

# Delivering Universal and Sustainable Water Services

Partnering with the Private Sector

Iain Menzies

March 2016

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# Abbreviations

<b>ADB</b>	Asian Development Bank
<b>ATSP</b>	Accreditation of Technical Service Providers (Philippines)
<b>BOO</b>	build-own-operate (contract)
<b>BOOT</b>	build-own-operate-transfer (contract)
<b>BOT</b>	build-operate-transfer (contract)
<b>CAPPP</b>	Cellule d'appui aux PPP (Niger)
<b>CBO</b>	community-based organization
<b>CLC</b>	community liaison cell
<b>CWSA</b>	Cambodian Water Supply Association
<b>Danida</b>	Danish International Development Agency
<b>DBL</b>	design-build-lease (contract)
<b>DBO</b>	design-build-operate (contract)
<b>DILG</b>	Department of Interior and Local Government (Philippines)
<b>GL</b>	Gorom-Lampsar (Senegal)
<b>GIZ</b>	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
<b>IBRD</b>	International Bank for Reconstruction and Development (of the World Bank Group)
<b>IFC</b>	International Finance Corporation (of the World Bank Group)
<b>IFI</b>	international financial institution
<b>JICA</b>	Japan International Cooperation Agency
<b>JV</b>	joint venture
<b>KUWSMP</b>	Karnataka Urban Water Supply Modernization Project (India)
<b>KfW</b>	Development Bank of the German Federal Government
<b>LGU</b>	local government unit (Philippines)
<b>MPI</b>	Ministry of Planning and Investment (Vietnam)
<b>NDP</b>	Notto-Diosmone-Palmarin (Senegal)
<b>NGO</b>	nongovernmental organization
<b>NRW</b>	non-revenue water
<b>NWRB</b>	National Water Resources Board
<b>OBA</b>	output-based aid
<b>O&amp;M</b>	operations and maintenance (contract)
<b>PCG</b>	partial credit guarantee
<b>PDF</b>	Project Development Facility/Fund
<b>PPBC</b>	phased performance-based contract
<b>PPIAF</b>	Public-Private Infrastructure Advisory Facility
<b>PPP</b>	public-private partnership
<b>RoW</b>	rights of way
<b>SOE</b>	state-owned enterprise
<b>SPV</b>	special purpose vehicle
<b>ULB</b>	urban local body (city government, India)

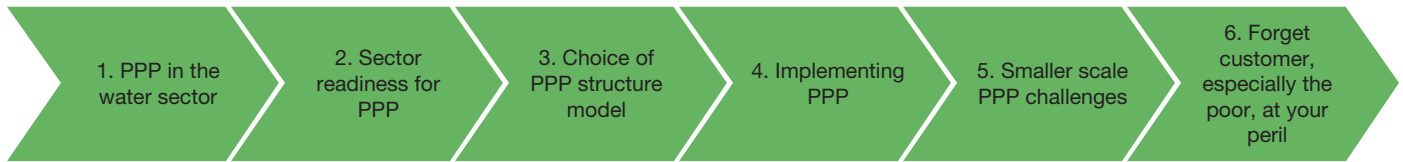
<b>UNICEF</b>	United Nations Children’s Fund
<b>USP</b>	unsolicited proposal
<b>VfM</b>	value for money
<b>VGF</b>	viability gap funding
<b>WSP</b>	Water and Sanitation Program
<b>WSS</b>	Water and Sanitation Services

*All dollar amounts are U.S. dollars unless otherwise indicated.*

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# Introduction

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The World Bank Group is committed to eliminating extreme poverty by 2030 and boosting shared prosperity by focusing on the bottom 40 percent. Expanding access to clean water and basic sanitation services is fundamental to these goals.

Worldwide, 663 million people still lack ready access to improved sources of drinking water; nearly half are in sub-Saharan Africa. Furthermore, some 2.4 billion people do not use an improved sanitation facility, and of these 1 billion people still practice open defecation. This causes preventable deaths—mostly of children, contributes to the spread of disease, and suppresses economic growth. At the same time, water supplies in many developing countries are under growing pressure from urbanization, desertification, and climate change. Helping governments identify the best solutions to these challenges in a given local context is a World Bank Group priority.

The performance of water and sanitation utility companies varies greatly, but many are underperforming. This is due mainly to systemic issues, which can include weak governance, lack of accountability, poor management, inadequate or aging infrastructure, and insufficient funds for operations and maintenance. These all adversely affect service delivery. For many people, having 24×7 access to a safe water connection at home is still a dream.

There is no one solution to addressing often very complex water and sanitation challenges. However, if we are to achieve the new United Nations Sustainable Development Goal 6 targets of ensuring universal and equitable access to safe and affordable drinking water and to adequate sanitation and hygiene by 2030, much work remains to be done in the sector.

In many cases the public sector water and sanitation service providers seek support to overcome the challenges

facing them. Struggling to operate old systems while satisfying increasing demands for better or expanded service requires access to expertise not immediately available. In such instances governments are investigating options that bring in the know-how, and sometimes the financing, of the private sector to improve management of the water utility company.

One option, considered in this document, is for public entities to partner with the private sector.

Public-private partnerships (PPPs) can be an important option for implementing sector reform strategies and can address the key challenges to providing universal and sustainable service access. Whether viewed from an operations perspective, or an investment perspective, the goal for the public sector is the same in these instances—to leverage the knowledge and skills of the private sector to help them improve the performance and efficiency of service delivery to customers. The scope of such arrangements can range from a part of the utility’s activities (such as leakage reduction) to delegated management and investment for service delivery to a whole city.

As a partner, the private sector can bring technical and management skills and experience, commercial discipline, and private finance to help tackle such challenges in a structured and contractually binding manner. Previous experiences have shown that while PPP can be a powerful tool for improving the performance of WSS services, they are also complex and challenging to implement (Marin 2009; Gassner, Popov, and Pushak 2008). For PPP to be successful and sustainable, the contractual schemes must be properly designed, with incentives for performance, realistic targets, efficient monitoring, and sufficient access to financing (whether public, private, or both) to carry out the rehabilitation and expansion of infrastructure. At the same time, government needs to create a conducive enabling environment

in terms of policies, legislation, and institutions and develop its capacity to manage the PPP cycle from project concept, through procurement and negotiation, to implementation and regulation—a long-term process that can be carried out in parallel with the PPP. This will be critical to ensuring the private sector partners deliver on their obligations, are accountable to citizens, and deliver value for money to the government and customers.

The objective of this Guidance Note is to offer practical, experience-based guidance to those considering or currently engaging in PPP in the water sector, and to provide a basic understanding of water PPPs and the PPP cycle to better inform dialogue with governments that are considering PPP arrangements. It builds on the experience of WSP in supporting PPP reforms in developing countries, especially through the domestic private sector. Key stakeholders in this dialogue include government at all levels, service providers, policy makers, customers, civil society, and

professionals. Many water PPP engagements in developing countries are more domestically oriented and at a smaller scale than international transactions. This Note outlines a rationale and approach for launching a water sector PPP so that government leaders and private sector providers can have informed discussions about the path forward should they choose to explore this approach in their countries.

## References

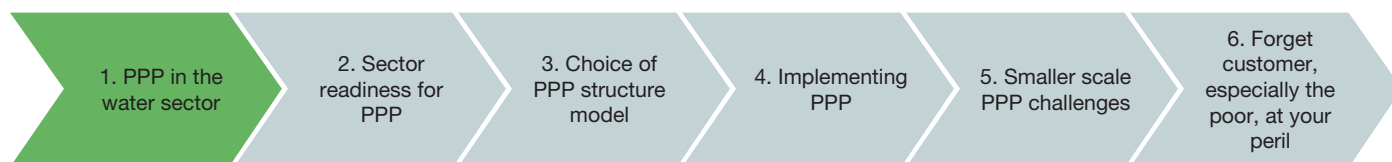
- Gassner, Katharina, Alexander Popov, and Nataliya Pushak. 2008. *Does Private Sector Participation Improve Performance in Electricity and Water Distribution? An Empirical Assessment in Developing and Transition Countries*. PPIAF Trends and Policies Series. PPIAF.
- Marin, Philippe. 2009. *Public Private Partnership for Urban Water Services, A Review of Experiences in Developing Countries*. PPIAF Trends and Policies Series #8. PPIAF.

# I. PPP in the Water Sector

## CHAPTER SUMMARY

This chapter provides an introduction to PPP and explains the following:

- PPP frameworks: policies, procedures, institutions and rules
- Deciding if a PPP makes sense
- The importance of undertaking a WSS diagnostic study
- PPP in the context of WSS sector reform



## What Is PPP?

A public-private partnership (PPP) is a contractual arrangement between the public and private sectors where the private sector is paid to deliver infrastructure and/or related services on behalf, or in support, of the government's broader service responsibilities and policy objectives.<sup>1</sup> PPPs typically make the private sector parties that build infrastructure and/or deliver services responsible for the infrastructure's condition and performance over the duration of the contract term.

Typical features of a PPP include:

- **Provision of a service**, the contractual scope of which can include the creation of an asset involving private sector design, construction, financing, maintenance, and delivery of ancillary services to an agreed performance standard for a specific period;
- **A contribution by government** through land, capital works, risk sharing, revenue diversion, purchase of the agreed services, or other supporting mechanisms; and
- **Payments to the private sector** from government or users once operation of the infrastructure has commenced—these payments are contingent on the private sector's performance in providing for and delivering the services.

## PPP Frameworks

Many countries have developed PPP frameworks to support their PPP programs. The *PPP framework* refers to the

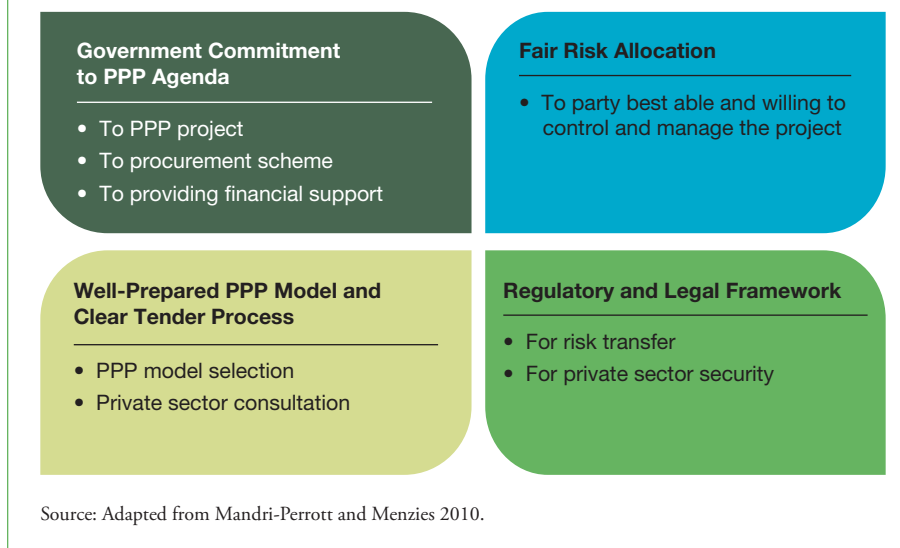
policies, procedures, institutions, and rules that together define how PPPs will be implemented (IBRD, WB, ADB, and IADB 2014). Not only does the establishment of a clear PPP framework publicly communicate the government's commitment to PPPs, it also defines how projects will be implemented, helping ensure good governance of the PPP program (promoting efficiency, accountability, transparency, and fairness). This will help generate both private sector interest and public acceptance of the PPP program.

Figure 1.1 shows four key elements of an effective PPP framework, the implementation of which will support a process conducive to attracting and sustaining private sector participation in the Water and Sanitation Services (WSS) sector. The concepts underpinning these key elements will be a recurring theme in this document. The critical thing to bear in mind is that failure by governments to work through all these elements may ultimately result in underperformance or even failure of the planned PPP.

## Rationale for PPP: Deciding Whether Private Sector Participation in the Water Sector Makes Political and Economic Sense

The quality of water supply and sanitation services in many countries leaves much to be desired. Policies, incentives, or institutional arrangements may be inadequate, resulting in services, and a sector, that are unsustainable. Some of the more common challenges include:

<sup>1</sup> Examples of PPPs include the National Public Private Partnership Guidelines, government of Australia, and the Scheme for Support to Public Private Partnerships in Infrastructure, government of India.

**FIGURE 1.1: FOUR KEY ELEMENTS OF A PPP FRAMEWORK**

- **Low access rate to piped water and sewerage services:** with the poor living in marginal urban neighborhoods and rural areas being the most affected;
- **Low levels of service for those with access:** intermittent piped water supply, low pressure, poor drinking water quality (biological, chemical), frequent overflows and odors of sewage networks, poor customer services;
- **Inability to recover operating costs:** low connectivity; tariffs below cost recovery; poor metering, billing, and collection; high non-revenue water (NRW); overstaffing; and low energy efficiency; and
- **Water scarcity and poor water resources management and planning:** unreliable raw water availability/quality as a result of aquifer depletion/over abstraction, surface water pollution, and competition with other users (irrigation, hydro-power, navigation, aquaculture).

All or any of these sector challenges may become drivers for reform and for partnering to learn from the private sector. The Water and Sanitation Program (WSP) has seen a range of drivers for partnering with the private sector in improving WSS, with governments recognizing the skills and experience, technical knowhow, and finance that private operators can infuse into the sector (Castro, Jagannathan, and Romero-Navarro 2014; Kacker, Ramanujam, and

Miller 2014; Jamieson, Sy, and Warner 2014; WSP 2010).

### Undertake a Diagnostic of Current WSS Operations and Investments

The first response to concerns over WSS delivery failure, whether delivery is through government departments and agencies, utilities, or community-based organizations (CBOs), should be to help the relevant entity or entities undertake a diagnostic study to identify the key issues in WSS delivery, identify performance gaps, and gain an understanding of the reasons for the gaps and failures. This diagnostic is likely to uncover information and data deficiencies

along the value chain (from source to tap), especially with respect to underground assets (location, condition, and performance), connections, production, sales, and NRW, as well as the financial situation of the service provider(s). It may also identify broader institutional and policy issues impacting WSS delivery (e.g., unclear or inconsistent mandates between ministries, between different levels of government, and between local government and service providers with respect to WSS provision and sector regulation; underfunded universal access; or decentralization policies).

This analysis should include assessment of substitutes to piped service delivery that may be playing an important role in how the public copes with unreliable “official” piped water distribution services, and how the unserved access water services. Providers of substitutes may have a significant market share and be important stakeholders in any reform and potential private sector participation initiatives.

This diagnostic will provide the basis for designing appropriate WSS reforms, as well as for identifying if, and how, the private sector could be engaged to improve WSS delivery and investment. It will also provide baseline data for future reform programs.

## PPP Must Be Considered in the Context of WSS Sector Reform and Improving Service Provision

The gaps, issues, and failures identified in the diagnostic will be key drivers for sector reform and potential private sector participation. They may also help determine priorities for reform and shape the reform process. The main objectives of reforms will be to:

- Improve and expand service access;
- Increase efficiency of operations; and
- Enhance service reliability, sustainability, and affordability.

Experience has shown that high-performing utilities/service providers, those that deliver these reform objectives, share the following common attributes (Baietti, Kingdom, and van Ginneken 2006):

- **Autonomy** – they are sufficiently independent to manage their operations professionally;
- **Accountability** – they are answerable to others for decisions, resource use, performance; and
- **Consumer orientation** – they report to and listen to customers and meet their needs.

These attributes apply to the relationship between the utility/service provider and the environment in which it operates.

Institutional reform measures to make public utilities more effective include:

- **Corporatization** – establishing a separate corporate entity with operational and financial management discretion including clear/explicit priority objectives;
- **Performance agreements** – setting out the responsibilities of parties, performance targets, sanctions, and tariff/budget commitments;
- **Consumer accountability** – performance reporting, complaints, consultations, and customer contracts; and
- **Capacity building** – customer services, contract management, asset management, business planning, and finance/commercial management.

Governments sometimes see PPP as a catalyst to provoke the larger discussion of and commitment to a sector reform agenda, of which PPPs are only one component. In many

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*Common Pitfall: PPP not connected to sectorwide reform*

*PPP alone is unlikely to deliver sustained improvements in services without broader and supporting sector reform measures.*

***PPP is not a band-aid for a dysfunctional WSS sector***—sector reforms may be needed first, before PPP is feasible. PPP should be seen as part of, and contributor to, a wider sector reform strategy.

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West African countries, for example, PPP was the heart of sector reform, with over 1,000 PPPs now in place in Benin, Burkina Faso, Mauritania, Niger, Rwanda, and Senegal. PPP is a potential vehicle for achieving reform objectives and reinforcing institutional reform measures, or it may form an integral element of a reform strategy targeting particular issues, objectives, or attributes. However, PPP alone is unlikely to deliver sustained improvements in services without broader and supporting sector reform measures. PPP is not a band-aid for a dysfunctional WSS sector—sector reforms may be needed first before PPP is feasible (e.g., decentralization, corporatization, cost-recovery tariffs, regulation). PPP options should be seen as part of, and contributors to, a wider sector reform strategy (see chapter 2 on sector readiness for PPP).

In Albania, during the 1980s, the water sector was plagued by underperformance. Tariffs were well short of cost recovery levels, electricity bills and salaries went unpaid, NRW was 70 percent, collection rates were around 20 percent, and water was available 3 to 4 hours per day. Between 1997 and 2005, a reform strategy was implemented with three main elements: decentralization, private sector participation, and increased cost recovery. During implementation, a number of PPP contracts (one concession and two management contracts) were signed with donor or international financial institution (IFI) support. Despite all this good intent, results were patchy at best, in part because of inconsistent government policy implementation on

decentralization and in part because private operator autonomy was undermined by utilities retaining authority over key decisions. Without the prerequisite governance, legal, institutional, economic, administrative, and social (participatory) reforms in place (World Bank 2011), it could be argued that the PPP element of the reform strategy was always unlikely to succeed.

Key reference sources on WSS sector reform and PPP are provided in the final section of this document. These will provide the reader with more detailed and in depth information on the topics covered in this document.

## References

- Baietti, Aldo, William Kingdom, and Meike van Ginneken. 2006. "Characteristics of Well-Performing Public Water Utilities." World Bank Water Supply & Sanitation Working Note No. 9 (May).
- Castro, Aileen Bolus, Vijay Jagannathan, and Mariles Romero-Navarro. 2014. "Beyond One-Size-Fits-All: Lessons Learned from Eight Utility Public-Private Partnerships in the Philippines." Water and Sanitation Program Learning Note, World Bank, Washington, DC.
- Fall, Matar and Alain Lucussol. 2009. "Guiding Principles for Successful Reforms of Urban Water Supply and Sanitation Sectors." World Bank Water Working Note 19, January. World Bank, Washington, DC.
- Jamieson, Jane, Jemima Sy, and Robert Warner. 2014. *Tapping the Markets: Opportunities for Domestic Investments in Water and Sanitation for the Poor*. Directions in Development Series. Washington, DC: World Bank.
- Kacker, Suneetha Dasappa, S. R. Ramanujam, and Tracey Miller. 2014. *Running Water in India's Cities: A Review of Five Recent Public-Private Partnership Initiatives*, Water and Sanitation Program, Flagship Report. Washington, DC: World Bank.
- IBRD, WB, ADB, and IADB (International Bank for Reconstruction and Development, World Bank, Asian Development Bank, and Inter-American Development Bank). 2014. *Public-Private Partnerships Reference Guide Version 2.0*. Washington, DC, and Mandalayong City: World Bank, ADB, and IADB.
- Mandri-Perrott, Cledean and Iain Menzies. 2010. *Private Sector Participation in Light Rail/Light Metro Transit Initiatives*. Washington, DC: World Bank.
- van Ginneken, Meike, and Bill Kingdom. 2008. "Key Topics in Public Water Utility Reform." World Bank Water Working Note 17, August, World Bank, Washington, DC.
- World Bank. 2011. *Albania: Decentralization and Service Delivery in Albania: Governance in the Water Sector*. A World Bank Issue Brief. Washington, DC: World Bank.
- WSP (Water and Sanitation Program). 2010. "Public-Private Partnerships for Small Piped Water Schemes: A Review of Progress in Seven African Countries." Water and Sanitation Program Field Note, World Bank, October 2010.

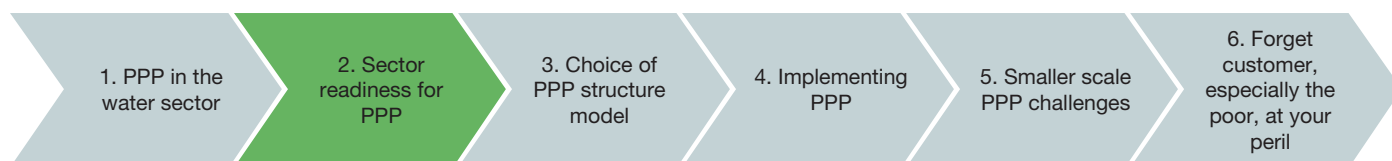


## II. Sector Readiness for PPP

### CHAPTER SUMMARY

This chapter discusses the institutional, legal, and policy frameworks necessary to support PPPs and includes the following:

- PPP support programs and institutions
- Project development facilities and funds
- Understanding the WSS sector policies that will influence PPP
- Selection of contracting authorities
- Water sector financing
- Managing water sector stakeholders



### A National Institutional, Legislative, and Policy Framework for PPP

Many countries have developed policy and legal frameworks to enable and support PPPs, and have created and promoted PPP opportunities. Laws and regulations can enable the government to enter into PPPs and set the rules and boundaries for how they are implemented. This can include PPP-specific legislation (e.g., PPP, build-operate-transfer (BOT), and concessions laws), other public financial management laws (e.g., public procurement laws) and regulations, and sector specific laws and regulations. Some of these laws and regulations will specify eligible sectors for PPP, so it will be important to check that PPP is possible in the WSS sector and determine whether there are any restrictions on the type of PPP that can be undertaken, or if there are laws that specifically apply to certain PPP structures (e.g., the Philippines BOT law). Where gaps or roadblocks in the framework exist, there may be an opportunity to help or support the government in drafting the missing elements.

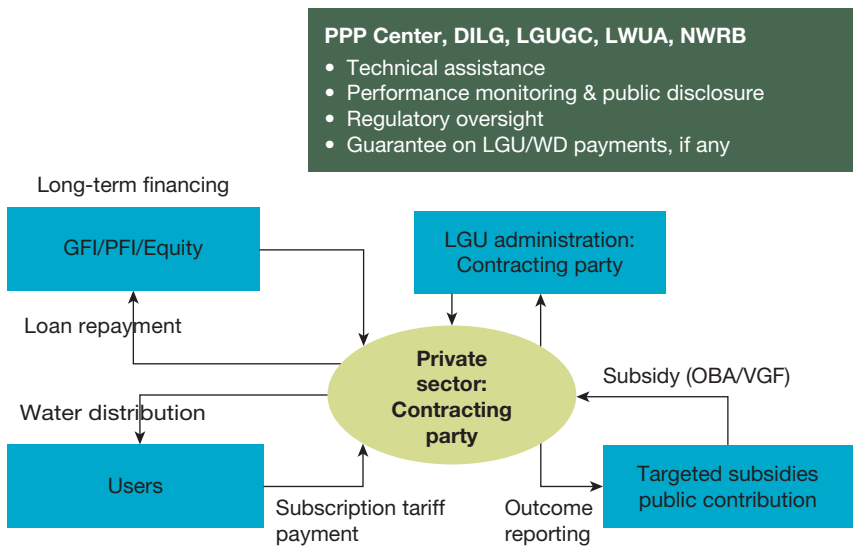
Some countries have also established PPP support programs/institutions (e.g., national PPP units/centers and sector PPP units/cells, which may be housed in the line ministry) under their PPP frameworks. National PPP units can represent an excellent opportunity to introduce PPPs into the WSS sector or scaling up pilot initiatives to the national level, as long as they are realistically set up and do not introduce new layers of bureaucracy. Because of the relatively small scale of WSS PPPs, many of these PPP units have not focused on (or developed capacity in) the WSS sector, instead focusing

on highway, rail, airport, or energy PPPs. In this case, consideration needs to be given to ways the government can assist local governments in their WSS PPP projects.

In the **Philippines**, for example, the national PPP Center is focused on PPPs of national strategic importance. Recognizing an opportunity, WSP has started working with the PPP Center to develop a framework to streamline assistance provided by the PPP Center, in collaboration with the Department of Interior and Local Government (DILG) and the National Water Resources Board (NWRB), to support scaling up PPPs in water supply services nationwide. This will institutionalize the process by which WSS PPPs can be identified, negotiated, and concluded within a framework of clear rules and responsibilities of the operators, the local government unit (LGU) administration, national government agencies, and water supply users, confining the role of national government agencies to one of connecting, facilitating, and light-handed regulation. WSP is working with the PPP Center, the NWRB, and the DILG to facilitate the scaling up of small WSS systems in hundreds of locations with well-defined time lines and standardized unit costs. Figure 2.1 shows a suggested institutional framework for WSS PPP in the Philippines (WSP 2014), illustrating the integration of national and local government agencies, operators, and financial institutions.

In **Niger**, one of the world's poorest countries, the government has established a PPP Support Unit (Cellule d'appui aux PPP, or CAPPP) in the Office of the Prime Minister.

**FIGURE 2.1: ROLES OF DIFFERENT AGENCIES IN PPP**



Source: WSP 2014  
 Note: DILG = Department of Interior and Local Government; GFI = Government Financial Institution; PFI = Private Financial Institution; LWUA = Local Water Utilities Administration; LGU = local government unit; LGUGC = LGU Guarantee Corporation; NWRB = National Water Resources Board; OBA = output-based aid; VGF = viability gap funding.

This is an appropriately simple institutional arrangement (see figure 2.2).

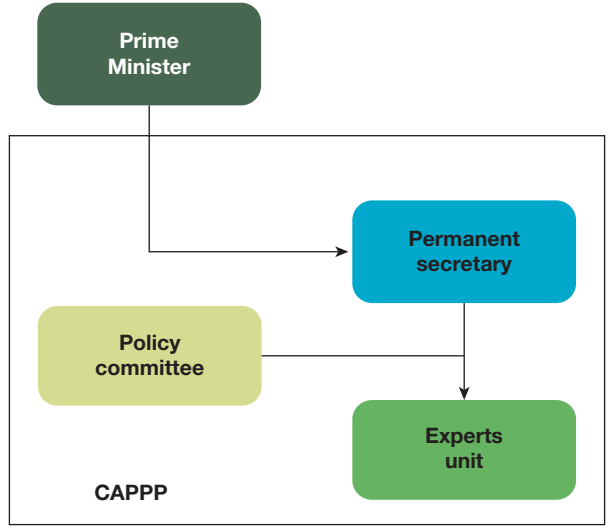
**High PPP Transaction Costs: Assistance from Project Development Facility/Fund**

Some countries have recognized that developing a PPP and running a PPP transaction is typically more expensive than the equivalent process for a traditional public investment project (even though they can bring in considerable benefits if they are successful), and this may sometimes deter agencies from identifying PPPs. In order to overcome this potential barrier to PPP project identification and pipeline development, a number of governments have established a Project Development Facility or Fund (PDF) under their PPP framework. The purpose of these PDFs is to arrange and provide funding support to public agencies and authorities to

cover the costs associated with identifying, structuring, and procuring PPP projects. A PDF typically covers the costs of PPP feasibility studies, and hiring transaction advisors to, among other things, prepare bidding documents and PPP contracts, and hire transaction advisers.

The World Bank and other international financial institutions (IFIs) and donors have helped governments set up and (co) fund PDFs in a number of countries including Vietnam (PDF), India (Infrastructure Project Development Fund), Pakistan (Infrastructure Project Development Facility),

**FIGURE 2.2: ORGANIZATION OF INSTITUTIONAL SET UP TO ENABLE PPP IN NIGER**



Source: Presentation made by CAPPP to the Forum on British Investments to the Profit of Niger, London, June 14, 2012.  
 Note: CAPPP = Cellule d'appui aux PPP, the PPP support unit in Niger.

*Common Pitfall: High Transaction Costs*  
 A PPP transaction is typically more expensive than the equivalent process for a traditional public investment project, which can deter agencies from identifying PPPs.

South Africa (PDF), Ghana (PDF), the Philippines (Project Development and Monitoring Facility), and Indonesia (PDF).

### WSS Sector Policy and Institutional Framework: Support for PPPs

Where government is considering introducing a PPP into the WSS sector, the PPP arrangement must be consistent with and supportive of sector policies reforms and the institutional framework. Many countries have produced sector policies and water master plans, and it will be important that policies explicitly allow, and even support PPP (see box 2.1 for an example of one country's policy statement). When national legislation and policies support PPP in the water sector (e.g., a PPP law), then the WSS policy should set out how this will be implemented. This will include identifying the institutional arrangements for PPP procurement and contract management. Assistance can be provided to the government to (re)draft the sector policy to encourage and support PPP.

The starting point in assessing sector institutional readiness for PPP is to map out the sector's existing institutions and their roles and responsibilities. It will be important to identify which part of government will be responsible for managing each part of the PPP project cycle from project inception to contract management and regulation (see the section "Managing the WSS Political Economy"). In **Benin**, for example, the implementation and administration of water policies has been devolved to local authorities (communes). Figure 2.3 describes Benin's institutional framework.

A review of the national documents (World Bank 2012) demonstrates that there is strong political will on the part of

the Government of Benin to develop the water supply service in rural areas through PPPs. The institutional set up, in which the water ministry (Ministry of Mines, Energy, and Water, or MMEE) is the **regulator**, the local councils (communes) act as the **contracting authority**, and the private sector comprises the water **service providers**, is well defined. The **National Water Policy**, adopted in 2008, identifies the private sector as a key actor in developing water supply services for the rural population.

### WSS PPP and Government Decentralization Policies

In a number of countries, government decentralization or devolution policies have opened up the potential for introducing PPP. In Madagascar (Annis and Razafinjato 2011), for example, a new Water Code put WSS infrastructure under the ownership and management of the communes, and stated that water supply services may be delegated to a third party via management agreements, leasing, or concessions. This policy created a significant market opportunity for rural/small town PPPs but uptake has been slow, in no small part as a result of the formal private sector in Madagascar being largely underdeveloped, and virtually nonexistent in the water sector. Other PPP challenges in Madagascar include:

- The Ministry of Water is poorly funded, understaffed, and has a limited presence in rural areas;
- There is no accurate database available regarding the roles of local government structures vis-à-vis management of infrastructure; and
- Local leaders and community groups lack the political will or capacity to respond when water supplies fail.

#### BOX 2.1: NATIONAL POLICY STATEMENT IN CAMBODIA

The Cambodian national policy on water supply and sanitation states that "the Private Sector shall be encouraged to be involved in all areas of service provision contracts, including service contract, management contract, lease contract, concession contract, BOT contract, and BOO contract." The objective is "to widely expand the urban water supply in both quality and service coverage. Promote market competition in response to the consumer demand, by ensuring sustainable supply."

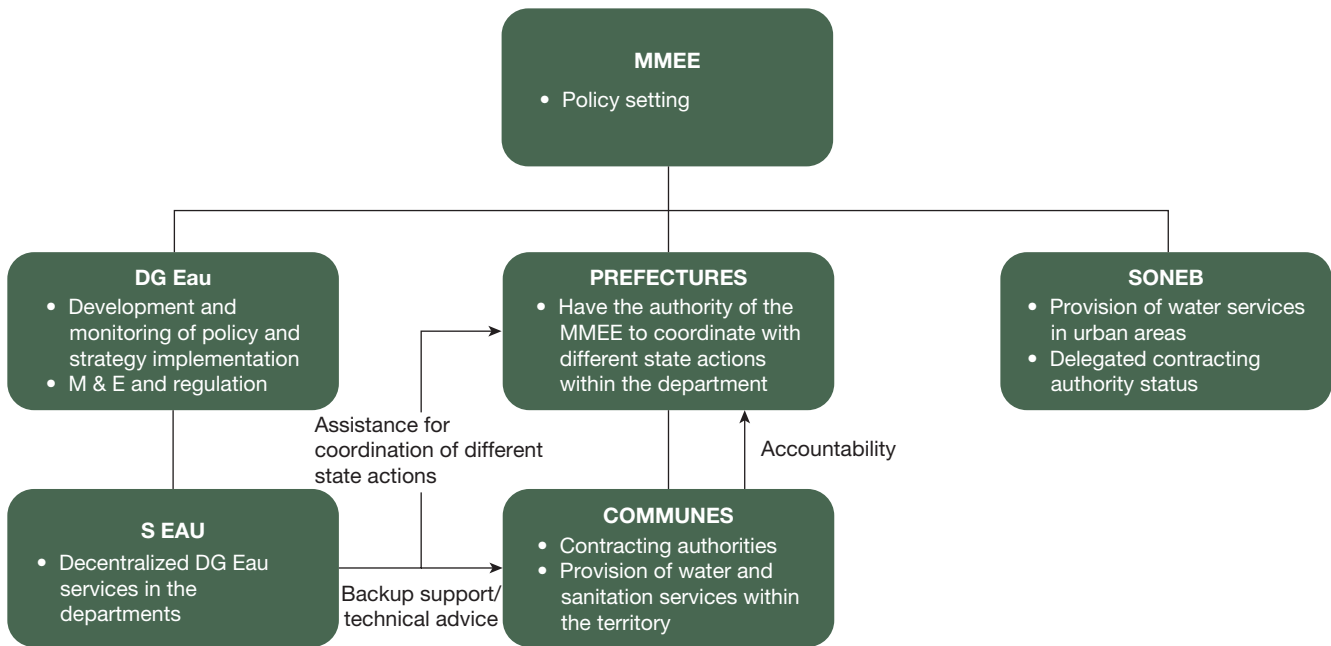
Source: Global Study for the Expansion of Domestic Private Sector Participation in the Water and Sanitation Market – Cambodia Draft Deep Dive Report. WSP and Cambodia Ministry of Industry, Mines and Energy (MIME). 2013

It is possible that the WSS sector was not ready for PPP. The section "A PPP Track Record" suggests some approaches for supporting both the supply and demand aspects of creating a viable PPP market.

#### The Contracting Authority

With the introduction of PPP into the sector, a key question for the government is which public entity will enter into (sign and manage) the PPP

**FIGURE 2.3: INSTITUTIONAL FRAMEWORK IN BENIN**



Source: Benin - Global Study on the Expansion of Domestic Private Sector Participation in the Water and Sanitation Market. WSP Draft Deep Dive Analysis Report. 2012.  
 Note: M&E = Monitoring and Evaluation; MMEE = Ministry of Mines, Energy, and Water; SONEB = Société Nationale des Eaux du Bénin (national water utility); DG Eau = General Directory of Hydraulic Affairs (DHA); S-Eau = decentralized DHA services in the Departments

contract with the private operator: who will be the “contracting authority”? Since this may be a new arrangement in the sector, a new authority may even need to be created. It will be important that the contracting authority has the legal, technical, financial, and management capacity to undertake this responsibility. New legislation or regulations may also need to be introduced to ensure that the proposed contracting authority has the right or authority to enter into the contract. Table 2.1 shows that in many PPPs the public party to the contract is a local entity: the community or a local authority/municipality. In several countries, water user associations were a party to the contract, sometimes as a third party. In Benin (which uses the affermage model), the water user association monitors contract performance, while in Niger, the association also represents consumers.

**TABLE 2.1: PPP CONTRACTING (PUBLIC) PARTY IN DIFFERENT COUNTRIES**

Country	Contracting party
Benin (operator, monitor)	Water User Association
Benin, Burkina Faso, Madagascar, Niger (+ ministry)	Commune
Madagascar	Ministry of Water
Mali, Peru, Philippines	Local authority municipality
Mozambique	National Water Directorate
Uganda	Town Water Supply Authority

Source: Delmon 2014.

**Water Sector Financing Framework**

Another dimension of sector readiness for PPP is the sector’s financing framework and its links with national finance and budgeting arrangements. The government will need to assess and plan for any financial commitments to support PPPs, and must be aware that investors will seek a high degree of clarity and financial/legal certainty in terms of sources of revenue and financial support (including subsidies and guarantees). The framework will need to show the sources

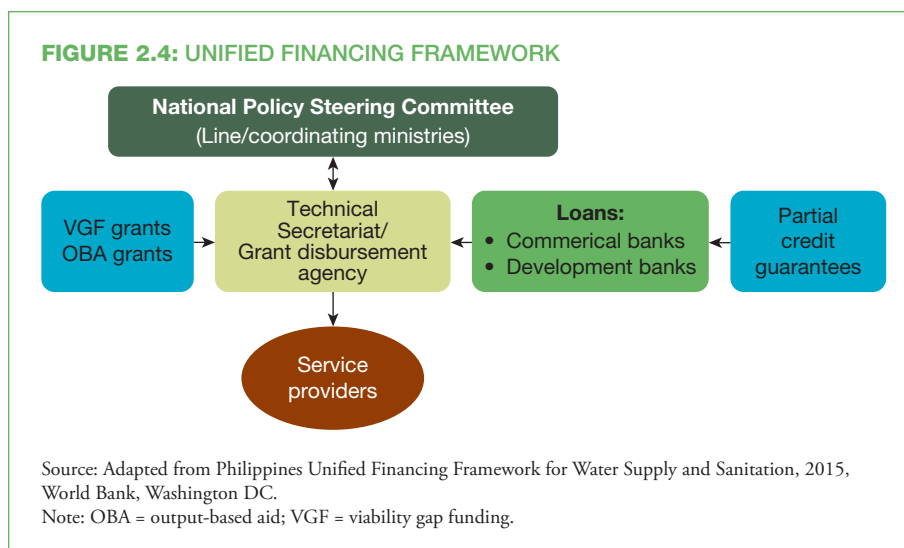
of public funding and financial support institutional responsibilities for those sources, and how they will be coordinated and allocations approved. New government laws, decisions, or regulations may be required to institutionalize the framework and ensure government budget allocations over the medium term. Since some PPPs may require grant funding over a number of years (e.g., for construction), new multiyear government budgeting mechanisms may need to be introduced to support PPP. Where sector decentralization policies have been implemented, the framework may need to cover sector-specific fiscal transfer mechanisms. These transfers could also potentially be used as some form of security or collateral to enhance the bankability of a possible PPP or PPP program.

Figure 2.4 shows an example water sector financing framework that is being designed to accommodate PPP. It shows how the government plans to manage and coordinate public grants (viability gap fund and output based aid), loans from commercial banks and state-owned development banks, and partial credit guarantees.<sup>2</sup> The framework will also set out eligibility criteria for operators to access funding, which forms part of a wider sector reform program with access to funding acting as an incentive for PPP and improving coverage and service efficiency and standards.

### Managing the WSS Political Economy: Stakeholder Mapping and Participation

When dealing with a service like water, which is so essential to human life and livelihood, it is important in any reform process to engage all stakeholders as early as possible. Figure 2.5 shows an example framework for **analyzing stakeholders**; finding **win-win opportunities**; creating **strategies** and **plans** for **engaging** with stakeholders; and finally, **evaluating** the effectiveness of the process.

**FIGURE 2.4: UNIFIED FINANCING FRAMEWORK**



See “Communication and Public Outreach” in chapter 4 for more on this topic.

Engaging stakeholders early in the process can lead to positive results. For example, in the twin cities of Hubli-Dharwad (Karnataka State in India), one of the key success factors for the pilot was the strong political support for the initiative,<sup>3</sup> with senior local politicians and administrators who championed the project and actively engaged with civil society from the earliest days.

Figure 2.6 summarizes the typical range of stakeholder interests in PPPs.

In this respect, having a politically **designated and trusted champion** or driver for the PPP process can be critical, and can act as a focal point for public communication and information, ensuring that attention is focused on the key issues, working to achieve stakeholder consensus, and leading government decision making.

### A PPP Track Record on which to Build

When assessing the potential for WSS PPP in a country it is important to look to precedents in other sectors. In many countries, WSS is one of the lagging sectors for PPP, with the telecommunication, energy, and transport sectors often

<sup>2</sup> *Partial credit guarantees* (PCGs) cover private lenders against all risks during a specified period of the financing term of debt for a public investment. These guarantees are designed to extend maturity and improve market terms. The IBRD and the IFC can provide PCGs (as can other IFIs such as regional development banks).

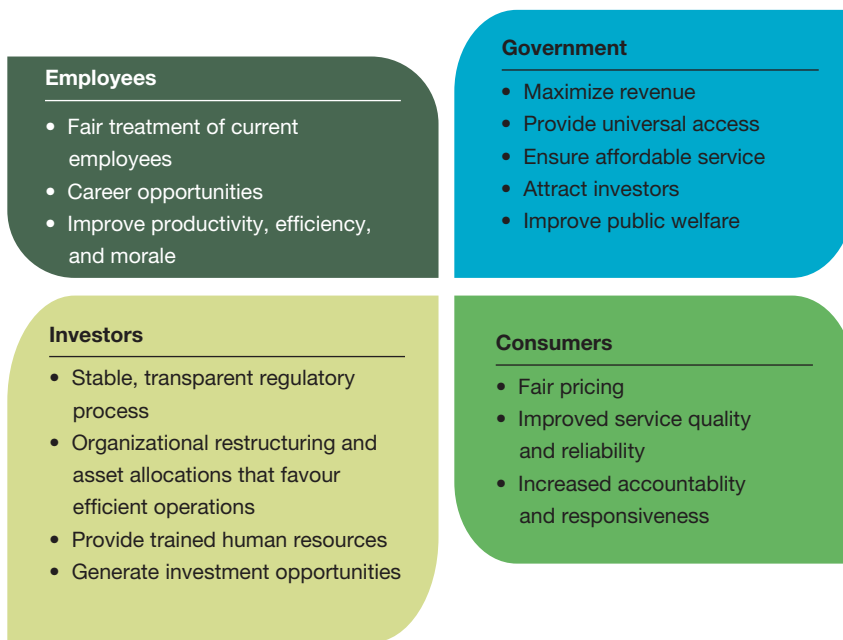
<sup>3</sup> The PPP pilot was under the World Bank’s Karnataka Urban Water Supply Improvement Project (KUWASIP).

**FIGURE 2.5: STAKEHOLDER RELATIONSHIP FRAMEWORK**



Source: WSP Domestic Private Sector Participation Group.

**FIGURE 2.6: TYPICAL RANGE OF STAKEHOLDER INTEREST**



Source: Adapted from ADB 2008.

action plan with the government to create a viable WSS PPP marketplace. Commercial and investment climate factors will affect private sector appetite for participating in the WSS sector, influencing firms’ actual or perceived costs and risks, and impacting their willingness to invest. Key concepts to create and stimulate sustainable WSS PPP markets include (Sy, Warner and Jamieson):

To stimulate the **demand** side:

- Ensure consumer affordability and assess willingness to pay—with due regard given to ensuring that the poor have the capacity to pay (through, for example, lifeline tariffs and targeted subsidies);
- Increase access to consumer finance for connections—through, for example, micro-credits and installment schemes;
- Actively consult and engage stakeholders on introducing PPP;

- Strengthen public sector institutional capacity for PPP;
- Establish a PDF to incentivize PPP project preparation; and
- Cluster subscale projects.

leading the way. Reviewing the successes, challenges, and lessons from these other PPPs can facilitate and inform the dialogue with WSS stakeholders.

Where PPP is new to a country but there is a conducive enabling environment, then it will be important to assess the demand and supply sides of the WSS sector/market and develop an

## CHECKLIST 2.1: Sector Readiness for PPP

- Laws and regulations are established to enable government to enter into PPPs.
- PPP support programs/institutions are in place to help scale pilots to the national level.
- Sufficient funding is available for public agencies for identifying, structuring, and procuring PPP projects—for example, creating a Project Development Facility or Fund (PDF).
- Stakeholders are engaged in the early stages of the PPP process.
- WSS sector policies are consistent with PPP arrangement.
- Roles and responsibilities in the sector have been mapped and management responsibilities for each part of the PPP project cycle have been identified/allocated.
- Decentralization or devolution policies have been explored (if applicable).
- Contracting authority has been established or identified.
- Financing framework shows sources of public funding and financial support and institutional responsibilities, and how sources will be coordinated and allocations approved.
- A high-level project champion is identified.
- Stakeholders are engaged in the early stages of the PPP process.
- Win-win opportunities are developed.
- PPP actors and stakeholders agree on PPP objectives.
- PPP market supply and demand factors are assessed and stimulated as appropriate.
- Consultations are carried out with other IFIs, bilateral donors, and NGOs that are relevant to the WSS sector.

To stimulate the **supply** side:

- Provide market intelligence to increase market awareness;
- Develop consistent and transparent tariff cost recovery and subsidy policy and mechanisms;
- Increase access to finance to encourage investment (network expansion)—through, for example, concessional finance, credit enhancements, and guarantees;
- Reduce transaction costs through standardizing/streamlining PPP procedures and documents; and
- Improve supply chains and technical support by improving professional capacity—for example, by identifying (potential) private sector operators, creating WSS operator trade associations, and providing accredited business development services to increase technical, financial, and management capacity of the private sector.

It may be productive to consult and coordinate with other multilateral IFIs, bilateral donors, and nongovernmental organizations (NGOs) active in the sector that may also be in a dialogue with government on engaging the

private sector. In Vietnam, for example, the government and donors formed a technical working group to work on WSS PPP policy. Membership in the working group included line ministries, the World Bank, the Asian Development Bank, the Deutsche Gesellschaft für Internationale Zusammenarbeit/ Development Bank of the German Federal Government (GIZ/KfW), the Japan International Cooperation Agency (JICA), Danida, the Dutch Water Partnership, UNICEF, and an active international NGO (the East Meets West Foundation).

Key issues to consider in assessing sector readiness for PPP are summarized in checklist 2.1.

### References

- ADB (Asian Development Bank). 2008. *Public-Private Partnership Handbook*. Manila: ADB.
- Annis, Jonathan and Gerald Razafinjato. 2011. *Public-Private Partnerships in Madagascar: A Promising Approach to Increase Sustainability of Piped Water Supply Systems in Rural Towns*. 6th Rural Water Supply Network Forum, Uganda.

Delmon, Victoria. 2014. "Structuring Private-Sector Participation Contracts for Small Scale Water Projects." Water and Sanitation Program, Washington, DC: World Bank.

Sy, Jemina, Robert Warner, and Jane Jamieson. 2014. *Tapping the Markets: Opportunities for Domestic Investments in Water and Sanitation for the Poor*. Directions in Development—Private Sector Development. Washington, DC: World Bank.

WSP (Water and Sanitation Program). 2012. *Benin - Global Study on the Expansion of Domestic Private Sector Participation in the Water and Sanitation Market: Draft Deep Dive Analysis Report*. Water and Sanitation Program, World Bank.

WSP (Water and Sanitation Program). 2014. *Expanded Small Water Utilities Improvement and Financing Technical Assistance: Phase 2 Final Report*, Water and Sanitation Program, Philippines, World Bank.

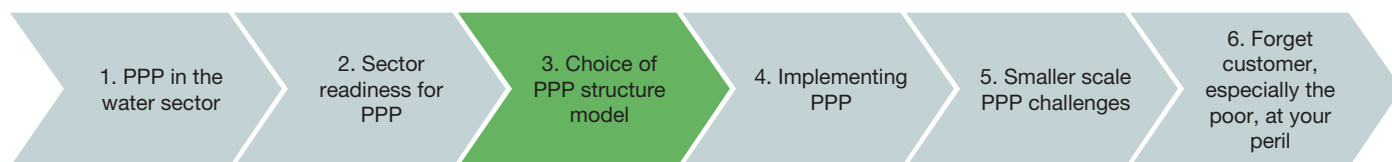


# III. Choice of PPP Structure/Model

## CHAPTER SUMMARY

This chapter provides the following support for determining a PPP structure:

- An overview of the types of PPP structures/models
- A description of where PPP models fall on the spectrum of private sector participation
- An in-depth look at models with government and private ownership



The steps taken so far in preparing for the introduction of PPP into the sector have created the context or enabling environment for implementing a PPP-based model. The next stage in the PPP process is to determine what kind of PPP structure would be best suited to address sector reform priorities and the specific needs of the proposed project or initiative that will be politically and socially acceptable.

Many PPPs involve the creation of new assets (“greenfield” projects). An example would be the construction of a new water treatment plant. PPPs can also be used to upgrade and manage existing assets (“brownfield” projects). An example would be the handing over of the responsibility for an existing water supply system (treatment plant and distribution network). One of the first steps in deciding on the most appropriate PPP model is the selection of which key functions and responsibilities the government is interested in bundling into the contract(s) for private delivery and management:

- **Design:** Setting output and performance requirements as well as design specifications (e.g., raw water source works, treatment process and capacity, plant layout, network routes/sizing, pumping stations, connections).
- **Build or Rehabilitate:** Constructing, installing, and commissioning new WSS assets and/or rehabilitating/refurbishing/upgrading existing assets and/or network extensions.
- **Finance:** Determining how investments (construction, major refurbishments) and operations/maintenance will be funded (e.g., through public subsidy such as viability gap funding (VGF), public loans, private capital, ODA grants/loans, user fees).

- **Maintain:** Maintaining the WSS operator’s assets (plant and equipment) to a specified standard over the life of the contract.
- **Operate:** Operating the technical assets (treatment plants and networks) and providing support services (metering, billing, collection, customer services), depending on the scope of the contract (e.g., is the scope to be limited to bulk supply of treated water or broadened to the inclusion of networks and retail services to customers).

The other key element in PPP model selection is deciding **how the PPP operator will be paid**. This can be a combination of user fees (water bills), subsidies (e.g., for household connections or public budget support due to affordability/cost-recovery constraints), and direct government payments for services (e.g., the purchase of bulk treated water from a PPP treatment plant).

PPP model selection will need to be informed by the risk appetite of the private sector (e.g., is it prepared to take demand and tariff risk through payments limited to customer billings) and the political economy/government policy acceptability of some options (e.g., is it acceptable for the private sector to own WSS assets, or to take responsibility for network management and/or retail operations). This should be tested at the earliest stage of PPP option planning.

In Vietnam, for example, the government undertook a market sounding of both the private sector and public sector (provincial and city government, utilities) on six PPP options that could be effective at resolving some of the sector’s problems. Table 3.1 summarizes the findings.

**TABLE 3.1: MATCHING PPP OPTIONS WITH WSS SECTOR CHALLENGES**

	Performance-based NRW reduction contract	Management contract	Lease-affermage contract	Concession contract	BOO/BOT	Joint venture + PSP contract
Low efficiency						
High NRW	✓	✓	✓	✓	✗	✓
Low revenue collection	✓	✓	✓	✓	✗	✓
Poor service quality						
Low access	✗	✗	✓	✓	✓	✓
Low continuity	✓	✓	✓	✓	✓	✓
Weak incentives	✓	✗	✓	✓	✓	✓
Limited funds to invest	✗	✗	✓	✓	✓	✓
Political will	✓	✓	✗	✗	✓	✓
Experienced in Vietnam	✓	✗	✗	✗	✓	
Recommend	✓	✗	✗	✗	✓	✓

Source: Report on Private Sector Participation Options for the Water and Wastewater Sector in Vietnam. Consultant's Report to the Vietnam Ministry of Planning and Investment. 2014.  
Note: BOO = build-own-operate; BOT = build-operate-transfer; NRW = non-revenue water.

The options requiring the transfer of control over the entire operations of the water distribution system did not gain political support. There was a clear preference for state-owned and controlled utilities to be responsible for operating the distribution network and for dealing with consumers. As a result, three PPP options were recommended for piloting urban WSS in Vietnam: a performance-based non-revenue water (NRW) reduction contract, a build-operate-transfer (BOT) contract, and a joint venture plus a PPP contract. It was also noted that there were no legal and regulatory restrictions to the implementation of these PPP options.

This Vietnam example introduces the PPP universe of acronyms, terminologies, and jargon—much of which is used in confusing, misleading, and frequently inconsistent ways around the world. Much has been written on this topic,<sup>4</sup> but here the focus will be limited to a number of tried and tested WSS PPP models, especially those suited to smaller-scale initiatives in rural, periurban, and small to medium-sized towns.

### Available PPP Options

Before embarking on a PPP project it is important for government and the relevant contracting authority to examine the different options for proceeding with the project,

including traditional public service options. A range of PPP models and contract forms is available. As the Vietnam example shows, selecting the most appropriate model(s) is a function of sector reform objectives (e.g., increasing efficiency and quality of services, expanding treatment capacity), availability of (public) investment finance, political support/PPP policy objectives, legal constraints, and private sector willingness to absorb project risk.

Figure 3.1 shows the typical range of PPP options;<sup>5</sup> the range shown here reflects the degree of private sector involvement (asset ownership, financing, operational control, revenue independence).

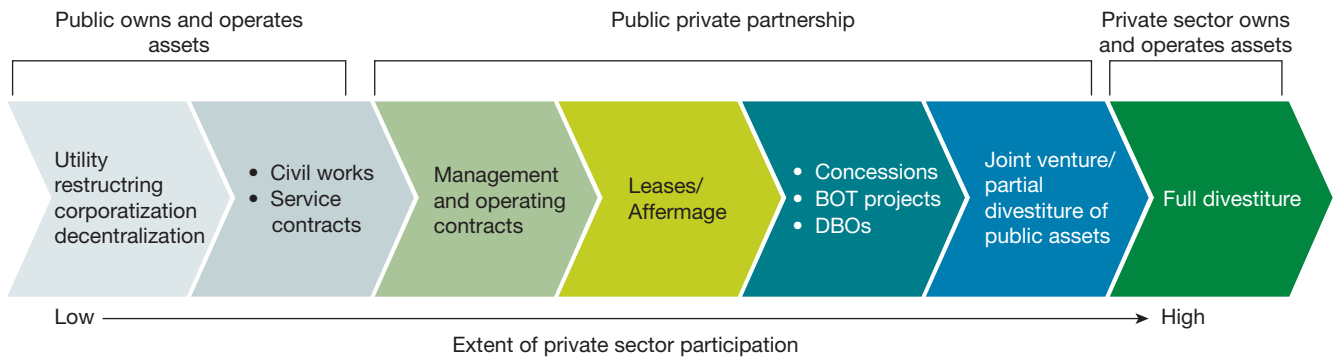
Option selection along this continuum will involve answering a number of questions:

- Will the project involve creating new assets or using existing assets, or both?
- What will the operator be responsible for—operations and maintenance, new build, refurbishment, and/or network extensions?
- How will the operator be paid—water bills/tariffs, government fees, and/or operating budget/capital subsidies?

<sup>4</sup> A good starting point is found in Delmon 2010.

<sup>5</sup> See the PPP in Infrastructure Resource Center at <http://ppp.worldbank.org/public-private-partnership/agreements>.

**FIGURE 3.1: TYPICAL RANGE OF PPP OPTIONS**



Source: PPP in Infrastructure Resource Center.

- Does the law or government prescribe or recommend certain forms of contract?
- Are there legal constraints on risk or responsibility transfer?

In Benin, for example, legislation requires the communes (districts) to construct the water infrastructure and to provide the service. It also requires them to delegate its service provision functions to private or community operators. The General Directorate of Water in Benin has developed a guide for the communes to develop water services in rural areas based on these requirements, including a set of short model agreements to be used for this purpose.

Figure 3.2 shows the PPP model options available when the questions on assets (existing and/or new build) and operator payment (user tariff or government service fee) have been answered.

The next section provides a quick overview of these PPP models and a few other commonly used ones.<sup>6</sup>

**FIGURE 3.2: AVAILABLE PPP MODEL OPTIONS**

Existing asset Management/O&M contract/ Lease/Affermage		New build (+Existing) asset DBO/DBL/Concession	
TARIFF	FEE	TARIFF	FEE
Lease/ Affermage	Management/ O&M Contract	Concession/DBL	DBO/BOT

Source: Adapted from presentation: Structuring Private-Sector Participation (PSP) Contracts for Small Scale Water Projects. Iain Menzies. 27 August 2014. Manila, Philippines.

### PPP Models with Government Asset Ownership

#### PERFORMANCE BASED MANAGEMENT/OPERATIONS AND MAINTENANCE CONTRACT

Under a management contract, the government appoints a private contractor to manage the operations and the system (assets and staff) in return for a fee (paid by government), which is performance based (with incentives and penalties for performance). Responsibility for all investment remains with government. Contract term is typically 3–5 years, but may be longer if the operator has repair or renewal

<sup>6</sup> A good starting point for much more detailed descriptions and examples of WSS PPP models is the World Bank's PPPIRC website: <http://ppp.worldbank.org/public-private-partnership/sector/water-sanitation>.

obligations (up to 10 years). Management contracts are a potentially beneficial form of PPP when there is strong political or public reluctance to water tariff increases or concern about relinquishing ownership/control to the private sector. Management contracts may also be the preferred approach if potential private sector investors consider that the risks associated with a higher level of private involvement are currently too high. Such contracts have even proven successful in reestablishing services in post conflict situations. In post-war Kosovo, a three-year performance-based management contract was designed to (1) improve services and (2) establish a viable public utility capable of operating on its own at the end of the contract. Payments were based on a fixed fee plus performance bonus. Between 2001 and 2004, the operator turned around the utility from loss to profit, reduced NRW, and improved services (Marin, Mugabi, and Manino 2010).

#### PERFORMANCE BASED NON-REVENUE WATER (NRW) REDUCTION CONTRACT

These are a specialized type of management contract focused on reducing physical leakages and water losses. With increasing water scarcity and the drive for improving water operator efficiency, interest is growing in this type of PPP contract. NRW contracts have been used around the world (e.g., Bangkok, Dublin, Ho Chi Minh City, Manila, São Paulo, some cities in Jamaica, and the State of Selangor in Malaysia), and many other countries are now actively exploring this option (e.g., India, Indonesia, Kenya, Pakistan). Under a performance-based NRW contract, a private operator is contracted by the government or its water utility to carry out a NRW reduction program (Kingdom, Liemberger, and Marin 2006). The private operator is usually paid a fixed and a performance-based fee—the performance fee is tied to achieving NRW reduction targets (e.g., the volume of water saved per day or the number of district metering areas completed). In most performance-based NRW reduction contracts, the capital investments are funded by the government or a public utility.

#### AFFERMAGE CONTRACT

The affermage contract is used in civil law jurisdictions (e.g., francophone African countries such as Benin, Burkina

Faso, and Senegal) and is similar to a lease. Under an affermage, the operator “fermier” has delegated to it the obligation to supply customers with potable water in the delegated area as well as operation and maintenance obligations, and a limited obligation to repair and replace (typically this obligation applies only to minor parts). Revenue comes from tariffs and the operator’s fee is paid out of revenues. Any revenues collected above the operator’s fee are paid to the authority for investment in the scheme. The authority is the owner of the scheme and is responsible for major repairs, renewal, and expansion. Affermage contracts tend to be for a medium period of time (from 3 to 10 years), but can be longer.

#### LEASE CONTRACT

Under a lease contract, a local government or its water utility leases the full operation and maintenance of its facilities within an agreed geographic area to a private operator for a fixed period (typically 5 to 10 years). The operator bears extensive revenue risks since it pays a fixed lease fee to the government out of revenues collected from customers. The lease payment is intended to cover the government’s capital costs in extending or upgrading the facilities (for which it retains ownership). Under some lease contracts, the operator may have obligations for asset repair and renewals.

#### DESIGN-BUILD-OPERATE (DBO) CONTRACT

The operator is required to design and build the project, and deliver the service (“operate”). The operator is not required to finance the project capital costs. It will typically be paid a lump sum by the government for the installation on commissioning of the scheme and, thereafter, a periodic fee for operations. DBO contracts typically have longer terms than the affermage and management contracts (construction period plus operating period of 5 to 10 years). The government bears the revenue risk. The DBO has the advantage that the same party that is designing and building the scheme will be operating it, thereby reducing the government’s risk of under- or over-design and poor construction quality.

#### DESIGN-BUILD-LEASE (DBL) CONTRACT

The operator designs and builds a scheme, sells it to the contacting authority, and simultaneously leases it back for a

fee (usually for 10 to 30 years) to operate it. On the expiry of the lease the scheme is then transferred back to the authority. It has advantages similar to the DBO mechanism because it removes the procurement and risk interfaces of traditional procurement.

DBO and DBL contracts have been used in the Philippines, Cambodia, and Vietnam. One of the key risks with these arrangements is that the operator abandons the contract soon after construction is completed. This often occurs where the operator is essentially a construction company and is focused on getting its returns out of the construction contract, after which the penalties for termination (during the operating period) are often limited.

### PPP Models with Private Asset Ownership

These PPP models have been used extensively for WSS projects but are much less common in smaller-scale PPPs. Under these models, the private operator is typically responsible for funding and building the assets, which is more challenging for small-scale projects where access to finance and the ability of local communities to pay is often more limited.

### BUILD-OPERATE-TRANSFER (BOT) TYPE CONTRACTS

The operator designs, builds, finances, and operates a system for the duration of the contract. BOTs (also known as build-own-operate-transfer, or BOOT, contracts) are often used in the WSS sector for greenfield-bulk water supply or wastewater treatment plants, although the scope of these contracts can be extended to complementary network construction. The operator owns the asset until contract termination/expiry when the new asset transfers to the government. The operator is typically remunerated through a volume (produced/treated) based fee paid by the government. A variation of the BOT model is the build-own-operate (**BOO**) model, under which the assets remain permanently in the ownership of the operator (there is no transfer).

### CONCESSION CONTRACT

Under a concession contract, the operator is granted the right to develop and utilize assets for the duration of the contract, and sometimes pays a concession fee to the

government in return. The operator typically uses existing assets and is responsible for developing new assets and for financing the associated investments. These new assets may be owned by the concessionaire until fully depreciated or until contract expiry. The operator is remunerated from tariffs, taking customer demand and payment risk. One example of a concession in the rural WSS sector is in Madagascar, where it was called a “delegation contract.”

BOT and concession contracts have the advantage of bundling all commercial, technical, performance, and financing risks into one accountability structure, but the operators’ financing costs are likely to be higher than those of the government—private capital is typically more expensive than public—and it is often difficult for small-scale operators to raise private/commercial finance. Designers of concession contracts will also often face significant challenges when the quality of data (e.g., asset condition/performance), current levels of service, and the costs of improving service cannot be easily evaluated during the design phase (see “How to Deal with Imperfect Data” in chapter 4).

### JOINT VENTURE

Under this model, the government forms a joint venture (JV) with a private operator. The private operator typically buys equity in the JV. In Latin America, this model is known as *empresa mixta* (mixed company). Typically, the private equity is only a few million U.S. dollars, which means that the *empresa mixta* is best suited for systems with low performance but also low investment needs. Experience has shown (Brazil, Colombia, Cuba, Mexico and Spain) that the *empresa mixta* model can be a publicly more acceptable form of PPP since it allows the public sector to retain a certain level of control and, importantly, be a party to decisions made by the operator (Castro and Janssens 2011). A unique feature of the *empresa mixta* model 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 can be simultaneously operator and part-owner.

This JV model was one of those proposed for Vietnam, and the JV model is also under consideration in India (Ehrhardt et al. 2015) through the creation of a new water company

special purpose vehicle (SPV)—a JV between the city government and a private partner, with the private partner in this case owning a majority of shares in the company. Two variations of the JV model were proposed: the SPV can be either an investor-owned utility that owns the infrastructure assets or a concessionaire (in which case the urban local body, or ULB, will own the assets but the SPV will use them, and invest in their upkeep and expansion). In either case, this new SPV will be responsible for all aspects of water service. In Bucharest, Romania, a hybrid JV-concession model was adopted, with the international operator taking 80 percent of the shares in the concession company, while the municipality retained 20 percent (IFC 2013).

In Vietnam, another variation on the JV model forms part of the government's state-owned enterprise (SOE) reform program, whereby provincial water utility SOEs are "equitized" and private investors encouraged to purchase minority equity stakes in the corporatized utility. To date, 23 out of the 79 urban water utilities in Vietnam have been equitized,

*Common pitfall: Government interference discourages private investments*

*Local governments' desire to retain public control over the utilities' assets and management make private investment unattractive.*

but results have been patchy at best in terms of improved efficiency or service delivery (WSP 2014)—mainly because the equitization process is focused on administrative process rather than utility service reform. Private operators have not been sought as investment partners, but rather as cash equity investors. Other challenges include:

- Determining how to value the utilities—using "book value" (the balance sheet value of the asset) has tended to overvalue the business, and regulatory uncertainty makes cash flow-based valuation difficult/unreliable; and
- Local governments' desire to retain public control over the utilities' assets and management.

These challenges make private investment unattractive and highlight the challenges of undertaking PPP initiatives without supporting sector policy and complementary reform measures. The same model is also being used in rural Vietnam, where provinces are establishing capitalized utilities and seeking private investors. This PPP model is sometimes called a (partial) **divestiture**.

Key issues to consider in selecting and designing an appropriate PPP model are summarized in checklist 3.1.

### References

Castro, Vivian and Jan G. Janssens. 2011. "Mixed Private-Public Ownership Companies "Empresa Mixta." Written for PPPIRC, World Bank, 2011.

### CHECKLIST 3.1: Choice of PPP Structure/Model

- Government has decided the key functions and responsibilities that will be bundled into contracts (design, build, finance, maintain, operate, etc.).
- Government has decided how PPP operator will be paid (user fees, subsidies, direct government payments).
- PPP models are evaluated in context of private sector risk appetite and government policy acceptability of various options.
- PPP models are evaluated in context of the WSS sector and potential reforms, availability of public investment finance, political support, legal constraints, and private sector willingness to absorb project risk.
- PPP actors have decided if new or existing assets, or both, will be used.
- The operator's responsibilities have been established (operations, maintenance, new build, etc.).
- The contracting vehicle is determined.
- Legal constraints around risk or responsibility transfer are identified.
- Asset ownership preference is established (model with public or private asset ownership).

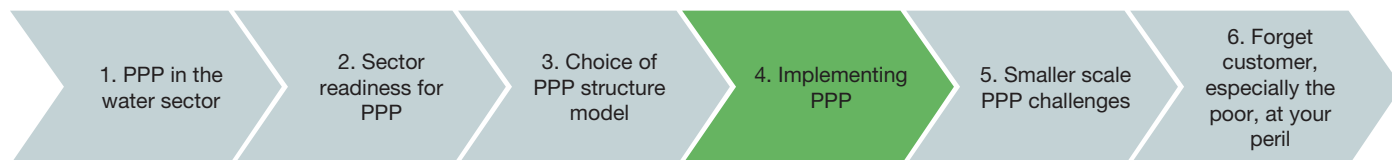
- Delmon, Jeffery. 2010. "Understanding Options for Public-Private Partnerships in Infrastructure – Sorting out the forest from the trees: BOT, DBFO, DCMF, Concessions, Lease..." Policy Research Working Paper 5173, World Bank, Washington, DC.
- Ehrhardt, David, Riddhima Gandhi, Josses Mugabi, and William Kingdom. 2015. "Evaluation of Water Services Public Private Partnership Options for Mid-Sized Cities in India," Washington, DC: World Bank.
- IFC (International Finance Corporation). 2013. "Romania: Bucharest Water and Sanitation." Public-Private Partnership Impact Stories, IFC, Washington, DC.
- Kingdom, Bill, Roland Liemberger, and Philippe Marin. 2006. "The Challenge of Reducing Non-Revenue Water (NRW) in Developing Countries – How the Private Sector Can Help: A Look at Performance-Based Service Contracting." Water Supply and Sanitation Sector Board Discussion Paper 8, World Bank, Washington, DC.
- Marin, Philippe, Josses Mugabi, and Manuel Manino, 2010. "Improving Water Services in a Post-Conflict Situation: The Case of the Management Contract in Kosovo." PPIAF Gridlines Note 52, World Bank, Washington, DC.
- WSP (Water and Sanitation Program). 2014. *Final Technical Assistance Report: Review of Urban Water & Wastewater Utility Reform and Regulation in Vietnam*. Washington, DC: World Bank.

# IV. Implementing PPP: From Origination to Contract Management – Mind the Gap

## CHAPTER SUMMARY

This chapter walks the reader through the process of implementing a PPP, including:

- The roles of stakeholders, especially those of the government and the public
- How to identify, select, and screen projects
- How to structure and appraise projects
- How to design a PPP contract
- Communications and outreach
- Contract management and regulation



### The PPP Process

Figure 4.1 sets out a PPP process road map, highlighting the key stages in developing and implementing a PPP project. A number of steps and decisions need to be taken before a tender for a project is launched, and it is important to budget and allow for the cost and time for these steps, preparation activities, and associated studies. Developing a PPP project can be costly, and so early checks that the project is promising can help ensure that PPP project development budgets are well spent. At each key stage, approval is required to proceed. As a result, the PPP is iteratively developed and appraised. There are two important advantages of this iterative approach to developing a viable PPP project:

- It enables timely involvement of oversight agencies in approving projects.
- It minimizes the risk of wasting resources on developing weak projects.

It is very important to take all these steps because skipping steps can lead to poorly designed and structured projects, projects that are not attractive to private operators, or projects that are difficult to implement successfully. It may be possible to streamline this process for smaller PPPs or programmatic PPPs, but leaving gaps in the process can be a recipe for disaster. Success also requires a sound PPP enabling environment (PPP policy and framework, legislation and regulation, sector policy, political support, etc.).

A country's PPP policy or PPP framework will often detail the stages, tasks and subtasks, responsibilities, and approving authorities. The Nigerian PPP Policy,<sup>7</sup> for example, describes the PPP process and contains supplementary notes with details of how the government will implement the process.

### The Critical Role of Government in Managing the PPP Process

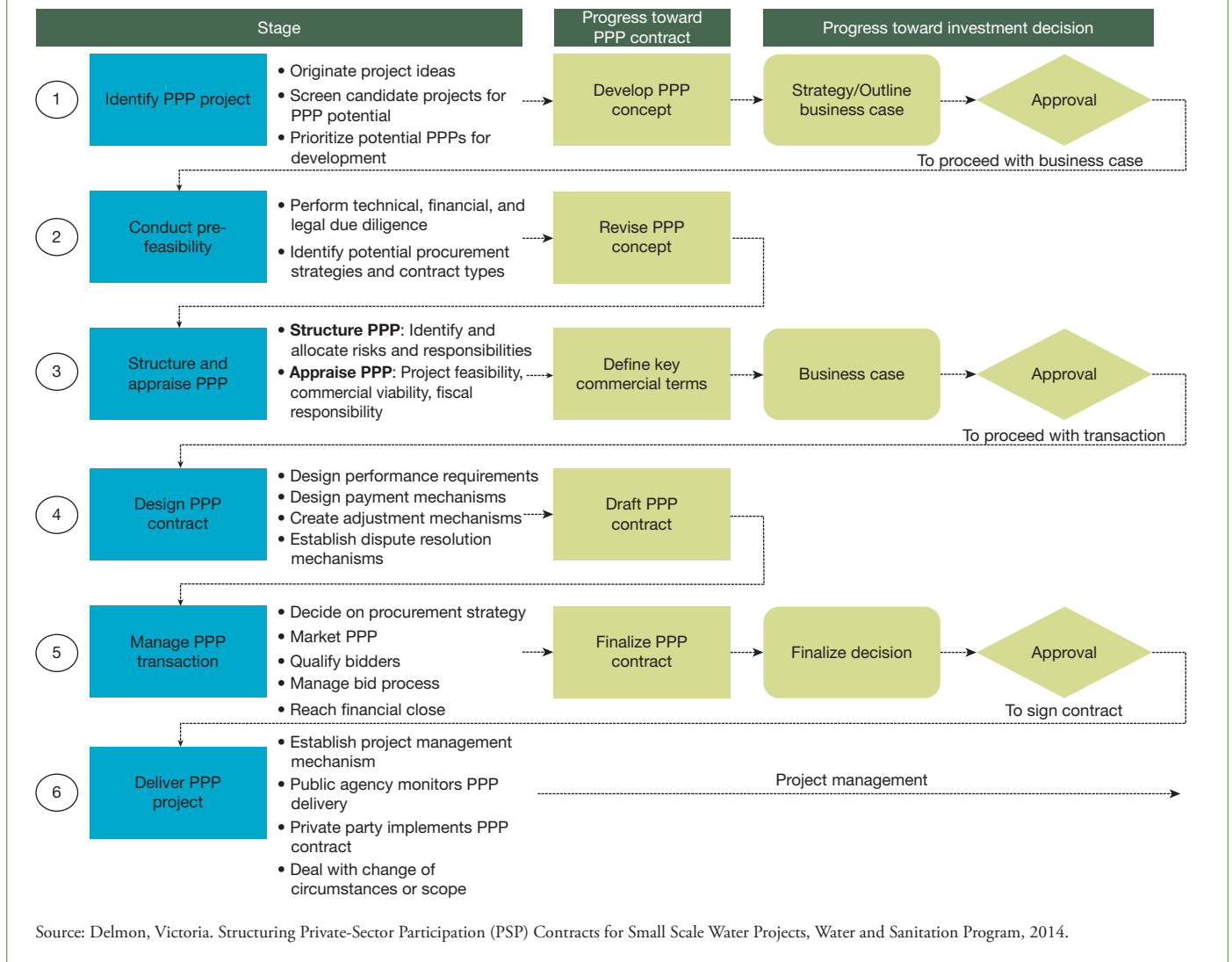
The government (public sector) will be responsible for managing the PPP process and it is critical that it have the dedicated resources and capacity needed to manage the projects over their life cycle. Figure 4.2 illustrates best practice requirements from the government. The WSP report on strengthening public institutions (WSP 2015) provides more comprehensive guidance on the public sector's roles and responsibilities, but it is essential that any dialogue with a government considering embarking on a WSS PPP is made aware of the scope of its role and the need to plan, develop, and allocate sufficient resources to manage these activities and create the required PPP enabling environment to minimize the risks of PPP failure.

Depending on the complexity and size of the PPP, the government will need to consider hiring a **transaction adviser** to provide legal, technical, and financial assistance throughout the PPP process. Where the government has a PDF in place, this would be the first port of call for hiring. If the PPP has donor support, then donors will often fund the

<sup>7</sup> See the National Policy on Public Private Partnership and its Supplementary Notes, Federal Government of Nigeria. <http://icrc.gov.ng/resources/publications>.



**FIGURE 4.1: PPP PROCESS ROAD MAP**



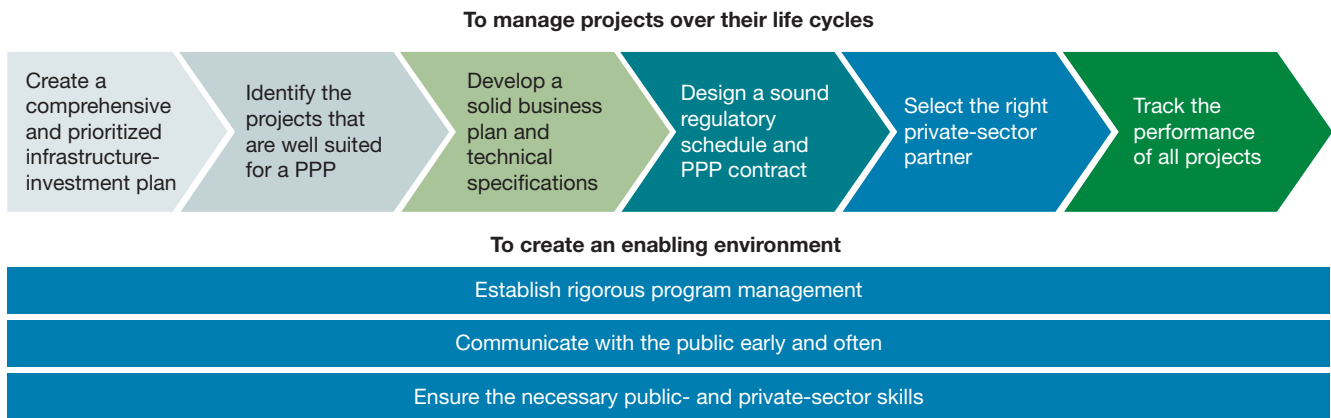
advisors/experts. The International Finance Corporation (IFC) can also provide advisory services directly. For example, IFC played a major role in the structuring and successful procurement of the recent WSS PPPs in Benin. The commercial close of four PPP transactions covering 10 piped water supply systems in three communes in Benin was reported in October 2014.

**PPP Project Identification, Selection, and Screening**

Where a government is embarking on a WSS PPP initiative, the first stage of the PPP process is to identify and

screen projects for their PPP potential. Potential PPP projects may emerge from sector master plans (national, regional, etc.) or from a bottom-up solicitation process. Where PPP is new in the sector or is still in the pilot stage, the government may choose to seek PPP proposals from reform-minded local governments (and possibly private sector proponents) and then submit them to a transparent screening process. Incentives may be offered by the government to attract viable PPP proposals (e.g., project preparation/procurement support, concessional financing, guarantees, subsidies/capital grants, land, and tax incentives) so as to reduce risks and encourage better

**FIGURE 4.2: GOVERNMENT BEST PRACTICES FOR PPP MANAGEMENT**



Source: Adapted from Airoidi et al 2013.

overall financial proposals from the private sector.

In Vietnam, for example, the government’s Ministry of Planning and Investment is keen to identify WSS pilot PPP transactions as part of a broader sector reform and PPP initiative to attract private sector finance and technical/management expertise. The government sought PPP proposals from provincial governments and their WSS utilities as well as from private sector proponents. Part of the incentive for proposal submission was support for PPP project preparation and procurement. A two-stage evaluation process was developed (see figure 4.3).

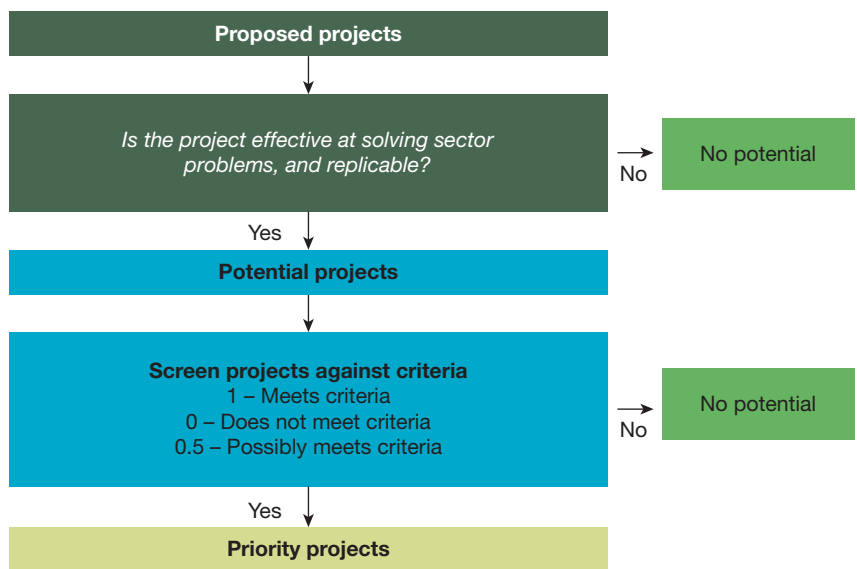
**Stage 1:** A precondition is that the private sector’s participation will be effective at solving the sector’s most significant problems. The selected pilot transaction should be one from which government authorities can learn lessons and replicate in other provinces to address similar problems.

**Stage 2:** The project should satisfy three conditions:

- **The project conforms to policy** in at least one of the following ways:

- The project conforms to the sector’s master plan or socioeconomic development plan of the province.
- The project is in the list of prioritized projects issued by the provincial government.
- The project has been proposed by the local government to the Ministry of Planning and Investment to request for inclusion of the project in the official list of PPP projects.

**FIGURE 4.3: TWO-STAGE EVALUATION PROCESS**



Source: Adapted from consultant’s report for Vietnam Ministry of Planning and Investment: Report on Pilot Transaction Selection. 2014.

➤ **The project is PPP viable:**

- **Legal viability:** The project meets legal requirements on investment and the private investor is allowed to implement the project.
- **Commercial viability:** The project can generate sufficient revenue to cover the costs and provide a rate of return sufficient for the private sector to consider it to be commercially viable.
- **Economic viability:** The expected economic benefits (including social benefits) exceed the expected economic costs.
- **Fiscal viability:** The government has sufficient resources to provide any required capital or operating subsidies.
- **Market has sufficient capacity and appetite:** There is sufficient market interest to attract and select a private party that has the capacity and resources to deliver the project.
- **The present value of the project's costs is at least \$10 million.** The government cannot achieve value for money if the project scale is less than \$10 million.<sup>8</sup>
- **The provincial government shows political commitment.** The local government is willing to implement the project as a PPP and commits to take risks and responsibilities under the PPP contract.

➤ **The project is well prepared to move to the transaction preparation phase:**

- Projects that are still at a pre-concept stage were deemed to be not ready for assessment and implementation.

### PPP Project Structuring and Appraisal

Once a priority PPP project has received initial approval it is then developed and appraised. Appraisal and structuring should be an integrated and iterative process, with projects cycling between structuring and appraisal until a fully appraised and structured project is produced. The end result is often called a *business case* or a *PPP feasibility study*, and is typically the basis for approval to proceed with the PPP transaction. The cost of these structuring and appraisal activities can be significant, but even for smaller-scale PPPs

it is important for the project development team to undertake technical, financial, commercial, and legal due diligence to assess the feasibility of the project's long-term success and sustainability. This section will highlight the key aspects of WSS PPP project structuring and appraisal, recognizing that other sources will cover these topics in more detail.<sup>9</sup>

### PPP Project Appraisal

The core building blocks of any systematic PPP project appraisal are:

➤ **Market analysis and project scope:** These assess the need for and appropriate scope of the project, building on the work already done at the identification, selection, and screening stage. This would include:

- **Perform a needs analysis:** Does the project meet basic consumer needs? Does it contribute to meeting the objectives of the sponsoring government authority (investment, service coverage, service quality)? Who will the consumers be (domestic, commercial, institutional, industrial)?
- **Perform an options analysis:** What is the best option for meeting the service need: an asset-light solution (network optimization/leakage reduction), existing assets (operations and maintenance), or new assets (new production capacity, network extension)?
- **Define the output(s):** What services will the project provide (bulk treated water, new connections, potable water, 24/7 supply)?
- **Estimate and forecast demand:** What level of demand is there for the outputs/services from the project, and how much are users willing to pay (what is the value of the demand)? Some countries have used national (cost) norms for demand calculations which led to over-sized projects (e.g., Vietnam). It is much better to estimate local demand in the project area based on actual consumption patterns and local cultural/social norms.

➤ **Social and environmental feasibility,** including the requirements for impact assessments and for the associated mitigations. This appraisal will be based on national

<sup>8</sup> Many countries set thresholds for minimum project size for inclusion in national PPP programs. Many WSS projects are relatively small and potentially less attractive for PPP, but this has not prevented significant numbers of rural/small town WSS PPPs being developed to meet public demand for improved services.

<sup>9</sup> A good starting point is module 3 of the IBRD, WB, ADB, and IADB 2014 Public-Private Partnerships Reference Guide 2.0.

laws and regulations, but will also be informed by applicable safeguards policy compliance requirements where donors' funds will be used.<sup>10</sup>

➤ **Technical feasibility** and technical parameters based on the market analysis, including specification of required facilities and scenarios of project size, for use in preliminary project design. In the WSS sector, the technical appraisal will include:

- Raw water source quality, quantity, and reliability (sustainable yield and flow availability);
- Drinking water quality standards (output and performance specifications);
- Network performance standards (pressure, continuity) and maintenance requirements;
- Treatment plant technology options and costs (life-cycle basis, both capital and operating) and optimization (especially for wastewater, where energy costs can be significant);
- Network routing, topography, and pumping stations;
- Connections: direct household, kiosks, and yard taps; and
- Outline and preliminary engineering design for the project.

➤ **Preliminary cost assessment** based on the technical specification and assessed project risks.

➤ **Financial analysis and due diligence**, incorporating a projected revenue structure (e.g., proposed tariff, required subsidies) and assessing any need for financial support from the public sector (to ensure that the improved services will remain affordable for the poor). Explicit reference should be made to the extent of commitment of public funding and budget support. A (cash flow) financial model for the project will need to incorporate:

- Revenues (volumes sold/treated, tariffs, customer classification, connection numbers, bill collection rate, connection fees);
- Operating costs (chemicals, energy—such as electricity or diesel—staff, offices, and other overheads);

- Capital investments (treatment, networks, pumps, connections, IT/computer hardware);
- Financing (equity, loans (tenor, interest rate, grace period), capital/revenue subsidies);
- Profitability (returns on equity or investment, operating and net margins);
- Cash flow, profit and loss account, and balance sheet (as outputs); and
- Sensitivity analysis on key inputs (volumes sold, tariffs, energy costs, construction cost overruns, interest rates).

➤ **Economic feasibility:** Assessment of overall net economic benefit of the project, incorporating estimated project benefits and costs including nonmarket factors such as those from the social and environmental assessment.

➤ Other PPP due diligence activities, including **value-for-money** (VfM) analysis if sufficient reliable data are available.<sup>11</sup>

➤ **Project implementation schedule**, including an outline of the proposed PPP procurement and award process through to technical and financial close, an outline of the construction schedule and target operation date, and any phasing that is planned for project extensions or ongoing development.

### PPP Project Structuring: Understanding Risk

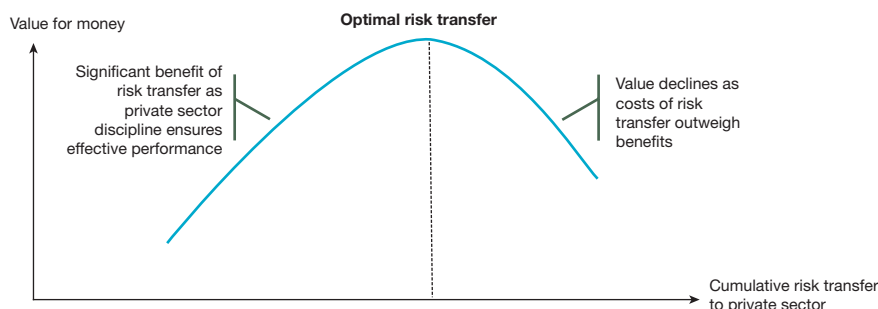
The core activity in structuring a WSS PPP is identifying and allocating risks and responsibilities. This allocation will ultimately be reflected in the terms of the PPP contract. Risk studies will also help refine the PPP model selection process. Figure 4.4 illustrates the challenge in structuring a PPP project, which is to find the optimum level of risk transfer to the private operator: where public value for money is maximized.

In reality, this optimum point—where public value for money is maximized—is conceptual, since risk allocation is inevitably a pragmatic compromise over which party (the

<sup>10</sup> In the case of the World Bank Group: OP 4.03—Performance Standards for Private Sector Activities: The eight IFC Performance Standards have been adopted by the Bank as the World Bank Performance Standards for Projects Supported by the Private Sector (“WB Performance Standards”) for application to Bank support for projects (or components thereof) that are designed, owned, constructed and/or operated by a Private Entity.

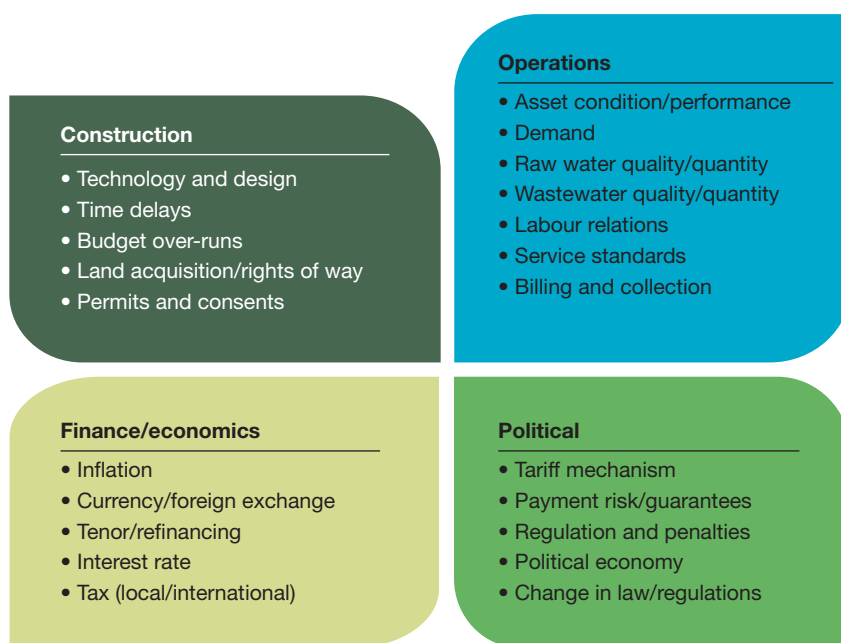
<sup>11</sup> The use of VfM analysis to inform PPP decision making is difficult and can be controversial. Practitioners face some significant methodological challenges and, given the poor quality of data typically available for (smaller-scale) WSS PPPs, careful consideration should be given to the benefits of undertaking rigorous VfM analysis. See World Bank and PPIAF 2013. Recognizing the capacity and data constraints in low income countries, attempts are being made to develop simplified, practical, and effective VfM approaches. See Pérez et al. 2015.

**FIGURE 4.4: OPTIMAL RISK TRANSFER**



Source: Delmon, Victoria. 2014. "Structuring Private-Sector Participation (PSP) Contracts for Small Scale Water Projects." Water and Sanitation Program, Washington, DC: World Bank.

**FIGURE 4.5: WSS PPP KEY RISK FACTORS**



Source: The author.

Much has been written about risks in the PPP literature, which has typically taken a standardized approach more suitable for large-scale infrastructure projects (power and transport sectors) involving international commercial finance and international operators and investors. For such projects, key issues include foreign exchange risks (local currency revenues versus foreign currency-denominated purchases [plant and equipment] and loan repayments, currency convertibility), dispute resolution (international arbitration), applicability of international law, and so on, which do not typically feature in smaller-scale domestic WSS PPP projects. This section will focus on the key risks in WSS PPPs,<sup>12</sup> and key risks that need to be evaluated and allocated in smaller-scale WSS PPPs.

Figure 4.5 highlights the key risk factors that need to be considered in the design and implementation of a water PPP. The relative importance of these risks will vary from project to project according to local and national circumstances, and the PPP model being adopted:

- In a management contract, the focus is more likely to be on the operations risks;
- In a DBO/DBL type contract, the focus will be on both construction and operations risks;
- In a BOT/concession type arrangement, the focus will extend to construction, operations, and financial risks; and
- Political risks will apply to all PPPs, but typically increase with project size and increasing depth of

government or the private operator) is willing and able to bear (or share) a particular risk. None the less, this is a fundamental concept that lies at the heart of structuring (and negotiating) a PPP project structure.

<sup>12</sup> For more detailed discussion on WSS PPP risks see chapter 6 of Public Private Partnerships in the Water Sector, Mandri-Perrot and Stiggers 2013, and Approaches to Private Participation in Water Services: A Toolkit, chapter 6 (World Bank 2007).

private operator risk taking (demand risk and financing risk).

Good practice is to draw up a **risk register/matrix** itemizing all the key risks, identifying potential mitigation measures, and allocating the risk to the government or private operator.<sup>13</sup>

### DESIGN AND CONSTRUCTION RISKS

- Where the private operator is responsible for **technology and design**, and for **construction budgets and timetables** (DBO/DBL and BOT PPPs), these risks are usually allocated to the private operator who can mitigate them through professional construction management, using turnkey or EPC-type contracts and/or taking out construction insurance (e.g., delay in start-up insurance).<sup>14</sup>
- Risks associated with **land or site acquisition**, **(RoW) rights of way or access**, and **construction permits and consents** are typically under the control of government agencies and so these risks are usually allocated to the government. Many government agencies are slow and inefficient in processing approvals for these activities, but delays in approvals can lead to increased costs and lost revenues to the private operator, and so this may be a significant risk for the government if financial penalties are attached to their delays under the PPP contract.

### OPERATIONS RISKS

- Where **existing assets** are to be managed by the private operator (for example, in affermage, lease, concession, JV/divestiture PPPs), the location, condition, and performance of underground assets is often unknown or uncertain. This uncertainty has implications for the private operator's ability to meet service standards and its financial liabilities (O&M, rehabilitation costs). Mitigation and risk allocation can therefore be complicated.
- **Demand risk** is a bundle of risk factors: population growth and consumption habits, housing

development policy, tariffs, and willingness to pay/affordability, connection fees, network extensions, raw water availability, treatment capacity, and so on. This risk is significant where the operator relies on tariff income (concession, JV, lease, affermage) and the risk is often shared in some way. In the La Paz-El Alto concession (Bolivia), initially projected demand growth failed to materialize, resulting in revenue shortfalls for the concessionaire (Aguas del Illimani). The regulator did not permit an associated tariff review, resulting in significant financial stress for the operator. For bulk supply and treatment BOT PPPs, it is common for there to be a "take-or-pay" provision in the contract, whereby the government guarantees it will purchase the plant's capacity volume irrespective of actual demanded output.

- Access to a sustainable **raw water** source is critical. The technical feasibility appraisal should have evaluated this risk, but there may be additional risks: the issuing of abstraction permits/licenses; the impact of droughts or pollution; potential competition with other users, which can evolve over time (irrigation, aquaculture, hydropower); and political boundaries (where the source is located in a different jurisdiction from the PPP project—this was identified as a key issue in the World Bank's Bandar Lampung water supply PPP in Indonesia, which is still under preparation). This risk is typically allocated to the government, which is responsible for water resources/environmental management and regulation.
- Where there is a brownfield PPP, the private operator may assume responsibility for managing the incumbent workforce. The government will need to consider whether staff retain public sector employment contracts, how to manage potential redundancies and pension liabilities, and so on. The private operator will need to be sensitive to public sector customary work practices and plan for staff training and capacity building; it may wish to choose which staff it takes on from the public service provider and bring in its own management team or experts.

<sup>13</sup> Annex 2 of Mandri-Perrott and Stiggers 2013 provides a comprehensive risk matrix for WSS PPPs.

<sup>14</sup> An engineering, procurement, and construction (EPC) contract is one under which the contractor designs the installation, procures the necessary materials, and builds the project. Typically the contractor carries the project risk for schedule as well as budget in return for a fixed price.

**Industrial relations** can be a major risk during the transition from public to private service provision.

- **Service standard** targets will be specified in PPP contracts. The risks of operational performance (water quality, service continuity, service coverage, billing, and collection) is usually allocated to the private operator; this is its core business.

### FINANCE/ECONOMIC RISKS

- In domestic PPP projects, where private finance is required (BOT, concession, and JV), the financing is typically arranged through local financial institutions in local currency. Where loans are arranged on a floating rate basis (that is, where the **interest rate** will vary with movements in government set base/prime rates), the operator's financing costs will be uncertain and a risk to the operators profitability. In some cases, the risk can be mitigated by taking out fixed rate loans or through interest rate hedging (swaps), but this is not always possible in emerging markets. In some projects (e.g., Jakarta and Manila concessions and Bangkok BOTs), this risk is shared using "pass-through" provisions in the PPP contract (tariffs/fees adjusted up or down in line with actual interest costs).
- All PPPs will have to manage the impact of **inflationary** pressure on operating costs (cost of chemicals, power, staff, pipes, consumables, and rentals), which are outside the control of the operator. This risk is usually mitigated by passing these cost increases to the customers through tariff increases—through tariff or fee inflation indexation based on government published inflation indexes: using the consumer price index or the retail price index is the simplest and most common, some PPPs use a combination of specific indexes (such as chemicals or labor indexes) and actual electricity tariff increases. A common cause of PPP failure is government refusal to implement an agreed tariff, or failure to provide for this risk at all in the PPP contract. Best practice is to have automatic, frequent, and relatively small tariff adjustments (e.g., annually) rather than large periodic adjustments (every 3 to 5 years), which tend to be universally unpopular—with politicians and customers alike.

### POLITICAL RISKS

- Most political risks result from the government failing to honor its PPP contractual obligations: not implementing tariff increases, not paying fees, regulatory failures (e.g., pollution), public investment failures (e.g., raw water source not developed or protected), political interference, or not issuing permits and consents. Mitigation measures include government guarantees. For larger or programmatic PPPs it may be possible for the operator to access political risk insurance/guarantees from IFIs such as the World Bank Group's Multilateral Investment Guarantee Agency.
- **Changes in laws and regulations** (e.g., new water quality standards or tariff-setting regulations) can impact the operator's costs and ability to meet contractual obligations. Many PPP contracts provide for financial compensation for the impacts of such changes.

### FORCE MAJEURE

This term relates to uninsurable risks associated with external events beyond the control of the parties to the contract, such as natural disasters, war, or civil disturbance. PPP contracts should have a specific clause to provide for such risks. Where a force majeure event lasts for an extended period, contract termination is the common end point.

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#### *Common Pitfall: Poor Risk and Feasibility Assessment*

*The cost of structuring and project appraisal can be significant but it is important to accurately assess the long-term sustainability of the project. Two of the most common and disruptive pitfalls of this phase are related to the difficulty to forecast demand behavior and to obtain government guarantees to implement agreed tariff increases.*

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### Designing the PPP Contract

The design of the PPP contract(s) will reflect all the decisions made to date on the PPP model as well as the approval

of the recommendations and outputs of the structuring and appraisal process.

Recognizing the need to manage transaction costs for smaller-scale PPPs and the common lack of technical expertise in government on PPP contracts, WSP has developed a Toolkit on Structuring Private-Sector Participation Contracts for Small Scale Water Projects. The purpose of this toolkit is to provide guidance to governments and utilities that intend to contract private operators and sector professionals assisting such authorities on how to structure a contract and bidding documents for private sector participation (“PSP contract”) in small-scale water projects.<sup>15</sup> The toolkit focuses on small-scale water schemes typically serving a settlement with a population from 1,000 to 10,000—with sufficient density to warrant a network solution but that does not generate enough scale for integration into a centrally managed network. The toolkit was based, to a large extent, on a review of over 20 PPP contracts from Latin America, Asia, and Africa.

This toolkit includes a sample BOT/concession contract and sample term sheets for DBO and O&M type contracts that offer detailed guidance on drafting PPP contracts. Key provisions that must appear in a contract include:

- Term—how many years will contract last;
- Inventory of assets;
- Obligations for capital investment, rehabilitation and renewal, and maintenance and repair;
- Service standards, performance targets, penalties/incentives, and tariff mechanisms;
- New connections obligations and the right to disconnect;
- Contract monitoring and regulation, and accounts and reporting;
- Asset ownership; and
- Dispute resolution and termination.

### How to Deal with Imperfect Data

A major challenge in designing brownfield PPPs is how to deal with imperfect data. This issue has been recognized for

many years (Babtie 2004), but has recently resurfaced for governments and practitioners looking for more innovative, more flexible PPP contract structures<sup>16</sup> to deal with the common situation where PPP-minded governments have no accurate data on underground asset location, condition, or performance.

Flexible, multiphased PPP contracts are emerging as a potential option, with performance-based obligations increasing as better data become available. Targets and standards can be revised during the early years during which baseline data are revised, agreed investments are made, monitoring systems are established, and a light performance or penalty regime applied related investment and operating efficiencies. After an initial transition phase (five years), the parties can use the operator’s new and more accurate data as the basis to negotiate a new set of performance targets and associated investment plans. There should also be a break clause in the contract allowing termination for mutual convenience (no fault) at the end of the first phase.

Imperfect data has been recognized as a major PPP challenge in India (Kacker, Ramanujam, and Miller 2014), where initial assessments for rehabilitation were underestimated and committed public funds proved inadequate. Two cities, Khandwa and Mysore, were not prepared to mobilize additional funding, putting the PPPs at risk. Two PPP models for India have been proposed recently<sup>17</sup> to address this challenge. One has a JV structure, and the other is an innovative performance-based management contract.

**Phased Performance-Based Contract (PPBC):** This is a two-phase, 10-year full service management contract. The operator will be paid a fixed management fee and a performance fee based on the efficiency with which it uses a capital fund designed to bring customers up to a 24/7 service level. The performance fee could be a share of any cost reduction in achieving the target service levels. Alternatively, the contractor could be paid a set amount for each additional household (above a specified target number of connections)

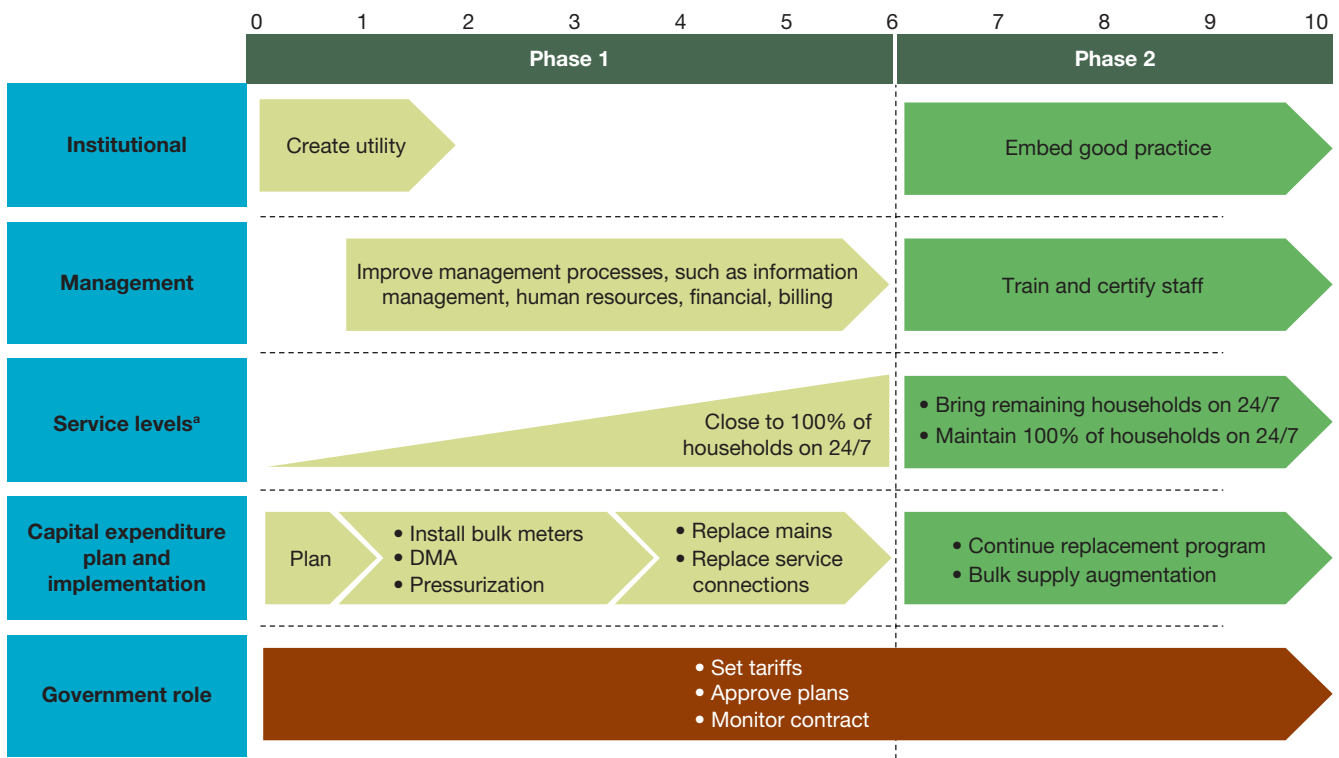
<sup>15</sup> See also chapter 10 of Mandri-Perrott and Stiggers 2013 on Improving Key Contract Provisions, which covers additional provisions more applicable to larger-scale WSS PPPs with international operators, investors, and financiers.

<sup>16</sup> See chapter 13 of Mandri-Perrott and Stiggers 2013 on Dealing with Imperfect Data.

<sup>17</sup> Ehrhardt, David, Riddhima Gandhi, Josses Mugabi, and William Kingdom. 2015. Evaluation of Water Services Public Private Partnership Options for Mid-sized Cities in India. Internal World Bank Report, Washington DC



**FIGURE 4.6: EVOLUTION OF ROLES UNDER A PHASED PPP CONTRACT**



Source: Ehrhardt, David, Riddhima Gandhi, Josses Mugabi 2015.  
 a. Service levels are suggested and may be modified depending on the situation.

provided with 24/7 service by a set date. During Phase 1, the operator will help create a new utility through a corporatization process and will develop and implement a NRW management program as it gains knowledge on the condition of the distribution system.

Proceeding to Phase II—which would start in Year 6—will be contingent on satisfactory performance in Phase I. More specifically, the operator will have to meet the minimum standards determined at the start. If they fail to do so, the city government can decide to terminate the contract. Figure 4.6 outlines how roles would evolve over time.

The PPBC model is still at the concept stage, but it offers a potential contractual approach to dealing with data imperfection through contracting with the private sector to

improve the institutional arrangements, improve management processes, improve services, and optimize investment planning and implementation.

### Managing the PPP Transaction

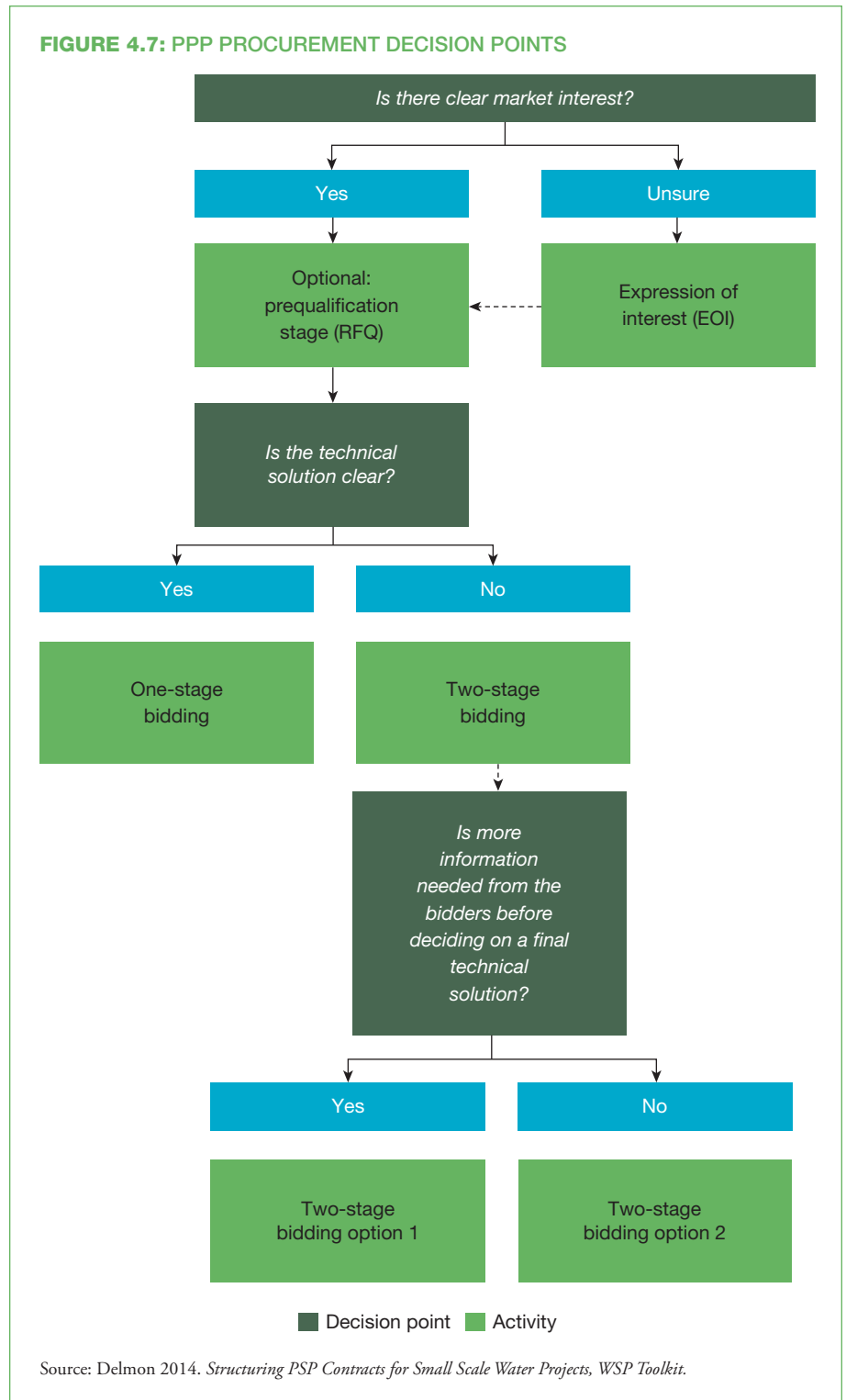
The aim of the transaction or procurement stage of the PPP process is to (1) select a competent operator (with requisite technical and operational experience and the requisite financial and management capacity), and (2) find the most effective and efficient solution to deliver the project (technical and value for money). It is recommended that PPPs be procured on a transparent, competitive basis. The key quantitative bidding variable is typically the average tariff customers will pay, or the amount the government will pay (fee, subsidy, and so on), for the specified assets and services provided.

Much has been written about PPP procurement, often focused on larger and more complex transactions.<sup>18</sup> For smaller-scale PPPs, especially if minimal operator financing is required, this process should be kept as simple as possible to minimize transaction costs and encourage bidder participation. Figure 4.7 illustrates the typical decision points and steps in deciding on the most appropriate procurement strategy for a PPP.

This process will need to be informed by any applicable national procurement or PPP laws. If IFI or donor funding is involved, then the policies and guidance of these institutions should also be considered.<sup>19</sup>

Section 1.5 of the WSP Toolkit: Structuring PSP Contracts for Small Scale Water Projects provides a useful overview of the PPP procurement process, particularly for smaller-scale transactions. Depending on project size, the government should develop a plan to market the upcoming transaction (locally, nationally, or internationally) to stimulate bidder (and lender) interest and gauge bidder appetite and concerns. The government is likely to be interacting with bidders as they prepare proposals, so it will need to allocate appropriate resources to manage these interactions (e.g., among specialist and support staff, budget, accommodation, IT systems, transaction advisors) as well as the bidding process: preparing bidding documents and

**FIGURE 4.7: PPP PROCUREMENT DECISION POINTS**



<sup>18</sup> See module 3 of the Public-Private Partnerships Reference Guide 2.0 (IBRD, WB, ADB, and IADB 2014) and chapter 8 of Public Private Partnerships in the Water Sector (Mandri-Perrott and Stiggers 2013).

<sup>19</sup> The World Bank is currently preparing a new procurement framework for PPPs that is more closely aligned with the steps of a typical PPP structuring and implementation process.

data room,<sup>20</sup> bidder conferences, bid evaluation, negotiation, and contract award.

### Managing Unsolicited Proposals

In the smaller-scale end of the PPP market, typically dominated by domestic operators and contractors, unsolicited proposals (USPs) and direct negotiations are relatively common. In urban, small town, and periurban environments, public service providers often cannot meet demand and private operators may move in opportunistically to meet this latent demand.

A recent study by PPIAF (PPIAF 2014) found an increasing trend in the use of USPs, but cautioned that some government officials wrongly believed that USPs can deliver public infrastructure without any cost to government or the public at large, seeing USPs as a short cut to creating much-needed infrastructure. The study found that USP-initiated PPPs faced many challenges, including, among others, poor quality of resulting infrastructure assets/services and lack of competition for and within markets.

While these USP PPPs may sometimes be stop gap measures to meet initial demand, they also raise issues regarding transparency and governance. Furthermore, they fail to offer viable business models for scaling and attracting private finance. As a result, WSP is working with LGUs and the national PPP Center in the Philippines to build institutional capacity for developing PPPs that can be competitively procured. This includes access to business development services to develop viable and bankable PPP projects. This approach is helping create competitive markets for smaller-scale PPPs through working on the supply side (PPP pipeline development and improving access to finance).

Many countries are developing USP policy frameworks and setting out procedures for managing USPs, including procedures for introducing competition and reward systems (such as Swiss challenge, bonus system, direct compensation, automatic short-listing).

### Communication and Public Outreach

Independently of whether services are provided by public or private entities, it is important for the government to engage all stakeholders and communicate both the risks and rewards of reform options.<sup>21</sup> In cases where engaging the private sector is under consideration, the government should first gauge, such as through opinion research, the level of consumer/public support for private sector interventions or investments to provide water services. Each stakeholder engagement program will need to be tailored to the local context.

Figure 4.8 shows a framework for developing a strategic approach to communications.

Engagement should begin early in the process and continue through to closure and even during implementation. It should also work on several levels: at the policy or key decision makers' level, the level of the enterprise, among the stakeholders specifically affected, and among the public at large. The project structure should incorporate mechanisms that ensure ongoing engagement with the public and customers.

### Contract Management and Regulation

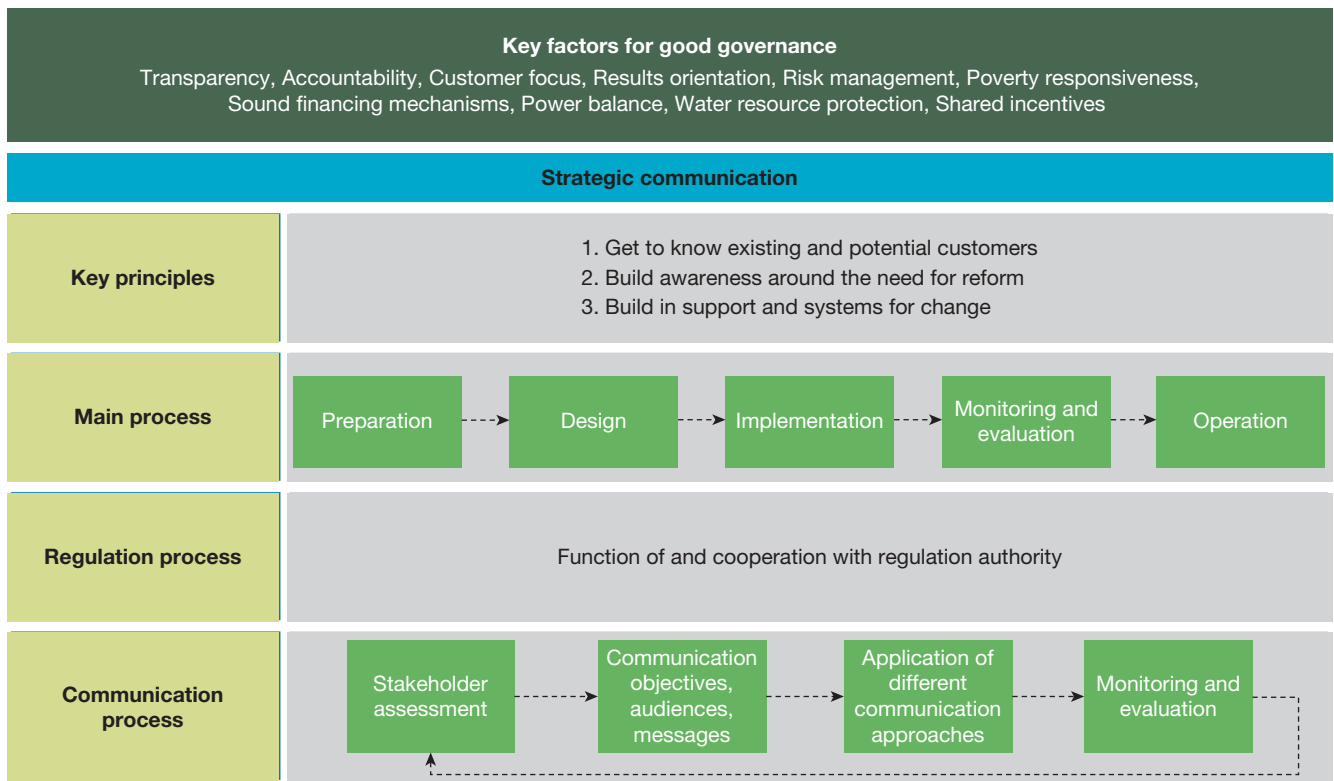
Designing robust and transparent institutional and process arrangements for managing and regulating the PPP will be critical if governments are to ensure PPPs deliver public value. Figure 4.9 illustrates how the regulation of PPPs needs to be embedded in the PPP framework, taking a holistic perspective of all stakeholders (citizens, government, and private operators/investors) and their interests to ensure long-term sustainability.

Figure 4.9 also highlights that economic regulation lies at the core of WSS PPP regulatory frameworks, regulating prices and service quality. At its simplest, economic regulation provides a partially independent but informed view of what might be acceptable costs and appropriate prices for water services relative to desired standards. This regulatory approach has developed particularly in the context of the

<sup>20</sup> Data rooms (physical or online) are used where the government wishes to disclose a large amount of confidential data to proposed bidders. Bidders and their advisers will visit it in order to inspect and report on the various documents and other data made available.

<sup>21</sup> Chapman, Karla, Tracy Miller and Paul Mitchell. Communication for Water Sector Reform: Obstacles and Opportunities, Operational Communications Learning Note No. 1, External Affairs, World Bank, 2012.

**FIGURE 4.8: FRAMEWORK FOR DEVELOPING A STRATEGIC APPROACH TO COMMUNICATIONS**



Source: Chapman, Karla, Tracey Miller and Paul Mitchell. 2012.

need to ensure that new private operators do not abuse their monopoly position in the drive for additional profits (Franceys and Gerlach 2008).

It should be recognized that the regulatory framework needs take into account the context of the country’s WSS sector (e.g., quality/reliability of financial management and reporting, information available on asset location and condition). As such, the framework is likely to evolve with time. In Colombia, for example, the framework evolved as information and capacity developed, with the regulatory focus graduating from financial strengthening to governance and operational efficiency to asset management planning and service quality (Andres and Marin 2010).

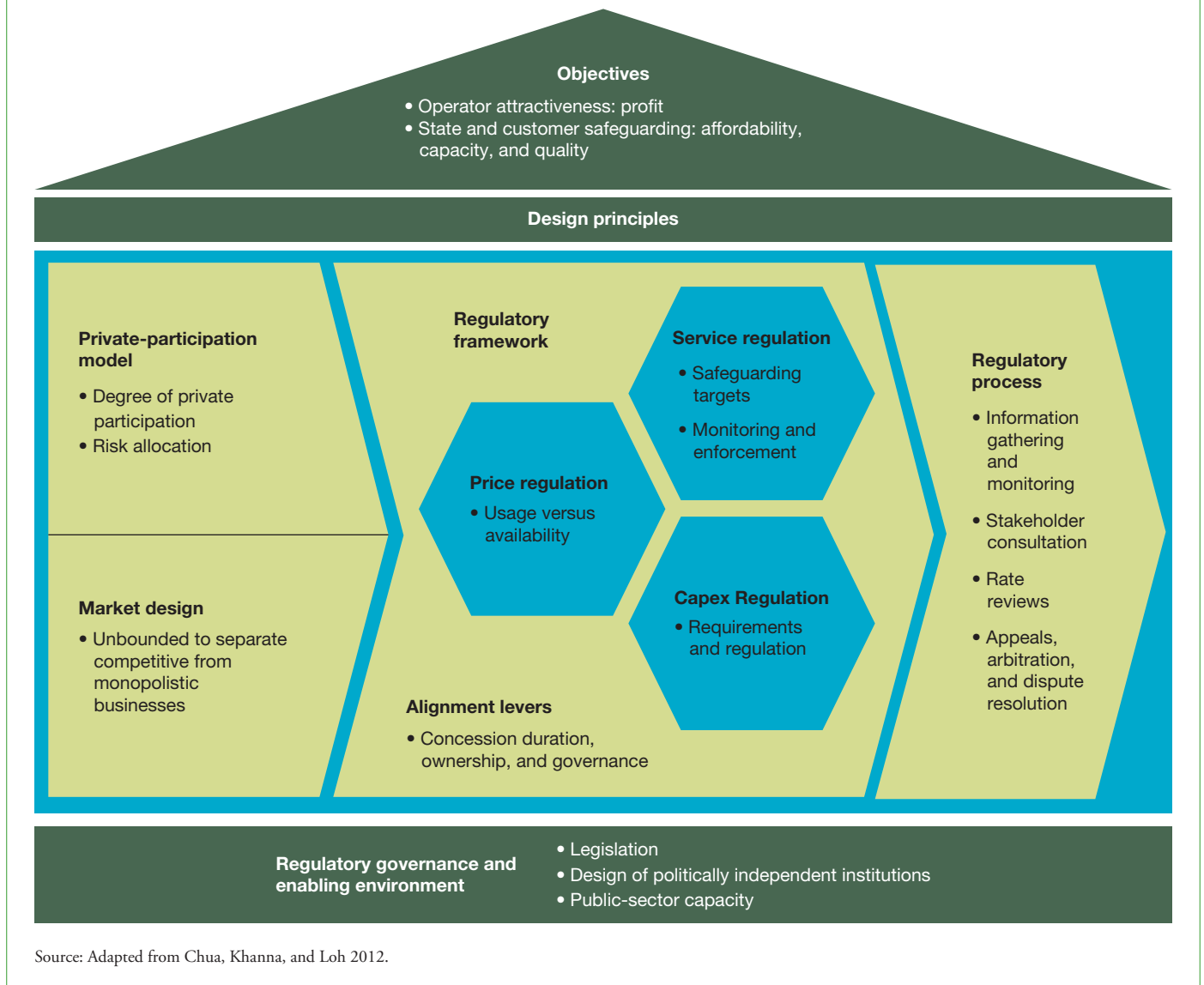
In Cambodia, WSP is working with the government to introduce a licensing and registration process to bring the hundreds of existing small-scale private operators under

a new emerging regulatory framework. About one half of water operators do not have formal licenses, and 60 percent of water operators are not formally registered as businesses. The process for obtaining licenses is often unclear. However, experience has shown the benefits of the licensing and regulatory process since licensed operators in Cambodia tend to:

- Be larger and deliver more water;
- Have more access to experts;
- Invest three times as much;
- Have a treatment plant; and
- Charge lower tariffs (but higher connection fees).

As a result, the regulatory framework is evolving to encourage the issuance of longer-term licenses and clarify procedures for issuance, renewal, suspension, and revocation, as well as encouraging informal operators to obtain licenses. Cambodia has a market with dynamic entrepreneurs who

**FIGURE 4.9: PPP REGULATORY FRAMEWORK**



see the poor as key customers and want to partner with government on solutions.

To achieve its goals, an economic regulator needs to perform a subtle and complex balancing act between achieving the outputs desired by customers and society (low-cost, high-quality piped water services for all) and the inputs that customers and governments are willing to contribute (connection fees, water tariffs, taxes, loans, subsidies, and grants). All too often the overwhelming task of a WSS economic

regulator is to mediate between the high expectations of society, as filtered through the politicians and policy makers, with the equally high reluctance to allow a reasonable price increase. If the PPP contract is not balanced and well structured, with good political and public support, then this task can become almost impossible and the risks of failure rise dramatically.

Planning for PPP management and regulation should not be left as an after-thought post-procurement. Bidders will

want to understand how the PPP will be managed—who will be responsible for day-to-day contract management, who will approve tariff increases, who will manage disputes, and who will report contract performance to the public. Responsible bidders will also want to see that they have a competent and professional government counterparty that they can work with during the life of the PPP. If the government fails to give bidders such certainty they are likely to start pricing regulatory risk into their bids, increasing costs and eroding value for money.

Where a government is initiating or piloting PPP in the WSS sector, it may be sufficient to regulate the PPP at the local government level. But as the number of PPPs increase, the government will need to think about institutionalizing sector PPP regulation and standardizing arrangements to capture regulation economies (e.g., streamlining monitoring and reporting requirements and benchmarking performance).

Typical functions of a WSS economic regulator include monitoring and reporting technical and financial performance; performance benchmarking; tariff setting, or

creating a tariff setting methodology and monitoring its application; and stakeholder consultation (with customers and civil society). In a PPP context, the regulator will monitor and enforce the provisions of the contract. This can include monitoring or auditing and reporting levels of service provided (e.g., water quality, quantity supplied, new connections, network expansion, continuity, pressure, leakages, repair times, and customer complaints); disconnection policy; price and tariff setting and reviews (annual indexation, periodic reviews, and subsidy policy); dispute resolution; sanctions (remedies and penalties for nonperformance); customer and public consultations over services/performance/standards, complaints, and asset management plans (investment and expansion plans), tariffs, equity and pro-poor policies, and so on.

Regulatory models typically fall under four categories (Ehrhardt et al. 2007; World Bank 2013):

- Separate regulatory agency with a licensing regime, or regulation by organization (Castalia Strategic Advisors 2006) (e.g., Australia, England, and Wales, the United States of America).

#### CHECKLIST 4.1: Implementing the PPP

- Government has dedicated resources and capacity to manage PPP projects over their life cycle.
- Projects are identified and screened for PPP potential.
- Stakeholder opinion research is conducted to gather data on stakeholder perceptions of the PPP and shape communications.
- Stakeholders are consulted and expectations managed from the earliest stages in the PPP cycle.
- Risks and rewards of the PPP are communicated to all stakeholders through the media, educating the public, and/or presenting case studies.
- The appropriateness of the private sector's participation in the project is confirmed.
- The selected pilot transaction is one that can be replicated in other locations to solve similar problems.
- The project conforms to policy.
- The project is PPP viable.
- The project is well prepared to move to the transaction preparation phase.
- The PPP project is appraised through market analysis, assessment of project scope, social and environmental feasibility, technical feasibility, preliminary cost, financial analysis, economic feasibility, and value-for-money.
- The PPP project is structured and negotiated, taking into consideration the risks and how they are allocated between parties.
- The PPP appraisal and structuring process produces a robust business case or PPP feasibility study.
- The PPP contract is designed based on decisions made on the most appropriate PPP model.
- A competent operator is selected through the transaction or procurement stage.
- Robust and transparent institutional processes for managing and regulating the PPP are established.

- Regulation by contract (e.g., France, Germany, Uganda).
- Hybrid regulation – regulation by contract at the local level with a separate central regulatory agency (e.g., Colombia, Kenya, Senegal).
- Self-regulation (e.g., Cambodia, many LGUs in the Philippines).

Each model has its advantages and disadvantages, but a growing number of hybrid regulatory models with a regulatory body are operating alongside asset holders, or complementing regulation by contract. Designing an appropriate regulatory model will need to take into account existing sector performance and institutional arrangements for policy, coordination, monitoring, and oversight. Many countries have separate agencies responsible for urban and rural water and sanitation services, water resources, pollution control, drinking water quality, and so on. Thus, new regulatory arrangements for PPP management will need to be coordinated with these agencies.

It is important for governments to recognize that whatever model is selected, significant staffing and resources will be needed at both the local level and the central level if regulation is to be effective. Regional- (or state-level) regulatory offices may also be required where there is a large number of smaller-scale PPPs. New legislation may be needed in some countries to formalize the mandate and authority of the regulator.

Taking a PPP project successfully through the PPP cycle from origination to operation is challenging. Checklist 4.1 summarizes some of the key considerations.

## References

- Airoidi, Marco, Jeffrey Chua, Philipp Gerbert, Jan Justus, and Rafael Rilo. 2013. “How the Public Sector Can Drive Successful Public-Private Partnerships.” February 26, *bcg.perspectives*, Boston Consulting Group. [https://www.bcgperspectives.com/content/articles/public\\_sector\\_transportation\\_travel\\_tourism\\_how\\_the\\_public\\_sector\\_can\\_drive\\_successful\\_public\\_private\\_partnerships/](https://www.bcgperspectives.com/content/articles/public_sector_transportation_travel_tourism_how_the_public_sector_can_drive_successful_public_private_partnerships/)
- Andres, Luis, David Sisen, and Philippe Marin. 2010. Charting a New Course: Structural Reforms in Colombia’s Water Supply and Sanitation Sector. Washington, DC: World Bank.
- Babtie, Jacobs. 2004. “Operator Round Table: Study on Impact of Imperfect Data.” World Bank, Washington, DC.
- Castalia Strategic Advisors. 2006. *Case Studies on Water and Sanitation Sector Economic Regulation: Themes from Four Case Studies: Final Report to World Bank*. Washington, DC: Castalia.
- Chapman, Karla, Tracey Miller, and Paul Mitchell. 2012. “Communication for Water Sector Reform: Obstacles and Opportunities.” Operational Communications Learning Note 1, External Affairs, World Bank, Washington, DC.
- Chua, Jeffrey, Dinesh Khanna, and Hean Ho Loh. 2012. “A Win-Win Approach to Regulating Public-Private Partnerships. September 7, *bcg.perspectives*, Boston Consulting Group. [https://www.bcgperspectives.com/content/articles/public\\_sector\\_transportation\\_travel\\_tourism\\_built\\_to\\_last/](https://www.bcgperspectives.com/content/articles/public_sector_transportation_travel_tourism_built_to_last/).
- Delmon, Victoria. 2014. “Structuring Private-Sector Participation (PSP) Contracts for Small Scale Water Projects.” Water and Sanitation Program, Washington, DC: World Bank.
- Ehrhardt, David, Eric Groom, Jonathan Halpern, and Seini O’Connor. 2007. “Economic Regulation of Urban Water and Sanitation Services: Some Practical Lessons,” Water Sector Board Discussion Paper 9. World Bank, Washington, DC.
- Franceys, Richard and Esther Gerlach, editors. 2008. *Regulating Water and Sanitation for the Poor: Economic Regulation for Public and Private Partnerships*. London: Earthscan.
- IBRD, WB, ADB, and IADB (International Bank for Reconstruction and Development, World Bank, Asian Development Bank, and Inter-American Development Bank). 2014. *Public-Private Partnerships Reference Guide Version 2.0*. Washington, DC, and Mandalayong City: World Bank, ADB, and IADB.
- Kacker, Suneetha Dasappa, S. R. Ramanujam, and Tracey Miller. 2014. *Running Water in India’s Cities: A Review*

- of Five Recent Public-Private Partnership Initiatives, Water and Sanitation Program, Flagship Report.* Washington, DC: World Bank.
- Mandri-Perrott, Cledean and David Stiggers. 2013. *Public Private Partnerships in the Water Sector: Innovation and Financial Sustainability.* London: IWA Publishing.
- Pérez, Marcelo, Bernardo Weaver, Irene Portabales, and Lincoln Flor. 2015. *Exploring “Value for Money” Analysis in Low-Income Countries: Lessons Learned from a PPP Project in Tanzania.* Washington, DC: World Bank/PPIAF.
- PPIAF (Public-Private Infrastructure Advisory Facility). 2014. *Unsolicited Proposals – An Exception to Public Initiation of Infrastructure PPPs: An Analysis of Global Trends and Lessons Learned.* Washington, DC: PPIAF.
- World Bank. 2007. *Approaches to Private Participation in Water Services: A Toolkit.* Washington, DC: World Bank.
- . 2013. “Options Paper for Water Sector Regulation in the Philippines.” Draft. World Bank.
- World Bank and PPIAF (Public-Private Infrastructure Advisory Facility). 2013. *Value-for-Money Analysis—Practices and Challenges: How Governments Choose When to Use PPP to Deliver Public Infrastructure and Services.* Washington, DC: World Bank.
- WSP (Water and Sanitation Program). 2014. *Final Technical Assistance Report: Review of Urban Water & Wastewater Utility Reform and Regulation in Vietnam.* Washington, DC: World Bank.
- . 2015. “Strengthening Public Institutions in Engaging and Regulating Domestic Private Sector for the Provision of Water and Sanitation Services in Rural Growth Areas and Small Towns. Report.” WSP.

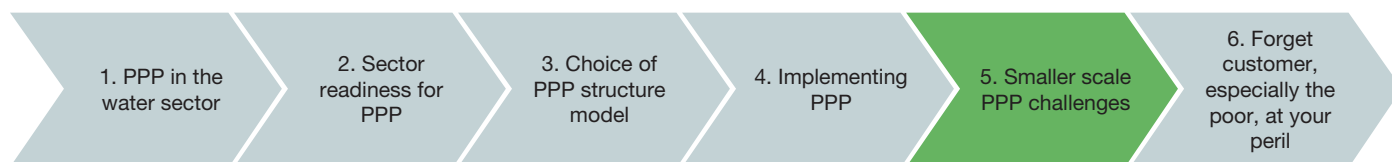


# V. Smaller-Scale PPP Challenges

## CHAPTER SUMMARY

This chapter explores the challenges of small-scale PPPs including the following:

- Benefits of clustering low- and high-performing areas
- Benefits of clustering to attract capable operators and access commercial finance
- Need for capacity building support to key stakeholders (lenders, operators, the government)



One of the major challenges in designing and developing smaller or subscale PPPs is how to achieve sufficient economies of scale (to improve sustainability and affordability) and attract experienced water operators and investors.

### Aggregation and Clustering

A number of countries (e.g., Argentina, Brazil, Bulgaria, Hungary, India, Mozambique, the Philippines, and Senegal) have looked at aggregation models to improve access to finance and attract private sector participation. *Aggregation* can be defined as the grouping of several municipalities into a single administrative structure for the provision of a particular service (ERM et al. 2005).

Aggregation should ideally be part of a broader sector reform strategy and should make technical, economic, and political sense with or without PPP. As such it can bring a range of benefits, including:

- Increased operational, procurement, and investment efficiency through economies of scale;
- Enhanced professional capacity—larger scale operators can afford to pay for specialist skills needed to sustain services (e.g., pump repair technicians and qualified finance, management, and customer services staff);
- Access to more sustainable water resources; and
- Cost sharing between higher- and lower-cost service areas to improve affordability.

Aggregating a number of smaller, less attractive service providers into a single large entity can attract higher capacity private operators and investors—attracted by the larger

demand base (of customers and revenues) and investment opportunities. Commercial lenders are also likely to find such larger entities more attractive, since their larger balance sheets and investment programs can often justify longer-tenor loans and reduced transaction costs.

Central governments may also choose aggregation PPP models to improve social equity. Aggregating less successful service providers with well-performing ones can help prevent private operators from “cherry picking” and focusing exclusively on the most attractive and profitable service areas, and can thus increase investment in less attractive poor communities.

Attention should be paid, however, to avoiding too narrow a focus on maximizing the attractiveness of a proposed PPP transaction and ignoring other important factors influencing service sustainability. In the Philippines, for example, although PPP has acted as an important driver in the creation of water districts, unequal access to water resources has been a factor in limiting the success of such processes. Political economy factors can also influence the structuring and success of aggregation initiatives. Vested interests such as mayors and operator management may resist aggregation if they have not been actively engaged in the process and their power and influence would be diminished.

Clustering can also be based around the PPP procurement process, bidding out a number of separate schemes under a single procurement (using the same bidding documents and bidding procedure) or through clustering a number of

schemes under a single contract. Key considerations on aggregation options and their feasibility include:

- Who will be the legally authorized contracting authority?
- Will the clustering be based on one contract (for many schemes) or on a batch of independent schemes? Can bidders bid for more than one contract or more than one individual scheme?
- Will assets remain with the original municipalities or be transferred to a new institution? Can they be pooled? Can one community supply another within the aggregated service area?
- Can the operator pool all the revenues from customers or do they need to be kept separate for each sub-scheme?
- How will tariffs be set? Can there be a single unified tariff for the new aggregated service area or will each community still set tariffs?
- How will operating budgets and investments be prioritized between aggregated sub-schemes?

In Niger, clustering has been in the procurement process, with numerous separate small water supply schemes bid out at the same time to minimize public transaction costs. Geographical clustering came about in Niger only at the operator level, where an operator won several successive tenders in the same area. One operator in Niger operates 24 schemes (WSP 2010). In Burkina Faso, Mauritania and Rwanda, however, several schemes were aggregated into a single contract for tendering. In Rwanda, where each scheme is relatively large, the average is three schemes per operator.

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### *Common Pitfall: Ignoring Service Sustainability*

*Attention should be paid to avoid too narrow a focus on maximizing the attractiveness of a proposed PPP transaction and ignoring other important factors influencing service sustainability.*

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In Senegal, the government is clustering rural schemes into three large-scale regional affermage PPP contracts. The Gorom-Lampsar (GL) Notto-Diosmone-Palmarin (NDP) cluster, for example, will group 14 rural WSS systems

supplying 23,000 cubic meters a day to a population of 350,000 people under a single affermage contract. Two of the key lessons from WSP's support in Senegal (WSP, 2015) are:

- The use of the affermage/lease contracts helps address concerns over tariff increases.
- Clustering small rural water supply schemes helps to decrease transaction costs and increases financial viability for the private sector.

Similarly, WSP and IFC's experience in Benin in supporting private sector participation in small-scale piped water schemes highlighted the need to form commercially viable clusters to increase private sector interest (Sylla et al, 2014).

In Benin, it was recognized that not every rural water system is commercially viable. Profitability will vary from one location to another depending on: (1) site topography and location (e.g., the availability of groundwater and the presence of alternative sources of water supply), (2) the level of income and geographical dispersion of the population, (3) the condition of the infrastructure, and (4) operation and maintenance costs. In addition, in a context where retail tariffs are higher in rural than in urban areas, it would not have been acceptable to increase user charges to cover the low profitability and lack of scale found in some areas.

During the structuring phase of the transaction, it was found that some sites would not be attractive on a stand-alone basis because of low profitability, frequent service disruptions, high water losses, and old equipment requiring frequent repairs. It was decided, therefore, to form commercially viable clusters comprising sites with different levels of profitability to facilitate (1) cross-subsidy between water systems, (2) sharing resources to optimize operating costs, and (3) bundling sites to create transaction packages of sufficient scale to attract experienced and financially robust operators.

This clustering approach received support from potential bidders because of its scale (customer base and investment requirement), and it received support from public authorities whose objective was to ensure equitable access to improved water services (including the people living in the least profitable sites).

## PPP Capacity Gaps

Chapters 2 and 4 noted the critical importance of both the public and private sectors having sufficient technical, financial, commercial, and legal capacity to develop and implement successful PPP initiatives. In smaller-scale PPPs, many of the firms interested in, or actually providing, water and sanitation services may need support to develop their technical skills to improve service delivery, as well as support for building general management skills.

WSP, through its Business Development Services activities, has recognized that, before developing smaller-scale PPP initiatives, governments often need to assess the private sector's capacity to prepare, bid for, and operate or finance PPPs; they also often need to consider developing programs to fill private sector capacity gaps.

In Cambodia, for example, many water operators lack the technical and business expertise needed to operate, manage, and expand their enterprises successfully. Strengthening capacity in the sector will help expand investment and improve service quality. WSP has recognized that organizations such as the Cambodian Water Supply Association (CWSA) can help facilitate networking, knowledge exchange, and cross-learning among water operators, and has been working with the government and development partners to encourage expansion of the CWSA to provide at-scale business development services to water operators. This has involved supporting domestic private water operators to professionalize their service delivery and improve their operational performance, and developing investment and business plans to support access to commercial finance. This will promote market readiness for mainstreaming PPP in Cambodia—building the capacity of private operators to bid for new licenses, thereby increasing competition and ensuring long-term sustainability of service delivery.

In the Philippines, WSP and the National Water Resources Board (NWRB), a government agency tasked with water resource regulation and economic regulation of private water service providers, have jointly developed an Accreditation of Technical Service Providers (ATSP) Program to institutionalize a sustainable capacity building program for water utilities. The ATSP Program targets small private water utilities requiring assistance on basic services such as (1) advisory

assistance to meet the regulatory requirements of the NWRB, (2) strategic business planning, (3) performance improvements, (4) review and rationalization of tariffs, and (5) improvements to systems for financial management.

## Access to Finance

Accessing finance is another major challenge for smaller-scale PPPs, and can limit the potential for service expansion and for PPP to go to scale. In Cambodia, 75 percent of water operators cited access to finance as an obstacle to further investment. Operators expressed concern about collateral requirements because commercial banks require land or building ownership to provide a loan. Only 23 percent of Cambodian water operators have a line of credit or loan from a financial institution. Most investments are financed with cash on hand. This is not an unusual situation for smaller-scale private operators. Clustering can help, but thought should also be given to designing PPP initiatives to improve access to finance, which would greatly improve market readiness.





When looking to improve access to finance it is important to recognize and work with the three key stakeholders in building a market place for WSS commercial finance: the borrowers (service providers), lenders (typically local banks), and government (which shapes the regulatory and legal environment and can play an important role as co-financiers with banks).

Figure 5.1 highlights some of the stakeholders' critical constraints from the demand and supply sides of WSS finance, and proposes a range of interventions and instruments that together can help unblock the flow of finance.

A great example of adopting this holistic approach to WSS finance for smaller-scale operators is the Kenya community water supply microfinance initiative, which addressed the problem of small community-based water projects that lack access to necessary funding. In 2006, WSP began to work with a local microfinance institution, K-Rep Bank, to explore structures under which a commercial financier would be interested in providing loan finance to small community-based water providers.

K-Rep Bank introduced the Maji ni Maisha community loan program (Advani 2010) for communities with high

**FIGURE 5.1: CRITICAL CONSTRAINTS FOR STAKEHOLDERS IN WSS FINANCE**

Constraints affect three critical water stakeholders			
Stakeholder	Government	Lenders	Utilities/Borrowers
			
<b>What is the critical constraint?</b>	Local and national laws and policies hinder rather than catalyze loans to water projects	Lenders perceive too much risk and lack the market intelligence to assess the technical viability of projects	Borrowers face capacity constraints, especially around loan management and internal controls
<b>What will help overcome these constraints?</b>	Focused policy reforms that encourage lending; technical assistance to governments	Partial credit guarantees, direct lending, subsidies, technical assistance, credit assessments	Technical assistance from governments, donors, and other utilities

Source: WSP 2016.

willingness and ability to pay for clean water access. The program offers a blend of commercial finance and an output-based subsidy that was developed specifically to finance water infrastructure. K-Rep also benefited from a partial credit guarantee provided by USAID’s Development Credit Authority to cover the construction period. The typical value of investments ranges from \$75,000 to \$170,000. Under the program, CBOs can borrow up to 80 percent of the cost of infrastructure rehabilitation and development. The remaining 20 percent of the project cost is financed by equity from the CBOs. Once a project is successfully completed, an output-based aid subsidy of 40 percent of the total project cost is extended to the community and used to repay half the loan. Additionally, the bank offers technical assistance to make the projects more viable and provides a small grant of \$9,000 to help communities cover the cost of consultants hired for the development of a feasible project proposal. If the project gets approved, K-Rep offers a subsequent grant of \$12,600 to pay for consulting oversight of project construction and management systems set up.

From 2006 to 2014, K-Rep Bank and WSP worked together to make 35 loans valued at over \$3 million for water projects across Kenya’s rural communities, providing water services to over 190,000 people. The success of the Maji ni Maisha program demonstrates that a combination of technical assistance, output-based grants, and partial-loan guarantees can mitigate credit risk and improve water projects’ access to commercial finance. Following a successful initial pilot, the scheme is now being expanded nationally.

Key lessons learned from this project, which are readily applicable to other WSS access to finance initiatives with private operators, include:

- The lender should have in-house credit appraisal skills typically used in project finance and should be prepared to lend to projects without tangible collateral, because borrowers generally do not have a financial track record or assets that support balance-sheet lending.
- The willingness and ability to pay for water must be evident among the consumers being served by

the CBO; this drives the cash flows needed to repay the loan.

- It is critical to have a pool of capable companies providing business development services to support CBOs financed under the program, projects should be pooled to enhance their attractiveness to a specialized operator, and qualified operators should be encouraged to undertake design-build-operate contracts.
- Disbursing subsidy funds on a pari passu basis with commercial debt results in significant cost savings; paying the subsidy on project completion increases overall project costs significantly.

WSP is developing further guidance on introducing commercial finance into the water sector (WSP 2016).

## References

Advani, Rajesh. 2010. "Using Market Finance to Extend Water Supply Services in Peri-Urban and Rural Kenya," IFC SmartLessons, World Bank, Washington, DC.

ERM, in association with Stephen Meyers Associates and Hydroconseil, and William D. Kingdom. 2005.

"Models of Aggregation for Water and Sanitation Provision," Water Supply & Sanitation Working Note. 1, World Bank, Washington, DC.

Sylla, Mehita, Sylvain Adokpo Migan, Jane Jamieson, David Bot Ba Njock, and Monyl Toga. 2014. "Doing More with Less: Leveraging the Private Sector for Rural Water Supply in Benin." IFC SmartLessons, World Bank, Washington, DC.

WSP (Water and Sanitation Program). 2010. "Public-Private Partnerships for Small Piped Water Schemes: A Review of Progress in Seven African Countries." Water and Sanitation Program Field Note, World Bank, October 2010.

WSP (Water and Sanitation Program). 2015. "Technical Assistance: Support to Professionalize Service Delivery in Senegal Rural Water and Urban Sanitation Sectors - Levers of change in the Senegal rural water sector". World Bank, Washington, DC.

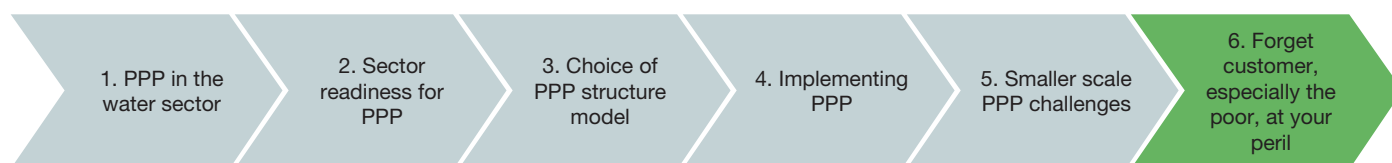
WSP (Water and Sanitation Program). 2016. "Introducing Commercial Finance into the Water Sector." Under preparation. World Bank, Washington, DC.

# VI. Forget Customers, Especially the Poor, At Your Peril

## CHAPTER SUMMARY

This chapter addresses communication and engagement with customers, including:

- The customers' role in the PPP process
- Mechanisms for ensuring that customers are protected in PPP arrangements
- Key issues for designing pro-poor PPP water interventions and policies
- Pro-poor PPP structuring
- Output-based aid (OBA) subsidies to reduce connection fees for poor households



A number of PPP initiatives have struggled or failed due, in part, to a lack of communication and engagement with customers and community/civil society organizations representing, among others, the poor (Gupta and Mehra 2009; Kacker, Ramanujam, and Miller 2014).

### Customer Orientation in PPP

It is all too easy to get lost in the details of policies, processes, and mechanisms of PPP and forget that the key driver for PPP is to expand (equitable) access to, and improve the quality and efficiency of, water and sanitation services—for the benefit of customers (or consumers) of these services. The *raison d'être* of private operators is customer service. Customer orientation is a common attribute of well-performing service providers, and should be a core principle in structuring sustainable PPPs—within the PPP contractual arrangements and their regulation. Customers, along with community and civil society, should also be engaged from start to finish in the PPP process, to anticipate their concerns and incorporate their voices into community outreach programs and project structures. Educating and informing customers about the changes PPP will bring about (and its benefits and limitations) is critical, and the process can help the government sound out proposed solutions and hopefully improve PPP structures through customer (and other stakeholder) feedback. It can also help manage customer expectations of the PPP process. This will help minimize the potential for vested interests to undermine PPP

initiatives through media manipulation and dissemination of misinformation.

Customers' role in the PPP process can be particularly helpful in:

- Communicating an ability and willingness to pay for services;
- Expressing priorities for quality and level of service; and
- Identifying existing strengths and weaknesses in service provision.

A range of mechanisms and policies can be introduced into the PPP process to ensure the customer is protected and represented in the PPP arrangements. These include:

- Establishing contractual performance and customer indicators and binding targets;
- Publishing and publicly displaying service standards;
- Establishing contractual obligations on reporting and disclosing performance to customers and the public;
- Establishing sanctions and penalty mechanisms for performance failures;
- Establishing customer complaints procedures and reporting;
- Establishing customer service contracts setting out the operators obligations on service standards and customer rights; and

- Establishing customer consultative committees that meet regularly with the operator (partnership approach).

### The Poor and PPP Sustainability

On the 28<sup>th</sup> of July 2010, through Resolution 64/292, the United Nations General Assembly explicitly recognized the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the realization of all human rights. The resolution calls upon states and international organizations to provide “financial resources, capacity-building and technology transfer, through international assistance and cooperation, in particular to developing countries, in order to scale up efforts to provide safe, clean, accessible and affordable drinking water and sanitation for all.” Some countries have already responded, and the 2014 Water Bill in Kenya, for example, states that every person in Kenya has the right to clean and safe water in adequate quantities, and to reasonable standards of sanitation, as stipulated in Article 43 of the Constitution of Kenya.

Experience and evidence shows that poor households are disproportionately impacted by lack of access to safe drinking water. In urban areas, those living in low-income, informal, or illegal settlements tend to have lower levels of access to an improved water supply (WHO and UNICEF 2014). Wealth underpins access to improved water supply and sanitation and the ability to practice improved hygiene behaviors.

Public operators, for many reasons, have often failed the poor, and introducing PPP can sometimes be an opportunity to use private sector expertise, efficiency, and capital to improve and expand services for poor people, along with the rest of the community. Poorer households, often the majority of the unserved population, are frequently willing and able to pay for improved WSS services and constitute a potentially huge, untapped market for private operators (Sy, Jamieson, and Warner 2014).

However, experience has also shown that many private operators may be unable or unwilling to improve or expand services to low-income groups, at least in the short to medium term. Similar to public operators, private operators often have little incentive to make investments into poor communities because of the associated high costs and

low revenues (low tariffs and consumption) and lack of tenure. This is not a sustainable business model, and PPP structures should be designed from the start to develop targeted approaches to meet the needs of all households. As already noted, failure to listen to the concerns raised by customers (including the poor), NGOs, and civil society representatives can undermine PPP sustainability.

The key issues in designing pro-poor PPP interventions are:

- Affordable service access (network extension and new connections); and
- Affordable service charges (tariff structures).

The government will also need to develop pro-poor policies and regulations to support the private sector. For example, local governments in the Philippines and India have introduced some flexibility on land tenure regulations to permit operators to supply informal communities and slums with piped water. In Vietnam, the government has decreed that operators cannot charge connection fees to any domestic customer, with connection costs being recovered through tariffs.

Governments can also use means-tested subsidies (subsidies that are granted only to those that demonstrably have limited means) to target consumption subsidies to poor people. In 1988–90 the new Chilean government introduced reforms in the water sector. One of the objectives was that the (then public) service providers should become self-financing through higher tariffs that represented the real costs of the services and more efficient performance. Recognizing that the tariff increases would particularly impact poor households, means-tested subsidies were introduced to cushion the effect of the tariff increase on poor people (still used today). Poor households received subsidies of between 40 and 70 percent on up to 15 cubic meters of water consumed per month. This discount was applied to the water bills of eligible households by the utility, which was subsequently reimbursed by the government (Komives, Foster, Haplern, and Wodon 2005).

### Pro-Poor PPP Structuring

PPP contracts can be structured to contract for expansion, but whether this expansion benefits the poor will depend on the extent, location, and timing of the network expansion—pipework and connections. This is largely driven by the

design of the PPP contract, which is under the responsibility of the public partner. In order to target the poor, contractual service coverage targets could include obligations to supply specific geographic areas with higher numbers of poor households (e.g., Buenos Aires, Dakar, and Manila PPPs) or supply particular household categories (e.g., Jakarta). Targeted incentives, or bonuses, could also be offered to operators to connect poor households (see below).

Contracts can also promote network expansion in poor communities by incentivizing the operator to allow alternative service providers to install secondary and tertiary networks. In Manila, the concessionaires can help meet coverage targets by selling bulk water to small-scale operators that install their own network downstream of a bulk master meter. Manila Water has offered poor urban communities differentiated services: individual household connections, meter/connection per four to five households, and a community “mother meter.” Maynilad Water Services has also offered temporary facilities (TEMFACIL) to such communities.

#### **Affordable Access and Output-Based Aid Subsidies**

One of the most common barriers to poor households accessing improved WSS is the cost of access: the connection fee. Unless the connection cost is recovered through the tariff (e.g., Vietnam), it is usually payable as a one-off up-front charge to the customer. The actual cost of connecting a household can often be well in excess of US\$100 (depending on the property’s distance from the network), and there may be additional costs relating to meters and security deposits.

Output-based subsidies, targeting poor households and communities, can be used to reduce connection fees to an affordable level. Such subsidies are publicly funded (donors, IFIs, government), performance-based, and linked to the number of eligible (poor) households newly connected to the operator’s network.

Output-based subsidies have been applied to a number of WSS PPPs: output-based aid (OBA) subsidies have been used as the bidding variable (Ibuza, Mugabi, and Mumssen 2010); as part of PPP structuring prior to bidding (Drozd, Loening, and Marin 2010); and to existing

PPPs where connection fees have been a barrier to poor household access (Menzies and Setiono 2010; Menzies and Suardi 2009).

To improve the efficiency of these OBA subsidies, larger operators can also be encouraged to offer poor households installment payment schemes for connection fees, to offer lower connection fees, and to offer subsidized loans to customers for connection fee payment (payable with monthly service bills). Improving coverage in poor settlements may require other innovative approaches, such as pre-paid meter services, pay-as-you-go services offered at water kiosks, or public water points as an intermediate step toward a higher level of service.

#### **Pro-Poor Tariff Policies**

Tariff affordability is usually a smaller obstacle for poor households, but when designing PPP initiatives consideration must be given to service bill affordability. Tariffs will be a hotly debated issue for PPPs and it will be important that willingness-to-pay, ability-to-pay, and willingness-to-connect surveys are undertaken at the feasibility stage as part of the overall outreach program.

Rising-block and lifeline tariff structures are commonly applied as pro-poor interventions, but such mechanisms do not specifically target the poor and, thus, are inefficient interventions. Another approach could be to link bill subsidies, if needed, directly to social safety net mechanisms whereby governments make water bill subsidies to officially designated poor households.

Box 6.1 summarizes the pro-poor strategy developed for introducing a performance-based management contract PPP in Karnataka State, India, under the World Bank’s Karnataka Urban Water Supply Modernization Project (KUWSMP).

#### **Pro-Poor Regulation**

In addition to their primary duties of ensuring the financial ability of operations, capital maintenance, and capital enhancement, regulatory authorities can be mandated to oversee and facilitate a universal service obligation on water service providers. In lower-income countries, such a



formal obligation could be a critical support mechanism for delivering the universal WSS access targets set out under the new UN Sustainable Development Goal 6, with special regard to poor and vulnerable people. This may require a more adaptive and flexible approach to economic regulation as “informal customers” (of alternative providers) transform into viable utility or formal service provider customers, with evolving service levels and pricing and payment mechanisms.

Care will need to be taken, however, to ensure that the regulatory framework maintains the financial sustainability of the service provider—typically through a mixture of tariffs and targeted subsidies to fund service extension to the poor—an issue which, of course, concerns both private and public services providers. The regulator will also need to recognize the vital role of civil society and consumer involvement in helping it assess real demand for services and match the right service with specific customer groups and/or areas to allow for meeting minimum service targets and reflecting the savings in lower prices for the poor while achieving the desired convenience of service.

## References

- Drozd, Jan, Esther Loening, and Philippe Marin. 2010. “Subsidizing Water Connections in Cameroon: How to Apply Output-Based Aid to an Affermage,” OBAApproaches 34, World Bank, Washington, DC.
- Gupta, N. and N. Mehra. 2009. Never Test the Depth of Water with Both Feet – Lessons from the Sinking of the Bangalore Water Project, IFC SmartLessons, World Bank, Washington, DC.
- Ibuza, Chris, Josses Mugabi, and Yogita Mumssen. 2010. “Output-Based Aid for Water Supply in Uganda: Increasing Access in Small Towns,” OBAApproaches 35, World Bank, Washington, DC.
- Kacker, Suneetha Dasappa, S. R. Ramanujam, and Tracey Miller. 2014. *Running Water in India’s Cities: A Review of Five Recent Public-Private Partnership Initiatives*, Water and Sanitation Program, Flagship Report. Washington, DC: World Bank.
- Komives, Kristin, Vivien Foster, Jonathan Haplern, and Quentin Wodon with support from Roohi Abdullah. 2005. *Water, Electricity, and the Poor: Who Benefits from Utility Subsidies?* Washington, DC: World Bank.
- Menzies, Iain, and Mario Suardi. 2009. “Output-Based Aid in the Philippines: Improved Access to Water Services for Poor Households in Metro Manila,” OBAApproaches 28, World Bank, Washington, DC.
- Menzies, Iain, and Irma Magdalena Setiono. 2010. “Output-Based Aid in Indonesia: Improved Access to Water Services for Poor Households in Western Jakarta,” OBAApproaches 38, World Bank, Washington, DC.
- Sy, Jemima, Jane Jamieson, and Robert Warner. 2014. *Tapping the Markets: Opportunities for Domestic Investments in Water and Sanitation for the Poor*. Directions in Development. Washington, DC: World Bank.
- WHO and UNICEF. 2014. Progress on Drinking Water and Sanitation: 2014 Update. WHO and UNICEF 2014.

# Appendix A: Key Reference Sources

## PPP

- ADB (Asian Development Bank). 2008. *Public-Private Partnership Handbook*. Manila: ADB.
- IBRD, WB, ADB, and IADB (International Bank for Reconstruction and Development, World Bank, Asian Development Bank, and Inter-American Development Bank). 2014. *Public-Private Partnerships Reference Guide Version 2.0*. Washington, DC, and Mandalayong City: World Bank, ADB, and IADB.
- World Bank, ICA, and PPIAF. 2009. *Attracting Investors to African Public-Private Partnerships: A Project Preparation Guide*. Washington, DC: World Bank.

## PPP in the WSS Sector

- Gassner, Katharina, Alexander Popov, and Nataliya Pushak. 2008. *Does Private Sector Participation Improve Performance in Electricity and Water Distribution? An Empirical Assessment in Developing and Transition Countries*. PPIAF Trends and Policies Series. PPIAF.
- Mandri-Perrott, Cledean and David Stiggers. 2013. *Public Private Partnerships in the Water Sector: Innovation and Financial Sustainability*. London: IWA Publishing.
- Marin, Philippe. 2009. *Public Private Partnership for Urban Water Services, A Review of Experiences in Developing Countries*. PPIAF Trends and Policies Series #8. PPIAF.
- Mehta, Anouj, editor. 2011. *Tool Kit for Public-Private Partnerships in Urban Water supply for the State of Maharashtra, India*. Knowledge Series. Manila: Asian Development Bank.
- World Bank. 2007. *Approaches to Private Participation in Water Services: A Toolkit*. Washington, DC: World Bank.

## WSS Sector/Utility Reform

- Baietti, Aldo, William Kingdom, and Meike van Ginneken. 2006. “Characteristics of Well-Performing

Public Water Utilities.” World Bank Water Supply & Sanitation Working Note No. 9. World Bank, Washington, DC.

- Locussol, Alain and Matar Fall. 2009. “Guiding Principles for Successful Reforms of Urban Water Supply and Sanitation Sectors,” Water Working Note 19, World Bank, Washington, DC.
- van Ginneken, Meike and Bill Kingdom. 2008. “Key Topics in Public Water Utility Reform,” Water Working Note 17, August, World Bank, Washington, DC.

## WSS PPP Contracts

- Delmon, Victoria. 2014. “Structuring Private-Sector Participation Contracts for Small Scale Water Projects.” Water and Sanitation Program, Washington, DC: World Bank.
- World Bank PPP in Infrastructure Resource Center for Contracts, Law and Regulation (PPPIRC) at <http://ppp.worldbank.org/public-private-partnership>.
- Delmon, Victoria and Alexey Morozov. 2013. “Options Paper for Water Sector Regulation in the Philippines,” WSP World Bank draft internal report.
- Ehrhardt, David, Eric Groom, Jonathan Halpern, and Seini O’Connor. 2007. “Economic Regulation of Urban Water and Sanitation Services: Some Practical Lessons,” Water Sector Board Discussion Paper 9. World Bank, Washington, DC.

## WSS PPP and the Poor

- Brocklehurst, Clarissa, editor. 2002. *New Designs for Water and Sanitation Transactions: Making Private Sector Participation Work for the Poor*. Washington, DC: WSP/ PPIAF.
- Sy, Jemina, Robert Warner, and Jane Jamieson. 2014. *Tapping the Markets: Opportunities for Domestic Investments in Water and Sanitation for the Poor*. Directions in Development—Private Sector Development. Washington, DC: World Bank.

## **WSP Domestic Private Sector Participation Guidance**

➤ WSP (Water and Sanitation Program). 2015. “Strengthening Public Institutions in Engaging and Regulating Domestic Private Sector for the Provision of

Water and Sanitation Services in Rural Growth Areas and Small Towns. Report.” WSP internal report.

➤ WSP (Water and Sanitation Program). 2016. “Introducing Commercial Finance into the Water Sector” (working title, under preparation).





