2. WATER & WASTE WATER SERVICE SECTOR ISSUES

2.1 Introduction

Whilst there has been considerable use of PPP arrangements in the Water and Waste Water Service sector over the last two decades, this sector has some intrinsic challenges in applying the PPP approach. In essence, the issues that, in combination, differentiate the sector from other public service sectors are:

- Water is a basic human need for survival. Arguably, unlike other public services (e.g., electricity, telecoms or airports) individuals have no alternative but to use this service to survive. This generally brings with it an obligation to provide the service to all designated customers, whether they can afford to pay or not. Because it is seen as a basic good, there has long been a discussion about the reasonableness of making a profit from provision of such services. This generally manifests itself in the low profitability of this service sector, compared with, say, the Telecoms or Power sectors. In the PPP context this poses particular funding challenges.

- Water and Waste Water services are typically provided under a condition of natural monopoly. This is a characteristic arising from the high costs of the physical infrastructure that is established to treat, distribute and collect water and waste water. It is not generally economic for more than one company to provide these services. This monopolistic situation, combined with the basic human need for water, makes the provision of water and waste services highly susceptible to political involvement, both in the creation or expansion of water services, but also in all aspects of the long term delivery of the services. In the PPP context the monopolistic situation offers the advantage of a defined market for services, but with high expected political involvement in arriving at the form and type of scheme and services provided. In the longer term monitoring and control of services, there is typically a strong and well defined public Regulation function. Whilst potentially constraining or limiting the Developer in key business areas (e.g., related to investment, tariffs or levels of service) strong regulation also brings with a certain stability as the business elements and the way that they are monitored and controlled are all contractually defined.

- The investment costs in necessary infrastructure (e.g., creation, expansion or rehabilitation of pipe networks) are typically high, yet once built this infrastructure cannot be used for any other purpose. Once these investments are made they cannot be reversed.

- Typically data on the existing services, satisfying demand for services and on the condition of existing physical infrastructure is difficult to assess. Often much of this information is not fully available prior to the contract award. This affects the design and pricing of any new schemes, and where there is uncertainty this generally increases
prices paid, to cover this perceived risk. The underground nature of water related infrastructure complicates data collection on asset condition, which can lead to major cost liabilities involving rehabilitation, renewal or replacement of existing systems. To be effective, some method of dealing with the refinement of uncertain data has to be incorporated in the PPP design and implementation process, to ensure long term scheme viability. Contractual mechanisms are being developed that allow for data collection and refinement during the early contract years, and potential structured re-negotiation or adjustment of associated PPP elements.

This Chapter serves as an introduction and background to these and other Water and Waste Water Service Sector issues that are integral to development of effective and sustainable PPP arrangements for the sector. These issues may not all apply to specific PPP schemes considered, but in general these issues will influence the specific types and forms of PPPs considered in this research.

2.2 Strategic Planning, Policy Considerations & the Country Context

Water and Waste Water Sector issues generally form an important part of government public service policy. Given the importance of the sector, and the long term planning horizons associated with any sector investment, design of any new PPP scheme is best carried out within the context of a strategic plan for the sector.

A good starting point for strategic planning is to obtain a full diagnosis of the problems associated with the existing water and wastewater systems. With this information in hand, the government can begin developing solutions that best address the issues identified in the diagnosis and best suited to the country context. Some common issues prevalent within the sector are:

- **Poor tariff setting capability**: Utilities are often beholden to politics and political calendars. The ability to set tariffs at or above cost recovery levels may be out of their hands with resulting issues that come from under-funding and poor incentivisation. A potential solution could be the granting of tariff-setting powers to an independent body/watchdog with the power to override political decisions;

- **Poor accountability**: Often the reason given for poor accountability for the provision of services is that there insufficient information about performance and insufficient analysis systems. A potential solution is to create an agency whose sole purpose is to collect data on the utility’s performance and loaded with monitoring and evaluation capabilities. The agency would serve the dual purpose of improving the information available to the government (and thereby improve decision-making) as well as improving the information available to the public.

- **Insufficient technical capability**: Managing water and wastewater resources and services is a difficult and technically demanding task. Involving the private sector in the management brings even more demands. Governments need to consider whether they possess the technical skills necessary to undertake these challenges within their existing institutions. If not, in some cases it may be prudent to set up an independent regulator/body to oversee the sector and control the activities of the service providers. This solution is not appropriate for all country contexts, instead, it might be more appropriate to set up an independent panel of experts that advises the government on sensible policies or assists it in analyzing the state of the existing system when called upon. The findings of the panel can also be made available to the public, increasing the levels of transparency and accountability.
The water and wastewater sectors are natural monopolies and any form of government intervention to improve operational efficiencies must be considered with this in mind. In competitive markets, competition between suppliers keeps the prices charged generally in line with the costs, and the market itself acts as a regulatory force. Such competitive forces do not naturally exist in the water and wastewater sectors as the infrastructure does not allow customers to choose between competing suppliers, eliminating the competitive pressure that would normally force a service provider to deliver the services their customers require, at an affordable price. Water and wastewater services are worth more than it costs to provide them and, with few other options, customers are often willing to pay a premium for the services rather than go without. Without sufficient oversight or regulation Operators/Developers are prone to charge high prices with little incentive to provide high quality services, or conversely, they may charge low prices and deliver a low quality of service even in the face of evidence that customers would pay more in exchange for better services.

Traditional regulation for publicly owned utilities was focused on ensuring that prices do not rise too high, but instead it is often observed that publicly owned providers charge too little. By charging below cost the utility is too reliant on government subsidies and generally will not have sufficient resources to spend on service upgrades, expansion and maintenance. Subsidies are rarely sufficient and can often work to undermine the customer-focus that should be the key driving factor behind a utility service provider. Regulation that keeps tariffs down is likely to win more friends than enemies, and the challenge for the government and the private Developer will be to earn the public’s confidence and support to create understanding and acceptance of tariff increases (Groom, Halpern, and Erhardt. 2006).

Vital government roles in the water sector that complement regulation include:

- **Policy Making:** sector objectives, principles and allocation of risks and responsibilities, the general strategy for controlling tariffs and service standards;

- **Ownership, Service Provision and Governance:** Water sector performance is largely controlled by four factors:
  - Who owns the assets?
  - Who owns the service provider?
  - Who is responsible for delivering services?
  - How is the utility’s management controlled?

  The challenge for governments is to provide competent solutions to the challenges created by these factors.

- **Coordination:** Governments must coordinate the water sector to ensure policy decisions and implementation plans are consistent and effectively implemented.

**Level of Decentralization**

Decentralization in the water sector refers to the level of responsibility for water and wastewater services that is allocated to municipalities by the central government. Greater decentralization is associated with the French model of water sector management which is based around the contract between the utility and the local government. Adjustments of tariffs and service standards are enacted through adjustments to the contract and disagreements are settled through dialogue between the parties or by courts/arbitration. This is compared to the ‘English’ model which is based on a regional system that is held accountable to a national water watchdog. The watchdog is also empowered by the government to make binding decisions on the utility. Greater decentralization is often associated with more responsiveness...
to local needs and issues. At the same time, municipal governments generally lack the regulatory capacity of central governments, leading to conditions that may be conducive to potentially higher levels of corruption. Many countries have attempted to develop hybrid systems, with mixed success. These issues are dealt with in more detail in the chapters focused on Regulation (Chapter 3) and Contracts (Chapter 7).

Managing Water Resources

Water resources management is a complex task that must be considered when defining water and wastewater sector policies that in turn will condition any water sector PPP arrangement. Water Rights Law can differ across states and countries and it will be imperative that governments utilize existing frameworks or create a framework to handle this issue. The key points to consider are:

- Understand the concepts of prior appropriation - while no one may own the water in a stream, all persons, corporations, and municipalities have the right to use the water for beneficial purposes;
- Understand the differences between groundwater rights and surface water rights;
- Co-ordinate with the agency or official that is responsible for the administration of all water rights within the region or the country
- What is the availability of raw water? What are the prior-use rights established by other users (eg hydropower companies)?
- What is the current state of water treatment by utilities? (This affects the quality of the water available to users downstream)
- Is the government capable of assuring Developers about future access to raw water supplies and of the quality of the supply? Any private sector Developer will require such guarantees before engaging in a partnership in order to protect itself from the likelihood of circumstances such as depletion of groundwater or rivers or pollution of surface water or groundwater or rivers.

Generally governments entering long term contracts with private Developers may be required to provide substantial guarantees of water resource availability. For governments lacking the resources and capabilities to manage the complexities of water rights and the issues raised above, it may be more appropriate to first enter into short term PPP arrangements (such as a management contract), since this would grant the government a window of opportunity to create a better system for water rights management before entering a longer term commitment.

Integrated Water Resources Management

Integrated water resource management refers to the integration of water quantity and quality management for both groundwater and surface water. Ideally the management of these resources is conducted with a full understanding of how natural resources and populations within the service area are impacted by developments or policies that affect the resource itself. Major stakeholder groups are often involved in the management of the water resources this can have a crucial and positive influence on policy decisions. Often the management of water resources is arranged around river basins and in situations where river basins overlap into different regions or countries, the river may fall under the remit of different legal and political institutions with no existing mechanisms for co-ordination. Such situations emphasize the
importance of a sound, over-arching ‘integrated river basin management system’ (World Bank 2006a). The key elements behind such a system will include:

- Establishing a basin-wide institutional framework that ensures all the main government institutions operating within the basin are involved. The framework should be detailed, strong and clear and backed by legislation, statutes or decrees along with a clear financing and budgeting system;

- Solid and reliable data on the status and condition of the natural resources of the basin (not just water quality);

- Development of an integrated strategy that ensures representation and participation by all parties in all decisions and elements of resource management;

- Creating a monitoring and evaluation (M&E) system that can reliably and effectively determine whether the goals and objectives of the integrated are being carried out, that the health of the river basin is being maintained and supported by systems of accountability among the key staff and institutions involved in the management of the system.

Whilst PPP arrangements are generally not directly used for water resource management either nationally or for river basins, the influence and importance of the water resource management situation can have a direct influence on the provision of PPP arrangements for water and waste water services. Furthermore, PPP can be used for small scale providers as a recent study by the Water and Sanitation Program (2002c) shows. The principles are similar although the scale will clearly be different. In some instances the tariff levels may be insufficient and may need to be complemented through subsidies (Veevers-Carter, 2008)

### 2.3 Social Aspects

**Small Private Operators**

Governments in developing countries will have to develop strategies to deal with the plethora of small scale providers that may exist in their countries. Many small providers are associated with high prices, lack of environmental and health standards and inferior services. However, particularly for low-income and unserved populations in urban and peri-urban areas, small providers have become established service deliverers and are formally recognized by their governments (Mann 1993). Mehta (2003) shows that these small providers have inherent weaknesses – lacking access to finance, insufficient technical and managerial expertise, no legal status or tenure and unregulated price and service provisions. Despite these problems, small private providers continue to supply unmet demand and government strategies can incorporate their services in the short and medium term (and in some instances they may remain the only feasible long term approach).

Government approaches to small service providers are determined by the country context, however the following general points are noted:

- As part of the long term goal of improving access and quality of services, governments may wish to recognize and legitimize small providers.

- Governments can consider introducing a limited form of regulation for quality, safety and environmental standards for these providers.
Over the long term, as a public utility increases its coverage, it may decide to collaborate with the small providers under a more formalized contractual arrangement. The focus of this research is on use of PPP for larger public utilities, and not specifically on these small scale private operators. However, any PPP arrangement may have to accommodate these providers in some form or another, particularly if they are currently providing a service not already provided by the utility, or can mobilize resources for investment or operation more economically than the utility.

**Ensuring access for all**

Unsafe and inadequate access to water and wastewater services can lead to unbearable living conditions, high rates of waterborne illnesses, loss of livelihood and loss of human dignity. Evidence suggests that improvements in water supply and wastewater services can have major positive impacts on health, efficiency and productivity. Poor households are disproportionately affected by inadequacies in both sectors and improved provision of services to this segment of society is a development priority. Poor households want access to water and wastewater services and in many countries, they have shown their desire to be considered legitimate customers of services, buying water and wastewater services like other residents. The demand for better quality of service coupled with a willingness to pay, is clear and undeniable. As poorer households comprise the majority of potential new customers in most cities in developing countries, it is imperative that utilities develop the appropriate expertise to cater to this demand and design services with the requirements and constraints of low-income customers in mind. The main concerns include (World Bank. 2001):

- **Price** of the service being delivered;
- **Expansion** of the system in order to add new connections in previously unconnected neighbourhoods; and.
- **Service levels**, such as water quality, hours of service, speed of response to service calls, and administrative services such as billing and connection applications.

One of the strategic reasons for considering use of PPP is often for expansion of services. In many cases the unserved populations are in the poorer categories. In some cases the need is to expand services into informal communities, with no formal land tenure, as well as limited incomes (eg favelas, barrios). To incorporate this sort of expansion into a PPP arrangement will involve clear resolution of the associated legal issues, and provisions of clear and adequate financial mechanisms (eg special grant or aid provisions related to measurable units of expansion achieved, such as increased output or numbers of connections).

**The Customer Approach**

Water and wastewater provision is driven by the need to provide good and effective services. Therefore focus should be on ‘customers’ and I use this term throughout, instead of ‘users’. Simply put, customers (unlike users) have rights including the right to safety, be informed, and to have redress, choose, satisfaction of basic needs and the right to a healthy environment (United Nations. 2003). In the planning and implementation of water and wastewater systems, governments and Developers alike need to ensure that the customers’ rights (as well as those of other stakeholders) are protected.
2.4 Summary and Conclusions

There are four main characteristics that differentiate the Water and Waste Water Sector from other forms of infrastructure sectors for public service provision. These are that Water and Wastewater Services are a basic human need, with the associated social and political implications, the fact they are provided as a natural monopoly with high capital investment costs, and low rates of return achievable, and that there is scarce data on current and future service conditions and demands, including condition of underground assets, that have a major impact on the levels of investment required.

These characteristics influence the way that it is possible to use PPP arrangements for long term service provision in this sector. Bearing in mind these key characteristics, in this Chapter I have reviewed some of the sector specific issues that need to be accommodated in any successful PPP arrangement. The Chapter describes the issues from the existing public sector aspect, but with specific comments where issues will need to be dealt with more effectively under the PPP arrangement.

The research focuses on the issues of urban and peri-urban utilities, and a number of sector challenges have been identified and listed, including: current poor sector service performance, strategic planning issues, political involvement, issues of pricing and tariffs and finally how to deal with possible corruption issues. Similar challenges apply in the waste water sector, but there are additional issues related to the localised nature of these services, and the perceived higher subsidies required for this sub-sector. Successful incorporation of private sector participation into the sector depends largely on the chosen PPP arrangement's ability to handle these challenges.

Water and Waste water sector issues generally form an important part of government public service policy. Given the importance of the sector, and the long term planning horizons associated with any sector investment, design of any new PPP scheme is best carried out within the context of a Strategic Plan for the sector, and I have looked at a number of the strategic planning issues that may be relevant, including those related to the on-going roles and responsibilities of Government and Developer:

- Tariff Setting and Regulation
- Accountability issues
- Technical capability required
- Government Responsibilities and Policy Making issues
- Ownership, Service Provision and Governance issues
- Coordination of sector operation and development

Additionally sector specific issues of decentralization, water resource management and integrated water management influence the way that any PPP arrangement is applied.

Finally we looked at some of the social issues related to this sector. In many developing countries public water supplies only meet a portion of the actual water demand, with the balance being provided by small and informal private water vendors. While this research does not focus on the smaller water service providers, their role in provision of services needs to be accounted for in any PPP arrangement. There are two other socially oriented issues looked at: The need for projects to focus on all aspects of Customer Service provision and the need to ‘Ensure access to all’. This last issue is linked with the policy issues of expansion of service provision, and a key challenge of expansion of services into poor and disadvantaged urban
and peri-urban areas is how to deal with the associated special issues (such as land tenure, low ability to pay and special aid and funding requirements) under a PPP arrangement.