Yesterday, it asked them to provide a great deal of capital, technology and skills. Today, it has acquired a lot, learned a lot and has the capacity to achieve much by itself, even to use the skills against their initiators. This is, however, a type of behaviour that puts an end to any exchange. The sustainable solution thus lies in China controlling its power and in improving partnerships with Western companies.

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3.4.

Review of the international literature on drinking water distribution SSWPs

J. CAVE and A. BLANC

Introduction

For the past twenty years or so, the literature on access to water has mentioned small-scale stakeholders who contribute to providing a service to communities that are not connected to the official supply network. These stakeholders have different profiles, the situation changes from one area to another, and there would appear to be no standard definition. We shall speak generally of “small-scale water providers” (SSWPs) here, with a focus on the operators of mini-networks in urban areas who use an independent water source.

The first studies on water distribution SSWPs date back to the 1990s and were made by World Bank experts. At that time, the prevailing idea was that the water sector is a “natural” monopoly and that small independent operators could never be competitive compared to a main operator who benefited from economies of scale. At most, SSWPs were considered to be a curious or even troublesome transitory phenomenon.

The early 2000s marked a turning point in this vision of the water sector, with new studies showing the dynamism of SSWPs in several cities in developing countries, notably in Paraguay. These atypical stakeholders could account for up to 84% of turnover in the water sector of an African city, create 3 to 15 times more employment than the main operator (Valfrey-Visser and Collignon, 1998) and therefore gained credibility in the eyes of institutional stakeholders.

At the dawn of the 21st century, a billion people do not have access to drinking water. Sustainable access to an *improved* water supply has also been established as one of the MDGs. By access, one understands making at least 20 litres of water available per person and per day from an *improved source* (running water, public fountains, boreholes, protected wells and springs, and rainwater collection systems) located less than one kilometre from homes. Given the scale of the task, the activities of SSWPs are gradually being recognized as a legitimate effort to supply drinking water to poor communities.

Indeed, SSWPs provide water to numerous low-income households, particularly in urban areas that are difficult to serve using a conventional network. By doing so, they improve living conditions for residents in deprived neighbourhoods. In addition, they manage to offer a service that is comparable to the one offered by the main operator, without benefiting from any subsidies. Finally, they provide an alternative – and maybe more efficient – way of giving widespread access to network water, rather than seeking to extend the official network (McGranahan and Satterthwaite, 2006).

However, there may be an increasing number of studies, but the situation in the field is not changing as rapidly. Beyond some widely accepted basic observations, analyses differ in terms of what SSWPs are (formal or informal status; private for-profit or community-based) and what role they must play (temporary or permanent, independent or linked to a centralized source, on an exclusive basis or in competition, etc.). In any case, the underlying issue is to determine *“how to transcend the obsolete distinction between public service (utility), which characterizes network management, and market service (commodity), which is specific to informal supply sectors”* (Jaglin, 2005).

3.4.1. SSWPs: stakeholders who build their legitimacy on an illegal basis

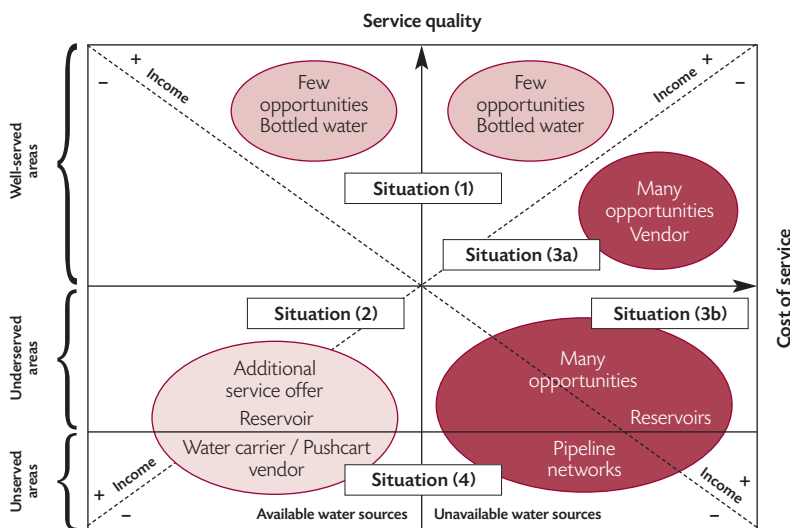
- *“How do SSWPs pop up?”*

It is the insufficiency of systems – both public and private – in the formal sector, not a *“failure of the State”*, that creates the conditions for the emergence of spontaneous private initiatives. SSWPs therefore fill *“the gap left by two politically correct solutions”* (Dardenne, 2006). In major cities of developing countries, water distribution by official operators does not benefit the entire community. However, in countries such as India, where there is a strong tradition of public aid from the State or of the availability of free water, there are few SSWPs despite the poor performances of the main operators (Conan, 2003). Generally speaking, however, the presence and scale of SSWPs would appear to be inversely proportional to the performance of the main operator, or of the dominant operator (DO) (Valfrey-Visser and Collignon, 1998). SSWPs are more

present in underserved or remote urban districts, which are often “spontaneous housing” developments whether located in the city centre or in distant peri-urban areas (Kariuki and Schwartz, 2005).

More specifically, the characteristics of the service provided by both public and private DOs, (in terms of supply rates, reliability and tariffs) and the existence of alternative water sources create niches that foster the emergence of different types of SSWP (Conan, 2003).

Figure 6 Niche markets for SSWPs depending on the water service



Source: Conan (2003).

Figure 6 shows that the activity of SSWPs mainly concerns water distribution and less frequently production (“pioneers”), which requires a heavier investment. It is therefore more often the SSWPs established in rural areas, far from any network, who create their own water source.

In urban areas, the better the service quality, the less SSWPs have a role to play, apart from distributing bottled water. The more the DO’s service is expensive, the more practices of reselling water from the main network develop. In areas where the main service is expensive and poor, a niche is created for “pioneers” who build mini-networks using an independent water source (Conan, 2003).

The reasons given to explain the emergence of SSWPs can be: to meet demand (from neighbours for example), to provide a response to a crisis situation (lack of water or polluted sources) or a strategy to diversify activities (for a microenterprise) (Kariuki and Schwartz, 2005).

- *The key features of SSWPs*

SSWPs are small local entities that are numerous and flexible; they are often individual or family-run and fit very closely with a fragmented demand, which is variable over time and space (Collignon and Vézina, 2000).

As SSWPs can offer small quantities of water, they are more suitable for very low-income households than a large operator. Some of them are mobile (street pushcart vendors, tanker trucks, etc.) and work in all types of neighbourhood, even in the most remote and precarious areas. Their service breaks away from the model of a single pipe with a continuous water flow for all and is tailored to supply options, which vary every day depending on the flow rate, price, quality or expected use of the water (for drinking, hygiene, washing, cooking, etc.).

The operators of mini piped networks are more vulnerable as their service is based on fixed assets that can have a depreciation period ranging from 3 to over 10 years. They are therefore more careful in targeting the areas where they establish themselves (Solo, 2003). Although their service is less sophisticated than that of a DO and is sometimes more a case of "DIY" ("do-it-yourself"), it works just as well and is, especially, locally accepted (Valfrey-Visser *et al.*, 2006). Indeed, in some areas there is a tendency to gradually replace street operators with network operators (Conan, 2003). Despite the upfront cost, this activity is more profitable and more in line with the service expected by communities, especially because the small network operators know their customers and their way of life very well and as they are aware of their irregular ability to pay, they allow them to pay by instalments.

- *Water is more expensive for the poor*

Buying water supplies from street vendors is by no means an optimal situation, since their responsiveness often goes hand in hand with expensive tariffs. Indeed, SSWPs are often perceived as being more expensive than DOs. However, it must be remembered that SSWPs distribute small quantities of water and do not benefit from any subsidies (Collignon and Vézina, 2000).

Communities in peri-urban areas are therefore faced with a paradox. Indeed, they are both excluded from a network distribution with an inexpensive unit price, but which requires regular payments, and have to resort to an intermittent distribution available

on request, which has a much more expensive unit price. As Kjellen and McGranahan (2006) observed, “the high unit prices of water sold in small quantities constitute a great inequity in low-income cities”.

The main obstacle to access to a supply from an SSWP mini-network, as with a DO, lies in the connection fee – the average cost is between USD 60 and USD 120 –, which excludes a significant part of the community (Kjellen and McGranahan, 2006).

Small network operators find niches where they can set up in business in mainly poor neighbourhoods neglected by the principal network, but they target their activity towards the better-off sections of the community in the neighbourhood where they work (Solo, 2003). An indirect impact of SSWPs is, however, postulated as it is estimated that prices may fall due to the competition between them (Valfrey-Visser *et al*, 2006). Although the example of Paraguay reveals, on the contrary, that the *aguateros* tend more to respect their respective exclusivity areas, there are also cases of partial overlaps between the different systems (Kjellen and McGranahan, 2006; Blanc *et al*, 2009). For example, in Argentina or Guatemala, many households have several connections at home and can therefore decide which source of supply to use whenever they want (Solo, 2003).

- *Some ambiguity over the term “informal”*

The comparison of different studies on this nebula of stakeholders, whose characteristics are similar but also often dissimilar, reveals a wide disparity in the definition of the basic terms of the debate. For example, the adjective “independent” can refer to the water source, to the non-exclusive, unregulated aspect of the activity, or again to the fact that there are no public subsidies. Similarly, authors often do not differentiate between the size of the SSWPs (small/large) and their status (formal/informal). Although it is true that informal stakeholders often operate on a small scale (Owen and McGranahan, 2006), this does not necessarily mean that all microenterprises are informal.

Indeed, the adjective “informal” is a *portmanteau* word that is not adapted to the realities it refers to. Informality is defined in a number of ways. For some, it can indicate that an entity has no administrative registration and/or no written accounts (Walther, 2006). For others, the informal sector comprises stakeholders who operate on the basis of unwritten practices and rules (Allen and Davila, 2004). The corollary of this approach is that the public supervision of their activities – in terms of quality, standards and tariffs – would be limited (Schaub-Jones, 2008). Finally, others see this sector more as a pre-capitalist market economy whose agents have no accumulation capacity due to a lack of long-, medium-, or even short-term visibility (Walther, 2006).

Such diversity reveals a real lack of analysis and understanding of the phenomenon. The term “informal” refers both to practices – trade for example – and to the resulting socio-economic relations: regulations, collusion, links with customers, etc. (Moretto, 2007). In this paper, we consider that a stakeholder in the informal economy is an individual who does not hold a commercial license authorizing him to conduct his business. It mobilizes a large workforce and uses basic technologies. As it pays neither taxes nor duties, it is excluded from any public social protection systems.

• *Problems, constraints and strategies*

The illegal situation in which most SSWPs operate leads to a certain number of constraints. They generally have no permit to resell water from the main network and even less chance of benefiting from commercial tariffs from the DO. Although they are often tolerated in practice, they are nonetheless legally vulnerable in case of conflict. They have no titles for their infrastructure; for example, the groundwater resources belong to the State and they can be driven out by the DO at any time. This constant threat prevents them from defining a medium- or long term business plan, especially since they do not have access to credit, or the credit is at extremely high rates *via* informal lending institutions. As they lack resources, it is practically impossible for them to improve their service. In addition, certain operations, such as maintenance or heavy investments, remain out of their reach (Solo, 2003).

Faced with this permanent insecurity, SSWPs define survival strategies. First of all, they have no other choice but to make a profit on their short-term investments. It is therefore very much in their interest to extend their business area to the better-off areas in their neighbourhood. Moreover, they must be sufficiently skilful to manage the numerous social transactions that the essential nature of their commercial activity in these poor neighbourhoods entails (Owen and McGranahan, 2006). This may involve bribing junior civil servants, falsifying accounting information on charges, or mobilizing associations to organize lobbying campaigns (Solo, 2003).

Yet these bypass strategies clearly generate costs that are borne by users. It can therefore be assumed that if they are relieved of a number of constraints inherent to their lack of status, their charges may be reduced and their tariffs lowered.

• *Breaking the law, but useful: an ambivalent diagnostic for public action*

Two logics therefore characterize the development of SSWPs: first, they need to survive – which makes them develop illegally – and, second, they handle an essential social function that gives them undeniable legitimacy (Walther, 2006). In the end, it is the weight given to each of these logics that determines the type of action the public authority will take with respect to them and, ultimately, the status of their business.

While institutional stakeholders only focus on the fact that SSWPs infringe administrative and tax rules, the latter will be confined to trying to survive illegally at their own risk. However, the more the social utility of their business is recognized, the more SSWPs are likely to be tolerated by local authorities. They may even be promoted due to their contribution to the common good, or legally integrated into the public service (Walther, 2006).

3.4.2. What public service in a fragmented city?

- *A multi-speed service?*

The model based on a centralized system providing large quantities of water to all households *via* a network is insufficient in developing countries, particularly because this implicitly presupposes a homogeneous city and a broad-based workforce (Zérah and Llorente, 2003). The following question is therefore raised: *“How to design a public service [...] in cities [...] characterized by an excessively imbalanced distribution of income”* (Dardenne, 2006)?

It would appear to be more realistic – in the medium term at least – to offer a multi-speed service with running water for rich residents in urban centres, mini-networks for the better-off in peri-urban neighbourhoods and a periodic supply for the poorest. Indeed, allowing the development of different levels of service is a good way for reducing costs (Trémolet and Halpern, 2006). However, over the long term there is a risk that temporary systems will become part of the culture and set the standard. Yet, is this type of approach – exclusively determined by demand – morally acceptable for an essential service? Can the user’s ability to pay be the only decisive criterion for his access to water?

Beyond his ability to pay, each person needs to drink safe water. Although standpipes were for a long time a way to provide a minimum and free service to the poorest, particularly in African municipalities, this would increasingly appear to be no longer the case, as it is now necessary to pay for this service too (Valfrey-Visser and Collignon, 1998). Indeed, as no one can survive for very long without water, economists easily identify a willingness to pay for obtaining it. Far from being unanimously perceived as a fundamental right, water is thus increasingly treated as an economic good.

However, the fact that households in poor neighbourhoods spend, on the whole, a certain amount of money with different types of provider does not mean that they are willing to pay the same overall amount for a single and official service (Zérah and Llorente, 2003). The water sector has an ethical and political dimension that has been the subject of little research.

• *How can public policies integrate SSWPs?*

In most studies, SSWPs are described as being flexible and responsive agents who come into being as a result of a form of pure competition that should in no case be impeded. Some view SSWPs as being the spontaneous product of a “pure” market mechanism that clearly reflects a pre-existing demand. This vision, which stresses the benefits of competition and the costs of marginality, emphasizes the lack of resources and support from the authorities, which prevents SSWPs from reaching their full capacity (Allen and Davila, 2004). In this context, the public authority must restrict itself to a role as a “facilitator” and let demand guide supply. Some analysts even consider that a legal regulatory framework is not essential for SSWPs as they are used to working in a hostile legal environment (Kariuki and Schwartz, 2005).

Indeed, regulation policies create constraints for SSWPs, who are not necessarily asking for them. But constraints also appear as a result of a lack of regulation (Snell, 1998). Several reasons even justify public intervention (Batley and Moran, 2004). The first is that SSWPs appear in order to offset any weaknesses of the formal sector. The second is that the water quality may be inadequate, which has an impact on public health. The last is that there is a risk of false competition, *i.e.* of undersupplying or overcharging the service. Indeed, as they operate mini-networks, they work in a monopoly environment by trying to gain exclusive rights in an area and not in a situation of real competition. It is for this reason that neither the need to survive, nor the supposed competition between them, prevent tariffs from nevertheless continuing to be excessive compared to costs. Conversely, the activity of the SSWPs can impinge on the field of public policies. Indeed, SSWPs can just as easily increase spatial inequalities and deteriorate water resources (Zérah and Llorente, 2003) as they can contribute to urban development by anticipating the arrival of new urban dwellers and determining where they settle (Solo, 2003).

Despite these potential synergies, incompatibility and mistrust prevail between public authorities and SSWPs (Sansom, 2006). The authorities often show a “*calculated lack of interest*” (Batley and Moran, 2004) in SSWPs. They do not welcome the sudden arrival of these nonconformist stakeholders, not only because they reveal public deficiencies, but also because they introduce competition and profit-making into public service management. However, this attitude does little to impede the proliferation of SSWPs, but it does constrain their growth and increase the cost of their service (Batley and Moran, 2004). If they do not cooperate at the institutional level, agreements are likely to be established in the form of informal collusion (Sansom, 2006). Moreover, there are few studies on informal pressure and oversight systems between local stakeholders in the absence of regulation (Owen, 2006), whereas they would help to understand how to commit these stakeholders to a more formal agreement.

Indeed, the aim of a public water policy is to allow the largest possible number to have access to a drinking water network *via* a private or collective connection (Kjellen and McGranahan, 2006). The activity of the SSWPs can contribute to this, provided it is promoted by an explicit political commitment (Valfrey-Visser *et al.*, 2006). How then can this political commitment be implemented in an effort to meet the MDGs? Beyond this goal, it is also important to take account of the sustainability of this type of solution: how to avoid an over-consumption of water and monitor water resources if they are limited? The scale and urgency of these challenges make it necessary to consider ways in which SSWPs may be involved in the extension of supply to poor neighbourhoods under a proactive public policy and not as a side effect of more general decisions (Valfrey-Visser *et al.*, 2006). In other words, should SSWPs be considered as long term stakeholders or as a temporary solution?

• *David against Goliath, or the problem of the dual network*

The case of Asunción, in Paraguay, shows that the competitiveness of mini-network operators completely challenges the supposed advantage of major operators (Solo, 2003). SSWPs not only tend to align with the service quality of the DO (Troyano, 1999), but when they exploit their own source, they can provide water to resellers and sometimes even to the DO when his production is insufficient (Botton and Blanc, 2010). Do the economies of scale of major groups therefore allow them to offset the lack of flexibility in their provision as the economic theory stipulates (Dardenne, 2006)? Not necessarily, as the DOs are often obliged to go a long way to find water in sufficient quantity and to make significant investments for conveying it (Solo, 2003).

An SSWP parallel supply can even contribute to the failure of the DO by “sucking the lifeblood water” from his pipes and by bribing local authorities to prevent extensions on the main network. Conversely, the risk of extensions on the DO network limits SSWP investments. Hence, SSWPs mainly develop in areas where the DO does not show any intention of moving into. It is then possible to imagine that it is in fact the formal sector that creates the informal sector, either by default or even in a strategic manner, in order to subcontract at a low price in unprofitable areas and thus increase its margin (Walther, 2006). This sort of intuition indicates that the spatial non-coincidence of the two networks is a product of their interdependence. Each network operates in a specific social geographical area. The official operator’s artificially low consumer tariffs are prejudicial to the extension of its network in less advantaged neighbourhoods. SSWPs, for their part, create a secondary network, which is to some extent the negative of the official network. This bipolar structuring stems from latent social power relationships, which institutionalize the inequality of access (Batley and Moran, 2004).

This underlying link would therefore gain from being explicitly recognized so that the crucial political issues of these technical developments are included in public debate. *“Legislation that often prohibits the dominant operator from delegating some of its responsibilities [...] relegates peri-urban SSWPs to the background of informality and illegality”* (Valfrey-Visser *et al.*, 2006). There is therefore a need to make SSWPs emerge from their clandestine existence and come out into the open.

- ***Recognizing SSWPs as a legitimate counterpart***

If the authorities accept to start viewing SSWPs as part of the solution rather than part of the problem, the official recognition of their role is undoubtedly the first step that needs to be taken. It is part and parcel of a process to gather SSWPs within a federation and to appoint representatives in charge of negotiating. From there, the set-up involving a triangular management between users, the operator and the regulator is restored. It may, in this situation, take the form of a rectangle when there is a dual operator through a partnership between the SSWPs and the DO.

When an association of SSWPs is set up, it allows the latter to obtain legal and land tenure security for their facilities, have access to decent opportunities for group credit and investments, develop systems for mutual support (training, exchanges), conduct political lobbying in favour of their activity, and increase their negotiating power. In addition, the association plays a role of self-regulation and management for these fragmented stakeholders, for example, by establishing homogeneous levels of quality or receiving complaints from users. However, this type of entity does not resolve the problem of possible cartels and, in addition, brings up that of the representativeness of counterparts. Moreover, if the recognition that it allows is avidly demanded by the SSWPs, it inevitably arouses political resistance from both the authorities and the DO (Batley and Moran, 2004).

- ***Organizing the complementarity of networks***

The stakeholders thus brought together could be in a position to regulate the water sector and organize the complementarity between the DO and the SSWPs. Indeed, situations whereby the SSWPs offer an alternative connection to households that are already connected to the DO are far from being optimal. They no longer fill a gap by providing a service that is essential for all, but are simply diversifying the existing provision which, moreover, remains insufficient. Yet, as it is accepted that the “natural” monopoly does not justify the legal monopoly (Snell, 1998), the DO could, on the contrary, turn into a primary network and the SSWPs into dependent resellers (Collignon and Vezina, 2000). This would resolve the problem of future network compatibility (Snell, 1998). That being said, the SSWPs’ loss of independence could lead to conflicts with the DO if the service of the latter deteriorates (Snell, 1998).

From this perspective, the contractual relation between the DO and the SSWPs becomes a core issue, especially if the latter are confined to distributing water and giving up production. The role of the DO may involve providing for the possibility of officially relying on SSWPs in the contract, as has been experimented by the DO in Ho Chi Minh City (Botton and Blanc, 2010). It must define whether the DO must compensate the SSWP it evicts from a neighbourhood, as well as the recourse available to SSWPs if the DO's performance deteriorates. The contract can also include user training and education systems with a view to reaching the same service standards. In other words, the challenge lies in establishing a fair contractual relationship between the DO and the SSWPs.

Whatever the option chosen (whether or not to maintain the independence of the SSWPs towards the DO), by allowing SSWPs to be a recognized extension of the network, it would be possible to better direct the effects of public policies (Kjellen and McGranahan, 2006). The regulator could then create opportunities for SSWPs by fragmenting the market, in new or underserved areas for example, in order to build a full service based on the comparative advantages of the DO and SSWPs (Valfrey-Visser *et al*, 2006).

3.4.3. The thorny issue of SSWP regulation

SSWPs develop because the insecurity in which they operate leads them to cut all costs as much as possible so that they can offer an affordable service to the relatively poor communities. However, once their activity has been recognized as participating in a public service mission, it is, at the minimum, important to control the quality of the water provided. However, if SSWPs are submitted to new requirements, they will inevitably have to increase some of their costs. As a consequence, their supply may no longer be as interesting for low-income communities. It is therefore a question of offsetting these increases with special tariff arrangements, such as connection subsidies or better access to credit.

- **Regulation as a form of collective service governance**

Regulation involves both ensuring that providers comply with existing rules (tariffs and quality) and adjusting these rules depending on unforeseen events. To achieve this, a regulatory framework is required (*i.e.* a set of formal and informal rules and processes that bind the providers), as well as an institutional regulatory model that defines the assignment of responsibilities between the stakeholders (Trémolet and Halpern, 2006; Trémolet and Binder, 2010).

In the case of mini-network operators, economic regulation may be required as these stakeholders are rarely in a situation of real competition. If, in addition, the SSWP exploits a water source that is independent of the DO, the regulation needs to be extended to groundwater pumping and to the quality of the water withdrawn. In most cases, however, the regulatory framework has been designed for a DO and does not provide the appropriate tools for supervising a multitude of stakeholders. The quality standards are therefore inappropriate because, as they are excessively demanding, they impose an increase in costs and threaten to push SSWPs towards bankruptcy. The challenge that emerges therefore lies in determining the way in which the regulatory framework for drinking water supply can be amended in order to integrate SSWPs (Trémolet and Hunt, 2006).

- *Does “regulation” mean “formalization”?*

Conversely, other development project initiators support the idea that governance must be defined as a combination of formal and informal institutions. From such a perspective, SSWPs are perceived as being the best possible solution to supply peri-urban or poor neighbourhoods. This vision is based on the recognition that market logic alone cannot suffice for supplying all households in a regular, reliable and affordable manner. The aim of the support provided to SSWPs is not to increase competition between stakeholders that have become formal, but to strengthen cooperation between SSWPs and institutional stakeholders. As the fact that power exists within and outside formal institutions is acknowledged, the formalization of SSWPs is not, in this case, necessarily an objective (see Box 14 for an analysis of how donors perceive the informal systems represented by both SSWPs and associations).

Box 14 *Multilateral aid organizations and informal systems for water supply in urban areas*^[202]

The search for alternatives to systems that are organized hierarchically, or subject to market forces that have proved to be inefficient, leads to the increasing involvement of multiple stakeholders in the provision of urban services. Informal private operators and local associations are among these stakeholders who play an increasingly important role; in this respect, they receive increasing attention from multilateral organizations, which, however, would appear to adopt different approaches. It would especially appear that the World Bank's approach continues to be embodied in a neo-liberal policy, which views water services and urban services as market services, the management of which must be open to broad competition and obey market mechanisms. Conversely, UN-HABITAT and, to a certain extent, the European Commission, highlight the need for promoting local ownership of development strategies, while building on the principles of inclusion and equity.

- *Competition and cooperation:* rather than promoting a strategy based on the principles of competition between a wide range of urban water-service providers, UN-HABITAT and the European Commission seek to support alternative systems in order to promote fair and equal access to urban water services because “*market [relations] alone cannot guarantee appropriate patterns of production and consumption*”, (UN-HABITAT, DFID, and DPU, 2001; European Commission, 2002). The approach to informal water distribution systems adopted by UN-HABITAT is based on operational and cooperative partnerships at the local level between local authorities, the private sector and associations, in which local authorities must go beyond their role of service providers in order to mobilize local potential.
- *Economic and social performances:* there is a consensus among a number of observers that the World Bank, whose approach used to focus closely on issues of macroeconomic and sectoral infrastructure, has reoriented its policies towards a new, holistic, concept of cities where “*sustainability, livability and good governance would appear to coexist on an equal footing with competition, sound management and budget responsibilities*” (Zanetta, 2001). However, the “*legalization*” of informal operators that has been envisaged and supported would again appear mainly to be conducive to an economic, institutional and political performance that falls within a neo-liberal type of development. Conversely, UN-HABITAT and the European Commission recognize that informal arrangements and institutions are an active and essential part, not only of supplying water to poor communities at the operational level, but also, and especially, of building an inclusive decision-making process. The idea is first and foremost to develop a common vision of the city – between formal and informal stakeholders – then to bring it into being thanks to contributions from all the stakeholders. Development performance is mainly defined in social terms, based on the principles of inclusion, equity, social justice and sustainability.

Source: Moretto (2007).

[202] This box is an extract from a study based on data produced by multilateral aid organizations until 2007 on informal water distribution systems.

The Water Supply Service Wheel (Figure 7), which shows the entire spectrum of possible arrangements (although in reality the boundaries are often more blurred) illustrates this consideration of the advantages of the informal sector.

Figure 7 *The Water Supply Service Wheel*



Such a prospect, which does not close its eyes to informal and effective systems, allows envisaging synergies between stakeholders from the formal and informal sectors.

• ***Flexible regulation in order not to break the dynamism of SSWPs***

Economic regulation breaks down into several methods: price control, service-quality supervision, competition regulation and user protection (Trémolet and Halpern, 2006). In all cases, regulation must be a combination of supervision – incentives rather than sanctions – and support, such as technical assistance, simplified requirements to obtain a license, etc. The choice must take account of how efficient the systems are and how easy they are to implement, and of a cost/benefit analysis (Schaub-Jones, 2008). For example, it is extremely difficult to specifically target poor households when controlling the extension of supply as the latter are generally spread out all over the city and are not only to be found in slums in peri-urban areas. It is, nevertheless, reasonable to consider that the better-off households are already connected and that promoting network extension is therefore in itself an effective (and less costly) way of benefiting the poor.

Water quality and service regulation leads to mechanisms to control the ecological compatibility of systems, the reliability and durability of facilities and, finally, the parameters taken into account by users (such as the continuity of supply, the pressure in the pipes, the turbidity of the liquid, etc.) (Trémolet and Hunt, 2006; Trémolet and Binder, 2010). Regulation mechanisms often make the mistake of imposing standards that are too high and excessively increase costs. However, it is necessary to adapt standards to local requirements: a peri-urban neighbourhood with low-rise housing does not need the same pipeline pressure as a neighbourhood of high-rises. In fact, the decisive parameters for users are not always the same depending on the social category or the neighbourhood. It is only flexible regulation that can take account of the quality/price choices made by city dwellers on a daily basis (Trémolet and Halpern, 2006).

Tariff regulation is a complex issue as it would seem impractical to study and consider all the varying costs of a wide range of informal and disparate stakeholders (Sansom, 2006), as is seen in the case of Paraguay. However, as network operators have exclusive rights over an area, there is a real risk that the service will be overcharged. Conversely, some authors believe that it is not so much the SSWPs that are expensive, but that the DO's tariffs are undervalued. Politicians' *"reluctance to charge"* jeopardizes the viability of the system because the implicit subsidy contained in the DO's low tariffs only benefits those who are connected to the network (Trémolet and Halpern, 2006). Other authors dispute this interpretation, arguing that the removal of subsidies to the DO and the establishment of an exclusively demand-driven approach would threaten to further marginalize the poor (Batley and Moran, 2004).

However, the DO's consumer-tariff increase does not necessarily mean that users must finance the entire service. This calling into question can, on the contrary, allow subsidies to be focused on reducing connection costs. In such cases, the DO would be likely to extend its service to poorer households. However, it is a fact that this type of development is rare and SSWPs are today in a better position to extend access to network water on a large scale. The alternative could then be to subsidize the SSWPs. There are two options: either to provide for connection subsidies or for specific volume tariffs. The volume subsidies do, however, pose problems in terms of including well-off households. They are, in addition, ineffective if the meters are not working. Although there are also non-economic barriers to network connections (administrative procedures and land-tenure security), it would seem preferable to subsidize the connection. This type of mechanism may involve having different connection tariffs depending on the household's level of income: a normal tariff and a "social" tariff. The subsidy would then fill the gap between the connection cost for the SSWP and the "social" tariff (Trémolet and Halpern, 2006).

The problem with subsidies is that they reduce incentives to seek lower-cost solutions (Solo, 2003). But how then can SSWPs be subsidized without them increasing their tariffs, either because they do not pass on the subsidies to the user tariffs, or because the fact of being the beneficiaries of them leads them to be less vigilant over limiting costs? The challenge for regulation therefore lies in ensuring that it does not diminish SSWPs' ability to innovate and closely follow demand by imposing, for example, excessive regulation, overly restrictive licenses or restrictive subsidies (Collignon and Vezina, 2000).

Different levels of commitment are conceivable with respect to integrating SSWPs into the public service, such as simple recognition, a dialogue process, facilitating their activities and the conclusion of contracts or regulation. In all cases, the commitment must be based on a dialogue and cooperation process among stakeholders, founded on informal and continuous negotiations (Snell, 1998), and for which the contract is only one component (Valfrey-Visser and Schaub-Jones, 2006). However, government capacities are generally weak, *a fortiori* in a context of decentralization, due to a lack of competent staff. Yet the more the process moves towards regulation, the more government capacities need to be strong (Sansom, 2006). Tariff regulation, in particular, requires quality information (Batley and Moran, 2004). The establishment of a regulatory framework including SSWPs therefore risks involving certain reforms in the public sector in order to improve the environment and facilitate oversight over them, such as a single administrative window, performance contracts, an independent regulator and supervision and evaluation (Sansom, 2006).

Conclusions

In view of the stage that has been reached in debates, the question is no longer to determine whether SSWPs should be regulated. The relationship of interdependence between the DO and SSWPs must be formalized, otherwise there is a risk of unleashing a fragmentation to the detriment of the poorest. Yet the fact that an item as vital as water is more expensive to obtain for the poor than for the rich is an injustice that further exacerbates social inequalities. The challenge today is therefore to establish effective and transparent local governance structures that regulate the most efficient forms of local innovation (McGranahan and Satterthwaite, 2006). In this case, among the SSWPs, mini-network operators are in a position to provide the most satisfactory service in terms of cost and the time saved in the provision of supply.

However, even for these networks, the initial connection fee remains prohibitive for many potential users. The alternative is then to allow SSWPs to reduce their costs or to effectively target aid for the connection of poor households. The first hypothesis advocates for freeing SSWPs from a number of constraints. This can mean securing their facilities and giving them greater access to credit, for instance. But how can one be sure that the SSWPs will not take advantage of this to simply increase their margins?

The second hypothesis involves designing mechanisms that enable authorities to ensure their grants benefit the poorest. Mechanisms such as output-based aid offer a promising solution, especially because they require a finely tuned adjustment to the regulatory framework (Trémolet and Halpern, 2006).

SSWP regulation is not limited to supporting them, but it also involves overseeing the critical aspects of their activity, such as the quality and quantity of the groundwater reserves they use. Yet oversight very often goes hand in hand with additional cost and the resulting tariff increase. How, then, can the stakeholders – whose flexibility is vaunted – be regulated, but without wiping out their strengths? Some possible answers are beginning to emerge. A consensus would appear to be taking shape on the idea of providing for a more flexible regulation in which the unsatisfactory and important aspects for users of the service would be identified and competition would be left to do the rest. The formalization of SSWPs is therefore not necessarily an end in itself. This type of approach allows envisaging alternative levers to centralized

regulation, such as promoting the dissemination of information on tariffs and quality, working to strengthen SSWPs' skills, and restructuring the market by promoting concentration (Batley and Moran, 2004). In this respect, the institutional regulatory model would gain from integrating local intermediaries, such as users' associations and SSWPs likely to serve as a reference and guarantee a minimum quality (Trémolet and Binder, 2010).

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3.5.

What complementarity between formal and informal sectors? The regulation of water distribution SSWPs in Ho Chi Minh City (Vietnam)

S. BOTTON

Introduction

This article ^[203] seeks to understand the role played by small-scale private water providers (SSPWP) in the governance of water services in Ho Chi Minh City (HCMC, Vietnam) and follows on from research conducted on this topic by sector stakeholders, notably the World Bank and WSP (Snell, 1998), the Asian Development Bank (Conan, 2003) and AFD (Blanc *et al.*, 2009; “Review of the Literature on SSWPs” in the present publication). The analysis here focuses on one of the “typical” figures of water distribution SSWPs: entrepreneurs/operators of small piped networks. ^[204]

[203] This article is a summary of an exploratory study on the project “Funding and governance for urban drinking water and sanitation services in DCs. Models for long term overall cost-sharing between stakeholders”, financed by the Iddri Foundation and led by the Institute for Research & Development (IRD), coordination: Claude de Miras (LPED, UMR 151), period: 2008-2010. The complete study was published by AFD in its *Focales* collection (Botton and Blanc, 2010).

[204] We recall the three typical figures described by Suzanne Snell: *Partners of Water Utilities, Vendors and Resellers, and Pioneers of Small Piped Networks* (Snell, 1998).

3.5.1. SSWPs in HCMC water services: background

- *HCMC in Doi Moi Vietnam: economic growth and metropolization*

In Vietnam, the early 1990s marked the first signs of economic opening by the Communist political regime with the so-called *Doi Moi* (renewal) reforms. These included the liberation of agricultural prices and the decollectivization of land, the authorization of private commercial activities and the development of foreign investment. This led to strong growth in industrial GDP, but also, back in 1995, to reforms in Vietnamese public services, inviting each sector to gradually enter into a “socialization” process (a Vietnamese “privatization” involving a “commodification” of services, a “corporatization” of public companies and a partial opening of their capital to the private sector).^[205]

Moreover, HCMC has not been spared by the effects of strong urban growth experienced by major cities in developing countries over the past decades. Combined with strong economic and demographic growth, they have contributed to a sharp divide between the supply of urban infrastructure (transport, water, sanitation, etc.), designed below capacity by public authorities, and the exponential social and economic demand for basic urban services. This situation requires the different urban development stakeholders to come up with innovative solutions, to try and rebalance supply and demand for services, particularly for water and sanitation services. In addition to projects to improve or extend existing services (which amount to millions of USD that still need to be mobilized), solutions gradually emerge that call on new stakeholders for participating in the challenge of providing access to drinking water for all. These stakeholders include small private operators who had hitherto been working in the informal sector.

- *Water in HCMC “a delightful blend of technical officiality and resourcefulness”*^[206]

As in any major city in developing countries, water services are provided by a number of stakeholders (official, informal or individual) who can work together or sometimes compete. They have different practices and uses. This includes water carriers, sale of bottled water, public network, water from a private well, etc., for different uses, such as

[205] “Socialization” is the translation of the Vietnamese expression “*xa hoi hoa*”, which means getting the population to contribute to gaining access to public services such as health or education. “Socialization” can be interpreted as the “privatization” of public services. It is a reflection of the inability of the State to meet the needs of the population. In practice, this policy leads to sectors being opened up to private sector stakeholders and goes hand in hand with an increase in service tariffs (de Miras, 2004).

[206] Bolay, 1998.

drinking, cooking, hygiene, housework, etc. The use of different water services will depend, if need be, on where the home is located in the city (centre/outskirts, distance from the network/whether or not there is access to groundwater, etc.), on the household's income (use of private carriers, investment in a borehole, etc.), and on social water practices. In the vast majority of cases, the domestic connection to the official drinking water network is the least expensive and most practical solution for all households. The difficulty that city dwellers must then face, and the adaptation strategies they adopt, generally result from the lack of investment in official networks, which physically limits their extension, whereby the networks remain confined to the city centre and inner suburbs. It also tends to worsen service quality as water is not necessarily available 24 hours a day, the pressure may be low in certain sections of the network, the lack of investment in servicing and maintenance causes significant network losses and can jeopardize the potability of water, etc. In order to understand the dynamics of water governance in HCMC, we shall first provide a brief overview of the institutional framework in which water stakeholders operate.

- *The formal sector: institutions and stakeholders in Vietnam's urban water sector*

Water services are certainly the urban services that are the most deeply-rooted in a territorial sense, since they depend on the availability and accessibility of water resources, and on the regional organization of their transfer to the city. This is why the "natural monopoly" nature of water is very often highlighted. The national and sub-national political organization of each State therefore necessarily structures the issue of urban water.

In Vietnam, the water sector is decentralized at the provincial level ^[207] unlike other urban service sectors (electricity and telecoms), which are managed at the central level and are only devolved at lower levels (de Miras, 2004). In HCMC, two institutions accordingly manage the official drinking water services: a public company – the Saigon Water Corporation (Sawaco)^[208] – for dense urban areas and the Rural Water Supply Centre for non-dense urban areas in outlying suburbs. As the issue that interests us here concerns urban water stakeholders, we shall focus our analysis on the services offered by Sawaco and by the other water stakeholders operating in urban areas.

[207] Since Resolution 217 in 1990, water pricing has been decentralized from the Government Pricing Committee to provincial People's Committees (City Committee in the case of HCMC).

[208] Prior to 2005, Sawaco was called the Ho Chi Minh Water Supply Company (HCMWSC).

Sawaco has been responsible for HCMC's water services for over a century. It was founded in 1874, was restructured in 2005, and subsequently became a company constituted under commercial law with its capital held by the public sector.^[209] We shall come back later to the water sector reform that, since 2005, has paved the way for the "socialization" (privatization) and "equitization" (transformation into a joint-stock company) of public water companies, thus profoundly changing the sector. At this stage, we shall simply mention that the company has recently set up eight subsidiaries ("daughter companies"), which operate in an autonomous manner and whose respective service areas divide the city into eight water management "monopolies". Six of them have become "privatized" semi-public companies and have opened 49% of their capital to staff and local investors (banks, local industries, real estate companies, etc.), with the remaining 51% still held by Sawaco.

Sawaco operates in the "extended" city of HCMC. Its service area covers 17 urban districts (*Quan*) and 5 rural districts (*Huyen*) counting roughly 5.7 million inhabitants. Yet, service is still far from being universal. According to Sawaco, 87% of the population in the service area^[210] has domestic access to water (11% *via* the rural water supply centre and 76% *via* Sawaco in the centre). In 2008, its network stretched over an area of some 3,000 km and counted roughly 570,000 domestic connections. Despite the difficulty of assessing the company's assets, there is clearly a vital need to invest first in servicing and maintaining existing networks (ADB, 2008, Renard 2000) and, second, in the extension of outlying networks (ADB, 2008). Indeed, the infrastructure is in an alarmingly dilapidated state: in 2000, 240 km of pipelines were over 70 years old and 2,000 km were between 30 and 70 years old. Only 20% of the linear network was "aged" under 30 (Renard, 2000). In addition, the HCMC water service has only had a budget for pipe repairs since 1990. This results in a series of management difficulties, including technical water losses of around 43%, problems of bacterial contamination (and therefore of the quality of distributed water), problems of lack of pressure and, finally, difficulties related to the tariff policy, which does not cover the required upgrading and extension policy.

As with the other water companies in Vietnam, the tariff is defined by the water company, but must be approved by the People's Council (legislative body at the level of the Provincial People's Committees). However, the Vietnamese public authorities maintain water sector tariffs at extremely low levels, despite recurring proposals to reform the water tariff policy, which would allow the water companies to move towards

[209] The idea is for this commercial company to eventually become a semi-public company (51% public and 49% private).

[210] Number of connections/number of families.

a self-financing approach.^[211] In HCMC, the average tariff stands at USD 0.28/m³ (less than the national average) and barely covers operating and maintenance costs.

In order to face the challenges posed by the metropolization of HCMC, the city's People's Committee has drawn up a plan that aims at raising the coverage rate from 76% to 100%, by increasing production capacity from 1.2 million m³/day today to 3.2 million m³/day. Moreover, Sawaco is planning major upgrading works on the primary pipelines (from the Thu Duc plant to the city). The different projects are currently pending financing. It is therefore easy to conclude that a substantial improvement in drinking water service quality and coverage in HCMC will not happen overnight, or without the help of international cooperation. Until the funds are mobilized and the first impacts of the water reform are felt, communities continue to organize themselves in order to obtain water supplies. If Sawaco does not manage to meet their demands, other stakeholders are able to meet social demand for water. Their tariff conditions and quality are certainly less attractive, but their availability and responsiveness is much more appealing to city dwellers. *"Public service deficiencies are offset by the increasing number of small operators, transporters and, finally, resellers of private water. They are dynamic operators, capable of diversifying their strategies and occupying all the segments left vacant by official stakeholders. This is why their weight in terms of coverage is often inversely proportional to the performances of official concessionaires."* (Renard, 2000).

• *Informal water sector stakeholders*

Without going into a detailed and documented typology of informal water stakeholders in HCMC, it is possible to identify practices and stakeholders that are quite commonly present in major cities in developing countries. These range from individualist practices (at the household level) to community practices (at the neighbourhood level), and from exchange (or gift) practices to market practices (neighbourhood or small private businesses). In reality, city practices related to water in HCMC are obviously a combination of the different existing methods. We thus find different characteristic features of social practices developing in the interstices of the official public service. These include purchasing from small resellers or water carriers, neighbourhood gifts or exchanges, the use or reselling of water from private wells or collective wells, individual or collective fraud on the main network, an increase in the number of flexible ("spaghetti") pipelines at the neighbourhood level, domestic connections to a mini water

[211] Notably the seminars organized since 2002 on the issue of water tariffs (Hai Phong, June 2002; VWSA seminar in December 2002, etc.), as well as the recurrent recommendations of professional associations such as VWSA (Vietnam Water and Sewerage Association) or SEAWUN (South East Asia Water Utility Networks) for water sector tariffs to be unfrozen in order to allow the sector to be financed.

network operator, etc. However, as certain stakeholders who have participated in urban projects in greater HCMC confirm, there are few data on water sector SSWPs in Southeast Asia (Conan, 2003). It would also appear relatively complicated to obtain detailed information on the way the informal water sector is organized in HCMC. Nonetheless, a few studies – which date back to the 1990s – have provided interesting results at the infra-urban level (the *quan* or neighbourhoods), notably when data were collected under projects for improving and developing neighbourhoods.^[212]

These studies provide us with information on the following elements:

- the “market share” of mobile water resellers: 14% of residents in the centre of HCMC use the services of water resellers compared to 26% in the outlying districts of Binh Chanh or Nha Be;
- the level of tariffs charged by water resellers: 3 to 20 times of Sawaco’s price per m³;
- the amounts that households allocate to water expenditure: in District 1, from nil for households with private wells to USD 29 a month, with an average monthly expenditure of USD 3.6;^[213]
- the relative tariff levels between water resellers, neighbourhood reselling and the official network depending on the geographic location: the further you go into the suburbs, the more the resellers align their tariffs on the neighbourhood resale tariffs^[214] (Renard, 2000).

“The great conductor is the municipal water supply company in HCMC. It was previously State-owned and has been privatized in recent years by being divided into several sub-companies. This major operator operates both in surface water and groundwater. As surface water requires an advanced and costly treatment, it is not suited to small or even medium-sized operators, which therefore mainly operate in groundwater. For various reasons, many families cannot directly benefit from municipal water and must use these small or medium-sized operators, either as a

[212] Notably during programmes to improve urban services in HCMC: surveys conducted by Enda Vietnam’s social workers in different neighbourhoods, information collected by researchers from Vietnam (HCMC Faculty of Geography, Women’s Studies Department at HCMC University), Belgium (Belgian cooperation’s 415 project) or Switzerland (EPFL, Lasur) and comparative information from donor studies, notably from the ADB.

[213] *“Although on average water expenses only account for 1.8% of family income for households connected to the network, they rise to 3.9% for families in the old city centre who are supplied by resellers and to 6.4% in the outskirts of HCMC, where tariffs are high and family incomes are low. The threshold of 5% of income, which commonly serves as a reference for evaluating access to water services, is consequently exceeded”.* (Renard, 2000).

[214] In the centre, the neighbourhood reselling tariff is roughly double the price paid by connected users, and the tariff charged by small resellers is triple that price (*i.e.* roughly USD 0.22/m³ for the neighbourhood tariff against USD 0.11 for users of HCMWSC and USD 0.33 for purchases from small resellers).

small community (mini water supply networks for a few hundred families built and sometimes managed by a public or private medium-sized company), as an individual family, or, more rarely, as a group of a few families (small family borehole drilled by small entrepreneurs and managed by the family). There are also small informal (non-certified) operators. I know of at least one case where an individual drilled a borehole for his own consumption and sells the water to his neighbours to make a small profit. There are also “water lords” in small, remote neighbourhoods. With their money, they have been able to bring a municipal feeder into their sector and now sell the water to poor families in the surrounding area in various forms and at tariffs that depend on their “social spirit” (Cities in Transition came across this case with a project conducted in District 7). The main problem with small private operators is that they build cheap boreholes that can thus easily pollute the exploited groundwater. However, their business requires such small investments that they proliferate and the State finds it hard to control them.” (Cities in Transition, Nov. 2008).

In addition to this “classic” organizational configuration of multifaceted urban water services, a new type of operator appeared back in the early 2000s, midway between the small private reseller and the official urban network operator: the SSWP offering a domestic supply via a small to medium-sized network supplied by an independent source (borehole).

3.5.2. The small private mini piped network operator: from a spontaneous emergence to institutionalized support

- ***The mini piped network SSWP: a specific service***

Its service is a real alternative to Sawaco’s services in new urban areas that are not yet served and is comparable in terms of quality and more or less comparable in terms of tariffs. It is this type of SSWP that particularly interests us in this study, as it constitutes a strong sectoral innovation (for informal, quality services) at a time when governments are seeking to mobilize “levers” for providing access to improved water services for all, in line with the MDGs.

These new stakeholders have emerged at practically the same time at the physical level (creation of these entities) and at the political level (emergence as both a political problem and as a partial and temporary solution to the difficulties of the main operator). This emergence phase has been particularly well documented since, from their infancy, SSWPs have aroused the interest of donors (notably the Asian Development Bank, ADB), who sought to analyse and support the process. They also aroused the interest

of public authorities (and of the operator) who – at the time – saw these new stakeholders as interesting intermediaries for the extension of network supply, at least in the short and medium term.

- ***Institutional support: the SSWP, a cornerstone of the socialization policy in HCMC***

This interest very rapidly – and quite surprisingly – took the form of an institutionalized agreement between Sawaco (still called HCMWSC at the time) and the SSWPs, endorsed by the HCMC People’s Committee.^[215] This agreement, called “socialization programme” in reference to the laws promoting the socialization (“privatization”) process in urban services in the mid-1990s, therefore marked the “arrival” of SSWPs on the official scene of the city’s water stakeholders. We should point out at this stage that the “socialization programme” implemented in HCMC, and “inviting” SSWPs to contribute to the target of making water services universally available, is one of the possible forms of the general socialization policy (in other words, of State disengagement) that is intended to be adopted and adapted by each Vietnamese province. It is a “technical” implementation of the socialization policy and aims at identifying other operators able to meet the operational challenge of improving services.

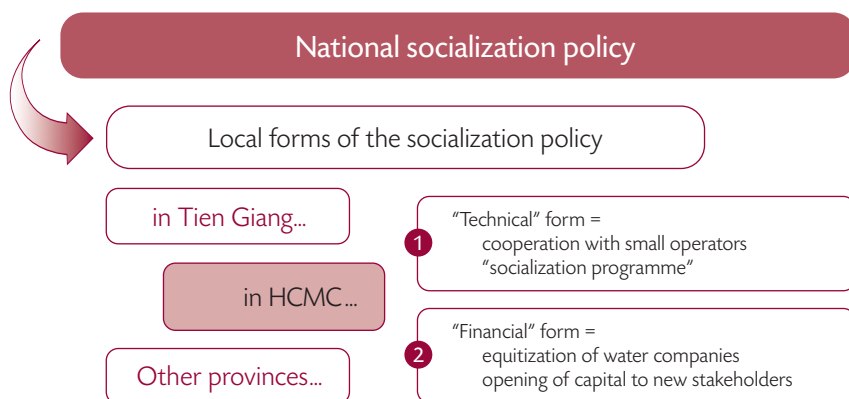
“The socialization programme in HCMC dates back to 2003. We were the first to adopt this programme regulated by the HCMC People’s Committee. In 2003, we obtained the decision promulgated by the PC allowing us to conduct this programme. [...] The city’s decision comes from a proposal made by Sawaco. [...] As we are responsible for the entire city and as at that time we had financial constraints, we were unable to invest in remote areas, we thought it would be profitable if people wanted to invest and if we agreed with them in order to support them. First, we received signals from customers who were able to invest and who wanted to have water and, second, HCMC was quite willing to accept this concept at that time. In other Vietnamese provinces, the private sector is still not authorized to operate in the water sector.” (Sawaco, Nov. 2008).

As we will be analysing later, HCMC subsequently decided to implement a “financial” form of this general socialization policy, this time not by seeking new operators, but new investors interested in participating in financing the sector. As this first “technical” form of the national socialization policy, which is specific to HCMC and aims at establishing cooperation between the official operator and informal operators,

[215] See the text of this agreement *in extenso* (final version prior to the signing) in the appendix to the study (Botton and Blanc, 2010).

was called “socialization programme”, it can sometimes lead to confusion because it is only one of the aspects of an eponymous general policy. In order to distinguish between the two levels of public policy, we shall make clear reference to the socialization *policy* (general public policy framework defined at the national level) and to the socialization *programme* (first “technical” form of this policy in HCMC in 2001).

Figure 8 *Socialization: national policy and local form*



Source: author.

The socialization programme is a twofold marker of structural sectoral innovation, first, because it acknowledges the existence of stakeholders “outside spontaneous fields” and allows them to integrate the official regulatory framework (under certain conditions that we shall give below) and, second, because it is extremely modern. Indeed, this legitimization – or officialization – took place back in the 2000s,^[216] very soon after the MDGs were defined, *i.e.* well before the issue of the place of SSWPs in the field of urban governance simply became a political “problem” in other contexts.^[217]

A consultant for ADB, interviewed in November 2005, presented us the innovative nature of this agreement: *“The idea was to say: I have a network in a given area of the city and I am going to define areas for gradual extension based on my plan and, depending on whether the area is near the network or not, I might be able to subsidize the small operator. I may only be present in an area in five years’ time. Five years may*

[216] At Sawaco’s request, the first discussions at the HCMC People’s Committee were held at the end of 2001; the agreement was definitively signed in 2003. The pilot project was launched with the Hiep An company as early as in 2002.

[217] See notably the Chapter on the Maputo (Mozambique) example, where the emergence of SSWPs only became a political “problem” when the phenomenon exploded all over the city.

not be a long time for a company, but it is for the person who is waiting for the network! The problem is that the small investor, who knows that he only has to make a five-year investment, will make a watered-down investment, a “bottom shelf” service. I could maybe subsidize him so that he will create a network I could take over. Rather than letting him develop a poor-quality network and service that will have to be replaced in any case, and as I am signing something formal, is it maybe not in my interest to co-finance the investment and impose standards for the pipes I will be able to connect to tomorrow without having to make a double investment? And the farther I go from the centre of the network, if the connection will only be made in fifteen years’ time, I can be less demanding in this case. [...] The more time I give him, the more I can be demanding and tell him ‘You have fifteen years, it must be a quality service’ without asking him for an ISO-reference pipe, etc., and without a grant. If I do not subsidize those who are near the network, they will necessarily offer a pitiful service, which is not in my interest as an operator.”

Box 15 Principles of the socialization programme in HCMC

The HCMC “socialization programme” aims at facilitating investments made by local companies in the water sector to:

1. Increase water production,
2. Improve the level of service in areas that are not yet served by the main operator,
3. Upgrade the water network in areas with high loss rates.

The areas concerned will be selected by the local authorities (Department of Public Works, Department of Planning and Investment and District People’s Committees) and the specifications and technical standards will be defined by the main operator.

The regulation will define:

1. The different types of investment,
2. The selection procedure for investors under calls for tenders,
3. The rights of investors (development of their own business plan) and their responsibilities (drinking water, technical standards, oversight conducted by local authorities),
4. The procedure for the takeover by the main operator at the end of the delegation contract (five years, renewable once) or when the area is served by the main operator.

The regulation does not specifically provide for low-cost technologies tailored to a pro-poor approach.

The SSWPs must provide the same technical standards as the main operator.

Source: from Conan and Paniagua (2003).

One of the main difficulties of the operator Sawaco is its lack of capacity in terms of drinking water production. Indeed, the originality of the socialization programme system also lies in the fact that the proposal of a “subsidy” to small operators involves an original – and very surprising – contract to buy the water production surplus (where applicable).

A Sawaco manager, met in November 2008, described this system and the way in which SSWPs register for the socialization programme: *“It is possible for water companies not to register for the socialization programme, but in that case Sawaco does not buy the surplus quantities of water. They must register at the HCMC DPI (Department of Planning and Investment). The DPI gives the authorization to open an establishment and they must then register at the DOT (Department of Transport) if they want to have support for the activity of looking for land, tax relief, etc. The standards are set by the Department of Health. There is also a license for groundwater exploitation with the Department of the Environment [...] [The SSWPs] eventually either disappear or join the socialization programme so that Sawaco buys their assets. Few companies want to register with us because we require water quality standards and standards for water supply systems.”*

- ***A regulation system promoted and supported by ADB***

At the same time, in 2001, ADB defined its new water policy in Manila and then set up the Cooperation Fund of the Water Sector, intended to finance studies and pilot projects for implementing its new water policy. In this context, Technical Assistance project n° 6031 (“Promoting Effective Water Management Policies”) provides for a “Small-Scale Independent Private Water Providers” component in order to explore ways in which SSWPs can contribute to the new challenges posed by the MDGs. Studies were therefore conducted by local consultants in eight Asian cities, which helped improve knowledge – until then rather basic – of the role played by small water operators in the region. The study on HCMC highlighted the emerging figure of “small private piped network operators” (the “pioneers”) for the first time. It also provided some data on water supply methods in the city (20% of households are supplied by SSWPs, against 45% by the main network and 35% by private wells) and on the profile of SSWPs, notably that 12% of these SSWPs operate small private networks (Conan, 2003). It also concluded that they arouse a great deal of interest in comparison with other SSWP profiles because of the effective contribution they make to improving water supply and service quality at the level of a major city: *“Pioneers have a mid- to long term strategy based on a significant initial capital investment ranging from USD 5,000 to USD 100,000. This investment can include water production, setting up a piped network, or buying a truck, and this is generally*

done with few guarantees, which makes it a risky investment. The analysis of the business plans provided by the pioneers of the study show that their amortization period varies from 3 to over 10 years. Their monthly net profit ranges from USD 200 to USD 500, similar to the income of their customers. The range of tariffs charged by SSWPs is from USD 0.2 to USD 3.5 per m³. The tariffs charged by SSWPs in Ho Chi Minh City are significantly lower than in other cities, which reflects the general trend observed in the study. Pioneers who provide the higher level of service that better meets the consumers' expectations, charge a tariff lower than that charged by other SSWPs that provide a lower level of service. In the different cities where they emerged, their tariff is from USD 0.22 to USD 0.86/m³. In Ho Chi Minh City there are SSWPs that have invested USD 80,000 to produce and treat water for distribution to 400 households through a house connection.” (Conan, 2003).

After having commissioned a summary of the studies conducted on SSWPs in eight Asian cities (Conan, 2003), ADB began to explore three contexts in order to launch pilot projects – India, the Philippines and Vietnam – with the aim of finding emerging initiatives to support.

This is an extract of an account from an ADB consultant in November 2008: *“It is true that in the different cities we visited in Vietnam, the only operator to have a very clear idea of the role played by small operators was the one in HCMC [Sawaco]. In its view, if it was unable to supply, or not for a long time, and if someone else could supply water instead of it at a reasonable cost that it could control, then it did not see why it should bother to make an investment that others were willing to make at their own expense! At the time when we were speaking with people from HCMC, they were the ones that were the closest to this arrangement... It was possible to make headway in the discussions because they had already taken the step of establishing contracts; the pilot projects were not prepared behind closed doors, there were agreements. Sawaco's idea was to go further with other stakeholders in unserved areas.”*

At this stage, we should specify a distinctive feature in Vietnam that has proved to be of particular structural value at several stages during this study. As some authors have noted, for a large number of Vietnamese civil servants it is only by cumulating several activities that a sufficient level of income can be reached to be able to live in a metropolitan area. Individuals therefore have secondary occupations, which are sometimes better paid, alongside their official positions (Henaff, 2001). This phenomenon has an impact on the technical quality of the infrastructure proposed by the SSWPs, as shown by this testimony from AFD in Cambodia (November 2008): *“The main difference [of Vietnam] compared to Cambodia is that when someone wants*

to invest in a treatment plant in Vietnam, he easily has academics, engineers, etc. at his disposal, and so real technical skills! In some universities, professors have their laboratory and also work in a private capacity – sometimes with their university card – quite clearly to do business. They ultimately create an extremely good design, a plant with a certain capacity, etc.”

This phenomenon also has an impact on institutional intertwining, on the creation of public policy networks and on the increase in the number of “mediators”, since dual or triple institutional affiliations are a common practice in *Doi Moi* Vietnam. For example, the local consultant employed under the ADB programme was also, among other duties, in charge of the “socialization programme” at Sawaco. This clearly facilitated discussions between the donor and the operator when sites were selected for the ADB programme.

- **Implementation of pilot projects**

Two companies had been identified as potential pilot projects for the ADB programme: Hiep An, a water production and distribution company in District 8 (Quarter 5) that had signed an agreement with Sawaco to join the socialization programme back in 2002, and Phuc Doan, a water production and distribution (by network and in bottles) company operating in District 12 (Quarter 3) outside any regulatory framework with the official operator (Box 16).

Hiep An

The company is located in District 8, Quarter 5, an ancient urban area that does not have a high level of growth. The residents range between middle class and poor. Originally, an infrastructure (construction) investment company built housing lots and invested in a water production (boreholes) and distribution system for these houses and the surrounding area.

Water is distributed 24 hours a day and the system has a capacity of 1,000 m³/day, though only 130 m³/day were produced in 2003. The number of users to be connected is estimated at roughly 1,000 but in 2003, only 100 households were connected. The technical system comprises a 210 m deep borehole. Water is treated by aeration, sedimentation and filtration. The water tariff stands at VND 3,500/m³ (USD 0.23). The domestic connection fee, with meter and installation, stands at VND 2 million (USD 133).

The company has signed a 3-year contract with Sawaco (socialization programme) to whom it sells part of its water production at VND 2,200/m³ (USD 0.15/m³).

Phuc Doan

The company is located in District 12, an area that was still rural in 2003, but where urban growth promises to be high in the coming years. The investor did not know the water sector when the company was created (it invested in textiles), but thinks that it offers good opportunities for economic development in this area. It consequently set up Phuc Doan, which produces and distributes drinking water in the neighbourhood and also markets bottled water.

The system has a capacity of 720 m³/day, but only 100 m³/day were distributed in 2003. The system is expected to allow roughly 2,000 connections, but only 400 have been requested so far. The entrepreneur is banking on a substantial increase in demand in the coming years.

Its bottled-water production activity is subject to strong competition and is not very profitable (it produces 10 m³/day with a profit margin of VND 200 [USD 0.01] per 0.5 litre bottle). The technical system comprises a borehole; there is no water tower. Water is treated by aeration, sedimentation and filtration. The water tariff stands at VND 3,300/m³ (USD 0.22). The domestic connection fee is VND 500,000 (USD 33).

The company does not have a license and has not signed with Sawaco. It is likely that it will be taken over in a few years' time.

Source: notes of local consultants for ADB (2003).

The pilot projects promised interesting results in the light of the conclusions of the initial analyses presented to ADB by the consultants (Table 22).

Table 22 *Comparison of the Sawaco / SSWP tariff offer (in VND)*

Tariff components	Sawaco (HCMWSC)		Hiep An		Phuc Doan	
	Practices	Amount	Practices	Amount	Practices	Amount
Block tariffs	Yes		Yes		No	
Social tariff < 4m ³ /h/d	Yes	1,700m ³	Yes	3,000 m ³	No	
Simple tariff below x m ³ /m	No		No		No	
Tariff 1		2,500 4 to 6 m ³ /h/m		3,500 >4m ³ / h/m		3,300
Monthly subscription	No		No		No	
Meter rental	No		No		No	
Taxes	Yes	5%	Yes	5%	Yes	5%
Domestic connection charges		Only 500,000 m		2M meters + piping		500,000 meters + piping

Source: notes of local consultants for ADB (2003).

Indeed, while it is common to observe a large gap between the tariff and service offer of the main operator (more attractive) and the SSWPs, in the case of HCMC – considering the practices of the two operators selected as pilot projects by ADB – one sees that the gap is not so significant, whether it be for tariffs (levels, block tariffs, social tariffs, etc.) or for connection fees. This result proves to be encouraging for the prospect of establishing SSWPs as an “intermediary” of the main operators for improving service provision in the city. This promising observation is diametrically opposed to numerous studies, which conclude that the services of the small private sector are expensive, putting residents in the outskirts and poor communities in a situation whereby they “have to pay more” than city centre residents although they have lower incomes.

With the institutionalization of the status of informal SSWPs, the establishment of contracts for their activities with the operator and public authorities and with service and tariff levels comparable to those of the main operator, in 2003, the situation of

water services in HCMC promised major changes in terms of access to quality urban services for all. But what was the situation 5 years on, in 2008?

3.5.3. The gradual phasing out of support for SSWPs in urban areas (2002-2008)

A field mission was organized in November 2008 for monitoring developments in the 2002 socialization programme and the pilot projects launched by ADB in 2003.^[218] The results were rather disappointing and quite surprising in the light of the promising start to the process, five years earlier. The SSWPs identified in 2003 certainly continued their activities and we were able to establish an update of the situation during the meeting with them. However, for various reasons that we shall describe in detail in this section, the socialization programme lost its momentum and was not extended to other stakeholders. The planned calls for tenders for service delegation to small operators in the city were finally never launched and – apart from the cases that had been identified for pilot projects by ADB – none (or very few) of the small network operators have started up in the water sector since 2002.

- *The persistence of a few “remnant” SSWPs from the socialization programme*

The survey and identification of SSWPs operating in greater HCMC were not simple tasks. On the one hand, their small number made it practically impossible to organize field visits in “randomly selected neighbourhoods”. On the other hand, no institution supervises and oversees small operators, even those who have signed an agreement to join the socialization programme. However, the account by Sawaco’s deputy director of the development of the socialization programme did make it possible to obtain the credentials of some companies and to find, among them, the examples that had been selected by ADB. Moreover, the fact that the manager of the socialization programme at Sawaco had also worked as an independent consultant for ADB, gave her more accurate field knowledge, beyond her mandate as a civil servant, and consequently gave her the status of “mediator”, which is particularly interesting when searching for this type of information. We were thus able to obtain a few additional credentials, as shown in this extract of the interview conducted in November 2008:

[218] Mission conducted from 3 to 28 November 2008. The field work consisted in a series of semi-structured interviews with the main stakeholders concerned by the issue (Botton and Blanc, 2010).

“It is possible for water companies not to register for the socialization programme. [...] For example, Phuc Doan is a company that produces bottled water, but they also have a small water distribution system for the surrounding neighbourhood. However, they have not registered with either Sawaco or DOT. [...] I also know of another company that tried to desalinate water (Phuong Nam Long). It invested a lot of money in building a desalination plant, but afterwards it could not sell the water because it was too expensive. [...] This plant closed down. [...] Sometimes, it is not even companies, but families who have enough money to exploit water for their consumption and who have begun to share some of it with neighbours. [...] I particularly have in mind a family in the 2nd Ward and in the suburb of Hoc Mon. They built a small domestic network around a borehole. It has very poor quality plastic pipes; the borehole water is not treated at all.”

The results of the socialization programme are therefore extremely disappointing, as only three companies have signed the agreement. One of them has gone bankrupt (Hoang Lien) and another only produces water that it sells to Sawaco (Hang Hai). The last one, which produces and distributes water, is the company that had already been identified for the pilot project as early as in 2002 (Hiep An). In the light of such results, one might legitimately wonder whether the development dynamics of water sector SSWPs do not lie outside the framework proposed by the socialization programme. But this avenue does not appear to be confirmed either, as it would seem, on the contrary, that the number of small private piped network operators (outside the socialization programme) is also extremely limited. According to Sawaco’s manager, it is estimated that there are not more than ten operators in all in the city, regardless of whether they signed the socialization programme.^[219] Despite this situation, which gives no reason to be optimistic, the activities of some SSWPs in HCMC have tended to develop well in recent years and their financial stability would appear to be guaranteed, whether or not they are part of the socialization programme.^[220] Tariffs, as with provincial water companies, remain under the authority of People’s Committees, even in an informal framework,^[221] and continue to be relatively low. The SSWPs that joined the socialization programme develop their activities in a relatively autonomous manner *vis-à-vis* Sawaco, whose role is simply to control the technical standards, ensure the quality of the water and negotiate the block-sale tariff. The main operator does not conduct any sort of accounting or commercial and financial oversight of the management of the SSWPs.

[219] If only operators with “professional” standards (industrial drilling, etc.) are taken into account. There are, in addition, several small informal operators (mentioned above: families with a borehole in their garden and distributing water in the surrounding area, etc.) for whom it is difficult to obtain accurate quantitative information.

[220] See Botton and Blanc (2010).

[221] Authorization to conduct an activity against caps on tariffs (kept low) and “envelopes” distributed to certain personalities close to People’s Committees.

In HCMC, the situation is therefore finally a long way off from an integrated regulation of the water sector, which would allow the public authorities and the main operator to adopt an inclusive planning strategy. The only point that the public and private management in the city would appear to have in common is the tight grip that the People's Committees have on setting the (extremely low) tariffs; this tight grip is also the main stumbling block for operators, investors and donors seeking to contribute to improving the city's water services. How was such a situation reached, whereas – and this rarely happens – economics and politics both served social needs a few years before? How can one explain the fact that the socialization programme collapsed in this manner and did not arouse the interest of new candidates?

- *The slow agony of the socialization programme*

The socialization programme failed and its failure first reminds us of the highly fragile nature of a multi-stakeholder construction of public policy (Botton, 2008) and, second, of the unavoidable random aspect of tools for public action. It therefore invites us to explore the different explanatory elements available to us in order to understand what brought this about.

Despite the results of the analyses conducted by ADB in 2003, it would appear that the main reason why so few SSWPs joined the socialization programme was economic. If candidates did not rush to sign up for the socialization programme, this was primarily, according to Sawaco, because the water business is not very attractive for small private operators. What is more, their survival would be entirely dependent on the only guarantee of income they would have: bulk water purchases by Sawaco. The following is an extract from an interview with a member of Sawaco in November 2008: *“The private sector is extremely weak in HCMC’s water sector. It cannot survive without technical assistance. The water tariff is very, very low, compared to production costs and this is why they do not make a profit. They mainly continue this activity for their own consumption and in many cases they have other activities in order to recover their costs. Those who have signed could not survive without the water purchases.”*

Yet, although this argument initially seemed to offer a possible satisfactory answer, it was very rapidly undermined, first, by the identification of contradictions in SSWP practices: if the main difficulty is to make the activity of SSWPs profitable, how then can we explain that Phuc Doan makes a profit although it does not sell its production surplus to Sawaco and even gave up selling bottled water to focus on the profitable segment of its activity, which is distributing domestic water? Second, this argument was further questioned when other levels of justification were expressed during additional interviews. These are much more difficult for Sawaco to admit, as this declaration made

by an ADB consultant shows (November 2008): *“In 2006, Sawaco’s CEO, who was one of the driving forces of the company’s development, died. It took them a year to replace him. [...] It is a company that had rapidly taken off and this is where we can see that leadership matters. You can inject all the money you want, but if there is no leader, it becomes extremely difficult.”*

Indeed, it is easier for Sawaco to explain the failure of the socialization programme by the low level of economic attractiveness in the water sector for SSWPs in HCMC than by a U-turn in the operator’s policy strategy, choosing to ignore previously proposed and negotiated options. While the structural role played by leadership in the recovery of a public water company is clearly evident, can the upheavals in the company’s management alone explain Sawaco’s change in attitude towards small operators? Admittedly, the *“open-mindedness”* of the operator and of the city, which partners had perceived in 2002, seems to have disappeared a few years later. However, in addition to the change in the company’s management, there is a highly structural element of the political context: the reform of Vietnam’s public services leading to a change in the operator’s status in 2005 and, immediately after, the issuance of Decree 117 in July 2007, imposing this same change of status on all public operators by 2010.

Let us briefly come back to the issues of this reform. We previously mentioned the 1995 law reforming public companies and the 1997 policy to *“socialize education, health, culture and sport”*. For public water companies, the reforms came later than in other sectors, which is surprising for this type of sector. While they had initially been classified as *“public service companies”*, they did finally end up joining the ranks of *“commercial companies”*. Indeed, on the one hand, since Decree 117 of July 2007, the obligation to form a commercial limited liability company is applicable to all public water companies, but on the other hand they must also open their capital to economic agents from the private sector (not necessarily water operators) as part of a *“socialization”* process. In addition to the potential abuses and dangers of such political measures (creaming off of users, company bankruptcies, etc.), it should be noted that some companies, like Sawaco, did not wait for the implementing decree to meet the *“spirit of the law”* on socialization. The company has now divided its service area into eight service areas, in which eight *“daughter companies”* conduct their activities with a certain level of autonomy (49% of their capital is private). Six of them have already moved to the status of joint-stock business corporation.^[222] These *“daughters”* thus enter into direct competition with the handful of SSWPs in

[222] 49% of their capital belongs to economic agents from the private sector (financial, banking, real estate and industrial sectors) and to the staff. The remaining 51% continues to be held by Sawaco.

the city, as is partly explained by the following interview with a member of Sawaco (Nov. 2008): *“The truth is that we no longer really support the socialization programme process because now, in our system, we are currently “equitizing” our activities (converting to subsidiaries). [...] This conversion into subsidiaries goes against the socialization programme. Officially, we are not stopping [the socialization programme] because it is a strategy of the city, but we are not developing it. As the decision has been promulgated, we cannot withdraw it.”*

The lack of attractiveness of the context in HCMC for SSWPs and the change in management at Sawaco provide clear, though insufficient, explanations for understanding why the socialization programme was gradually abandoned. The “subsidiarization” or “equitization” reform and the creation of joint stock companies, which are autonomous sub-companies at the financial, strategic and management levels, however, allow a better analysis of the slowdown in the process of supporting SSWPs in HCMC. The socialization programme has been overtaken by the equitization reform. The handful of remaining SSWPs is gradually being surrounded by networks of subsidiaries, promising a future negotiation on the buyout of their infrastructure and thus the achievement of the contracting process with SSWPs.

In HCMC, the socialization policy is gradually being replaced by an equitization policy. It does not invite other water operators to participate in sector financing or operations, thus allowing to combine expertise in order to speed up service improvements, but more generally invites other economic and financial sectors to “do business” by participating in the capital of new “commercial” water companies. This saddles the water sector, known for being unprofitable during the network-extension phase, with all the risks inherent to the business world. The rationale for Sawaco’s repositioning towards SSWPs is therefore more financial – not to overshadow the new joint-stock companies – combined with a political rationale (apply political measures for opening up the sector to private investors as rapidly as possible), than for service reasons, *i.e.* to come up with ways of improving supply in HCMC. Donors and researchers interested in the issue of SSWPs in the water sector thus had to abandon the urban context in HCMC, which was gradually closing its doors on them, to follow the developments of an emerging process a bit farther south in the Mekong Delta.^[223]

[223] Notably in Tien Giang Province. The project conducted by ADB on SSWPs that are “intermediaries” for provincial public companies offers extremely interesting prospects (Botton and Blanc, 2010).

Conclusion

The socialization programme in HCMC has finally not produced the initially expected dissemination of the model, nor the increase in the number of contracts between Sawaco – the main operator – and the SSWPs in the city, whereas it held strong potential for sectoral innovation. This U-turn made by the city’s People’s Committees, from a socialization policy for water services to an equitization policy for water companies, can be explained by several factors that are at the same time political, cyclical and even personal. The result of this, today, is that a gap exists in the organization of sectoral expertise: What, in practice, would a formalized institutionalization of cooperation between the official operator and spontaneous operators have produced in the water sector? However, despite results that are quite far from the initially formulated hypotheses, it is possible to draw interesting conclusions from this study.

First, even if a complete empirical understanding of the phenomenon is still not possible today (as there has been no follow-up to the socialization programme), this initiative is nevertheless extremely interesting for research on SSWPs. Indeed, it may not be a system of regulated stakeholders, but it does constitute a possible theoretical regulatory model for regulation by contract. The specificity of the political decision of HCMC’s People’s Committees in 2002 is that they sought to anticipate (and manage) the participation of SSWPs in the city’s water services, whereas in the vast majority of cases in urban contexts in developing countries, such as Maputo in Mozambique (see Chapter 3.6 by Blanc), this political reflection follows the spontaneous emergence of stakeholders that the public authority wishes to support, or see disappear as the case may be. In this respect, the socialization programme is a regulatory model that deserves to be known and discussed in other local political arenas in the sector. Moreover, the line of analysis for public policies, and notably the institutional understanding that it has offered, reminds us that the fact that the socialization programme was almost achieved has at least created a precedent and has thus opened up the way for dependence in the sector. Some stakeholders, such as ADB – which had been involved in the process – still rely on institutional memory and have taken this draft regulatory model on board in order to formulate certain proposals for intervention.^[224] The arrangements emerging for water services in HCMC could thus

[224] See Appendix 2 of the preparation document for the HCMC water supply plan proposed by the donor: “Miscellaneous programs, such as output-based aid and ‘small pipe networks’ will be examined and considered for inclusion in the project”. (ADB, 2008).

come back to this attempt of making official operator(s) and SSWPs cooperate, depending on the extent of – or limits to – service improvements prompted by the newly equitized companies, on the one hand, and on the weight and strategies of international donors – ADB – for their technical assistance to Sawaco, on the other hand. The analysis of the case of water services in HCMC therefore allows highlighting the complexity of the interaction between “*de facto*” multi-stakeholder public action (contribution of different stakeholders to water services) and public policy (regulation conducted by public authorities). Although the path that analysts and researchers generally take is that from public action to public policy^[225] (Botton, 2008), the case of HCMC is original in that it does the reverse by moving from public policy to multi-stakeholder public action. In this respect, this study also calls for in-depth comparative research to be conducted into the different policies of international donors vis-à-vis the issue of SSWPs. What is the individual weight of donors at the national policymaking level, or local level? How to analyse their role in the definition of public sectoral policies and operational arrangements? If the World Bank would appear to follow more centralized options (“*The ideal is not to have SSWPs but to have a tight water system*”, Nov. 2008) or at least more *mezzo* options than other donors^[226], such as ADB or AFD who are exploring options defined at the more local level, how to describe and understand developments in the water sector in Vietnam, caught between different political levels, representations and stakeholder interests, trajectories and institutional positioning?

Second, this sectoral foray into Vietnam’s urban water sector tells us about its water policy and offers us a key to understanding the main issues. private sector participation in the water sector, which in Vietnam results in the concept of “socialization”, today provides a wide range of possible applications in practice, from delegating public service to SSWPs to equitizing all Vietnam’s water companies, including classic PPPs, such as Design Build Lease (DBL), Build Operate Own (BOO), etc. This invites “communities” to manage their own services, as well as opening the capital of water companies to the financial capital of non-operators (industrial, real estate, banking sectors, etc.) or creating semi-public companies. The future of Vietnam’s water services is today very uncertain in view of the number of stakeholders in the sector. Indeed, the political and economic phase shift of sectoral measures in the water domain (regulatory district People’s

[225] See, in this respect, the analysis of the construction of a public water policy in semi-rural areas in Cambodia (Botton, 2008).

[226] With notably a commitment to promote the implementation of DBL-type projects, inviting relatively large stakeholders (larger than the SSWPs that are the subject of this study), for example from the building and public works sector, to invest in water distribution systems. This choice implies an objective of universalization accompanied by a high level of costs. Concerning the differences in representation between stakeholders in the sector (and the aim of disseminating different technical models) on issues to improve supply (Botton, 2008).

Committees who set low tariffs and refuse any increase *versus* an invitation to the industrial and financial sector to invest in the sector) is gradually highlighting contradictions that will increasingly prove to be difficult to overcome.

It is for this reason, and this is a *third avenue for research*, that it is extremely interesting to follow the developments that this reform will bring about, to identify the aspects of them that are specifically Vietnamese (a local operational version?), the opportunities to raise funds for financing water services (a new option to achieve the MDGs?), as well as the potential dangers, limits and abuses, e.g. what social or regional subdivisions? Apart from the cases of Britain and Chile, where a real privatization of water services took place, including asset buyouts, the forms of PPP in the water sector are more traditionally public service-delegation models. The “equitization” model promoted by the Vietnamese authorities (creation of semi-public companies), according to the advice of a local consultant from the banking sector, is both a reformulation of the injunction of private sector participation, while proposing an arrangement that Vietnamese stakeholders are very familiar with. However, it is worth recalling the eminently political and social nature of water services, which do not function like classic industrial and commercial sectors, as well as their public health component, which makes these services incompatible with a purely financial logic. What will become of water companies that are not deemed profitable, or of the “customer” segments or service areas that do not interest the new shareholders? At present, the impact of these potentially negative trends has not yet been felt, apart from a territorialization of the reform due to the different commitments of provinces for implementing it. However, one is inclined to think that, in the current weak economic conditions, the prospects for private investment will be much less optimistic than those expected by the reformers. Several scenarios can be envisaged. Either investors will prove to be rather risk-averse and, without additional fundraising, the improvement in water services will be postponed until the next reform; or they will begin to take a speculative approach, which is dangerous for the sustainability of services as the reform involves equitized water companies becoming owners of the assets. A third possibility is that they will prove to be demanding and their participation will be conditional on certain forms of compensation by relegating to second place the notions of universality, equity or solidarity, in order to promote, on the contrary, those of return on investment or profitability. It may be possible to make a territorialized interpretation of these issues because of the institutional fragmentation of service areas run by eight autonomous operators in greater HCMC. This, combined with the essential role of leadership in terms of management strategy, is likely to contribute to a social fragmentation related to water services in the city if the managers of the eight subsidiaries choose to follow different options (speculation, risk-aversion, social solidarity, etc.; Coutard, 2008). The

vast field of investigations offered to the researcher today is therefore to reflect upon ways of reconciling social, political and financial logics within a context as complicated as the one of contemporary Vietnam.

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3.6.

The Small-Scale Private Water Providers (SSPWP) of Maputo: an alternative model to be encouraged?

A. BLANC

Introduction

The difficulties encountered in generalizing the access to drinking water supply in developing countries, based on the model of a centralized network as it has been constructed in developed countries, invite us to take a look at other models. The alternative offers proposed by various small local operators, ranging from the managers of standpipes to itinerant water vendors, have in fact multiplied in the developing countries. But it is only recently that the question has arisen for donors and the public authorities responsible for public water supply, to consider working with these often informal operators. Could the latter offer an alternative to the international operators who have had trouble in setting up Public-Private Partnerships (PPP) in developing countries, and whose appetite for these markets is limited today?

The experience of Maputo offers the original example of operators who invest in independent water networks and propose "low-cost" domestic connections. It urges us to evaluate this alternative model, its durability, and the manner in which the Mozambican authorities are integrating these new players in their public policy.

3.6.1. An informal sector that has developed in the shadow of a deficient public water supply

- *A reformed water sector that has not kept its promises*

The water sector in Mozambique has been the subject of important reforms in the 1990s with a decentralization movement (transfer, not without reluctance, of certain

responsibilities of the service to the municipalities) and the introduction of private sector participation (Blanc *et al.*, 2009). The delegated management framework put in place relies on two new stakeholders:

- FIPAG (Fundo de Investimento e Património do Abastecimento de Água, *Investment and Patrimony Fund for Water Supply*), a holding company under the supervision of the Public Works and Housing Minister, owner of the infrastructures of the water sector for the 16 major cities of the country^[227], in charge of the investments for the rehabilitation and expansion of these infrastructures and for their possible delegation to the private sector;
- CRA (Conselho de Regulação de Água, *Water Regulatory Board*), an independent regulatory agency responsible for the regulation of delegated management contracts, service quality, satisfying consumer interests, and the financial equilibrium of water services.

In the agglomeration formed by Maputo, Matola and Boane (nearly 2 million inhabitants), the water supply was delegated in 1999 to the international operator Águas de Moçambique^[228] (AdeM) through a leasing contract for 15 years signed with FIPAG. The service provided by the operator AdeM is particularly defective (water is available only for about ten hours per day), especially in suburban areas not covered by the network (*i.e.* the north half of the city). The technical and commercial performance of AdeM, which uses surface water treated in a plant that is far away from the city centre and that has a limited production capacity, can be counted among the worst African water supplies, with a loss ratio of 53% in 2009^[229] after ten years of PPP.

• *A spectacular development of new players*

Motivated by a demand for water that is not satisfied by the deficient public water supply, informal private and independent suppliers (Pequenos Operadores Privados, “POPs” – Small-Scale Private Water Providers SSPWPs) have since the end of the 1980s invested in the implementation of small water supply systems based on local groundwater resources. Informal water vendors are a common phenomenon in developing countries where the public service is not universal, regardless of whether these vendors provide a mobile service (through carts, tankers, etc.) or a fixed service (standpipes, mini-

[227] Logically, a delegation contract should link FIPAG to the municipalities that are responsible for the service, but that is not the case.

[228] The Saur, initially the strategic partner of the consortium, withdrew in 2002, then Águas de Portugal in turn sold its shares to FIPAG in 2011, which today remains the principal shareholder along with the local investors.

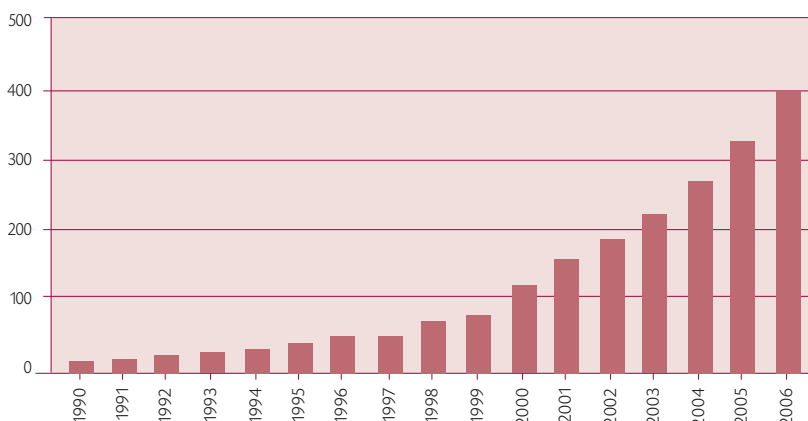
[229] A significant part of the AdeM consumers do not have a meter, or else the same is defective, or otherwise the readings are not taken, so much so that totally 66% of the customers are billed at a fixed rate, with the practice of resale of water in the neighbourhood (average consumption of water of AdeM customers is 130 litres per day and per person).

networks). The original aspect of the Maputo case as compared to many other African examples, is that the SSPWPs have developed *independent mini-networks* and distribute water that does not come from the AdeM network, but is extracted from the sub-soil by means of a borehole and a pump that belongs to them.

Their rapid proliferation and their *entrepreneurial dynamism* are equally striking: the private operators of the agglomeration of Maputo today number around 500 (450 are officially registered). They have built 380 standpipes and executed 50,000 private connections (as against about 100,000 private connections and 300 standpipes managed by AdeM).

Graph 32

The number of Small Private Operators POP operating in Maputo and Matola since the 1990s



Source: FIPAG/Hydroconseil (2009).

They are particularly dynamic in the suburban areas^[230] that are rapidly^[231] growing in the north half of the city, where they are, in fact, the only water suppliers because the investments made in the “official” network cover only 40% of the surface area of the city. The phenomenon is very old, but has accelerated sharply; thus 86% of

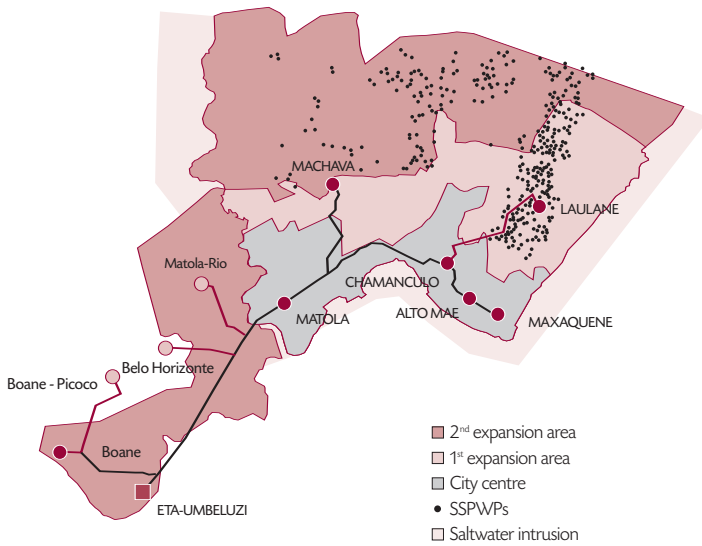
[230] These areas lie north of the historical city centre (cement city) and are successively made up of densely populated areas close to the centre (peri-central areas), then the more distant areas of later and less dense populations, and finally the ultra-peripheral areas.

[231] The average growth rate of the number of inhabitants in the outlying areas has been 4% per year on average between 1980 and 2000 (compared to 0.8% per year in the whole city), with rates over 10% in certain areas (40% in Costa do Sol).

the systems present in 2009 had been created since 2000. If the first Small Private Operators appeared in the city centre in the exclusive area of AdeM, the more recent ones appear in the more outlying areas of the agglomeration, outside of the exclusive area of AdeM.

However, the demographic growth of the capital of Mozambique has truly exploded, first since independence and then during the civil war (1977-1992) that drove a third of the population to migrate, with Maputo often serving as a refuge^[232] (Ginisty, 2009), without the public services having kept up. The urban growth was therefore accompanied only by a belated appearance of the SSPWPs as compared to the service needs in the suburban areas. This can be explained by significant intra-urban migratory dynamics since the years 1990/2000, from the city centre towards the periphery. This was caused by heavy land speculation in the city centre, and the conditions of promiscuity and insalubrity that drove certain affluent households to seek a better living environment in the more accessible areas and which are currently perceived as being attractive, and where the stabilization of the political climate will enable the SSPWPs to invest (Ginisty, 2009).

Map 1 Area of demographic expansion and presence of the SSPWPs



(source: FIPAG/Hydroconseil).

[232] Multiplication by 2.7 of the number of inhabitants during the period 1977-1992.

The coverage and the market share of the SSPWPs in the suburban areas are quite difficult to estimate and vary a lot from one area to another, especially depending on the presence or absence of the main network. The study of water demand carried out in 2006 mentions a figure of 23% of the total suburban population (as against 9% in 2001) and 46% of the amount of water received for the concerned area^[233] By extrapolating a figure of approximately 30% of a suburban population of 1.2 million people for 2009, it gives us an order of magnitude figure of 360,000 inhabitants supplied by the SSPWPs. This is consistent with the figure of 364,000 people obtained by counting 5 persons per household^[234] with one of the 50,000 individual connections, and 300 people being supplied by each standpipe.

• *A “low-cost” offer adapted to local requirements*

The SSPWPs have thus progressively built up an offer corresponding to the demands of a population with limited means, to which they have adapted themselves by proposing a model that is an alternative to the conventional network as developed by AdeM. The technical system constructed and operated by an SSPWP is designed with the objective of limiting its costs and, most of the time, consists of the following elements:

- One or several boreholes linked to each other, of a depth of 30 to 60 metres;
- Each borehole is connected to a “modular water tower” made up of one or more polyethylene tanks (the number can increase with expansion of the system) of 5 or 10 m³ placed on a light structure made of concrete or metal, the whole installation being fed by an electric pump;
- No water treatment system;
- One or several standpipes;
- Gravitational distribution (sometimes completed by booster pumps for the bigger systems that are fed by several boreholes);
- A main grid network in certain cases, covering more or less the area to be served, of a diameter of less than 50 mm;
- Domestic connections: a network of flexible high-density polyethylene (HDPE) pipes (of a diameter of less than 20 mm, of the “garden hose” type), slightly or not

[233] Source: CRA/SAL: Avaliação de satisfação dos consumidores: abastecimento de água na aglomeração de Maputo, 2007. The central areas, made up of the cement city and its inner suburbs, are excluded.

[234] Census of 2007: The coverage levels calculated for the operator AdeM take a higher hypothesis of eight persons per connection in order to take into account the important practice of resale in the neighbourhood, which appears to be less commonplace for the customers of the SSPWP (since the latter are systematically equipped with meters).

buried, each going from the main network (or directly from the tank) to the customer's residence. This multitude of juxtaposed and tangled pipes is now called the "spaghetti network" ^[235];

- Most private connections are fitted with a meter that may be located at the SSPWP installation at the outlet of the tank (in order to prevent possible fraud) or at the client's home (often hidden in his garden, buried, or even covered with cement so as to prevent it from being stolen ^[236], which can make its reading it difficult).

On the whole, the service ensured by the SSPWPs seems to be considered as rather satisfactory. However, a study of the demand for water (Laré, 2010) across a sample of 880 households on the outskirts of Maputo shows that 35% of the households surveyed have strained relations with the SSPWPs for reasons most often linked to the payment of water. Others complain about water cuts, pressure problems, continuity of service, and problems about the quantities of water distributed that result from this. In fact, a SSPWP whose borehole is not productive enough, cuts the supply in the middle of the day to fill up their tanks. Other SSPWPs shut down at night, because they only supply to standpipes, because they do not have enough water flow from pumping, or because they do not have stand-by personnel in case of a technical problem (Dardenne *et al.*, 2009).

The service of the SSPWPs, though based on lower costs than those of the official service, is provided at tariffs that are higher than those of AdeM. The average SSPWP tariff, which is quite uniform, is pegged at around 25 MZN/m³ which is (at the average exchange rate in 2009) about USD 1/m³ (without a minimum consumption rate which puts the small consumers at a disadvantage), whereas that of AdeM is approximately 15 MZN/m³ ^[237] or about USD 0.6/m³. CRA, however, anxious to make the tariff of AdeM more representative of the operating and investment costs of the sector, decided in 2010 to increase the average tariff to 18.2 MZN/m³ (USD 0.73/m³). The prices offered by the SSPWPs, even if they are high, thus appear to be quite competitive as compared to those of the principal operator ^[238].

[235] The spectacularly low cost of these HDPE pipes (as a result of the industrial production for irrigation systems from the 1990s onwards), makes it possible to provide a networked solution in a context where the distribution was formerly done only through drinking fountains by this type of operator.

[236] The problem of meter theft is genuine in Maputo, but it mainly concerns the AdeM meters that are the object of a real black market trade towards the SSPWP market.

[237] Tariff in increasing blocks of 4 brackets, with a minimum first bracket of 10 m³ at MZN 12/m³.

[238] In comparison, the services offered by the mobile SSPWPs (dealers with carts, etc.) in developing countries can be 5 to 10 times more expensive than those of the main operator.

The price of a connection constitutes the variable used for attracting new customers. From being free in certain cases, it can exceed MZN 3,000 (USD 120) and on an average is fixed at MZN 1,400 (USD 56). To this should be added the cost of purchasing the material that is to be borne by the customer (MZN 1,600 or USD 64), which brings the average total cost to MZN 3,000 (or USD 120), twice the official minimum monthly salary, which excludes the poorest populations.

- *A great diversity of profiles*

The SSPWPs present a wide variety of profiles^[239]. The funds enabling their initial investment are nevertheless always private, and correspond mostly to self-financing, possibly completed by contributions from informal social networks (family, friends), but rarely obtained from banks or through microcredit. The SSPWPs, more often than not, possess a precarious licence from the municipality, which corresponds to a trading licence.

A first source of differentiation between the SSPWPs is based on their location: those that are within the leased boundary in the exclusive AdeM area (centre and first periphery) are in fact illegal^[240]. In reality, however, this question of the illegality of the SSPWPs must be seen in the light of the existence or not of a quality network and service (hours of water supply, pressure). The strategy of FIPAG and AdeM, as much in terms of expanding the official network as of increasing the production of drinking water, in relation to the projects financed by donors, is a deciding factor that explains the set-up strategy of an SSPWP.

The size of the SSPWPs is another important criterion for differentiation. According to Dardenne (2009), one can classify the SSPWPs according to three types:

- Small SSPWPs (one or two standpipes and fewer than 50 private connections) are a modern version (thanks to the development of the “spaghetti networks”) of the traditional standpipe owners in those developing countries where groundwater is accessible. These operators have often invested in a borehole for their own consumption needs and extended their activity in a limited fashion to satisfy the demand of their neighbours. Some of them succeed in generating a regular income but their profitability is limited.
- Medium-sized SSPWPs (50 to 500 connections) have grown by developing a primary network in the streets adjoining their place of residence, to the extent that water

[239] We are interested in the managers of independent mini-systems. Peddlers of water in carts or tankers also exist selectively in certain areas where groundwater cannot be used through pollution or salinity.

[240] Moreover, the limit of the exclusive area has evolved since the beginning of the AdeM contract.

flow from their borehole has permitted them to do so, and the demand was not saturated. They make up 60% of the SSPWPs and a good number of them are concentrated in the area of Laulane where they originally appeared and where their extension is impeded by their density, and especially by the recent arrival of the AdeM network ^[241].

- Large SSPWPs (more than 500 connections, several boreholes) have a totally different rationale: these are well-organized, real entrepreneurs with several employees, who are looking to maximize the revenues from an activity that they perceive to be particularly profitable on this scale. Their appearance is more recent (some of them are small SSPWPs that have grown, but others have skipped this first stage) and they do not hesitate to invest in areas far removed from their place of residence. Some of them have started a process of formalization (bookkeeping, payment of taxes and social contributions) and/or computerization of their activity. They represent 5% of the SSPWPs but cover 35% of the households supplied by SSPWPs.

Other typologies are possible, partially overlapping, for example, based on the criteria of spatial layout rationale and operational logic. For instance, Ginisty (2009) proposes the following typology:

- “Social” SSPWPs are city dwellers with high incomes, who left the city centre in search of a certain “rurality” at the end of the 1990s, and have built systems for individual purposes, but were obliged to extend them due to social pressure exerted in the neighbourhood. Sometimes disinclined to a certain intrusion of their place of residence, which at the same time becomes a place for the distribution of water, they are not looking to extend a primary network, offer rather low prices, have a social point of view, and are ready to stop their activity with the advent of a competitor or a public operator.
- “Resident” SSPWPs originally were often social SSPWPs who realized that the additional income generated by the sale of water to their neighbours could exceed the income of their main activity. They have expanded a network in order to increase the private connections, with the aim of making profits. A second generation of these SSPWPs has taken hold by way of “spatial imitation”, by trying to copy the success of the pioneer resident SSPWPs, through the occupation of the spaces adjoining their residence, while avoiding those that are already covered by the other SSPWPs. In certain cases, the networks are juxtaposed or even overlap, which causes a competition that negatively affects the activity of the SSPWPs, up

[241] A distribution centre financed by the African Development Bank was built in 2008, but for the time being, water is only available a few hours per day because of an insufficient production and being at the end of the network.

to the limit of profitability for some of them. Moreover, a certain correspondence exists between the electricity networks and SSPWP networks, both in time and in space (Map 2 drawn up at the level of a district), as the SSPWPs were able to extend their network based on the arrival of electricity in the suburban areas.

- “Entrepreneur” SSPWPs come from the economic and social elite. They are well educated, often already are entrepreneurs in another sector, and have acquired plots of land with the aim of investing in water systems often far from their place of residence. They establish themselves in areas after a study of the water needs that are not met by other suppliers, and follow a rationale of market conquest through rapid installation of extended primary networks, and rapid investment in a secondary system or even more. Their systematic occupation of the target territory often results in them having networks that overlap with other pre-existing, but more localized, networks.

Map 2 Coverage of electricity and SSPWP networks in the Magoanine A district



Source : Ginisty (2009).

3.6.2. A relevant alternative model?

• *Economies of scale and optimum size for management of the service*

According to economic theory, public water supply services are a natural local monopoly, which implies that they are more effective if managed by a single entity at the level of a territory through economies of scale and non-multiplication of investments in the networks. However, recent work (Clark *et al.*, 1981; Maria, 2006) questions this paradigm and puts forward the advantages of decentralized solutions (one even talks about “*diseconomies of scale*”), especially when the costs of individual pumping and water treatment go down as compared to the costs of distribution networks. In addition, it appears that at the level of the cities, economies of scale no longer come into play beyond a certain threshold (management costs of a territory that is too large, imperatives for new capacity investments, attractive target for the practices of corruption, etc.). In this respect, is the economic and technical model developed by the SSPWPs a relevant alternative to that of a centralized network like the one managed by AdeM?

Even if the technical innovations and the proximity of management of the SSPWPs are enough to make them attractive, they still do not challenge the existence of economies of scale. The latter are in fact at the heart of the profitability of the SSPWP model, which is much higher for the big “entrepreneur” SSPWPs than for the small ones. According to Dardenne *et al.*, (2009), for an initial investment of about MZN 300,000 (USD 12,000), a small SSPWP can provide service for about fifty private connections, be ensured of an annual income of MZN 80,000 (USD 3,200), and an additional margin that corresponds to an internal rate of return (IRR) of 16%.^[242] If new investments in boreholes become necessary at around 150 consumers, and then once again at around 500 consumers, these can be easily executed with the cash flow from the activity, because the IRR increases with the number of consumers: 70% with 150 consumers and 150% with 500 consumers! This means that big SSPWPs extract a considerable margin and secure a return on their investment within a very short period (sometimes less than a year). Under these circumstances, the average price offered of MZN 25/m³ (USD 1/m³) clearly is a price of unfair monopoly^[243], characteristic of an absence of regulation and the inefficacy of the competition that the proximity of the networks however seemed to facilitate.

[242] These internal rates of return are fictitious because the SSPWPs more often than not have no bookkeeping and only function by managing the cash flows.

[243] The modelling of the costs for a large SSPWP demonstrates that a price of MZN 13/m³ is enough to ensure a IRR of 50% and a margin of 5% of the turnover at break-even point (Dardenne *et al.*, 2009).

Moreover, an in-depth analysis of the yield of SSPWP networks highlights several technical and commercial weaknesses that ruin the image of networks considered exemplary because of a management of proximity, and which the enthusiasm of the discussions about the renewed access to water tended to idealize. These include leakage from tanks and pipes, high electricity bills because of wrong use of the pumps or oversized equipment, malfunctioning meters, billing at fixed rates in certain cases, illegal connections, billing errors due to tedious manual management, etc. As a result, the yield of some water supply systems was estimated below 50% (Dardenne *et al.*, 2009).

Thus, what the SSPWP model has demonstrated above all is that the market can provide non-regulated solutions in cases where the public service is deficient. This includes exploring solutions that have not been envisaged, such as the use of groundwater as opposed to surface water. However, though the choice of using groundwater seems to be justified from a hydrogeological point of view, it seems that a well field judiciously conceived by FIPAG (interconnected boreholes) and a centralized distribution system would be a more effective solution than the recourse to SSPWPs. In fact, the figures above suggest that the economies of scale obtained, as well as the optimization of management through a greater degree of professionalism could at least compensate for the savings achieved by the low cost innovations of SSPWPs, and even more so if one considers the quality of the service rendered.

• *The sustainability of the model in question*

The question of using the aquifer or not takes us back to the sustainability of such a scheme in quantitative terms (what volumes can one abstract and what is its recharging capacity?) and qualitative terms (what are the operating conditions for ensuring an adequate bacteriological quality and the absence of saltwater intrusion?). For the time being, few hydrogeological studies have been carried out, but ARA Sul, the agency for the southern basin of Mozambique, is currently conducting a systematic study that will make it possible in the long run to regulate the abstraction of groundwater.

The study conducted by Matsinhe *et al.*, (2008) shows once again from a series of measurements that the water taken by the SSPWPs corresponds to volumes of approximately one-third of the threshold of sustainability, and that for the moment the aquifer does not appear to be threatened by bacteriological or nitrate contamination, because of the presence of a thick layer of filtering sand. However, these studies highlight a vulnerability to saltwater intrusion where the aquifer is close to the coast as well as a possible contamination due to the anthropogenic activities in areas with dense population because of inadequate protection of the boreholes and infiltration from latrines or septic tanks. The question of wastewater is, in fact, all too often omitted from

the discussions on water procurement policies, whereas the increase in the consumption of water enabled by the SSPWPs raises the question of the fate of these wastewaters in the absence of a sewer system.

- *The quality of the water in question*

The water supplied by the SSPWPs is not treated, but its quality, which has so far rarely been assessed, is reputed to be acceptable because of the satisfaction of the users. Verifications by the Health Ministry are more pedagogical than coercive, and the non-treatment of water is even an advantage as compared to the water from AdeM, whose consumers complain about a taste of chlorine.

However, the analyses conducted in 2005 on 35 boreholes (Matsinhe *et al.*, 2008) revealed bacteriological pollution, the presence of excess nitrates and iron, and locally an extremely high acidity. In 2009, at the time of issuing licences (see below), samples were systematically collected from 376 SSPWPs, and analysed by the laboratories of the Health Ministry: 5% among them presented bacteriological pollution, 10% an excessive concentration of nitrates, and 8% a salinity that was too high. Moreover, though 6% of the SSPWPs tested outside the exclusive area of AdeM supply water that does not meet the sanitary standards, this proportion becomes 38% inside the exclusive area of AdeM (FIPAG/Hydroconseil 2009), which is also the one that has a high urban density. This rendered the situation of the SSPWPs, which is already uncomfortable because of the recent arrival of the AdeM network and the “illegality” of their activity, even more difficult to defend.

It would therefore appear that the absence of treatment is unacceptable for reasons of public health and that the model of the SSPWPs must evolve in order to incorporate at least a system of chlorination (e.g. electro-chlorination), which is going to increase the costs of the SSPWPs.

3.6.3. *The SSPWPs and the public water policy in Maputo*

- *The considering of SSPWPs by the public authorities: from a problem to a solution?*

The SSPWPs were reputed to be illegal and ignored until 2003, when they were mentioned for the first time during a conference on the urban PPPs in Maputo. The first official meetings between the SSPWPs and the authorities took place in 2005 through the intermediary of an association of SSPWPs (see box). In March 2007, Prime Minister Luisa Diogo officially acknowledged their beneficial role, and in May 2008 the Minister for Infrastructure and Equipment, Felício Zacarias, declared that SSPWPs should no longer be combated, but instead officialized. Thus, the SSPWPs

gradually became the centre of political preoccupations regarding the access to water supply and their influence became even greater in the highly charged electoral context at the end of the 2000s (municipal elections in November 2008, and the presidential ones in late 2009).

Box 17 *Representation of the SSPWPs: the creation of associations*

Two SSPWP associations were created for representing their interests, accounting for about half the operators. The first one, AMATI, was set up in 2005, following discussions initiated by the health authorities after having made the SSPWPs aware of their importance. Its president is José Nhaka, who is established near the Laulane area. Its members have to pay an admission fee of MZN 500 and a monthly subscription of approximately MZN 100; they exchange information, define common operating rules, and plan on organizing training sessions. The concerns of the SSPWPs that the association conveys in meetings with the authorities are essentially a need for recognition and an access to credit facilities for developing their activity. A charismatic leader of Matola, Paolino Cossa, recently created a second association, AFORAMO. These associations could play a greater role in the professionalization of the SSPWPs by monitoring the quality of the service provided, and serve as an interface for managing government assistance. However, their representativeness is not yet clear, and some of the SSPWPs seem to be wary of the association leaders. AFORAMO has nevertheless taken the initiative of strong demands for the issue of a 5-year licence to all SSPWPs in January 2010.

The frames of reference provided by an analysis of public policies help in understanding the complexity of the process of constructing a “multi-player public action”, as shown by the shift in position of Minister Zacarias (Blanc *et al*, 2009).

A cognitive approach of public policies, especially as developed by the political scientists Pierre Muller, Bruno Jobert and Yves Surel, invites us to look at the different settings (known as “forums”). Here, debates take place on the sectoral frame of reference on water^[244] (beliefs, knowledge, diagnostics at the origin of the public policies on water) and more specifically regarding the perception of SSPWPs. In fact, the international community, which regularly meets at several symposiums on water supply in developing countries, and which had begun to take an interest in the SSPWPs in rural

[244] The trend of cognitive analysis of public policies puts the notion of frames of reference at the heart of its analyses, “representation of the reality on which the definition of a public policy is based”.

areas since the 1990s, has started questioning the relevance of these players more specifically since the 3rd World Water Forum of Kyoto in 2003. Since then, research has demonstrated the benefits of promoting this type of stakeholder in rural market towns and suburban districts, and this topic held an important place in the debates of the 5th World Water Forum of March 2009 in Istanbul. The position of consultants, researchers, experts and donors regarding SSPWPs has thus progressively softened.

The local stakeholders in Mozambique, through their links with the community of water experts (“issue network”) and their attendance at international conferences, have in turn gradually caught on to these new ideas and have negotiated some trade-offs within their political arenas (“policy network”).

As a result, a task force was set up in 2005 for settling the trickiest dispute presented by the SSPWPs: their well-established and massive presence in the Laulane district, an area within the exclusive affermage boundary when AdeM was getting ready to expand its network over there. This task force brought together the public institutions for delegated management at the national level (FIPAG, CRA), the private operator AdeM, NGOs, local consultants, and occasionally, representatives of the SSPWPs, and has worked on the different options possible for the future of the SSPWPs in this sector. Though today the negotiations are not yet completed, this district is thus one of the cornerstones for building a multi-stakeholder public policy.

Another negotiation group, steered by FIPAG, was formed in 2008 when it was decided to go ahead with the awarding of compulsory licences to all SSPWPs wanting to continue their activity. However, the need for the SSPWPs operating within the exclusive area of AdeM of signing a partnership agreement with the company provoked particularly heated confrontations between the representatives of the SSPWP associations and the public institutions. The conflict culminated with the SSPWP associations breaking off the negotiations, and their appeal to the Minister and to the national media questioning the legitimacy of the process. Finally, FIPAG, pressured by the elected representatives of Maputo and Matola ^[245], accepted in early 2009 to present the granting of licences initially as a mere “registration” of the SSPWPs, in exchange for recognition of their activity for one year and the promise of financial assistance. This gradual step enabled FIPAG to defuse the conflict and to convince most SSPWPs to register themselves in a database, which combined all their characteristics in a systematic manner for the first time. In September 2009, 407 SSPWPs had made the application for the granting of a licence and submitted water samples for analysis in order to verify the quality of the water distributed by them.

[245] Until then, the municipalities had hardly been present in the institutional process.

Progressively, as a result of the different debates identifiable within the “forums”, and to a large extent pushed by the donors, the idea of using the SSPWPs to resolve the inadequate access to water became accepted in Mozambique. It was then imposed thanks to a “window of political opportunity” (Blanc *et al.*, 2009) created by the approach of the elections, the orientations of the National Action Plan for the Reduction of Absolute Poverty (PARPA II) and those of the Millennium Development Goals (MDG). The goal of a 60% coverage rate for water in an urban setting by the end of 2009 was in fact far from being achieved in 2008, with only 32% in Maputo. But by adding the inhabitants served by the SSPWPs, this rate was raised to 50%, and this in record time and without any investment!

- *What regulation needs to be put in place?*

Nevertheless, as attractive as it might have seemed, the integration of SSPWPs in the sectoral policy on water met some difficulties of implementation. How and with the help of which institutions can one support and monitor the SSPWPs, such that they provide an acceptable service, without hampering their entrepreneurial dynamics? Another problem was the high political risk of who would be responsible for a failure of service by the SSPWPs after the latter had registered to become official.

We saw above that regulations for SSPWP activity are necessary. These include environmental regulation for the use of the aquifer in order to preserve the latter; sanitary regulation for guaranteeing the quality of the water distributed; economic regulation in order to ensure that the price is not only controlled by supply, but also optimizes the efficiency of network operation; and finally social regulation for guaranteeing access to the service by all social classes (“pro-poor regulation”: Trémolet *et al.*, 2010).

The first question is to know if the “formalization” of the SSPWP activities is an indispensable prerequisite to any form of regulation, as maintained by the advocates of “legalist” logic. It seems that this approach, in certain contexts, can have its limitations, as compared to more flexible solutions of going through dialogue, supervision mechanisms, support, and incentives rather than disciplinary measures (Schaub-Jones, 2008). The solutions tried out for regulating the SSPWPs are in fact quite varied, ranging from support/advice to contractualization, and including the awarding of licences while setting some minimum standards (Trémolet, 2010).

This last solution was selected in Maputo, but the conflict at the end of 2008 surrounding the compulsory granting of licences has shown the political sensitivity of the issue. FIPAG’s ingenuity has nevertheless allowed initiating a process that will be difficult to turn back. If the only obligation for the first year of registration of the

SSPWPs is that of the potability of the water distributed, the idea is in fact progressively to introduce some new requirements at the time of the annual renewal of the temporary licences, such as standards for burying of the networks, prices offered, etc. Certain SSPWPs have understood this very well and have not given up the arm-wrestling with FIPAG. Thus, in January 2010, taking advantage of the interruption of the service by AdeM in Matola because of a pump breakdown and the recent change of the Minister for Infrastructure and Equipment, several SSPWPs led by the president of AFORAMO used real blackmail on FIPAG to get their licences extended to 5 years, at the risk of stopping all service to the entire city, and the issue even became the subject of a national debate on television. The Minister appears to have decided in their favour on the principle of a 5-year licence, even if the conditions for obtaining it are probably restrictive.

Moreover, the process of officialization in the exclusive area of AdeM, and in particular in the Laulane area, runs the risk of being much more problematic, since the requirement of FIPAG for granting the first licences is that a partnership should be set up with AdeM. Negotiations were nevertheless started in 2005 regarding the possible form of these partnerships, such as purchase of the water in bulk by the SSPWPs from AdeM and final distribution as is done in several cities such as in Manilla; or the sale of water by the SSPWPs to AdeM as is done in Ho-Chi-Minh-City, or again the purchase of SSPWP boreholes by AdeM, but these have made little progress so far. In this regard, the high proportion of SSPWPs whose water does not meet the required sanitary conditions, will simplify the problem in the end. The question of the complementarity of the networks therefore arises when considering the evolution of the main network, as well as that of the mutability of the SSPWP systems, so as to not immobilize a service at two speeds.

Finally, from a practical point of view, FIPAG is currently overburdened with the task of monitoring more than 400 small operators scattered across the agglomeration and compiling all their data. The municipal authorities, whose institutional positioning has not yet been stated, have been marginally mobilized for the time being due to a lack of means. CRA, for its part, has so far hidden behind the excuse of the absence of a *clear* prerogative for regulating players other than the main operator, even if its interest in the SSPWPs has been marked ever since their appearance. Having been very present at the international conferences dealing with SSPWPs, CRA has notably started deliberation on the *pro-poor regulation* with the aim of defining an indirect regulation for the SSPWPs at the level of districts, by relying on the decentralized structures of the municipalities. The fact remains that FIPAG has taken the lead on the subject, along with the political risks that this entails, and that it has chosen regulation for the market (no exclusive area has been given to the SSPWPs) through the progressive setting up of minimum quality standards.

• *What support for the SSPWPs? The FIPAG project*

Donors are especially present in Mozambique (development aid represents approximately half of the State budget).^[246] In the water sector, they finance the Maputo Water Supply Project^[247] aimed at rehabilitating the infrastructure for water supply, increasing the production of drinking water, reducing technical and commercial losses, and extending the service to the suburban areas of greater Maputo^[248]. The section of the FIPAG project relating to water supply in suburban areas includes the construction, in areas that are not currently served, of about twenty new independent networks, whose operation will be delegated for 5 years to small operators that will have demonstrated good management skills in their own network. Moreover, the project provides for the densification of existing SSPWP networks and the allocation of private connections to the poorest thanks to an *Output-Based Aid*^[249] (OBA) Mechanism. The objective of the project is to raise the average proportion of the population having a domestic connection from 40% to 70% between 2005 and 2015.

This intervention that is specifically targeted at the SSPWPs, a first for AFD, is quite original^[250] and is sparking internal debates, with the advocates of the “orthodox” vision saying that the efforts of donors should be limited to formal systems, since the SSPWPs have a reason for existing only because of the malfunction of the former. The universalization of water supply services has certainly made the small informal operators in the developed countries disappear (in the early 19th century, Paris had more than 10,000 water carriers), but the generalization of this service took several decades and was financed by public budgets that were far higher than those of the developing countries, and by debt levels made possible by the high rate of inflation after the World War II. Even if the SSPWPs are without a doubt a transitory solution, they might last long enough for the authorities and donors to integrate them into public policies^[251].

[246] In 2005 the aid received by Mozambique amounted to USD 58/person, as against USD 26/person on average in Africa (CAD).

[247] First phase of USD 85 million launched in 2005 with financing from the European Union, EIB, AFD, and FMO of the Netherlands.

[248] In 2006, the AFD granted a specific subsidy for this component of the project.

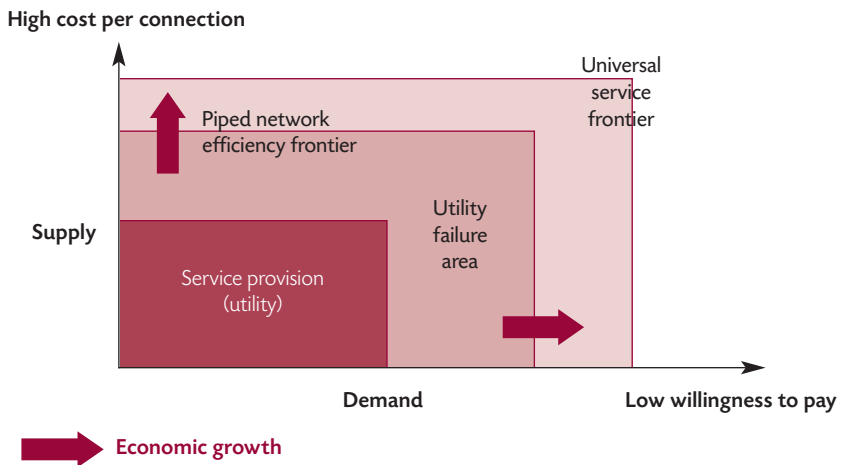
[249] Aid granted to a delegatee of services (SSPWP) based on results, which would in this case enable the subsidizing of a part of the connection costs.

[250] Collignon and Vézina (2000) were among the first to highlight the contributions of SSPWPs and to recommend that the public authorities recognize their importance. The World Bank was a pioneer of promoting independent mini-networks in Latin America at the end of the 1990s, as was the Asian Development Bank in Vietnam, the Philippines and India, and the Water and Sanitation Program in different parts of the world.

[251] By way of comparison, the earliest SSPWPs, who appeared in Asunción (*the aguateros*) from the 1980s onwards, and who have made considerable progress during the 1990s, were 600 in number even in 2007, serving 16% of the inhabitants of the capital of Paraguay.

Thus, two distinct cases can be distinguished: in areas where public service is non-existent, the SSPWPs have an essential role to play; however, where a public service does already exist, as in Maputo, a complementarity between the SSPWPs and the public service has to be found. In the second case, the support provided to SSPWPs can consist of steering them towards that part of demand that they can best serve, as is illustrated in Figure 9, below (according to Franceys and Gerlach, 2008). The two light-red areas represent parts of the population not served by the public service, whereby the middle area represents the deficiencies of the main operator and the outer area is the population that could never be served by a centralized operator, even if it was efficient. These are areas that are very far from the city centres, thus necessitating excessive investments, as well as areas with a population not wanting, or being able, to pay for service *via* the classic network. As the main operator becomes more efficient, the central and middle areas of the Figure will shift outward, into territory now covered by SSPWPs, who themselves will move farther out, to avoid competition with the former.

Figure 9 *Efficiency frontiers and economic growth*



Source: Franceys and Gerlach, 2008.

It is as a result of this that the drilling of new boreholes for the small networks, which is planned as part of the FIPAG project, focuses only on the areas outside the exclusive boundary of AdeM, and which are far removed from the proposed areas of extension of the AdeM network. Even so, the positioning of these networks has not been easy, considering the extreme dynamism of the SSPWPs and their very rapid installation in new areas compared to the period covered by the project. Moreover, providing support to the informal operators is not obvious, and the authorities in charge of the project have come up against hostile mistrust on the part of the SSPWPs, in spite of efforts to communicate.

It is true that several promises made to the SSPWPs for five years have only just begun to materialize: the first three networks were completed in early 2009 and the operators for managing them were selected through a call for tenders. Only a few SSPWPs properly understood this approach and accepted to go from being the owner of an infrastructure to being a tenant having to pay FIPAG a rental fee for the use of the infrastructure. Others perceived these new investments as being more of a threat to their activity, whereas they would have preferred to have access to some financing. As a result, the second public session of a call for show of interest for the second phase of 13 new systems raised only a few participants.

The component of the FIPAG project that aims at subsidizing SSPWPs who develop new connections on their existing systems, faces even more difficulty in being understood and in arousing interest. In September 2009, only two SSPWPs had started negotiations with the authorities, whereas the project planned on executing 4,000 connections from October 2007 onward. The main reason for this long delay must be attributed to the preliminary process for issuing licences, which, as mentioned earlier, was a source of conflicts and practical difficulties. During this period, the SSPWPs proved to be both reactive in their stand, and slow in changing their reasoning and behaviour, because of the misunderstandings regarding the project and hesitant communication between the FIPAG team and the SSPWPs. The project aims at reducing the price of a new connection for a household to MZN 1,000, or USD 40 instead of USD 120 on average, by reimbursing the difference to the SSPWP *a posteriori* on the basis of a count of the new connections executed and effectively functional during a given period. However, pre-financing of these connections is not planned, which poses cash-flow problems; in addition, certain SSPWPs are at the limit of their capacity and are not interested in expanding their network, especially since they know that if their service deteriorates, they will be monitored even further. Others, however, could fear that the customers, who did not have the means to pay for a connection at a higher price, will create even more problems at the time of bill collection ^[252].

[252] An ongoing anthropological study attempts to highlight these discrepancies between the objectives of the project, the messages communicated to the SSPWPs, and their actual perception.

Finally, the awarding of leasing contracts was initially supposed to be done on a basis of the lowest tariff per cubic metre and the three operators selected had proposed prices of MZN 15, 18.5 and 22, or USD 0.60, 0.74 and 0.88 (FIPAG, 2009), according to the area to be served. CRA, however, came out of its period of reticence to intervene in the regulation of the SSPWPs by deciding to limit the tariff to MZN 18.2 (USD 0.73) ^[253] so as to align it with the average tariff of AdeM, and the financial equilibrium was to be achieved by varying the other parameters (the rental fee paid by the SSPWPs and the subsidies for connections). This decision thus led to an important difference in price between the new networks and those of the neighbouring SSPWPs, who for the time being are not subjected to a tariff control. This has gone further than what FIPAG had anticipated, and, in all likelihood, it is going to pull all the tariffs downwards, even before a ceiling price is imposed on all SSPWPs through the licence. In addition, this is going to cause a concentration movement in the sector, with the biggest SSPWPs having a greater possibility of generating profitability with low tariffs.

[253] A price to which should be added a VAT of 12.75%.

Conclusions

Whereas in other contexts^[254] the appearance of small local operators for the supply of water has been brought about by a pro-active policy of the authorities, in Maputo the SSPWPs spontaneously grew in the interstices of a deficient public service, and it is only progressively that the authorities have become aware of the political advantage and the practical necessity of taking an interest in them. If the imperative need of regulating the SSPWPs is becoming increasingly obvious, the process of negotiation initiated with them five years ago appears to be far from successfully completed and is generating conflicts that are exacerbated by the current political events. In this case, the donors play a role that is relatively new and as yet controversial, by supporting this endeavour through an experimental project, which, apart from its impact on the development of access to water, will probably have an effect of concentration of the SSPWP market, as a result of professionalization and improvement of the technical standards. However, there is no guarantee that once the “small SSPWPs are ousted” from a more formalized market, a new offer from informal SSPWPs will not appear in another niche, where the demand that has not been served...

More generally speaking, this experience leads us to wonder about the regulation of the SSPWPs over time. On the one hand, the technological progress and decline in equipment costs has brought about a change in the service offer of the main operators, but especially in that of the SSPWPs, as has been demonstrated by the proliferation of the “spaghetti networks” in Maputo, thanks to the availability of very cheap flexible pipes. On the other hand, the economic development of the cities is gradually increasing the willingness of users to pay for the supply of drinking water and is making the solidarity mechanisms, which enable investments in the most expensive parts of the networks, more effective. More than being mere ephemeral intermediaries, the foreseeable presence of the SSPWPs on the institutional water scene of developing countries in the years to come, prompts us to intensify the research regarding the complementarity that they can offer as compared to the classic approaches.

[254] For example, in the secondary towns of Mauritania, or the big market towns in Laos.

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3.7.

Promoting the institutional transition of drinking water SSWPs. Lessons learned from the Mirep Programme in Cambodia

F. NAULET

Introduction

Cambodia, like other developing countries, has witnessed the development of a multitude of informal private water supply initiatives over the past three decades. While this fundamental shift has affected a large number of regions that were unserved or underserved by traditional water supply systems, it would appear to have been particularly prevalent in this country's semi-rural areas. For example, in large pre-emerging towns, the self-employed and traders, as well as small entrepreneurs, have moved into the water market in response to household demand for improved services.

This large-scale mobilization of Cambodia's private sector has resulted in a wide range of service supply. It has also led to the involvement of a multiplicity of private stakeholders, mainly from the informal sector. Although most of them have not been able to offer alternatives to home water deliveries due to their limited resources, some with more financial resources and share capital have, however, engaged in professionalization processes. Independently of sectoral policies, they have managed to design elaborate systems, while also implementing specific strategies for legitimizing their action with the local authorities.

It is in this context that Gret implemented the Mini Piped Drinking Water Programme (Mirep) between 2000 and 2006. The aim was to improve access to drinking water in small and large rural towns. This programme was located in three provinces in southern Cambodia and experimented with management methods by mobilizing these private actors within an action framework negotiated with the public authorities. From this experiment, technical and economic standards for small piped water networks were produced, contracting methods were developed and financing mechanisms were tested. This led to gradually transforming informal market services into public drinking water services. While working in line with the sectoral policy, Mirep also sought to enrich debates on the governance of drinking water services. It notably highlighted the dynamism and rationale of small network entrepreneurs and asserted the role played by local authorities in the contract management system. Consultation procedures also gained interest among local decision-makers and issues related to decentralizing service organization were addressed. The small entrepreneurs gradually gained recognition from Cambodia's main institutional stakeholders and they are now seen as a viable alternative to water supply in small and large towns.

The analysis proposed here forms part of research into the role played by the local private sector in supplying small drinking water services. This text specifically aims at highlighting the approaches employed for creating, then stabilizing over time, governance methods for these services, which take account of the complexity of socio-economic and political issues related to water in semi-rural areas.

In the first section, we describe the process that led to the appearance of private water supply providers in Cambodia's main towns back in the early 1990s. We successively present the political framework for water in Cambodia, the characteristics of the sector in semi-rural areas and certain specificities of private initiatives, without overlooking the limits of these informal arrangements. We then analyse several lessons learned from Mirep's experience, focusing on three areas: the definition of technical and economic standards, the financial incentive mechanisms and the contracting system. Finally, by way of conclusion, we discuss the issue of regulating small drinking water operators.

3.7.1. The emergence of small water entrepreneurs in Cambodia's large towns: the specifics and limits of local private initiative

- *Cambodia's drinking water sector: a difficult institutional reconstruction.*

Since the mid-1990s, Cambodia has been implementing an extensive reconstruction initiative, which is at the same time economic, cultural and social. It aims at removing the many scars that were left by thirty years of painful history (Luco, 2002). This history has notably been marked by the bloody Khmer Rouge regime between 1975 and 1979, followed by ten years of Vietnamese occupation and an embargo imposed by the international community. The country came out of this long turbulent period drained and weakened. Much of the public infrastructure and community facilities were destroyed or neglected, and political-administrative institutions struggled to carry out their missions of general interest. The drinking water sector had not been spared by these years of violence. This can be seen in the dilapidated state of water infrastructure and the extremely low access rates in the early 1990s, estimated at less than 20%.

In 1991, the signing of the Paris Agreements marked the dawn of a new era. Once the country had recovered its sovereignty following the withdrawal of Vietnamese forces, it began to establish a new political regime and gradually abandoned the former economic system based on State planning and moved towards a market economy. The opening up of the country came hand in hand with a massive inflow of international aid. Faced with health conditions that had become alarming, one of the priorities of international organizations when they arrived in Cambodia was to set up extensive water programmes in rural areas in several towns. The investment effort made by international organizations during this period mainly focused on building and upgrading water facilities with, however, a few projects devoted to rebuilding the technical skills that had suffered during the previous period.

It was also at this time that the new institutional landscape for the drinking water sector took shape and the first elements of its contemporary political framework were formalized (Botton, 2008). Under the impetus of donors and following some political negotiations, the sector was gradually organized on the basis of two ministries: the Ministry of Industry, Mines and Energy (MIME) was in charge of the water policy in urban areas with the creation of large networks, and the Ministry of Rural Development (MRD) was in charge of the policy in rural areas based on village water systems (wells, boreholes, etc.).

This dual supervision system is still in force today. In 2003, it was completed by a common policy based on a few general principles, *i.e.* a demand-oriented approach, local private sector participation and social tariffs. This also called for the withdrawal of the Cambodian State from tasks related to building and managing water services so that it could focus on more strategic functions, such as planning, regulation and oversight. In addition to these sectoral arrangements, the institutional framework for the water sector was also modified as a result of the national decentralization policies. The latter were implemented back in the early 2000s and led to the establishment of new local political and administrative levels (municipalities) to which responsibilities were rapidly devolved in several public intervention sectors, including the drinking water sector.

To a certain extent, these reforms can be qualified as “classic” in that they would appear to have clearly been brought about by the neo-liberal policies that have been prescribed in developing countries for over 20 years. This is notably expressed by the promotion of the principles of decentralization and commercialization in drinking water services. External development aid stakeholders, who were numerous in this country during the reconstruction period, played a major role by giving impetus to the reform process, or even partly steering it. This might have led to national politicians and leaders being deprived of their autonomy in decision-making, thus undermining their control over the reforms.

The fact remains, however, that for several reasons these strategic orientations remained mostly inoperable (Ockelford, 2006). On the one hand, their dissemination suffered because the construction process of certain institutions had not been completed, primarily in the municipalities and legal-regulatory institutions. On the other hand, the sharing of responsibility between the two units – the urban sector for MIME and the rural sector for MRD – came up against delimitation problems from the outset. Where does one sector begin and the other end? For many years, this “border” issue was the focus of much debate, with each ministry in turn claiming rights over areas located between urban areas and rural areas (Botton, 2008). Today, despite attempts to define the urban/rural border, the “fate” of small towns would still seem to be far from being settled. For example, MIME, which won in terms of the small commercial water networks, does not have the resources to fulfil its mandate in rural areas, *i.e.* precisely where their development and governance require special attention.

- *Large towns, the “grey area” of the sectoral policy*

Although at the end of the 1990s Cambodia’s rural areas comprised scattered settlements, they also had much more densely populated areas. These towns are home to between 300 and 1,500 households and share certain characteristics that are specific to rural areas. However, what makes them different is the singular “proto-urbanization” phenomena that affect them. Indeed, they have a strong commercial orientation and are marked by the transfer of agricultural activities towards the trade and craft sectors, combined with a dual process to modernize and increase housing density (Frenoux, 2009).

In addition, these phenomena are accompanied by a succession of socio-economic transformations. The changes in water consumption provide quite a representative example of this. Back in the early 1990s, households in large towns began to demand improved services on the basis of practices existing in cities. Between urban mimesis and a desire to improve their comfort, they increasingly called for quality water services, with high expectations for domestic access. Although these communities are widely familiar with the principles of domestic hygiene, the potability of water would not appear to be a decisive factor in their choice of supply method. The households are aware of the opportunity gains they can make from domestic access and would first and foremost appear to seek to alleviate water chores and spend less time on them.

However, water supply poses an acute problem in rural centres that are both too large for the use of village water techniques and too small to justify the complex supply systems used in cities. While the concentration of dwellings prevents new collective water points from being created and threatens the quality of the existing ones, domestic water needs rarely exceed 150 m³/day, which is too little to justify the use of other urban water alternatives (Mahé, 2003). But beyond these technical considerations, a major challenge posed by supplying water in large cities resides in the search for new forms of governance.^[255] In fact, if it would appear to be unrealistic to establish a truly community approach for water services in these local societies (Pasquier *et al*, 1996), the governance methods applied in large cities would hardly seem appropriate either.

Finally, due to their specific socio-economic nature, large towns form a vast grey area overlooked by Cambodia’s water policy (Botton, 2008). The balance of power at play in the political field to demarcate the institutional responsibilities between

[255] The notion of governance is here understood in terms of institutional processes and the definition of coordination methods among stakeholders with a view to collective action (Baron, 2003).

urban and rural environments, combined with the lack of technical-economic references adapted to these “*non-standard areas*” and the difficulties to address the issue of governance for small water services, have contributed to them being left out of donor strategies and the national water policy, at a time when the latter is being designed. This situation will foster the implementation of original initiatives led by local private stakeholders, which public authorities are relatively unaware of.

- ***Conditions for the emergence of small private initiatives and their characteristics***

At the beginning of the 1990s, in the context of the opening and reconstruction mentioned above, Cambodia witnessed the emergence of a particularly enterprising local private sector. Faced with the inadequacy of public systems, along with the demographic dynamism experienced by the country with the return of refugees, private initiatives spread over much of the country, including in large towns. Entrepreneurs started up small family businesses in a wide range of sectors and outside any public regulation by seizing the new economic opportunities offered by the changeover to a market economy. Although private sector dynamism in large Cambodian towns is not a recent phenomenon, the return to stability in the early 1990s, combined with the increase in the incomes of communities and the public authorities’ difficulties to finance reconstruction, created investment opportunities in new sectors, such as electrification and water supply.

In rural centres, the self-employed and small entrepreneurs are consequently mobilizing to develop a range of water services. The quality varies enormously, but they do generally meet the basic demand of the community, *i.e.* provide a domestic service. Although most of them are unskilled and only use crude systems that do not require any major investment, some entrepreneurs do develop real small water distribution systems. They have the required capital for digging a waterhole, erecting a small water tower and installing some distribution pipes. However, their investment decisions do not simply come in response to the demand from households, but they often take advantage of favourable circumstances – access to a water point for example – to diversify existing activities (an ice production plant, car wash, etc.), and then try to create domestic demand for the newly created service.

In terms of financing, small piped water network operators adopt progressive investment strategies. They initially mobilize family savings, possibly topped up with contributions from informal networks (friends). They then rely on self-financing for extending their customer base beyond the initial circles of their family and immediate neighbours. Few request loans from local banks because the interest rates are prohibitive or because the guarantee requirements imposed by the banks are too heavy.

These network water sales automatically include an opportunistic and market dimension. For the entrepreneurs, the aim is by no means to fulfil a public service mission, but to sell an improved service, sometimes with high tariffs, in response to household demand for convenience. However, a more in-depth analysis of their motives shows that they are only partly profit-driven. Other factors underlying these stakeholders' activities include the guarantee of benefiting from a regular income from water revenues, the creation of work opportunities for members of the family^[256] and the acquisition of a certain social prestige. Some of these entrepreneurs implement strategies to formalize^[257] their activity, for example, by negotiating the right to operate with the local authorities. An official form of recognition is therefore sometimes sought and is motivated by the desire to secure investments. However, what, above all, allows these micro-entrepreneurs to gain legitimacy is the fact that they integrate the local community and build close relations with their customers.

• *Functional, but generally inefficient institutional arrangements*

However, the development of these informal water services does come up against major difficulties (Barrau and Frenoux, 2010). First, the fact that entrepreneurs work illegally makes them extremely vulnerable. Although they are tolerated in practice, they have no legal security since the operating authorizations obtained from administrations in no way guarantee market exclusivity or protect against the risk of eviction. Moreover, the process to formalize their status leads to high transaction costs compared to the benefits that they could gain from it.^[258]

Second, improving levels of service – and particularly extending it to areas that are far from the centre – requires substantial investments that often cannot be recovered. Yet, the investment capacities of local entrepreneurs are limited and the possibilities of borrowing from the traditional banking sector are almost inexistent. It should also be mentioned that entrepreneurs consider that the economic benefits are low and that households living in neighbourhoods far from the centre are not creditworthy. Finally, the water environment in Cambodia offers households in large towns a host of opportunities for free water supplies (rivers, waterholes, wells, etc.). As there is no mechanism for public coordination and management, competition between these free water

[256] In general, entrepreneurs' networks are family-run, at the same time as other service activities, such as small-scale ice production, a small electricity network, a car washing system, etc.

[257] For an in-depth analysis of the profiles and strategies of water entrepreneurs, see AFD (2006). This study highlights four types of entrepreneur that can play a role in water services in large towns: the "experienced", the "pragmatic", the "demonstrator" and the "profiteer".

[258] There is a marked lack of transparency in the procedures to obtain licenses from MIME, which above all provide a way for the undue recovery of funds.

supplies, but also for water for which there is a charge,^[259] contributes to fragmenting the local water market and to increasing transaction costs. These phenomena then foster opportunistic behaviour and prevent certain forms of solidarity being established among households (equalization).

These “spontaneous” arrangements are mainly based on a market approach and are therefore inefficient. At the central level, the administrations provide no reassurance and do not conduct any oversight of the services provided. At the local level, households find it hard to organize themselves as an opposition force to defend their interests under a real “community regulation”. This results in water that is unfit for consumption, as well as extremely low levels of access and availability, because the service coverage is generally limited to the densest areas located around the food market and distribution only takes place a few hours during the day.

The emergence of water services in large towns, without any specific intervention by the public authorities and international organizations, ultimately reveals the remarkable adaptation capacities of Cambodian entrepreneurs, who have managed to build technical and commercial skills by mobilizing local know-how and establishing close relations with their customers. It also demonstrates certain values to which residents in large towns refer in order to judge the quality of the service provided (close relations with the operator, service convenience, etc.). However, an analysis of these dynamics reveals certain limits. The rules that govern service delivery are uncertain and do not encourage the entrepreneurs to engage in a professionalization process that is deemed risky. The lack of a stabilized regulatory framework then leaves room for opportunistic behaviour, while pushing up costs.^[260]

3.7.2. Mirep: supporting professionalization within a negotiated contractual framework

In 2000, following a study devoted to the development of small private piped water networks in Cambodia, Gret set out to implement the Mirep programme with support from the consulting firm Kosan Engineering and with financing from the *Syndicat des eaux d’Île-de-France* (Greater Paris water syndicate), the Ministry of French and European Affairs and the Veolia Foundation.^[261]

[259] This is a major feature of the water sector in small towns: unlike the situation generally encountered in highly urbanized areas, the semi-rural areas of developing countries there is rarely have a monopolistic situation for water supply in practice. The existence of a whole host of alternatives contributes to the fact that the network customer base is therefore not entirely captive.

[260] The tariffs charged by small informal piped network operators range between €1 and €25/m³.

[261] See Mahé (2008) for a detailed presentation of the Mirep programme, its results and its support mechanism.

This programme aimed at improving the access to drinking water in large towns by mobilizing small local entrepreneurs under a contractual framework negotiated with the public authorities. In other words, it involved promoting a qualitative leap forward in services by gradually helping them to evolve towards a status of a service of general interest. The aim of mobilizing local entrepreneurs for network investment and management was based on the observation of existing dynamics, the orientations of the national water policy, and on the premise that Cambodia's private sector would be more effective in handling this type of function. The Mirep programme initially focused on the professionalization of private entrepreneurs with an approach mainly guided by the technico-economic dimension. It was gradually oriented towards a "service approach" with a focus on building the capacities of devolved and decentralized stakeholders to fulfil their tasks in terms of contract management, support/advice and oversight. It also sought to stabilize a governance method based on the integration of the interests of these different actors, and on the definition of objectives and principles for shared action.

Between 2000 and 2006, Mirep supported the creation of 14 drinking water networks in three provinces of southern Cambodia, each serving between 1,000 and 5,000 inhabitants *via* domestic connections. In 2006, this was continued with the Community Drinking Water and Sanitation Access Programme in Cambodia (PacepaC), with the aim of experimenting community planning strategies for drinking water, in addition to building on the gains made by Mirep in the sanitation sector.

Based on Mirep's experience, we can draw some lessons from the steps taken to promote the institutional transition of water services provided by the local private sector, which we will organize in three sections. The first looks at the issue of technical references and the integration of local socio-economic contexts in order to build a viable system. The second part discusses incentive mechanisms using the example of financial tools. The last part sheds light on contracting procedures by coming back to the role they can play in the definition of common rules and in reinforcing the legitimacy of private and public stakeholders.

- *Questioning technical standards and developing a customized range of services*

Given that informal water supply networks rarely reach the levels of access and potability required for qualifying as a service of general interest, one of Mirep's objectives was to promote new technological systems for improving service quality. This involved transforming existing systems, which were generally functional, but of poor quality, into small piped drinking water networks. However, it was not a question

of transferring international technical standards insofar as they would have resulted in high investment costs likely to hamper domestic access to the service. There was also the risk that the “grafting” of innovative elements onto existing systems would come up against users’ ideas, even though they concerned technical considerations.^[262]

For all these reasons, it was important to rigorously question the standards, first to try to produce references adapted to the socio-economic situation in large towns and, second, to ensure that local stakeholders (operators, consulting firms, public authorities, etc.) mastered the technical innovations. It was obvious that investment costs were a decisive factor for participation of the local private sector. Despite financial support provided by Mirep,^[263] if the specifications had been too demanding, entrepreneurs would have been deterred from investing more than they had agreed to prior to the project. This would, moreover, have been a major barrier to domestic access to the service (via the connection fees and water tariffs), and would also have weighed heavily on the competitiveness of networks faced with competition from alternative sources of supply.

Therefore, the principle of gradual progress was placed at the centre of the design strategy for Mirep systems. Rather than sizing infrastructure on the basis of demand assessed over the long term, it was decided to use a gradual investment approach. In actual fact, this led to existing equipment being developed and to service revenues gradually being mobilized for system extensions. On this point, it should be noted that additional efforts still need to be made in order to promote more relevant planning systems, in line with the community development strategies. There is also a need for more “modular” technologies to facilitate the continuous adjustment between network production capacities and changes in consumption curves.

Again with the aim of minimizing costs, the systems are based on a few simple structures built by small local companies using locally available materials. A major innovation for these structures was the process for rendering the water potable, whereby the treatment plants developed during the project can produce a large quantity of quality water using surface water at a relatively low cost. Further down the supply chain, the domestic connection was also given special attention. Since connection fees are a

[262] For example, one can mention the initial reluctance of users to use network water for drinking because it smells of chlorine. Chlorine is used to protect water against microbiological contamination and gives water a taste that the community tended to reject. A reduction in chlorine concentration was authorized during the first months following the commissioning of the Mirep systems. The content was gradually increased as users got used to the taste.

[263] The part of the investment financed by local entrepreneurs represents 60% of the total amount on average, with the remainder shared between the Mirep grant (30%) and household contributions for connections (10%).

well-known obstacle for access to the service, the project sought to reduce them as much as possible by using cheap meters (Mahé, 2008).^[264]

However, the choice of simple techniques should not mask the major work of analysing household demand, which was at the root of the infrastructure sizing (Naulet, 2008). Designing the most appropriate water supply system, *i.e.* characterizing current requirements and anticipating future ones without unnecessarily oversizing, requires a clear understanding of local social and economic mainsprings. For this reason, socio-economic studies were conducted at the start of each operation in order to make an accurate analysis of community water practices and representations. However, even with the use of these analytical matrices, any attempt at characterizing demand has a share of uncertainty, which reflects the multi-factor, hypothetical and dynamic nature of demand (Botton, 2006). It is even higher in semi-rural areas, where water practices are heterogeneous due to the abundance of supply options. This is why it is not only important to use a variety of analytical tools by combining disciplinary approaches (engineering, sociology, economics, etc.), but it is also necessary to take time to experiment and to develop the means for building a reference frame.^[265]

The aim of all this work conducted on small network standards was to come up with an acceptable compromise between the search for the lowest possible cost and the need for reaching a satisfactory level of water potability, without losing sight of demand for a domestic service. It involved improving service quality by taking care not to lapse into a *“technology diktat”*. From this perspective, Mirep’s experience supports the idea that the construction of an innovative technico-economic model calls for an iterative approach, able to integrate experimentation phases and gradual adjustments (Korten, 1980). However, for systems to be able to continue evolving once the project is completed, it is essential to design continuous learning systems for the operators, but integrating this support/advice function raises the thorny issue of how to finance it. More generally, it shows the need of having an ambitious vocational training policy in the drinking water sector, including both university courses and continuous training for the full diversity of operators working in the sector.

Finally, it should be added that an improved service offer, however much it meets household demand, is not spontaneously disseminated within the water market. First of all, as mentioned above, demand is never determined once and for all, and it is

[264] Cambodia’s proximity to countries known for their industrial dynamism (China and Thailand) gives it access to manufactured goods at a low cost. These products generally have a short lifespan, but they have the advantage of being available on local markets (Mahé, 2008).

[265] In this respect, one can congratulate Mirep on the role it played in producing technical and economic references. In addition to the Mahé (2008), Botton (2008) and Frenoux (2009) reports, a series of publications were produced as part of Mirep’s capitalization and are available on DVD from Gret or at www.gret.org.

sometimes necessary to stimulate it, possibly using marketing methods, or to facilitate it through social connection policies and instalment payment methods. The institutionalization process for new standards, *i.e.* private operators taking ownership of the technical reference and its official recognition by the public authorities, must go through training stages, as well as periods of negotiation and testing. Finally, it is essential to integrate coordination and incentive mechanisms for encouraging parties to use this new reference so that they can move to higher service levels.

- ***An incentive-generating environment: appropriate financing mechanisms***

Among the issues that were identified at the launch of the project, the issue of water potability strongly influenced the subsidy strategy. Given the fact that there was little social pressure on entrepreneurs and no institutional constraints for providing quality water, it was proposed to subsidize the process for rendering water potable. However, beyond justifications in terms of public health, the principle of subsidizing was based on the wish to support entrepreneurs by allowing them to avoid mobilizing substantial amounts of financing. Through its leverage, the subsidy was supposed to give entrepreneurs incentives to finance other service equipment.

Financing for the treatment plants was provided by Mirep against a commitment on the part of entrepreneurs to use these structures for public purposes, *i.e.* to provide drinking water to an agreed number of families in a given coverage area. However, even if the subsidizing of an “input”, in this case a treatment plant, is backed by a contractual obligation, it can only guarantee that social and health objectives are complied with if it is backed by effective and sustainable oversight mechanisms. Yet, the public regulatory framework was deficient in Cambodia, and even if the project mechanism was able to offset (to a certain extent) certain institutional weaknesses, questions were raised as to whether the contractual commitments would be respected when the project reached completion.

New financing strategies have emerged in recent years, such as Output-Based Aid (OBA), in order to mitigate the limitations of “input-based” subsidies (Input-Based Aid, IBA). OBA consists in allocating subsidies to a public or private operator depending on the performance achieved and evaluated using quantifiable criteria. Combined with a dedicated fund, this mechanism can have a number of advantages compared to IBA, which have been widely documented (Trémolet, 2006). However, it should be noted that there are certain difficulties inherent to its implementation, which Mirep came up against (Gret Lao PDR, 2009).^[266]

[266] An OBA mechanism was tested during the Mirep project in Cambodia and has been tested in Lao PDR since 2006 under the Mirep Lao PDR project. For a detailed description of the OBA system in Lao PDR and an analysis of its first results, see Gret Lao PDR (2009).

First, this subsidy method requires defining the expected outcomes with precaution, since if the selection conditions of the “target” are not good, the poorest families for example, there can be negative effects on social cohesion. In order to avoid any feeling of injustice or discrimination among the relevant communities, the targeting must occur in a fully transparent manner. However, although any exercise of this type in itself carries risks of bias, it becomes a particularly delicate matter when the information systems concerning the socio-economic conditions of households are incomplete. Second, under the OBA mechanism, funds are only allocated once the results have been achieved, which tends to exclude the smallest entrepreneurs whose financial resources are too limited to be able to commit the cash flow required for pre-financing works. Admittedly, it is possible to deal with this difficulty by making it easier to obtain loans, but in practice this solution is difficult to implement and may prove costly. Another difficulty lies in determining the amount of the subsidy. Although it is possible to use the “auction” system of a call for tenders for determining the amount of the subsidy in a competitive situation, the exercise is more complicated when the operator is already established, which was mainly the case for the Mirep project. Finally, as with any other subsidy method, OBA does not completely remove transaction costs. Yet these costs are obviously higher due to the uncertainty of the institutional environment.^[267]

However, subsidies are not the only available financial instruments for creating incentive effects. In Cambodia, the mismatch between the credit on offer and the constraints of small entrepreneurs partly explains the investment difficulties in rural areas. First, the investment credit for small businesses is at the same time costly, short-term and comes with heavy requirements in terms of property guarantees. Second, banks lack experience in assessing the viability of the rural infrastructure projects that are submitted to them. Finally, the water sector has a bad reputation and suffers from a particularly negative image with local financial institutions, for whom the only reference is often major and heavily indebted urban networks.

In this context, Mirep decided not to set up a credit mechanism *ex nihilo*, but to give a local commercial bank incentives to finance entrepreneurs’ water services. The system was based on the creation of a refinancing fund combined with a partial guarantee mechanism that could potentially cover part of the default risk on borrower payments.^[268] The bank wished to penetrate the small- and medium-sized enterprise

[267] For an introduction to transactional theory and, more generally, to the neo-institutional approach, see Ménard (2003).

[268] The Mirep credit mechanism is based on a system of “resource generation” and a “risk reduction” mechanism. It is described in detail in Mahé (2008).

market and accepted the loan conditions, which were exceptional at the time. It mainly did so as a result of the Mirep refinancing system and the project's commitment to help entrepreneurs in running their businesses (Mahé, 2008).

The financial guarantee reduced the amount of guarantees required of entrepreneurs/borrowers, but the undervaluation of the pledged property often nullified this advantage. Moreover, the bank's skills development was limited by its high level of staff turnover. Finally, Mirep's range of loans was not optimal as the interest rates remained high compared to the financial internal rate of return of a network and the maturities were too short. In the end, the use of credit continued to remain low in both the number of loans allocated and in financial volume. Ways to improve the mechanism would appear to be based on several elements, including reinforcing the guarantee mechanism, scaling up efforts for banker training, intermediation work between the banker and his potential client, a less uncertain legal framework for recovery in case of borrower default, the involvement of entrepreneurs and sectoral authorities in both the definition and management of the system, etc.

One can gather from this rapid review that the issue of financing small piped water networks does not reside so much in an exclusive choice between several support methods (subsidy *versus* loan, OBA *versus* IBA, partial guarantee mechanism *versus* refinancing fund), but rather in seeking the right – or rather the “least bad” – mix in view of the local economic and institutional situation. It is a question of building a mechanism that gives operators sufficient incentives and encourages them to constantly improve the quality of their services, while limiting their costs. This requires understanding the financial constraints faced by the latter and clarifying the project's objectives, or more generally those set out in the public policy (water potability and access for the poor).^[269]

The analysis of a drinking water system in terms of attractiveness must not, however, be limited to its economic dimension alone. The first reason is that all these instruments – without exception – must be integrated into a sufficiently stabilized instrument, as otherwise they may not create the expected incentives. The second is that many other factors are likely to orient the behaviour of stakeholders involved in service provision, particularly the credibility of the ground rules and the relationships that these stakeholders have. Consequently, reflection on the governance methods of the service is essential, irrespective of the subsidy and/or loan methods.

[269] The question is raised in similar terms for the choice of the tariff structure, which must pursue two conflicting objectives at the same time: to create appropriate incentives for entrepreneurs and protect users' interests. A great deal of theoretical research in the water sector focuses on the link between tariff structures and their incentive properties (Jensen and Meckling, 1976). For an in-depth analysis of the issue of tariffs under the Mirep project, see Mahé (2008).

- *The contracting process: shaping an action framework and building the legitimacy of parties*

When the project was launched, the legal and institutional framework in which network operators were working was in the throes of being rebuilt. While the latter were operating within a framework of public action, their relations with public authorities were precarious and the rules defining how services were organized were mainly informal. In this context, Mirep proposed to launch a formalization process by using a range of contractual tools and by leading multi-stakeholder consultation procedures.

The institutional architecture that gradually emerged during the project gave a significant role to the provincial and municipality structures. In view of the progress achieved in the decentralization reform, the municipalities were entrusted with the responsibility for contract management, and the provinces for coordination and supervision. The proximity-based rationale that characterized the commitment made by entrepreneurs advocated for local relations to be established at the level of the municipal authorities. Indeed, it appeared more realistic at the time to establish confidence between entrepreneurs and municipalities, which already had connections and shared common references, rather than with the central authorities whose concerns seemed far removed from the large towns. In other words, to use the terminology of the economics of convention, it seemed it was possible to reach an institutionalized compromise between the “*entrepreneurial market*” world of operators and the “*municipal*” world represented by the local authority (Baron and Isla, 2005).

However, in order to be part of the decentralization process, these young local authorities^[270] required support to allow them fulfilling their roles of decision-makers. For this reason, the municipal councils were mobilized at every stage of the projects, from the definition of needs to commissioning, including the contracting process. The provincial councils assisted the municipalities in contract preparation, the selection of delegatee entrepreneurs, subsidy management, the oversight of contractual undertakings, etc. The project team did, of course, play a central role in building skills and supporting the contracting authorities. However, the activities especially relied on tools tailored to the capacities of these stakeholders in order to give them a better understanding of the issues and a greater command of their responsibilities.

In order to clarify the roles of stakeholders in service provision, Mirep sought to formalize tripartite contracts between the provinces, municipalities and entrepreneurs, with the aim of developing a wide range of choices for the municipalities. However,

[270] As a reminder, the first communal elections were held in 2002.

the trilateral relation brought about by the delegation contract was part of a much more complex chain of contractual agreements (subsidy agreements, network subscriptions, project management, construction, etc.) involving a whole host of stakeholders (consulting firms, Gret, households, operators, mayors, etc.). Moreover, in contrast to a rigid definition that sees the formalization of mutual rights and duties as an end in itself, the Mirep delegation contracts were primarily considered to be instruments that showed the objectives of the parties and highlighted their interests. The contracts were used for stabilizing relations and were consequently vehicles for a collective learning process. The starting point for this contracting process was the mobilization of stakeholders and the clarification of their respective expectations. At this stage, it was a question of making a diagnosis of the situation open to all the practices of the community. Once the process had begun, the project then sought to create a shared responsibility between entrepreneurs, public authorities and users based on the notions of rights and obligations. This process resulted in an agreement on a few main objectives to be pursued (supply coverage, connection fees, etc.) and the resources to be implemented for improving the service (investments required, financing methods, etc.).

The real issues of the contracting process, as envisaged by Mirep, did not therefore lie in the definition of a contractual model, but rather in finding ways to allow each party to ensure that they were understood and to make a long term commitment. The objective was not so much to define an appropriate contract, but rather to create a shared vision of the water service based on common principles and on the acceptance of a multilateral framework of responsibilities. By building on dialogue, the contracting process sought to build the legitimacy of the stakeholders and to establish relations between them free of any suspicion. We should bear in mind that in Cambodia, the written contract – even if it has been subject to lengthy negotiations – is not completely integrated into local culture and respecting one's undertakings is more a matter of keeping one's word than of power relations.

What can we say today about the robustness of the governance method that the project helped to produce? Although it may be too early to make a full review, some elements are already visible. First, it can be noted that the new coordination methods, combined with the financial support mechanisms, have established confidence. Indeed, entrepreneurs have invested much more in network development than they used to and several have demonstrated a real concern for professionalization. Second, to date, the undertakings provided for in the contracts have been broadly respected: the systems are maintained, the services are provided with no disruptions and the decisions concerning tariffs have been applied. Although it would be over-

simplistic to gauge the viability of the governance method by these few indicators, it is, however, apparent that the institutional compromise has held out over time.

However, several limits are worthy of note. First, the mechanisms intended to promote the continuation of this initial learning process show certain weaknesses. We have already mentioned the particularly negative fact that there are no sustainable mechanisms for technical assistance and financial advice for small network entrepreneurs. This remark also holds true in other sectors *vis-à-vis* public stakeholders. Indeed, the expertise that can be mobilized by Cambodia's public authorities to lead local consultation and public deliberation processes continues to be limited. Although provincial structures support elected officials in the municipalities under their mandates, the support focuses more on the way to administratively manage the municipality than on how to understand issues related to local public action, beginning with those related to the provision of services of general interest.

In addition, despite the efforts made by the project to enhance the role assigned to municipalities in terms of service organization, the latter continue to suffer from a lack of legitimacy in the eyes of users. For example, several surveys show that households have doubts about the role public authorities have played – or could possibly play – in improving services. In the event of a tariff change, for instance, many consider that it is neither useful, nor legitimate to go through the public authorities. These attitudes towards local elected officials shared by households are undoubtedly related to the incomplete state of the decentralization process and are likely to change as the municipalities increasingly demonstrate their effectiveness. They do, nevertheless, also reflect the weight of the legacy of former coordination methods and the various ways in which the parties interpret the new service rules (Barrau and Frenoux, 2010).

Finally, in terms of the service users, questions are raised as to how to integrate their role into the organizational architecture. Although their participation has been promoted at the different stages of project implementation, once the services become operational, we see that the bodies or mechanisms established to defend their interests are extremely unstable. The project's responses to issues related to how to organize users and integrate them into the governance method have clearly not been sufficient. Promoting community participation in project execution, *i.e.* upstream from the service (Lorrain, 1996), is a difficult task. Creating bodies to defend their interests and ensuring that such bodies are sustainable is equally difficult.

These limits result in rather strong asymmetries of power to the benefit of entrepreneurs. One can therefore question the sustainability of the network development process initiated by the project and the ability of the parties involved to find

the necessary adjustments when services experience a deep crisis. Will systems continue to be extended and service quality improved? What will happen when a conflict threatens the balance of the current governance method? These questions lead us to reflect upon the role of the institutional environment, and more specifically on the importance of the regulatory framework, in stabilizing – or developing – the ground rules for the supply of small drinking water services.

Conclusions

All forms of governance must interact with the institutional environment in which they are implemented, in order for them to evolve and to find the necessary adjustments in case of crisis (Ménard, 2001). There would appear to be consensus today in Cambodia on the need for a regulatory framework, and the idea of regulating small entrepreneurs as effective providers of drinking water services is widely accepted. The main problem lies in the fact that there is no definition of what is, or should be, sector regulation, *i.e.* the way in which it must be considered in order to organize the diversity of supply methods (Jaglin, 2006).

Debates over regulating Cambodia's drinking water sector were for a long time confined to ways of creating a national regulatory agency. They consequently overlooked the essential issues: what objectives should be assigned to regulation? What missions should it be given? By relying on which stakeholders, which rules and which financing mechanisms? In other words, the question of "how to regulate?" came before those of "what to regulate?" and "why regulate?".

Regulation is indeed an ambiguous term with a meaning that varies enormously depending on local political and legal traditions. However, it is clearly often confined to its normative dimension alone, with strong emphasis on the issues of economic regulation, such as promoting effective competition, defining specific tariff obligations, etc. Yet although it seems clear that one of the purposes of regulation is to enforce officially established rules and standards, not enough consideration is given to its dynamic aspect and to the importance of adjustment procedures.

Moreover, fields of regulation other than those related to tariffs and competition would merit closer attention on the part of stakeholders involved in defining regulatory mechanisms. In Cambodia, there is no oversight procedure to ensure that the standards for making water drinkable are enforced. Moreover, no performance indicators to assess the quality of the services provided have been defined for either small entrepreneurs or operators.

Generally speaking, classic regulatory models do not provide appropriate tools for overseeing a whole host of stakeholders operating at different levels. Regulatory tools are often designed to analyse the results of major operators working in urban contexts

through an independent administrative entity. In Cambodia, as in many other developing countries, there is a lack of regulatory instruments adapted to semi-rural contexts. In order to ensure effective supervision and oversight, it is necessary to establish a relevant system for the collection, processing and dissemination of information for a wide range of activities. Consideration needs to be given to multi-stakeholder regulatory mechanisms and this must be accompanied with experiments on supervision-evaluation systems.

Regulation requires making decisions that enforce rules through incentives and sanctions. It implies establishing socio-political compromises with redistribution mechanisms (Hugon, 2005). In order to make headway in the implementation of a regulatory framework for small piped water network operators in Cambodia, it is therefore necessary to organize a real public debate involving the diversity of stakeholders who will play a role in the water systems. This requires efforts for transforming the official recognition of entrepreneurs into a real legitimacy of becoming counterparts for public authorities. In this respect, it should be noted that the creation of an association of small water entrepreneurs should contribute to this reinforcement of legitimacy. This also involves mobilizing those who use the services so that they can make their voices heard. Finally, it is not only a question of considering the functions of regulation and of supervision/evaluation, but also of those related to questions of learning and solidarity issues. Indeed, regulation implies economic sacrifices for both operators and certain users' groups that need to be brought into the open. It is ultimately a question of politically building a regulatory framework.

In Cambodia today, where roughly 90 SSWPs are officially recognized, and where it is likely that just as many operate in an informal manner, it is crucial to promote a clarified framework, gradually built on the basis of the different technical, economic, social, environmental, etc., fields of regulation. Only then will it be possible to say that the institutional transition has been fully achieved.

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3.8.

Private operators and water supply in sub-Saharan African villages

C. LEGER and J. ETIENNE

Introduction

Is the operation of water supply networks on the road to sustainability in Africa's rural areas? This article describes the experience of the Burkina Faso subsidiary – Faso Hydro – of a French operator – Vergnet Hydro – as an operator of several drinking water supply (DWS) systems in rural areas and questions the sustainability of small piped water network operations in secondary centres.

3.8.1. Background: the water sector in rural areas

- *The first rural water programmes*

The traditional rural world was fully autonomous well before the first village-water programmes. Indeed, well users bore the full cost of their creation, maintenance and of the acquisition of ropes to draw the water.

Sahel States increased the number of boreholes and established policies for free water and centralized pump maintenance in order to fight against the impact of the droughts they experienced in the 1970s. These policies rapidly showed their limits and States subsequently based their sectoral policies on user participation and on the transfer of maintenance to rural areas.

AFD first financed the rural water sector in 1979 in Mali, Niger and Senegal (Conan *et al.*, 2006). The levels of international financing rapidly increased, unfortunately at a pace that was much too high and that the water services were unable to control. There were overlaps in programmes, different types of pumps were used and processes were tightened up. The aim of the International Drinking Water Supply and Sanitation

Decade (IDWSSD) ^[271] was purely quantitative (number of water points created and no comparison with needs and even less with demand) and swept aside the qualitative approach used at the beginning. The main weakness was especially that the water point committees were deficient and did not anticipate equipment maintenance and renewal costs.

In 1986, the European Commission and the Permanent Interstate Committee for Drought Control in the Sahel (CILSS) decided in Praia (Cape Verde) to launch a far-reaching regional solar power development programme (RSP), for which the studies were launched in 1988. The main target very rapidly became to supply water to small centres with between 1,000 and 5,000 residents; 630 photovoltaic pumping stations with a production capacity of 10 to 100 m³/day were installed in nine of the CILSS countries. Solar power was the cheapest option for this level of flow, including the cost of drilling. Below this level, hand pumps were used and generators were used for higher levels. The main achievement of this programme was that it permanently put an end to the principle of free water, which had for a long time been the cornerstone of national policies in this region.

• *From the water point committee to the users association:
the influence of agronomists*

In the early 1990s, there was a substantial shortage of supply in small towns or “semi-urban” centres as demand had increased in quantity and, especially, in terms of service levels. Investments were scaled up and a volume tariff system was required to face equipment operating, maintenance and renewal costs (the lifespan was between 15 and 20 years depending on the country).

As the management of water point committees had too often drifted towards an informal private management by a dignitary or a trader (who could finance any necessary repairs), sectoral strategies recommended a management by water user associations (WUAs). These were often modelled after communities of irrigators (Valony, 2004) and were formed on a basis similar to the 1901 French law on associations. Their office comprises a president, a treasurer and a few representatives, in principle elected by its members.

In theory, the WUAs have a dual purpose as a water service delegatee and as a representative of the users of this service:

[271] Proclamation at the United Nations General Assembly in 1980 for the period 1981-1990.

- *“Operate and manage public supply and distribution systems, or have them operated and managed, [...] within the confines of the geographical area stipulated in the public water service delegation contract, [...] guaranteeing access to drinking water for all users”;*
- *“Defend the common interests of its members in the drinking water sector” (Rouvière, 2007).*

These water user associations were often set up prior to the decentralization reforms and made up for the lack of correspondents at the local level. They were therefore at the same time decision-making bodies for water issues at the local level, representatives of users/consumers and service managers. At the end of the 1990s, the transfer of powers in the water sector to the newly created rural municipalities in sub-Saharan Africa (mainly in French-speaking African countries) significantly changed the situation. Power relationships emerged and memberships in the “right” political party (that of the municipal majority) helped them become the norm. Members of the association’s office were also sometimes members of the municipal council. Ongoing research and pilot experiments (Etienne and Blanc, 2008) are seeking to establish control and regulation mechanisms for these WUAs in order to guarantee access to the service in centres reputed to be economically and financially “unprofitable”.

• *From WUAs to private operators*

The following extract is from the 26 November 2008 post on the blog “Toubabou à Bamako” created by T. Helsen, a hydrogeologist who has been living in Mali since 2002.^[272] “Recently in Léré, a large town in northern Mali, the community attacked the mayor and municipal team. One person is reported to have died and there was violence. This was all because the mayor had set out to remove the management of drinking water from the water users association and entrust it to a private operator. The idea in itself is not bad and it is understandable that the mayor wanted to have water supply managed by professionals, but it is clear that there was a lack of communication.”

At the end of the 1990s, it proved necessary to professionalize the management and maintenance of semi-urban water facilities due to the increasing number of water supply networks that had been created. This led administrations in charge of the sector to reform sectoral policies, in conjunction with the adoption of decentralization laws providing for the transfer of the role as contracting authority for DWS, from the State to the local authorities.

[272] <http://mali.blogs.liberation.fr/>; T. Helsen is a technical assistant to the National Water Department in Bamako.

These reforms were widely influenced by the donor community and by the reforms in the urban water sector, but with a time lag. By involving “professional” private operators, they aim at improving service performance – continuity of water supply, proximity (distance from standpipes and access to private connections), the quality of the distributed water, etc. – and to transfer the commercial risks to the operator in neighbourhoods where the ability to pay and the quantities requested are low.

Private operators replace users associations and are therefore encouraged to take over part or all of the water service management. Users associations are consequently considered as a “default” solution. This is the case in Mali where it is planned for them to continue to play a leading role in ensuring that DWS facilities are well managed *“notwithstanding the gradual arrival of private management”*.^[273]

Against all expectations, the issue of the profitability of these small operations is not at the heart of the strategy brought about by these strategic guidelines. The low levels of user consumption, particularly when there are alternative and competing supply sources (water from the new network is sometimes only used for drinking and cooking), as well as the limited ability to pay of the heads of household, are factors that constrain the profitability of small operations (a few thousand residents). Similarly, the “social” feasibility of public service delegation is rarely mentioned. However, the way users perceive the water tariff largely depends on the quality of the operator (public, private or an association).

• *How to strike the right balance between users and centres?*

The application of the principle of cost recovery (breaking even at the minimum, *i.e.* excluding network renewal and extension) in rural municipalities results in a significant variation in tariffs. Costs differ depending on the size of the municipality and the type of water resource (boreholes with different depths, surface water to be treated, etc.). There are very few examples of cost- and risk-sharing between centres for infrastructure-related maintenance. Burkina Faso has, however, experimented with this by entrusting the management of several systems to a private operator following a call for tenders. The Reform Application Programme (RAP) financed by AFD was subsequently launched.

[273] National drinking water supply development strategy in Mali, Republic of Mali, adopted at the Council of Ministers on 28 November 2007.

3.8.2. The rural water maintenance reform in Burkina Faso: the view of a key stakeholder

In Burkina Faso, the emergence of municipalities has gone hand in hand with the idea of delegating the drinking water distribution service to a private professional operator. A contracting procedure that can evolve towards a public-private partnership-type system has also been proposed, particularly for the maintenance of DWS systems.

Vergnet Hydro, a company in the Vergnet Group in charge of the water sector, has positioned itself as an operator under the reform that has been engaged. Vergnet Group has indeed adopted a charter in which it declares that its mission is to *“help satisfy the needs of humankind for water and energy, everywhere and for all, with innovative and appropriate products and services, using renewable energies as much as possible”*.

There are several reasons for Vergnet Hydro’s interest in this DWS reform in villages that generally do not attract water operators from developed countries:

- It has experience in supplying drinking water in difficult, remote contexts far from the power grid that require appropriate responses to the often complex issues of the sustainability of investments;^[274]
- Faso Hydro has a representation in Burkina Faso with skilled and experienced staff;
- It has the advantage of having tested a first experiment in supporting solar grid management in the Sahel region (an experiment that ended in failure as the community management of the facilities was not conducive to the collection of the funds required to maintain the facilities).

The involvement of Vergnet Hydro and of its subsidiaries did, however, include a risk assessment. The initial observations made in 2005 of all the systems in the 13 target provinces showed that out of 91 simplified drinking water supply (SDWS) networks inventoried, 65% were no longer operational. A new SDWS network under community management has an average two-year lifespan. There are numerous reasons for this, such as technical and financial problems of managing system failures, solar panel thefts, no supervision, etc. The specific consumption levels are low. Indeed, the study showed that they ranged between 1 and 2.5 litres per day and per person. There are, in addition, risks related to water resources. The hydrogeological context in Burkina

[274] Vergnet’s foot or hand water pumps are part of the landscape for drinking water supply for rural communities in sub-Saharan Africa.

Faso – to a very large extent characterized by bedrock groundwater or similar – makes it difficult to quantify groundwater reserves and, especially, does not provide high operating flow for the structures. Indeed, in Burkina Faso a borehole is said to have a “high flow rate” – and therefore to be suitable for supplying a network – when its production flow rate reaches 5 m³/h.

These figures show the extent to which managing an SDWS network with a view to making it sustainable is a complex matter. Vergnet therefore considered that it was not possible to only position itself on network operating and that it also had to be involved in building – or even designing – networks. By building SDWS networks, the company was sure to inherit work for which it measured the value (civil engineering works properly conducted, pipes laid according to the rules) and high-quality equipment that it had selected itself. This reduced the risk of having to conduct maintenance works – or even upgrading works – when operating started.

Moreover, the experiments in supporting SDWS network management, conducted by the Association for the Development of Drinking Water Supply (ADAE) in southwestern Burkina Faso, show the interest of pooling SDWS network management. The analysis of the income statements of the forty or so networks where ADAE operates shows that two large centres support all other village communities.

It was therefore not feasible for Vergnet Hydro and its subsidiary to respond to a call for tenders that only concerned one centre. It preferred to position itself on a batch in order to benefit from economies of scale. The economic simulations, made with conservative hypotheses, suggested that the operating accounts would reach the break-even point in 7 years for a specific consumption of 8.6 litres per day and per person, by setting the water tariff at FCFA 500/m³. In principle, this specific consumption would appear to be unachievable in the context of Burkina Faso, but it does, however, exist in the neighbouring contexts of Niger. It consequently represented a huge challenge.

• *Overview of equipment in the affermage area*

Seven SDWS networks were established in villages that already had boreholes equipped with hand-operated pumps (HOPs). The delegation area in the different centres is not confined to SDWS, but also includes the public HOPs located less than 500 metres from the DWS network standpipes. Competition from alternative resources to the network standpipes caused difficulties during the system’s operating phase. Almost 44,000 people are potential users and have at their disposal 37 standpipes equipped with 3 faucets, and 32 boreholes equipped with hand-operated pumps (HOPBs), 25 of which are in working order. The total length of installed pipes stands at 14,000 m.

Table 24 Basic characteristics of SDWS networks

Region	Province	Centre	Population	Volume of reservoir (m ³)	Number of stand-pipes	Number of HOPs (incl. operational)	Type of pumping
Sahel	Oudalan	Markoye	4,750	20	6	7 (7)	Thermal
Sahel	Yagha	Mansila	4,520	30	8	5 (4)	Solar
Sahel	Soum	Gasseliki	2,870	30	4	2 (0)	Solar
North Centre	Namentenga	Yalgo	7,780	30	6	6 (5)	Thermal
Sahel	Séno	Seytenga	4,500	30	5	5 (4)	Thermal
Sahel	Séno	Gorgadji	15,360	30	5	5 (4)	Solar
Sahel	Yagha	Titabé*	4,060	25	2	2 (1)	Solar

* Upgraded centre.
Source: ANTEA (2009).

• Contractual aspects and pooling of network operating

The companies that were chosen were selected on the basis of an international call for tenders launched by the Ministry of Agriculture, Water and Water Resources for the construction, upgrading and operating of DWS networks. Two criteria were assessed by the client: the cost of construction and the proposed tariff per cubic metre of water sold.

The companies selected sign a contract with the Burkina Faso State for the construction of networks and undertake to sign an affermage contract with the beneficiary municipality on the basis of the water tariff predetermined in their tender. Municipalities therefore delegate water service management to a professional private operator. As the pooling of expenditure and income is a precondition for the success of the project, the affermage contract, the content of which has been discussed and negotiated with the municipalities, stipulates that the mayors *“authorize(s) the operator to be free to adopt all operational and financial equalization measures with a view to optimizing the centres for which the management is delegated”*.

This clause is essential for the equipment to be operated in a more efficient and viable manner. It paves the way for intercommunality, a status that does not, however, exist yet in Burkina Faso’s legislation. Faso Hydro’s discussions with the mayors of each municipality concluded with them accepting this approach. Although the rights of each

party have been clearly understood, history will tell whether the duties have been understood as well. To accept the pooling of resources and expenditure also means accepting to be bound by a contract with the selected operator for a period of 7 years along with the other municipalities. Should a municipality breach its operating contract, the operator would no longer be contractually bound *vis-à-vis* the other centres. This is a weakness in the operator's undertakings that will need to be addressed.

- *Implementation of the operation*

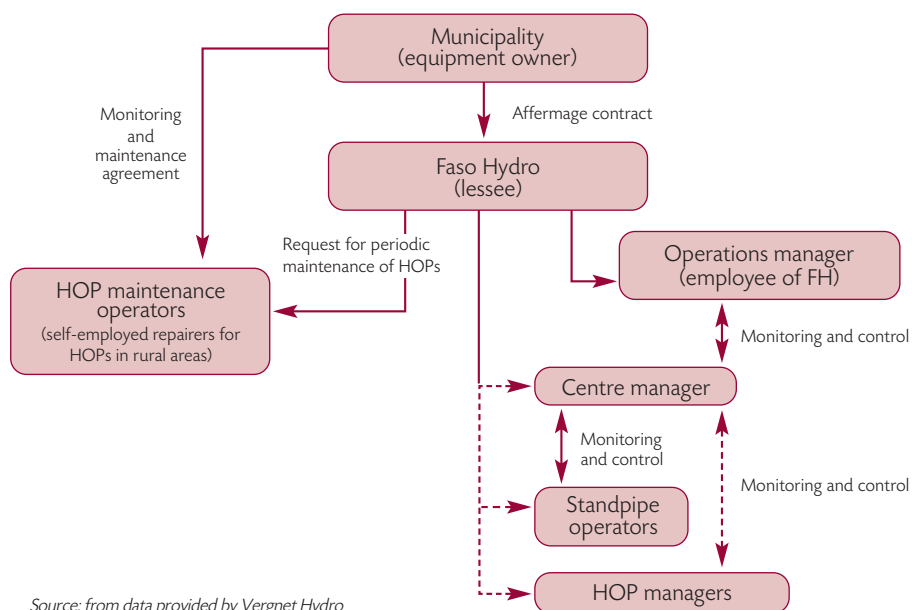
As the self-financing capacity of DWS systems is the major challenge, Vergnet Hydro and Faso Hydro were careful to gain the acceptance of communities. Indeed, no decision that has an impact on the final user is taken without the consent of the contracting authority, which requires continuous exchanges with the representatives of the municipality (often the mayor) in order to involve them in a constructive decision-making process. Moreover, an effort is systematically made to reduce recurrent operating costs; the operation is supervised in order to control the expenditure and income and to secure funds and transfers.

- *Transparency of relations with communities*

Vergnet Hydro and Faso Hydro prepared two documents in order to clarify the practical methods of the water distribution service. The first concerned the regulation of the drinking water distribution service and the second, the rules for the proper use and purpose of water. They define the way in which the network operation functions, the cost of water per recipient, and the user obligations. These rules are adopted by the municipality and are public documents posted at the town hall and annexed to the affermage contract. The operator regularly submits technical and financial operating reports on the SDWS systems to each municipality. These reports provide a snapshot of network operation at a given date and contain recommendations that can be negotiated with the contracting authority.

- *The management system and its stakeholders*

Figure 10 *Links between the municipality, operator and village partners*



Source: from data provided by Vergnet Hydro and Faso Hydro.

- *The operations manager* is employed by Faso Hydro and is in charge of the technical and financial monitoring of the facilities in all the municipalities. He is physically located at a central point, which allows him to reduce his travel to a minimum. He has a motorbike that allows him to go to the villages under all conditions. He enters the data into the equipment-monitoring software and produces the operating accounts for each municipality and for all the municipalities together. The expenses charged include the salary he is paid, his travel, as well as the maintenance and depreciation of his material and of his motorbike.
- *The centre manager* lives in the village and was selected on the basis of a simple test that allowed Faso Hydro to judge his ability of managing the network in his municipality. He is trained by the company via NGOs or specialized offices: start-stop of the pump, entry of pump data, entry of income and expenditure in pre-completed registers, ability to manage relations with standpipe operators, and petty cash management. He is remunerated through a percentage of the volume of water actually

sold. In contractual terms, he signs a contract with Faso Hydro as a natural person operating in the informal sector. This type of contract is recognized by the Burkina Faso authorities. In return, Faso Hydro discharges its tax liability by paying a 10% tax, in accordance with Burkina Faso's tax system, on the gross amount of the centre manager's invoices for his services.

- *The standpipe operators* are selected on the basis of a test to measure their ability of reading and conducting simple numeracy tasks (addition and subtraction). They are trained by the operations manager and by the centre manager. They report to the centre manager, but are not bound by a written contractual undertaking. They are, in reality, considered as private clients who buy cubic metres of water at a preferential tariff and are paid by the difference between the expected income and the volume of water measured at the standpipe meter.
- *The HOP managers* have the task of collecting a flat rate at each HOP, which they have to remit to the centre manager. They are trained by the operations manager and by the centre manager. They are free to organize themselves as they wish and are paid on the basis of the achievement, in full or in part, of set objectives. They report to the centre manager, on the same basis as the standpipe operators, and are under his responsibility.
- *The difficult problem of monitoring and operating HOPs*

The aim of integrating HOPs into the affermage area of the operator is to regulate competition between this type of water point and standpipes. In theory, entrusting the HOPs to the operator guaranteed that the water from each of the centre's intakes was sold at the same tariff as at the standpipe faucets, in accordance with the specifications of the call for tenders. However, Vergnet Hydro and its subsidiary came up against three problems.

First of all, the village council considered that certain pumps said to be of a social character (schoolyards or dispensaries) should not be included in the affermage area for which – in reality – it has no authority (water points considered as semi-private). These pumps were therefore excluded from the affermage area under the condition that the municipality undertook to inform the community that these pumps were only for the use of the site (for school children, patients and the visiting families of patients) and were not for public use.

The second problem was that the mayors were divided between a desire to see all the HOPs in their village operate, and the feeling that the development of their community should involve the gradual phasing out of the HOPs and replacing them with standpipes, or even private connections, which are signs of development. Should access to all the HOPs have been prohibited? As the political impact of such a measure

presented a risk, it was decided not to repair the broken pumps, but the operator was obliged to earmark an amount for HOP maintenance so that they could be started up again if needed.

Finally, for HOPs not to be considered as competing with standpipes, it was necessary to control the water that was sold at them. However, HOP metering can only be conducted by counting the number of buckets, basins and barrels that are filled, which is a tedious job that gives an approximate result. The solution was found based on the HOP management method used in hamlets and villages that did not have a DWS network: a minimum flat rate of between FCFA 300 and FCFA 400 ^[275] was collected daily at each water point. Faso Hydro used this system to manage HOPs included in its affermage area; it must collect an annual amount of FCFA 126,000 per HOP.

• *Initial system of the distribution key for water sale income*

The water tariff at the standpipes and HOPs is set at FCFA 450/m³. Vegnet Hydro and Faso Hydro have defined a distribution key in order to establish provisional operating accounts (Table 25). The first months of network operating are used to develop this key by making a more accurate assessment of provisions on the basis of actual costs.

Table 25 *Distribution key of water sale income (in the case of a 100% collection rate)*

Remuneration of centre manager	10% (i.e. FCFA 45 per m ³)
Remuneration of standpipe operator	12%
Operating fund	15%
Maintenance fund	25%
Faso Hydro overheads	20%
Guarantee and renewal fund	15%
Investment fund	3%

Source: from data provided by Vegnet Hydro and Faso Hydro.

[275] During the dry season (six months), the HOP managers must collect a total amount of 30 x FCFA 400, i.e. FCFA 12,000 a month. During the winter season (six months), they must collect a total amount of 30 x FCFA 300, i.e. FCFA 9,000 per month.

3.8.3. Initial results after six months of operation (May - October 2009)

The initial operating results vary depending on the centres. While good results were expected from Mansila and poor results from Markoye,^[276] the initial figures show the opposite. The involvement of mayors and the work they conduct of informing their citizens in order to convince them of the merits of water supply would therefore seem to have been vital to the success of the operation.

In Gasseliki, a village on the municipality of Aribinda, the mayor is physically in the main village of the municipality and those who have influence in the village do not live in neighbourhoods served by the water supply. Lowlands with numerous gardens provide a source of water supply for villagers *via* traditional bilge wells. The standpipes are abandoned for these alternative resources.

In Gorgadji, the mayor and the community have high expectations of the water supply network, because this centre suffers chronically from a lack of water during the dry season. Two photovoltaic pumping systems were installed as a result of the lack of hydrogeological resources, but they still cannot meet the needs of residents at all times. Pressure remains high at all the water points, including at the HOPs. Indeed, women sleep near the standpipes and HOPs in order to be sure that they are the first served the following day.

In Mansila, an extremely hard-to-reach village where a sheik resides, water is still considered as a free good, a gift of God. The community is reluctant to go to water points where they have to pay and prefer to go to ponds and rivers. The mayor has admitted that he has not had the time to explain the interest of obtaining water from standpipes (it is likely that their geographical distribution has not been sufficiently optimized).

In Markoye, despite enormous difficulties related to land problems that were not resolved when the works began and to the presence of a pond south of the village, the network operation is satisfactory, thanks to the mayor who was a real driving force for the community. The village is also at a crossroads of trade routes between

[276] In Mansila (a hard-to-reach village often forgotten in development programmes), the socio-economic studies conducted by the project manager highlighted positive indicators: a well-structured village and a community and village council highly motivated for the project. However, the residents of Markoye, who include many traders, are considered as being difficult to convince and the mayor does not necessarily play the game in terms of projects. In addition, the project manager had difficulties in moving programme activities forward with the authorities. The network defined on the basis of the official housing site could only be created if major land works were conducted to realign housing with the housing site concessions. Yet the village council had taken no steps at the time of the construction of the SDWS system.

Mali, Niger and Burkina and is at the heart of a mining region (gold in Essakane and manganese in Tambao). It is possible to fill the water tower three times in just one day.

Seytenga is a multi-ethnic village that also derives its wealth from cross-border trade (Dori-Téra road in Niger) and from gold-mining sites. It benefited from the development of a community electricity cooperative network (COOPEL) and the community would appear not to want to use the DWS. Reasons that may explain the poor results of the water distribution service in the centre include the fact that there is little solidarity within the community. The residents are probably highly individualistic (or used to “getting by” themselves) and the village council is not very committed. In just six months, Faso Hydro had to replace two centre managers (one had embezzled money, the other resigned). All the standpipe operators were changed. They come under extremely strong pressure from users seeking to pay less and, in the end, are not paid very much when the monthly accounts are closed. Discussions with the village council have yet to bear fruit. A major activity and awareness-raising programme will need to be organized in this centre if the administration wishes to make the facilities sustainable.

In Titabé, an upgraded centre and a relatively large village where it is difficult to find water, the results are poor due to geographical and hydrological constraints. It is likely that they do not reflect the real needs. The low number of standpipes (two units) may possibly explain why sales are below forecasts.

In Yalgo, Faso Hydro observes that there has been an increase in the consumption of water that has to be paid for.

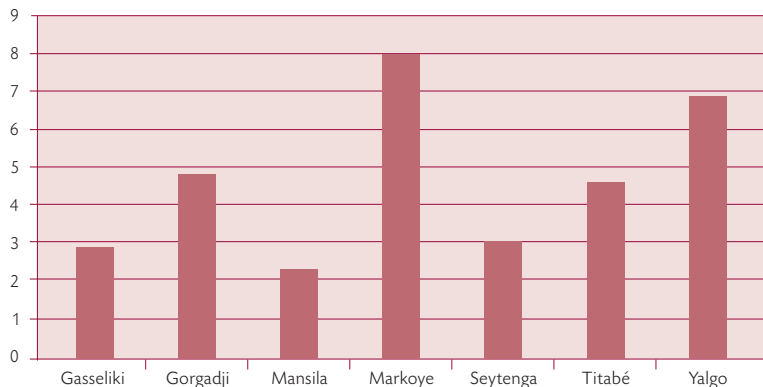
- **Consumption figures**

- The significance of the number of standpipes per network*

Is it worthwhile creating standpipes in villages like Gasseliki, whereas they only distribute a volume that a HOP can easily provide? Although Graph 32 only provides average values, the fact remains that even during the hot and dry season, standpipe production is below 5 m³/day. Would it not be preferable to minimize the number of standpipes per network and thus optimize investments?

Graph 32

Average number of m³ sold per day and per standpipe (May - October 2009)



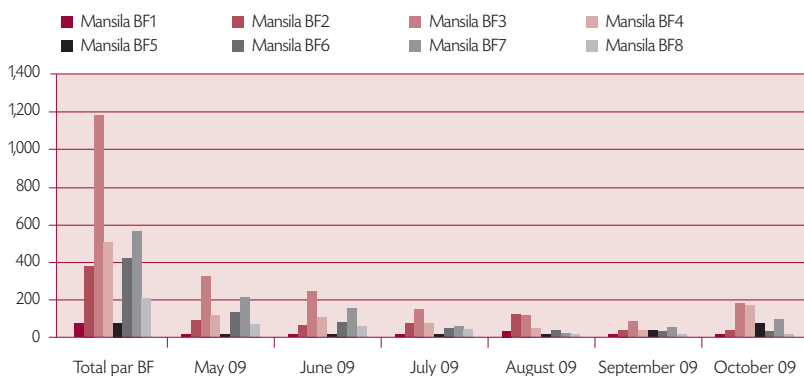
Source: from data provided by Vergnet Hydro and Faso Hydro.

• *The quality of the installation of standpipes*

The graphs showing the volumes of water drawn per standpipe in each village for the period May to October 2009 clearly indicate that the standpipe must be installed where there is the greatest need. In Mansila, the SP1 and SP5 standpipes have almost been abandoned.

Graph 33

Volume of water pumped in m³ by standpipe in the centre of Mansila (May - October 2009)



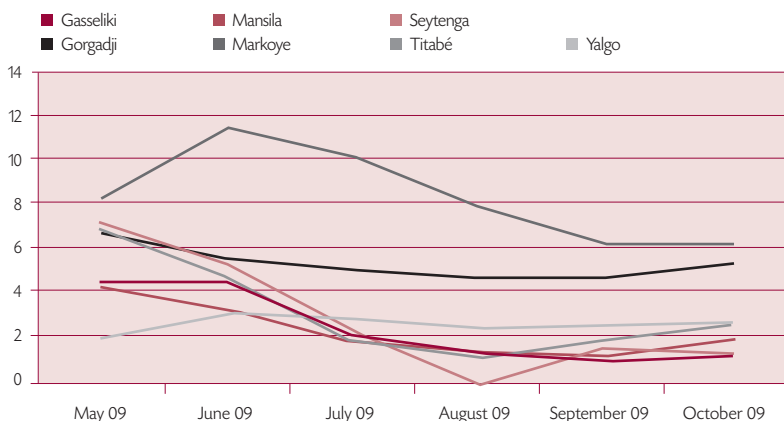
Source: from data provided by Vergnet Hydro and Faso Hydro.

An analysis of all villages shows that the centres that work best are those that have a good level of homogeneity in terms of standpipe production. Unproductive standpipes are shut down by the centre manager and are sometimes even abandoned by the standpipe operators because they do not provide enough remuneration. They are sometimes directly managed by the centre manager who opens them during a short time slot.

- *Consumption of water that has to be paid for per capita and per centre*

Graph 34

Changes in average consumption of paid-for water in litres per day and per person (May - October 2009)



Source: from data provided by Vergnet Hydro and Faso Hydro.

It is difficult to accurately quantify the residents who actually go to the standpipes; calculations are made on the total village population. In Yalgo, the network does not cover a large sector in the town, but it is estimated that consumption stands at around 2 to 3 litres per day and per person, an average figure that is exceeded by Markoye and Gorgadji.

The downward trend for average paid-for water consumption is sensitive to the rainy season (July and August), because communities draw water from traditional water points that are once again productive, except in Yalgo where the curve shows the strong development of the network.

- **Financial results of the first six months of operation**

Impact of network failures on water sales, staff remuneration and the responsiveness of the operator

Apart from the Seytenga centre, which is inaccessible in August because the dam overflows, all the network failures were repaired within a week as the private operator loses financial resources every day if it does not distribute water. It would seem difficult to improve the management of this parameter.

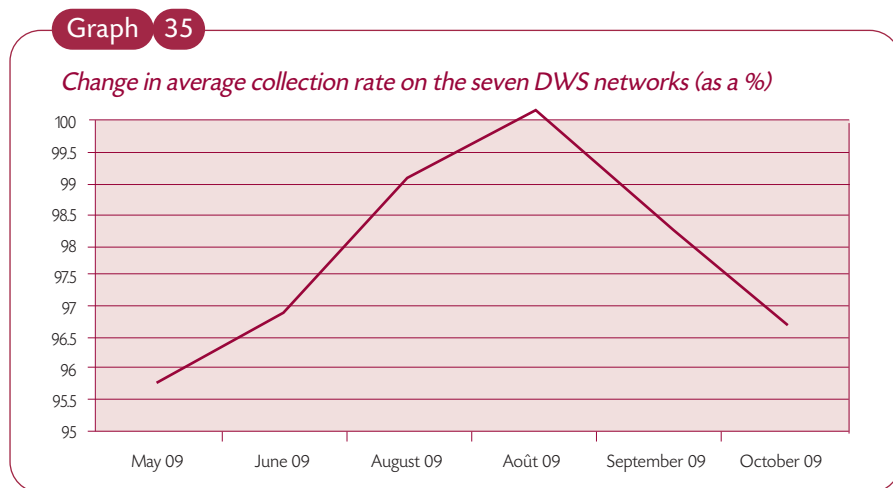
The remuneration of the centre managers, standpipe operators and HOP managers (Table 26) directly depends on the centres being well operated. This remuneration “by task” has two impacts: it strongly motivates all those who see their efforts rewarded, but it also discourages others. A total of 17 standpipe operators had to be replaced in six months, either because they resigned, or because they did not measure up to the work that was expected of them. This high level of turnover would definitely be a drawback if the SDWS system was managed by the community (slow decision-making, difficulty to select candidates, etc.). The operator has no choice: if it wants to break even, it must rapidly replace inefficient staff.

Table 26 *Remuneration of standpipe operators and centre managers (in FCFA)*

Designation	Gasseliki	Gorgadji	Mansila	Markoye	Seytenga	Titabe	Yalgo	Total
Average monthly remuneration standpipe operator	8,163	6,488	1,755	17,450	2,450	4,056	13,517	7,700
Average monthly remuneration centre manager	15,021	35,468	26,148	62,719	20,196	12,421	63,975	33,707

Source: from data provided by Vergnet Hydro and Faso Hydro.

- **Collection rate**



Source: from data provided by Vergnet Hydro and Faso Hydro.

The first analyses of the comparison between the theoretical income expected from a standpipe and the actual income show that the average collection rate on the SDWS networks is good, even very good (above 100% in August). However, the collection rate for the HOPs is not good and reflects the difficulty of controlling HOP production. The HOP managers say that they find it extremely difficult to charge for the water at the pumps. A list of beneficiaries would need to be drawn up for each pump so that a flat rate can be collected from families. Payment per volume also very often comes up against arguments among women over the volumes, despite the standard recipients that are provided.

In Yalگو, a women's association used to manage the HOPs before the operator arrived; the income they generated from the sale of water allowed them to both maintain the pump and finance other activities (small handicrafts and weaving). The arrival of Faso Hydro therefore meant that these women lost income and tensions arose. Is the inclusion of HOPs in the affermage area justified in such cases? One can believe so if the conditions before the construction of a network are clearly improved during the feasibility phase. However, as Yalگو is not part of a province within AFD's final area of operations, the village did not benefit from the same information activities as the other centres. This observation shows the extent to which it is essential of explaining the benefits and drawbacks of a future equipment project, so that it is accepted – or refused – by the community and its representatives. One of the keys to success in public service delegation lies in involving the municipality and its citizens in decision-making before any works begin.

In certain centres managed by Faso Hydro, some women say that they cannot afford to pay for the water because their husbands do not give them enough money for it. Consequently, in order to bring home the daily water ration, they have no other choice but to go to water points – that may or may not be equipped with HOPs – where there is little or unreliable control (outlying villages, outside the affermage area, sometimes several kilometres away). This situation shows how difficult it is to strike the right balance between the obligation of the managers to charge for the water and the solvency of demand. Although the standpipe operators at the standpipes must absolutely charge for the water because their remuneration depends on it, at the HOPs there is a flat-rate contribution (between FCFA 300 and FCFA 400/day, *i.e.* the equivalent of less than 1 m³ of water, less than the volume distributed daily). When the village council is asked how the poorest manage to get their water supply, the answer is usually: *“Don’t worry, we have our own social organization”*. There would therefore appear to be a social regulation which, paradoxically, some residents do not benefit from in the village for reasons only known to itself.

Operating account

Table 27 Operating account for the period May to October 2009
(in FCFA)

Designation	Gasseliki	Gorgadji	Mansila	Markoye	Seytenga	Titabe	Yaigo	Total
INCOME								
Water sales at the standpipes	901,225	2,123,100	1,569,235	3,763,235	1,019,130	745,225	3,838,545	13,964,695
Water sales at the HOPs	0	149,250	96,055	220,500	35,400	0	103,300	604,505
Water sales at private connections	0	0	0	0	0	0	0	0
Total income	901,225	2,272,350	1,665,290	3,983,735	1,054,530	745,225	3,941,845	14,569,200
CHARGES								
Personnel	391,710	654,585	476,770	1,167,785	378,770	326,825	1,102,805	4,499,250
Energy				1,164,941	471,199		1,108,368	2,744,508
Maintenance	19,079	18,829	32,079	123,329	93,504	18,629	111,079	416,528
Everyday management	54,622	49,672	48,822	38,022	39,347	42,022	47,422	319,929
Overheads (Faso Hydro)	398,906	385,841	390,841	385,841	385,841	385,066	384,466	2,716,802
Total charges	864,317	1,108,927	948,512	2,879,918	1,368,661	772,542	2,754,140	10,697,017
Balance	36,908	1,168,423	716,778	1,103,817	-314,131	-27,317	1,187,705	3,872,183
PROVISIONS								
Provisions for SDWS maintenance funds	222,338	555,580	400,677	992,670	291,038	188,675	1,030,593	3,681,571
Provisions for HOP maintenance funds	0	105,750	75,275	156,150	26,900	0	74,575	438,650
Provisions for renewal funds	287,808	291,498	302,562	504,786	244,124	284,124	504,786	2,419,668
Provisions for investment funds	28,061	67,480	51,021	110,445	34,290	23,847	114,269	429,413
Total provisions	538,207	1,020,308	829,535	1,764,051	596,332	496,646	1,724,223	6,969,302
Result	-501,299	148,115	-112,757	-660,234	-910,463	-523,963	-536,518	-3,097,119

Source: from data provided by Vergnet Hydro and Faso Hydro.

The operating account shows positive cash flow for five of the seven centres, but the results are all negative (except for Gorgadji) when provisions are made for maintenance and renewal accounts. The expenditure recorded in the charges under maintenance will, after a period of one year, allow a clearer assessment of the amount of provisions that Faso Hydro will need to include under the SDWS maintenance fund. Income will increase if this provision is reduced. Simulations made on the volumes of water that need to be sold in order to break even, suggest an average of 6.5 to 7 litres of water per day and per person, while retaining a management model that keeps recurrent expenditure to a minimum.

Conclusions

It seems possible for the water distribution service in Burkina Faso's small centres to be sustainable, with support from a professional operator that makes use of economies of scale and solidarity by operating in several centres. The question remains as to the threshold of beneficiaries that needs to be defined, in order to affirm that the operation of SDWS networks under an affermage is truly sustainable. Several conditions already appear to be necessary.

The first is to increase the level of *per capita* water consumption. This can be achieved by developing private connections (this initiative is underway in 3 of the 7 centres in the affermage area and around 40 requests have been received) and by improving HOP management. However, for the time being, Faso Hydro's only proposal is to shut the HOPs down with a commitment to reopen them when there is a shortage in the village. It is also necessary to organize a more rational supply in the villages and a better distribution of standpipes; in Mansila and Titabé funding has been found to upgrade and build additional standpipes.

A second condition concerns the water tariff. Although it may be used as an adjustment parameter, FCFA 500 per cubic metre would appear to be a psychological and economic barrier (ability to pay) that would be difficult to exceed. A promotion and information campaign for residents in the centres may also be a third condition for sustainability. Yet the cost of this cannot currently be borne by Faso Hydro, which is seeking to build partnerships with specialized NGOs for this purpose. Additional funding may also be sought (decentralized cooperation and foundations) as a fourth condition. In the long run, a specific tax status for private operators of public services in rural areas may give them incentives to position themselves on this market.

However, although profitability is a key issue when it comes to the sustainability of the water supply service, this is not sufficient for guaranteeing it. Control and regulation are also essential. Yet it would appear that the relevant municipalities have very little control over the functions delegated to the private operator. This is largely explained by the low level of both human and financial resources available to these small communities. But they do, however, play an important role in communicating to citizens and providing information on the water service, such as the risks related to using contaminated sources, justification of the water tariff, quality of the service provided, etc.

The affermage contract signed between the municipality and the company is a good training tool for the municipalities that need to prepare exercising the powers that are transferred to them. Due to its relative complexity compared to the limited capacities of the municipalities, it is not yet a tool that the municipalities can rely on to ensure that the operator complies with its specifications. In addition to exercising the powers that have been delegated to it, the operator plays a role that is comparable to a form of assistance to the contracting authority, for example by drafting the service regulation for drinking water distribution (annexed to the affermage contract).

How can this asymmetry of resources that creates an imbalance in the relationship between the contracting authority and the delegatee (human and financial resources) be addressed? In urban areas, forms of regulation other than through contracts are established for ensuring the quality of the “public” service – such as an accurate dissemination of information to users, transparency in the accounts, etc. – but there are few mechanisms in rural areas and in very small municipalities.

However, in a few countries near Burkina Faso (Chad, Mali and Niger), technical and financial audit mechanisms have been established for reducing these difficulties by outsourcing certain regulatory functions and using independent operators.

An exemplary experience can be found in the Kayes region in Mali where, since 2005, the National Water Department has given a mandate to the consulting firm 2AEP to provide technical and financial monitoring services for water supply systems. This service is financed by a charge on the water tariff paid by users.

Similar structures exist in Chad: the Management Consultancy and Support Units have benefited from AFD support under the project “33 secondary centres”, which reached completion in September 2009, and from the EU under the Regional Solar Programme.

In Maradi in Niger, a supervisory and consultancy office, “BCC”, has entered into contracts with some thirty water user associations and has a mandate to provide the technical and financial monitoring of private delegates. More recently in Tahoua, these BCCs have directly entered into contracts with the municipalities.

In Burkina Faso as well, an original experiment has been conducted in the region of Bobo-Dioulasso, with the creation of the Association for the Development of Drinking Water Supply in the Bobo-Dioulasso Region (ADAE). This non-profit association provides support and advice and, since 2000, has also been in charge of the supervision and technical, accounting and financial management of 36 drinking water supply systems *via* its management centre.

The hope raised by these small operators, to which all or part of the powers of authorities will be delegated, should convince us to support and, at the same time, strengthen the delegating authorities and to establish innovative mechanisms that ensure service control and regulation.

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List of authors

CARMEN AREVALO-CORREA is an architect and urban planner. She has extensive professional experience in planning policy and implementation of projects in the water and sanitation sector. She has held high positions within the Colombian civil service, in particular as Vice Minister for Environment and General Manager of Barranquilla's Public Utilities Company. She has also led the regional team of World Bank Water and Sanitation Program for the Andean region.

Contact: carevalo@culturacaribe.org

AYMERIC BLANC graduated from the École polytechnique and the École nationale des ponts et chaussées. After seven years with the Directorate of External Economic Relations at the French Ministry of Finance, he joined the AFD Research Department in 2005 where he directed a working programme on PPPs and public services in developing countries. He has been Project Manager in AFD's Water and Sanitation Division since August 2010. **Contact:** blanca@afd.fr

SARAH BOTTON is a sociologist, Project Manager at AFD (Cefeb Marseille). Now in charge of PPP training activities for Cefeb, she has since 2000 carried out research into the problems around access to essential services – in particular water and sanitation – in large cities of developing countries (Argentina, Bolivia, Cambodia, Morocco, Vietnam) and for various institutions (IRD, CNRS, ENPC, Engref, AFD, Unesco, Iddri, Suez-Environment, EDF). **Contact:** bottons@afd.fr

ALEXANDRE BRAILOWSKY is a medical doctor specialized in public health, who has carried out several urgent humanitarian assignments in the early 1990s, before being appointed Gret director in Haiti (1995-1999). He joined the Suez Environment group as director of sustainable development of Aguas Argentinas (1999-2006), where he implemented programmes for connecting water and sanitation utilities to 500,000 inhabitants of low-income districts. After becoming programme director in the Directorate for Institutional relations, Strategy and Sustainable development of Suez Environment in 2006, he is since 2008 director of Societal Engineering.

Contact: Alexandre.BRAILOWSKY@suez-env.com

LISE BREUIL, completed a management thesis on the renewal of PPPs for managing water and sanitation utilities in major cities of developing countries. After that, she joined AFD as project manager, ensuring the financing and monitoring of water- and sanitation-utility infrastructures in Mediterranean countries and Africa. She is now posted in Cairo, Egypt. **Contact:** breuill@afd.fr

VIVIAN CASTRO is a socio-economist and institutional expert with Pöyry in France. Previously, she focused on urban water sector reform in sub-Saharan Africa with the Water and Sanitation Program (WSP) of the World Bank. She has degrees from UCLA and Columbia University. **Contact:** vivian.castro@poyry.com

JÉRÉMIE CAVE is a Ph.D. student in the "Laboratoire Techniques Territoires et Sociétés" (LATTS). After he graduated in political sciences from Sciences Po, Paris, he worked for two years as a consultant in public utilities management for French municipalities (Service Public 2000). Since November 2008, he works on a Ph.D. thesis about the political economics of urban solid waste in two cities from emerging countries (India/Brazil). **Contact:** cavej@enpc.fr

BERTRAND DARDENNE holds an M.Sc. in hydraulic engineering and a Ph.D. in development economics. He is a specialist in water- and sanitation-utility management in developing countries. Formerly a high executive in large utilities, he presently manages the consulting firm ASPA Utilities, and is the author of several works. **Contact:** bertrand.dardenne@aspa-utilities.com

VIANNEY DUPONT was educated at the Ecole Nationale des Ponts et Chaussées (France) and at the University of Wageningen (Netherlands). He worked as a research scientist at the Institute for Research into Development (IRD) in 2009-2010. Since 2011, he joined the consulting firm CALIA Conseil as a consultant, assisting French local governments in the management of public utilities. **Contact:** vianney.dupont@ponts.org

JANIQUE ETIENNE holds a doctorate in environmental science and techniques (ENPC). After working for eight years in the International Department of BURGEAP, she joined AFD in 1999, where she was the deputy head of the Water and Sanitation Division until September 2011. Today, she is in charge of the "International Waters" and "Persistent chemical and organic pollutants" projects of the French Global Environment Facility, as part of its Secretariat. **Contact:** etiennej@afd.fr

BÉATRICE HIBOU is research director at CNRS and the Centre for international studies and research at Sciences Po, Paris. As a specialist in comparative political economy, she works on the political significance of economic reforms in sub-Saharan Africa, the Maghreb and Southern Europe. **Contact:** beatrice.hibou@sciences-po.fr

JAN G. JANSSENS is a consultant for JJC Advisory Services, formerly with the World Bank. **Contact:** jangjanssens2009@gmail.com

CHRISTOPHE LEGER is a hydrogeological engineer from Polytech'Orléans with a DESS in Company Administration. As an expatriate scientist with BRGM and ANTEA, he has carried out numerous projects for supplying drinking water in West Africa. In 2008, he joined Vergnet Hydro as their Technical and Development Director. **Contact:** c.leger@vergnet.fr

DOMINIQUE LORRAIN is director of research at CNRS (Latts, Ecole des Ponts ParisTech). He graduated from Sciences Po, and holds an M.Sc. in economics (Paris 1) and a Ph.D. in urban sociology. His current work bears on the transformations of urban public action and more specifically on infrastructure policies, including liberalization, company strategy, relations between public and private, and regulation. He teaches at Ecole des Ponts, Paris and in the joint MBA between ENPC and Tongji University (Shanghai). He has been a member of the scientific committee of the Institute for Delegated Management since its creation in 1997. From 2000 to 2005, he was an independent expert for the Public Private Infrastructure Advisory Facility (PPIAF). Since 2007, he is a member of the Suez Environment Foresight Advisory Council (FAC). Since 2007, he has been a member also the head of "Chaire Ville" at the Ecole des Ponts ParisTech. **Contact:** Dominique.Lorrain@ehess.fr

PHILIPPE MARIN is a senior specialist in water and sanitation with the World Bank. He holds an engineering degree in agronomy from INA-PG (AgroParistech) and an MBA from INSEAD. As an expert in the reform and management of water utilities, he has – over the past 19 years – successively worked in the private sector and for several international financial institutions, in over 45 developed and developing countries. **Contact:** pmarin@worldbank.org

PIERRE-LOUIS MAYAUX is doing a Ph.D. at Sciences Po/CERI and works as a teaching and research assistant at the University of Rouen. His research in political science and economics bears on water- and sanitation-utility delegations in Latin America. **Contact:** pierrelouis.mayaux@sciences-po.org

FREDERIC NAULET is an environmental-sciences engineer with a Masters in socio-economic development. From 2004 to 2009, he coordinated for the Gret the Mirep programmes for supplying drinking water to small towns in Cambodia and Laos. In 2009, he joined Gret head office where he works on projects and studies in the Access to essential services section. He works specifically on PPPs and regulation mechanisms in the field of drinking water and sanitation. **Contact:** naulet@gret.org

CHRISTELLE PEZON wrote her doctoral thesis in management sciences on the history of drinking water utilities in France from 1850 to 1995. After leading the GEA laboratory at Engref, Montpellier, she joined the IRC in the Netherlands in 2008, where she directs the Water, Sanitation and Public Health programme for francophone West Africa. **Contact:** christellepezon@yahoo.com

SOPHIE TREMOLET is an economist specialized in the economics and regulation of water and sanitation utilities. She works on aspects of financing, institutional reforms, and the introduction of private operations to the sector. She holds a diploma from Sciences Po, Paris and an M.Sc. in Development Economics from Columbia University, New York. She has been working as a consultant advising donors, governments, NGOs, and suppliers of public or private services for the last fifteen years, seven of which as an independent consultant. **Contact:** sophie@tremolet.com

OLIVIER VALLEE is an economist, financier and doctor in political sciences. He works in Africa as consultant on monetary and financial questions and public finances. He has written numerous papers and reports on the political economy of the continent. **Contact:** ovallee@noos.fr

HÉLA YOUSFI is Associate Professor in the Department of Management and Organization at Paris Dauphine University (DRM). She received her Ph.D. from the University of Nanterre at Paris in 2006. She is specialized in the field of sociology of organizations. She teaches graduate courses on cross-cultural management, strategic management and organization theory. She has conducted research and published on the topic of culture and management practices transfer in North Africa and Middle East, including Lebanon, Jordan, Egypt, Tunisia, Algeria, and Morocco. She is also an experienced trainer in inter-cultural management. Her work has as well centred around issues such as culture, institutions and economic development, trust and cross-cultural cooperation, and culture in critical management perspectives.

DIEGO A. ZAMUNER holds a Masters in International Development Economics from Sciences Po, Paris, where he earlier took courses focusing on Latin America. Today, he is a project manager at the AFD branch office in Bogota. **Contact:** zamunerd@afd.fr

List of acronyms and abbreviations

AASA	Aguas Argentinas S.A.
ADAE	Association pour le développement des adductions d'eau potable (drinking water, Burkina Faso)
ADB	Asian Development Bank
AdeM	Águas de Moçambique (water, Mozambique)
AEPS	Réseaux d'adduction d'eau potable simplifiés (drinking water supply networks, Burkina Faso)
AFD	Agence Française de Développement
Agbar	Aguas de Barcelona (water, Spain)
Agsal	Aguas de Saltillo (water, Mexico)
AMAEM	Aguas Municipalizadas de Alicante, Empresa Mixta (water, Spain)
ARM	Autorité de régulation multisectorielle (Multi-sector regulation authority)
AUE	Associations d'usagers de l'eau (Water user associations, sub-Saharan Africa)
AySA	Agua y Saneamiento Argentinos (water and sanitation, Argentina)
BOO	Build Operate Own
BOT	Build Operate Transfer
BRGM	Bureau de recherches géologiques et minières (French Geological Survey Organization)
CAF	Caixa Economica Federal (bank, Brazil)
CCI	Colombian Chamber of Infrastructures
Cefeb	Centre d'études financières, économiques et bancaires (Financial, economic and banking studies, France)
CERI	Centre d'études et de recherches internationales (International studies and research, France)
CET	Construction, Exploitation, Transfer

CIBE	Consortium of infrastructures Bertin-Equipav (Brazil)
CILSS	Comité permanent inter-États de lutte contre la sécheresse dans le Sahel (Permanent inter-State committee for combating drought in the Sahel)
CIP	Cellule interne de privatisation (Internal privatization cell, Niger)
CNRS	Centre national de la recherche scientifique (scientific research, France)
COOPEL	Réseau coopératif communal d'électricité (electricity, Niger)
CRA	Commission for water regulation (Colombia)
CREE	Commission de régulation de l'électricité et de l'eau (Mali)
CYII	Canal de Isabel II company (water, Spain)
DBL	Design, Build Lease
DC	Community Development Unit (Argentina)
DCs	Developing countries
DDC	Directorate for Development and Cooperation (Switzerland)
DFID	Department for International Development (United Kingdom)
DGG	Délégation globale de gestion (Mali)
DIEPA	Décennie internationale pour l'eau potable et l'assainissement (International decade for drinking water and sanitation, 1981-1990)
DNP	National Planning Department (Colombia)
DO	Dominant operator
DPU	Development Planning Unit
DSP	Delegation of public service (Colombia)
EDF	Électricité de France
EDM	Énergie du Mali
EEOA	Eaux et Electricité de l'Ouest africain (water and electricity, Mali)
EHESS	École des hautes études en sciences sociales (higher education, France)
EMSA	Empresa Sul-Americana de Montagem (Brésil)
Engref	École nationale du Génie rural, des Eaux et des Forêts (higher education, France)
ENPC	École des Ponts ParisTech (higher education, France)

EPAL	Empresa Portuguesa de Águas Livres (water, Portugal)
EPD	Empresas Públicas Distritales (Colombia)
EPMB	Empresas Públicas Municipales de Barranquilla (public works, Colombia)
EPMC	Empresas Públicas Municipales de Cartagena (public works, Colombia)
Findeter	Financing agency for territorial development (Colombia)
Fipag	Investment and assets fund for water supply (Mozambique)
FNDAE	Fonds national pour l'adduction d'eau en milieu rural (water, France)
Gret	Groupe de recherche et d'échanges technologiques (scientific research, France)
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HCMV	Hô-Chi-Minh-Ville
HCMWSC	Hô-Chi-Minh Water Supply Company (became Sawaco)
IBA	Input-Based Aid
IDA	International Development Association
IDB	Inter-American Development Bank
Iddri	Institute for sustainable development and international relations (France)
IFC	International Finance Corporation (World Bank)
IFI	International Financial Institutions
Inassa	Sociedad Interamericana de Aguas y Servicios S.A (water utilities, Colombia)
INS	Institut national de la statistique (statistics, Niger)
IRD	Institut de recherche pour le développement (scientific research, France)
IRR	Internal rate of return
JAC	Juntas de acción comunal (Colombia)
JV	Joint venture
LATTS	Laboratoire technique territoires et sociétés (scientific research, France)
LPED	Laboratoire population environnement développement (scientific research, France)
LRF	Law of fiscal responsibility (Spanish acronym, Colombia)

MAVDT	Ministry for the Environment, Housing and Territorial Development (Spanish acronym, Colombia)
MCC	Millenium Challenge Corporation
MDE	Ministry for Economic Development (Colombia)
MDG	Millennium Development Goals
MDR	Ministry for Rural Development (Cambodia)
MEH	Ministry for Energy and Water (Senegal)
MIME	Ministry for Industry, Mines and Energy (Cambodia)
Mirep	Mini drinking water network (Cambodia)
MPG	Shared management model (Argentina)
NGO	Non Governmental Organization
Nigelec	Société nigérienne d'électricité (electricity, Niger)
NRW	Non-revenue water
OBA	Output-Based Aid
OECD	Organization for Economic Cooperation and Development
ODA	Official Development Assistance
ONAS	Office national d'assainissement urbain (urban sanitation, Senegal)
ONE	Office national de l'eau (water, Burkina Faso)
ONEA	Office national de l'eau et de l'assainissement (water and sanitation, Burkina Faso)
ONEP	Office national de l'eau potable (drinking water, Morocco)
OPV	Obras con Participacion Vecinal (Bolivia)
OSE	Obras Sanitarias del Estado (sanitation, Uruguay)
OSN	Obras Sanitarias de la Nación (sanitation, Argentina)
PacepaC	Programme d'aménagement communal pour l'eau potable et l'assainissement au Cambodge (water and sanitation, Cambodia)
PAR	Programme d'application de la réforme (Mali)
Parpa	National action plan for absolute poverty reduction (Portuguese acronym, Mozambique)

PDA	Provincial water management plan (Spanish acronym, water, Colombia)
Planasa	Plan national pour l'eau et l'assainissement (water and sanitation, Brazil)
PLT	Projet sectoriel eau à long terme (water, Senegal)
PPIAF	Public-Private Infrastructure Advisory Facility
PPP	Public-private partnership
PRS	Programme régional de développement de l'énergie solaire (Regional programme for solar-energy development, sub-Saharan Africa)
PSE	Projet sectoriel eau (water, Senegal)
PSP	Private sector provider
PUR	Plan urbain de référence (urban planning, Niger)
RAD	Régie autonome des distributions (water, Morocco)
SAAM	Sociedade de Abastecimento de Águas de Macao (water, Macao)
Safelec	Société africaine d'électricité (electricity, Mali)
Samapa	Servicio Municipal de Agua Potable y Alcantarillado (water, Bolivia)
Sanepar	Companhia de Saneamento do Paraná (sanitation, Brazil)
Sawaco	Saigon Water Corporation
SDE	Sénégalaise des eaux (water, Senegal)
SE	Suez Environnement
SEED	SE Eau et Développement
SGP	General participation system (Spanish acronym, Colombia)
SIU	Consolidated sector information system (Spanish acronym, Colombia)
SNDE	Société nationale de distribution d'eau (water, Congo)
SNE	Société nationale des eaux (water, Niger)
Sodeci	Société de distribution d'eau de Côte d'Ivoire (water, Cote d'Ivoire)
Sonees	Société nationale d'exploitation des eaux du Sénégal (water, Senegal)
SPC	Semi-public company
SPEN	Société patrimoine des eaux du Niger (water, Niger)

SSPD	Superintendence of domiciliary public services (Colombia)
SSPP	Superintendence of residential public services (Colombia)
SSPWP	Small-scale private water provider
SSWP	Small-scale water provider
SWAOD	Investment company for the water sector of Shanghai (water, China)
Triple A	Sociedad de Acueducto, Alcantarillado y Aseo de Barranquilla S.A (water, Colombia)
UMR	Unité mixte de recherche (research, France)
UNDP	United Nations Development Program
Unesco	United Nations Educational, Scientific and Cultural Organization
USAid	United States Agency for International Development
WSP	Water and Sanitation Program, World Bank

What is AFD?

Agence Française de Développement is a public development finance institution that has worked to fight poverty and support economic growth in developing countries and the French Overseas Communities for 70 years. AFD executes the French government's development aid policies.

Through offices in more than fifty countries and nine French Overseas Communities, AFD provides financing and support for projects that improve people's living conditions, promote economic growth and protect the planet: schooling, maternal healthcare, help for farmers and small business owners, clean water supply, tropical forest preservation, and fighting climate change, among other concerns.

In 2010, AFD approved more than €6.8 billion for financing aid activities in developing countries and the French Overseas Communities. The funds will help 13 million children go to school, improve drinking water access for 33 million people and provide €428 million in microloans benefiting more than 700,000 people. Energy efficiency projects financed by AFD in 2010 will save nearly 5 million tons of carbon dioxide emissions annually.

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Water services and the private sector in developing countries

Comparative perceptions and discussion dynamics

Private sector participation in the field of water and sanitation services has been the subject of a great range of analytical work, covering disciplinary fields – economics, geography, political science, history, sociology, etc. – as well as studies in terms of space and scale, such as rural vs. urban studies, urban monographs, regional analyses, or worldwide dynamics. These investigations by a wide range of international researchers and experts mostly covered the period 1990-2000, when structural adjustment reforms opened the way to major delegation contracts in the southern cities.

This collective work straddles the boundary between academic research and strategic reflection by the stakeholders in this sector. Its aim is to define the gateways between these various works, which span the entire range from historical overviews of the first urban networks to the identification of innovating forms of post-Washington Consensus participation in the sector.

This book, which summarizes five years of research at AFD on public-private partnerships, questions the relevance of the delegation models. It also demonstrates the evolution in how the stakeholders in development – donors, researchers, experts – perceive the role of the private sector for providing drinking water and sanitation in developing countries.

Under the direction of

Aymeric BLANC

Project Manager within the Water and Sanitation Division, AFD

blanca@afd.fr

Sarah BOTTON

Manager, Educational Public-Private Partnership Projects, CEFEB-AFD

bottons@afd.fr