



How can
**Alternative
Service Delivery**
improve water
services?



Strong water management improves the economic and social well-being of countries. Further, the ability of water utilities to leverage a broad range of alternative service delivery and procurement options also improves water security, spurring economic growth and sustainable development¹.

Typically, when water utilities apply traditional procurement methodologies (whereby the utility owns and operates the asset, with the private sector partner acting as a short-term technical service provider), the life-cycle cost requirements are not fully considered. For a variety of reasons, including lack of proper long-term financial planning and limited resources, water utilities tend to neglect the maintenance of existing assets whilst focusing on extending their services through new assets. A recent study by Bluefield Research (2018) indicates that by integrating more advanced asset management solutions utilities across the USA, Canada, Europe and Australia the equivalent of US\$1.2 billion in annual capital expenditure was saved in 2018 alone, scaling to potentially US\$7.3 billion in annual savings by 2027.

This paper explores opportunities to expand and improve water utilities' service delivery through improved utilization of the full continuum of alternative service delivery and procurement options.

The Alternative Service Delivery and Procurement options continuum

The private sector currently contributes to water service delivery mainly through short-term service contracts. Typically, in this process, the utility contracts a private sector company to carry out one or more specified services for a period of one to two years. The utility remains the primary provider of services whilst it contracts out a portion of the operations. These contracts typically are as effective as the applied utility oversight, and performance risks of the contracted services are retained by the utility. The utility remains responsible for funding of any capital investments, and life-cycle costing requirements are not included in the short-term contract. This type of arrange-

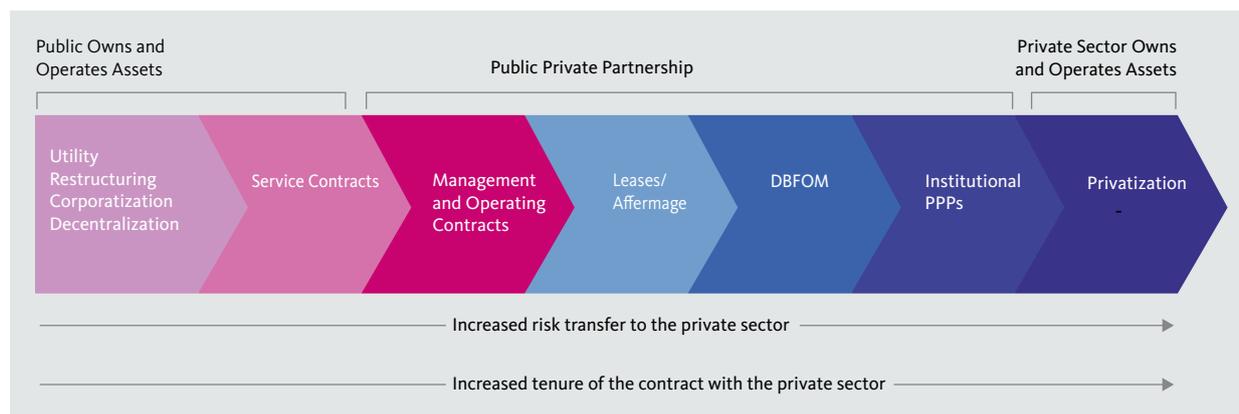


Figure 1: Continuum of Alternative Service Delivery and Procurement Options

By working with a wider range of *alternative service delivery* and *procurement options*, water utilities, using output-based specifications, are able to leverage more advanced asset management principles and improve long-term financial planning. Through improved partnership management and compliance monitoring, utilities are thereby able to leapfrog significant technology, funding, and service delivery challenges and gaps that have developed over a number of years.

ment, although typical to the sector, represents but one of many options across the alternative service delivery and procurement option (ASD) continuum. *Figure 1* depicts the ASD options continuum available to utilities working to increase and improve their service delivery.

The ASD continuum options demonstrate that there are a wide range of options available, including management contracts; lease contracts; affermage contracts; Design, Build, Finance, Operate and Maintain (DBFOM) contracts; and institutional public private partnerships as elaborated below. Stakeholder rights and the degree of public participation are determined through national legal frameworks. These legislative and/or regulatory frameworks guide utilities as to the requirements of entering into any of the ASD options.

1 The Organisation for Economic Co-operation and Development (OECD) reported that water insecurity has led to significant global economic losses (Sadoff et al, 2015). These losses include “USD 260 billion per year from inadequate water supply and sanitation, USD 120 billion per year from urban property flood damages and USD 94 billion per year of water insecurity to existing irrigators.” The report further describes that water insecurity has the potential to significantly decrease economic growth, 6% of GDP by 2050.

Management contracts: The Certified Public Private Partnership (PPP) Professional Guide (“the Guide”), defines a management contract wherein the long-term maintenance of the infrastructure is the only core objective which is transferred to the private sector. The obligation for service provision remains with the utility. The private sector company provides working capital whilst the utility provides the required capital investment.

Lease contracts: A lease contract is defined by the Guide as a legal institution (similar to a concession and used in a number of common law countries) that allows the government to grant economic rights over the infrastructure or economic ownership of the asset. In some countries, the term “lease” may be reserved for project contracts where the government remains responsible for capital expenditures.

Affermage contracts: The Guide defines affermage contracts as a form of PPP in which the private partner is responsible for operating and maintaining existing infrastructure, but not for financing the investment.

The private partner does not receive a fixed fee for its services. Rather, it retains part of the user charges with a portion of the receipts going to the procuring authority as owner of the assets. The payment to the procuring authority is a percentage of the receipts or a percentage of the total units of service provided.

DBFOM (Design Build Finance Operate and Maintain) contracts, according to the Guide, deal with a project where the contractor develops the infrastructure with its own funds, that is, it provides all or the majority of the financing. The contractor is also responsible for managing the infrastructure life cycle (assuming the life-cycle cost risks) in addition to being responsible for current maintenance and operations.

Institutional PPP according to the Guide is a form of PPP, which is a sub-form of the Joint Venture (JV) or mixed-equity company, wherein the utility controls the JV PPP company. The utility usually owns the majority of the shares and participates actively in the management of the company (for example, with the ability to designate high-level staff).

| | MANAGEMENT CONTRACTS | LEASE/AFFERMAGE | DBFOM | INSTITUTIONAL PPP |
|--|---|--|---|--|
| Scope | Management of entire operation or a major component. | Responsibility for management, operations and specific renewals. | Responsibility for all operations and for financing and execution of specific investments. | Joint responsibility for capex and operations pending level of influence that the utility wishes to reserve. |
| Asset Ownership | Public | Public | Public/Private | Public/Private |
| Duration | 2–5 years | 10–15 years | 25–30 years | Varies |
| O&M Responsibility | Private | Private | Private | Private |
| Capital Investment | Public | Public | Private & Blended | Private & Blended |
| Commercial Risk | Public | Shared | Private & Blended | Private & Blended |
| Overall Level of Risk Assumed by Private Sector | Minimal/Moderate | Moderate | High | High |
| Compensation Terms | Fixed fee, preferably with performance incentives. | Portion of tariff revenues. | All or part of tariff revenues. | Mostly fixed part variable related to production parameters. |
| Competition | One time only; contracts not usually renewed. | Initial contract only; subsequent contracts usually negotiated. | Initial contract only; subsequent contracts usually negotiated. | One time only; often negotiated without direct competition. |
| Special Features | Interim solution during preparation for more intense private participation. | Improves operational and commercial efficiency; Develops local staff. | Improves operational and commercial efficiency; Mobilizes investment finance; Develops local staff. | Mobilizes investment finance; Develops local staff. |
| Problems and Challenges | Management may not have adequate control over key elements, such as budgetary resources, staff policy, etc. | Potential conflicts between public body which is responsible for investments and the private operator. | How to compensate investments and ensure good maintenance during last 5–10 years of contract. | Does not necessarily improve efficiency of ongoing operations; May require guarantees. |

Figure 2: Summary of the basic features of *alternative service delivery* and *procurement options* (adapted from Heather Skilling and Kathleen Booth, 2007 in line with APMG Certified PPP Professional Program (CP3P) training guide (2016)).

It is important to note that ASD transactions, where utility assets are transferred to the private sector, only transfers the economic rights of assets to the private sector for the duration of the contract. The utility remains the legal asset owner whilst the economic rights are transferred back to the utility at the end of the contract. The utility also has full rights and an obligation to contractually determine the required condition of the assets at the end of the contract term e.g. the condition and life remaining of the assets at the hand-back stage.

Leveraging the ASD continuum

The World Bank Group, in their 2014 *Water PPPs in Africa* report, notes that: “Water PPPs have been used on the African continent dating back to 1959, with the implementation of the Côte d’Ivoire urban water affermage – a successful operation that continues to provide water to over 7 million people today. In the many decades since that first PPP was launched, creativity, technology, and political realities have changed the face as well as the function of PPPs. PPPs have proved to be an important tool in improving utility performance, leveraging finance, and stimulating a much-needed sense of competition and accountability in an otherwise monopolistic water and sanitation sector.” Adding that “operational efficiency is the most consistent contribution of PPPs to utility performance, resulting in the reduction of nonrevenue water, improvement in bill collection, and better labour productivity.” According to the World Bank and the Public-Private

Infrastructure Advisory Facility (PPIAF), which collects data on PPPs in the PPI Project Database, during the period of 1992 to 2012 there were a total of 51 PPPs in the water and sewerage (including desalination) sector in Africa.

In *To P3 or not to P3, A water industry view on the relevance of public-private partnership delivery models* (2019), the American Water Works Association assessed the perceived attractiveness of P3 as an alternative delivery model from the perspective of those directly responsible for water infrastructure. The research also sought to better understand decision-makers’ rationale for advancing or not advancing P3 projects. The survey found that new-build assets related to water treatment infrastructure, advanced reuse/water recycling, and bio-energy/biosolids treatment were perceived to be the most attractive, as illustrated in *Figure 3* below.

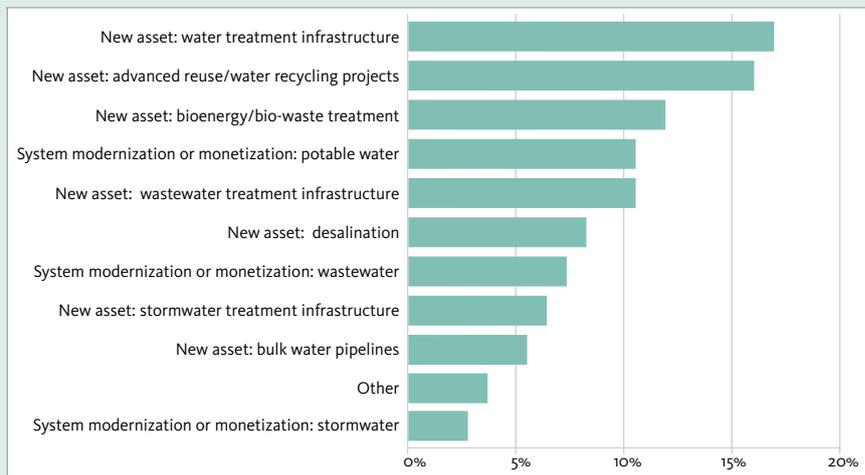


Figure 3: Asset classes believed most likely to be appropriate for PPP delivery (American Water Works Association, 2019).

Respondents were also asked to identify the biggest barriers they anticipate facing in advancing P3s in the above asset classes. The results indicate the top 5 barriers as:

- Stakeholder scepticism or concerns over the costs and benefits of P3s;
- Resistance to ceding technical control over an asset to a third party;
- Absence of internal executive and/or political support;
- Lack of managerial resources and experience to evaluate, structure, procure or negotiate P3 projects; and
- Limited financial/legal understanding of P3 structures.

What benefits to expect from leveraging the ASD options?

Improving water and sanitation service delivery is not just an African challenge. In both developed and developing countries, the water sector doesn’t attract adequate investment because it is seen as too risky for investors and not sufficiently profitable (SIWI, 2019). The 2016 OECD Procurement Survey illustrated that out of \$81.1 billion of development finance interventions mobilized from the private sector, only 1.9 per cent were directed

to the water sector. Relatedly, a 2017 study conducted by the Swedish Investors for Sustainable Development (SISD), reviewing water infrastructure financing in Sweden, found that Swedish water utilities adopt a conservative and traditional approach, relying on public funding, and are reluctant to borrow to improve their infrastructure. According to that same world-wide diagnosis, the main barrier to investment in the water sector is the lack of well-prepared water infrastructure projects that offer an acceptable (risk-reward) rate of return and financial viability over the long term.

The development of an increasing number of well prepared projects potentially through ASD options will increase and improve service delivery. Three key benefits of greater private sector collaboration using longer contract terms include:

- An increased focus on life-cycle cost management
- Long-term integrated financial and capital planning
- The application of advanced asset management solutions that include a major focus on carbon management.

Focus on the life-cycle costs

A representative of Grundfos, the Danish water pump manufacturer, stated during the 2018 Nairobi-based Pan African Water Finance Forum², that “the life cycle cost management process is the perfect way to predict the most cost-effective product and or procurement solution. It does not guarantee a particular result but allows the plant designer or manager to make a reasonable comparison between alternative solutions within the limits of the available data. Pumps account for a massive 10% of the world’s electricity consumption whilst 9 out of 10 pumps in operation are not optimized for their application and therefore waste energy.”

According to The International Water and Sanitation Centre³, the overall life-cycle costs of a typical water infrastructure project consist of approximately 30 per cent capital expenditure and as much as 70 per cent operations and maintenance costs. It may, therefore, be opportune for the private sector to ensure that the construction of new assets is delivered at a higher standard than in a traditional procurement model with the aim of minimizing the long-term maintenance costs.

Integration of long-term financial and capital planning

Figure 4 depicts the long-term integrated capital planning required at the utility level with both the Finance Director and the Head of Engineering actively participating in the assesment of the longer term service delivery requirements. Certain new projects and/or major upgrades of existing assets need to be planned, constructed and financed every four years. To do so, management must consider procurement options based on the utilities’ projected income, grants, debt capacity as well as the utilities’ capacity to practically develop and implement such projects. It is during this long-term planning process (Figure 4) and/or the

Case Study:

Lesotho-Botswana Water Transfer Scheme (L-BWTS)

SIWI and the Climate Resilient Infrastructure Development Facility (CRIDF) are supporting the Orange-Senqu River Basin Commission (ORASECOM) to mobilize finance for the The Lesotho-Botswana Water Transfer Scheme (L-BWTS) project. This includes establishing the institutional and financial structuring options relevant to the L-BWTS pre-feasibility study.

The L-BWTS will abstract water from Makhaleng River in Lesotho to Botswana (the preferred water resource development option). The transboundary multipurpose water development project will address water security and contribute to energy and food security in Botswana, Lesotho and South Africa by supplying water in water-stressed communities along the conveyance route, support commercial agro-industries and provide electricity through hydropower.

The Options Analysis undertaken looks at international best practise procurement options covering traditional and public private partnership procured alternatives. The institutional alternatives will be considered also in relation to the financial structuring options, specifically considering the fact that capital is scarce and that governments have limited capacity to support the financial structuring through explicit guarantees. The parties have also agreed to further capacity building initiatives such that the government representatives become more familiar with the options available to them. SIWI and CRIDF will also support ORASECOM and the country representatives with the capacity building initiatives.

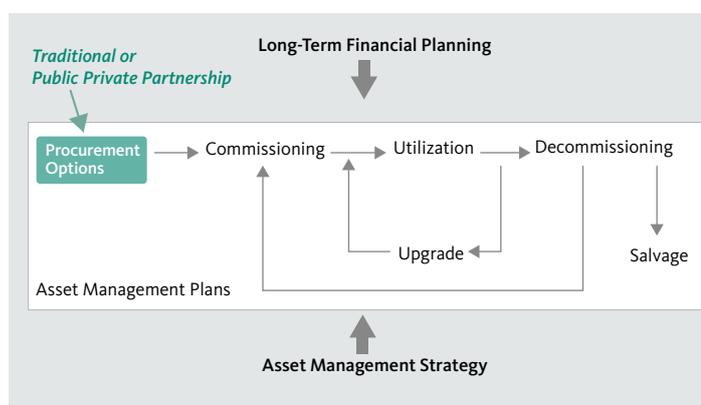


Figure 4: Integration of long-term financial and asset management planning with focus on considering an optimal ASD option.

2 The Pan-African Water Finance Forum is an initiative of the NEPAD Business Foundation that has as its focus the capacitation of the Finance Directors responsible for water in Africa’s 100 largest cities.

3 IRC Costing Sustainable Services, Module 1, item 1.2, October 2012.

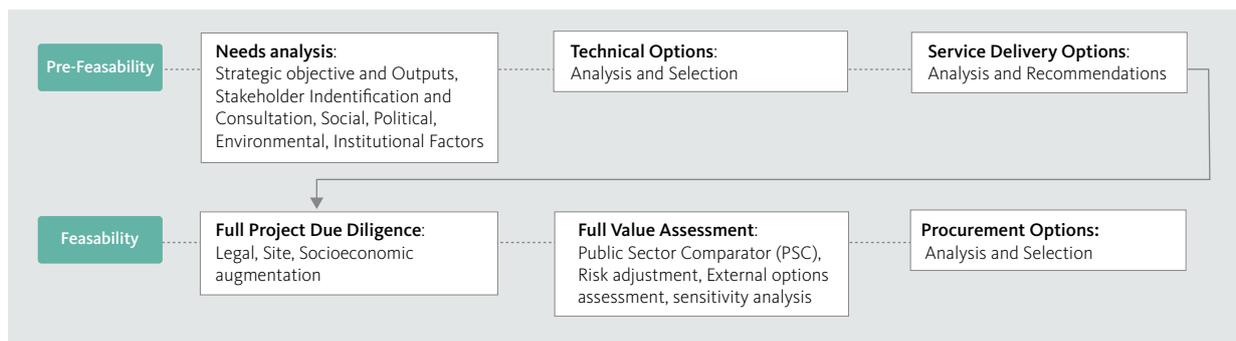


Figure 5: Pre-feasibility and feasibility stages of project preparation.

feasibility stage (Figure 5) of an infrastructure project, that utilities need to consider the construction, maintenance and operations costs of the project over the life of the project.

The project feasibility stage includes the decision regarding a preferred technical solution that delivers optimal economic cost and financial benefits. The outcomes of this stage will assist greatly with the decision regarding the most probable ASD option.

Leveraging advanced asset management solutions

The water sector is being driven by new and advancing technologies. When used optimally, they can cut operational costs and improve financial management for increased sustainability. The Bluefield study points to the use of advanced asset management solutions to decrease capital and operational expenses whilst others are increasingly managing the embedded carbon within the utilities asset base. HM Carbon Review Report specifically reflects on “Reducing capital and operational carbon makes good business sense noting a variety of benefits including: reduced costs, unlocking innovation, driving better solutions, improved resource efficiency, improved competitive advantage and export potential, and contributing to climate change mitigation. Leading clients and their supply chains have already achieved reductions in capital carbon of up to 39 per cent, and 34 per cent in operational carbon. These reductions in carbon have been achieved in association with average reductions in Capex of 22 per cent.”

Common Governance Factors that may compromise the Project Outcome in a PPP

Making use of any particular long-term procurement option will necessitate contract changes and/or variations from both government and private sector parties. These changes may, if not dealt with properly based on the contractual provisions, lead to major differences in the positions and trust between the parties. In a worst case

scenario this divergence could lead to a party's withdrawal from the contract. The APMG Guide reflects on these critical factors that may compromise the outcomes of major infrastructure projects including:

- Lack of utility management capacity and proper skills.
- Lack of continuity and/or frequent changes in the project team.
- Lack of clear project ownership, leadership and political support.
- Failure in taking and managing decisions (insufficient delegation of powers, political interference).
- Lack of proper quality control mechanisms.
- Failures in stakeholder identification and management of stakeholder interests.
- Failure to communicate (internal, external, to the public facilitating acceptance and managing resistance, and to investors).
- Failure to ensure that the project matches the government's strategic objectives or changes in the government objectives.
- Political rush and unrealistic time scales.
- Complex and unclear policy framework

All the PPP procurement options identified in the ASD continuum are in essence Performance-Based Contracts (PBCs) that include specifications on how and what the private party should be delivering. This is agreed upon during the final contracting stages and included in the relevant contract. The private party is then contractually bound to deliver a project that meets these pre-defined quality and performance standards. Further, PBCs can also open up opportunities for more long-term collaboration, as illustrated in the case of the Niger's 54 urban centres supplied with water through a PPP with Veolia. In 2000, the Société de Patrimoine des Eaux du Niger (SPEN) signed a performance-based lease contract with the Société d'Exploitation des Eaux du Niger (SEEN, a subsidiary of Veolia), the project also benefited from international funding. In 12 years, the rate of drinking water supply increased from 65 per cent to 87 per cent as a result of the increasing performance of the production and distribution infrastructure. These very encouraging outcomes of the project lead to a renewal of the PPP in 2011.

Case Study:

Enugu Water Reform Project

In the context of the National Urban Water Sector Reform Project undertaken by the Nigerian Federal Ministry of Water Resources, the Africa-EU Water Partnership Project (AEWPP) is supporting the Enugu State Water Utility in improving financial sustainability.

The Enugu State Water Utility currently depends largely on federal subsidies for its operational and investment expenses. The objective of the Federal government (under the National Urban Water Sector Reform) is to create a favourable environment for the

establishment of future performance-based contracts between the Federal government and the respective States (Public-Public Partnership). With that objective, the AEWPP is working with Enugu State Water Utility to elaborate a new financial model and an appropriate tariff structure that will guarantee the long-term financial viability of the utility, while ensuring service delivery for the entire categories of water users (including poor households).

The AEWPP is partnering with the Agence Française de Développement (AFD) which will fund the rehabilitation and extension of the Enugu State Water Utility distribution network at a later stage.

Recommendations:

The ability for project sponsors to effectively leverage a broad range of alternative service delivery and procurement options contributes significantly to robust water governance frameworks and by extension to the economic and social well-being of countries. These recommendations serve to enhance the relationship between utilities and the private sector leading to improved service delivery.

- Both the APMG guide and the American Water Works association highlight the necessity of sufficiently experienced utility management to successfully consider making use of PPPs as an alternative procurement mechanism.
- Political as well as senior management support is important to successfully develop major new projects, be they procured on a traditional and/or ASD methodology.
- Governments must ensure that both utilities and potential private sector partners can rely on clear regulatory and institutional frameworks.
- Utility management teams led by the finance and technical directors need to ensure that proper long-term planning and execution of these plans support the long gestation period of major infrastructure projects.
- Construction companies, specialist operators, banks, legal and risk management teams use qualified specialists to bid, execute and manage major PPP projects. Utilities need to capacitate its senior management team responsible for these procurement and management functions such that they can negotiate and operate as equals with the private sector. A specialist project management unit that may eventually assume the responsibility for the project monitoring should resolve a large number of the identified challenges.

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The Africa-EU Water Partnership Project (AEWPP) is a joint undertaking by the European Union, the African Ministers Council on Water (AMCOW) and the Government of Sweden through Sida that aims to enhance the financial viability of water infrastructure projects in Africa by making more public and private capital accessible for water-related infrastructure projects and encouraging and supporting African governments to invest in water governance through capacity building.

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About SIWI

Stockholm International Water Institute (SIWI) seeks to strengthen water governance for a just, prosperous and sustainable future.

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