

PACIFIC PRIVATE SECTOR DEVELOPMENT INITIATIVE

Enabling the private sector to drive sustainable economic growth and lift Pacific people out of poverty

CASE STUDIES IN PRIVATE SECTOR PARTICIPATION: WATER SUPPLY SERVICES



Samoa completed one of the first wastewater public-private partnerships in the Pacific.

Water and Wastewater Services in the Pacific

Water and wastewater services in Pacific island countries (PICs) include three broad activities: water treatment, water distribution, and wastewater treatment. In most Pacific urban areas, these functions are the responsibility of public sector departments or state-owned enterprises. Water and wastewater services typically require large capital and maintenance expenditure throughout the life of the assets. In the Pacific, capital expenditure is often funded through donor grants and loans, but maintenance expenditure is rarely sufficient to support the useful life of the assets. Water utilities suffer from high rates of nonrevenue water, both from leakage and from low collection rates. Very few water utilities collect enough revenue from users to recover their costs and provide a commercial return.

Where and How Is the Private Sector Involved?

The private sector has only a limited involvement in providing reticulated water and wastewater services in PICs. The exceptions are Vanuatu and the city of Port Moresby in Papua New Guinea, which have the only concessions for water supply in the Pacific. In most other countries, private sector activity has only recently started to emerge, as countries look to leverage private sector innovation and accountability in the building of new infrastructure and the delivery of services.

A survey of public-private partnerships (PPPs) in eight PICs, conducted in 2015 and facilitated by the Pacific Region Infrastructure Facility, identified a total of eight contracts.

The Pacific Private Sector Development Initiative is a regional technical assistance facility cofinanced by the Asian Development Bank, the Government of Australia, and the Government of New Zealand.



Water and Wastewater Contracts in Pacific Island Countries, 2015

Country	Project	Form of Public-Private Partnership	Term	Services Provided	Payment Mechanism	Contract Size
Papua New Guinea	Mt Eriama (Port Moresby) Water Treatment Plant	Build-operate-transfer	22 years	Design, build, financing, and operation of water treatment plant	Fixed facilities fee, plus payment against volume of water treated	K123 million capital cost; K22.5 million annual fixed facilities fee for 18 years
	Eda Ranu	Management contract	22 years	Consumer services agreement for operation and maintenance (O&M) of all system assets, billing, and collection of water and sewerage fees	Monthly service fee for facilities management, based on a monthly fixed rate of 7% of retail proceeds from the sale of water to consumers	
Vanuatu	Port Vila water supply	Concession	40 years (1994-2034)	Management of water production and distribution, including financing of new capital expenditure	Revenues from tariff collection, with tariffs set at a level to ensure a 12% return on capital expenditure	
Tonga	Tonga Water Board outsourcing	Service contract	2 years	Contracting out plumbing services		
Samoa	Apia wastewater	Design-build-operate-maintain (DBOM)	5 years	DBOM; original contract for 5 years of O&M expired in September 2015; Samoa Water Authority now operating and will assess staff performance in 12 months in light of skills transfer from now-completed O&M contract; possibly then retender O&M	Fixed monthly rate, with provisions for penalties based on performance targets; payments never withheld	\$5 million total, including \$750,000 for 5 years of O&M
Federated States of Micronesia	Pohnpei: Kolonia Sewage Treatment Plant	DBOM	2 years	Similar model to Apia DBOM; original DBOM contract included 12 months O&M and expired on 9 June 2015; contractor was CCB Envico; Public Utilities Corporation has now entered into a new contract with CCB Envico for operation of the Kolonia Sewage Treatment Plant for 2 additional years, commencing on 7 August 2015	Fixed monthly rate, with provisions for penalties based on performance targets	\$5.5 million for capital expenditure, plus \$550,000 per annum O&M, including consumables (power is free)
Marshall Islands	Ebeye Desalination Plant (reverse osmosis)	DBOM	4 years (2 years of design and construction; 2 years of O&M)	DBOM; similar model to Apia wastewater	Payment based on (i) the successful delivery of the plant against performance criteria; (ii) the fixed monthly rate for personnel during operation period; and (iii) the payment for volume of water produced (\$ per million gallons), including operation, management inclusive of all consumables, and maintenance, but exclusive of electricity costs and Kwajalein Joint Utility Resources operational staff	Approximately \$4.4 million; with capital expenditure of \$2.8 million and O&M at \$1.6 million
Palau	Wastewater treatment	DBOM	5 years	DBOM; similar model to Apia wastewater; procurement to commence in 2016	Fixed monthly rate, with provisions for penalties based on performance targets	Approximately \$8.5 million, including an estimated \$1 million per year O&M for 2 years

Source: Pacific Private Sector Development Initiative.

Six of these contracts were in place at the time of the survey (the Apia wastewater contract had ended, and a contract in Palau had yet to be awarded). The most common form of private sector involvement has been through design-build-operate-maintain (DBOM) arrangements, which combine the design and construction responsibilities for new assets with their ongoing operation and maintenance (O&M). All four of the DBOM contracts in place were developed with the support of the Asian Development Bank.

Design-Build-Operate-Maintain Model

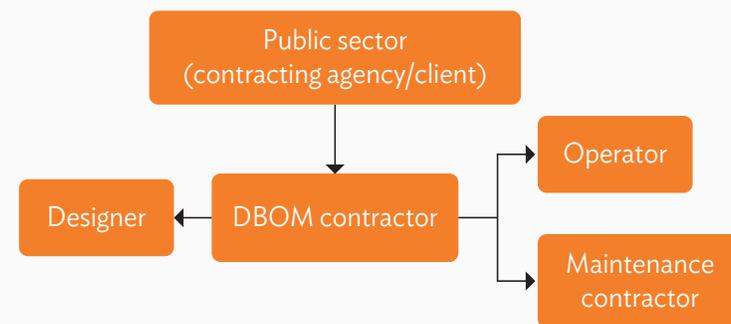
Under the DBOM model, a single contract is negotiated for the design, construction, operation, and maintenance of an asset, with financing provided by the public sector. The public sector maintains ownership of the asset, and retains a significant level of oversight of the operation, through terms defined in the contract. By making the designer and/or builder financially responsible for the efficient construction and operation of the asset, the DBOM model helps ensure that the critical O&M knowledge is incorporated into the asset's design. With this knowledge, better decisions can be made resulting in a higher-performing asset. As a result, a more efficient and sustainable asset will be turned over to the public sector at the end of the contract. The DBOM model has proved to be an effective mechanism for securing innovation and performance incentives from the private sector as a possible stepping stone to higher-risk build-operate-transfer projects.

As in most PPP projects, the payment mechanism is used to transfer risk. It can be tailored to the needs and capacities of the public sector and private sector partners at different stages of the project. For instance, the private partner responsible for the design, construction, and operation of the asset may take the risk on the cost of construction, but the public sector may take the risk on the usage of the assets (e.g., kiloliters supplied), and/or the unit cost of water over time (e.g., cost per kiloliter).

A typical structure for a DBOM consortium is illustrated in Figure 1. Under this model, the contract for the various elements of design, construction, operation, and maintenance are held with the DBOM entity.

The public sector develops a set of output specifications, but leaves the development of specific design elements to the private sector consortiums that are bidding on the project. Following competitive tendering, the public sector engages a DBOM contractor to design and construct the asset for a fixed lump-sum price, and then to operate the asset and perform maintenance services for a specified period at an agreed price or basis of remuneration. This remuneration for O&M would usually include performance targets. The public sector funds the capital cost of the project and, at the end of a specified O&M period, the operation of the asset can be either retendered, extended with the private sector operator, or transferred back to the public sector.

Figure 1: Typical Design-Build-Operate-Maintain Consortium Structure



DBOM = design-build-operate-maintain.
Source: Pacific Private Sector Development Initiative.

The benefits of life cycle costing, an intrinsic part of the DBOM model, are particularly important. Most infrastructure owners spend more money in maintaining their assets than they do on capital expenditure. The life cycle approach isolates important maintenance issues from the potential political uncertainties that affect many maintenance budgets in the public sector, with some departments, agencies, and state-owned enterprises often not knowing from year to year how much funding will be available. In such cases, the public sector is forced to allocate its limited funds to the most pressing maintenance needs, rather than using a more rational, cost-effective, and preventative approach.

CASE STUDY

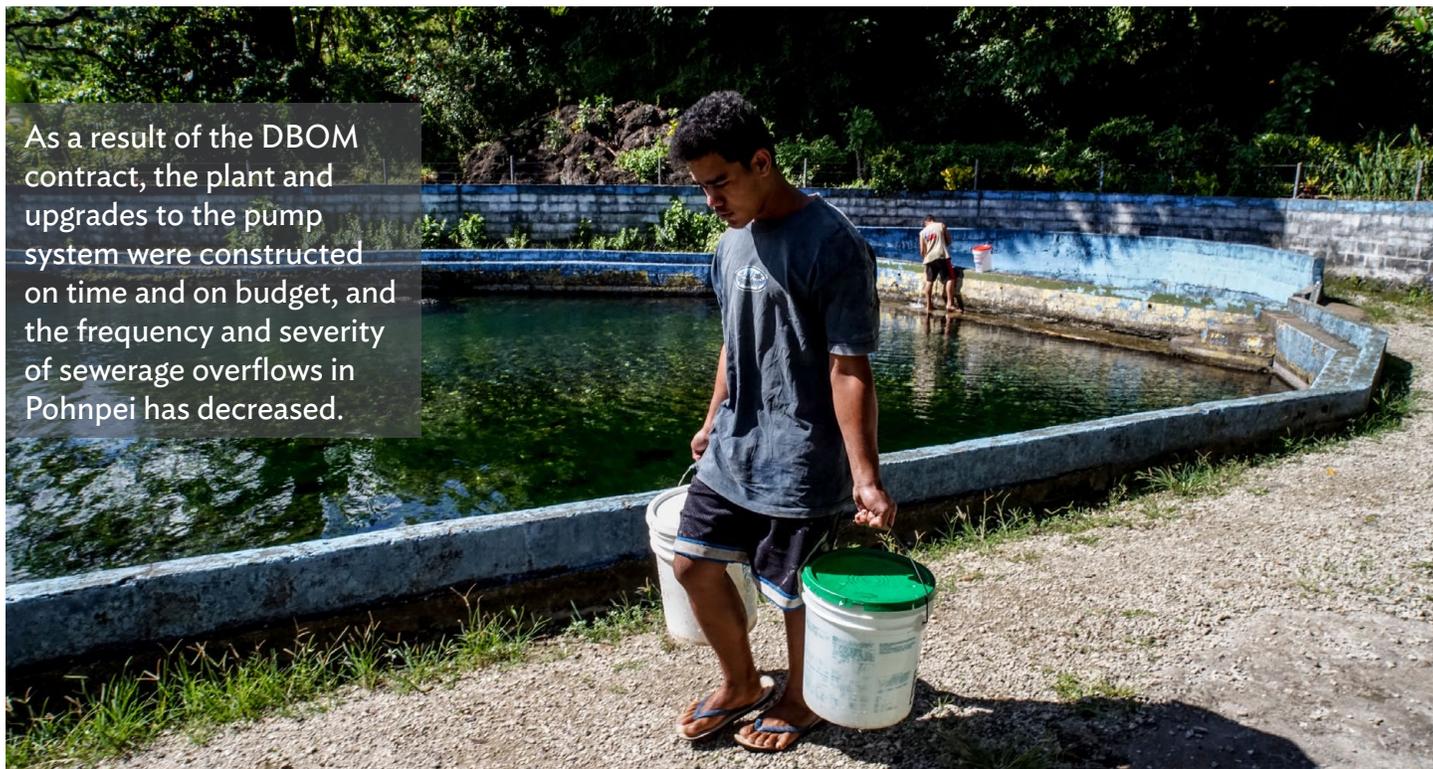
Design-Build-Operate-Maintain Contracts in the Pacific

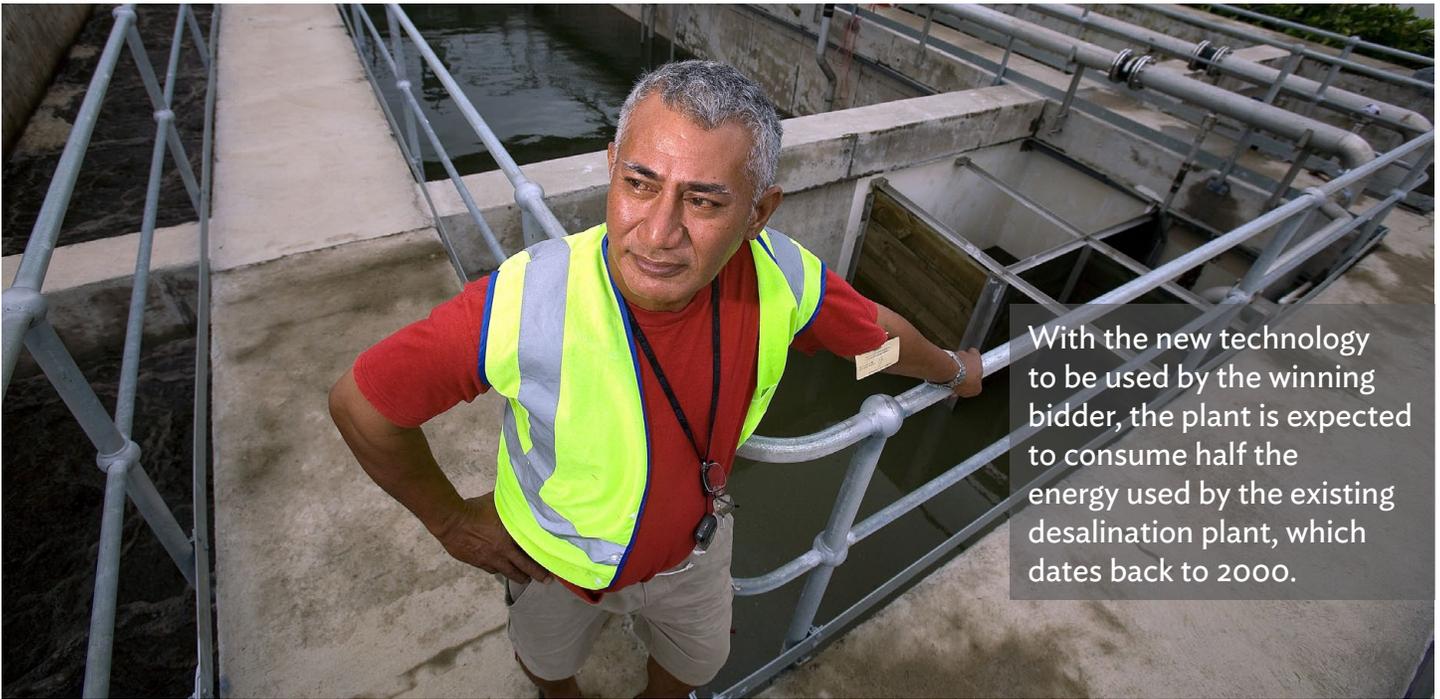
The first DBOM contract in the Pacific was for a \$5 million wastewater treatment plant in Apia, Samoa. The contract, awarded in 2009, included a 5-year O&M period for \$750,000, with payments against key performance targets. The contract resulted in the plant being constructed on time and on budget, and in an O&M period in which performance targets were consistently achieved. Upon completion of the contract in September 2015, the Samoa Water Authority assumed responsibility for O&M, based on training received from the contractor. This move will provide a benchmark to compare the costs and benefits of using the Samoa Water Authority staff to conduct the O&M against the costs and benefits of using external contractors.

In Pohnpei, in the Federated States of Micronesia, the \$5-million Kolonia Sewage Treatment Plant was also constructed under a DBOM modality. While the original DBOM contract included only 12 months of O&M, it was subsequently extended for an additional 2 years, commencing from 7 August 2015. O&M of the plant is charged at approximately \$550,000 per annum, including consumables, and power is provided free. As a result of the DBOM contract, the plant and upgrades to the pump system were constructed on time and on budget, and the frequency and severity of sewerage overflows in Pohnpei has decreased.

The success of the DBOM projects in Apia and Pohnpei has inspired the structuring of a similar contract for a new desalination plant in the Marshall Islands. The plant will be built and operated in partnership with the local utility—the Kwajalein Joint Utility Resources. The contract, awarded in January 2016, involves the design and construction of a new desalination plant for \$2.8 million and a 2-year O&M period valued at \$1.6 million. Contract payments are based on (i) the successful delivery of the plant against performance criteria, (ii) a fixed monthly rate for personnel during the operation period; and (iii) payment for the volume of water produced (per million gallons), inclusive of all consumables and maintenance, but exclusive of electricity costs and payments to the Kwajalein Joint Utility Resources operational staff. With the new technology to be used by the winning bidder, the plant is expected to consume half the energy used by the existing desalination plant, which dates back to 2000.

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Lessons from the Pacific Experience with Design-Build-Operate-Maintain Contracts

The success of the DBOM model in the Pacific has been largely due to careful project preparation, transparent tendering processes, and effective monitoring of project implementation. DBOM contracts are more complex to prepare than traditional public procurement for new assets. There must be comprehensive data available at the time of the tendering process so that the private sector operators can assess the design, construction, operation, and maintenance risks that need to be costed and managed. DBOM tenders also require significant effort by the public sector contracting agency or client to evaluate the bids.

Once awarded, DBOM contracts require only a limited management effort on the part of the public sector's contracting agency during delivery, commissioning, and operation of the asset. DBOM contracts also provide a single point of accountability. They allow the public sector to leverage private sector know-how and innovation, without having to lock in long-term operational and strategic issues within the contract structure.

The fact that all three of the DBOM contracts in the Pacific attracted multiple bids demonstrates that international operators are interested in contracts of this size, even in remote parts of the region. Increased competition among private sector operators will always result in increased value for money for the public sector.

What Can Be Done to Extract More Value from Design-Build-Operate-Maintain Contracts?

DBOM contracts have allowed governments in the Pacific to create strong incentives for efficiency and value in the procurement and operation of water sector assets. DBOM contracts have consistently resulted in more timely construction than traditional public procurement, thereby reducing costs for the public sector and improving service to users.



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The incentives inherent in the PPP structure could be further strengthened by expanding the role of the private sector through the extension of O&M periods within contracts, and by including private financing under DBOM and build-operate-transfer modalities.

WHAT ARE PUBLIC-PRIVATE PARTNERSHIPS?

PPPs are agreements between the public sector and the private sector to provide assets and/or services over a period of time. PPPs can be used in most infrastructure sectors, including solid waste management, water, power, transportation, and telecommunications. PPPs are different from traditional public procurement in that PPP contracts are performance-based, with payments made against the successful delivery of defined outputs over time.

PPPs often combine construction of infrastructure with operation of the assets for a set period of time. In the solid waste management sector, for example, PPPs can involve the construction and operation of landfill and/or recycling infrastructure. The existing commercial legal frameworks in most PICs allow public agencies to enter into PPP contracts.

WHAT ARE THE DIFFERENT FORMS OF PUBLIC-PRIVATE PARTNERSHIPS?

PPPs can take different forms, depending on the nature of the service to be provided. PPP arrangements fall into four broad categories as illustrated below:

Service contracts. These contracts are the simplest form of PPP. The private partner does not operate any public assets, but simply contracts with the public sector to provide a specified level of service. These contracts are typically 2–3 years in duration and are common for services such as waste collection.

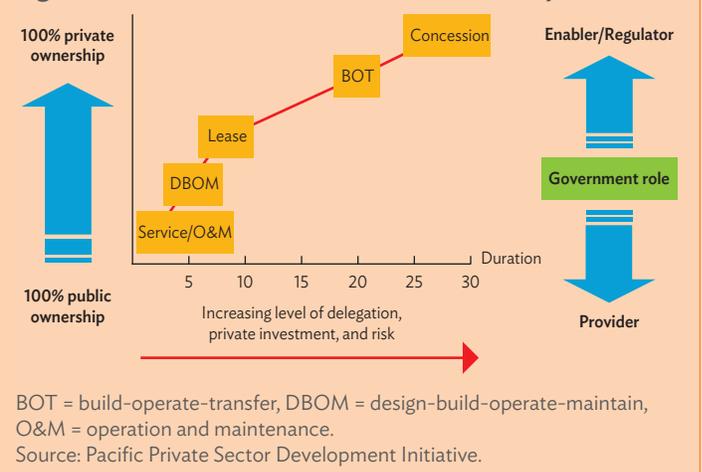
Operation and maintenance contracts. These contracts typically involve the operation of public assets by a private partner. The private partner receives a management fee based on performance and, in some cases, a profit-sharing incentive.

Design-build-operate-maintain contracts. These types of contracts are profiled in this case study, where the private sector designs, builds, operates, and maintains public infrastructure with finance provided by the public sector.

Build-operate-transfer contracts. These involve a significant investment by the private partner, who constructs and operates the infrastructure required to provide the service. Contract periods can be for as long as 30 years, allowing sufficient time for the private operator to earn a fair return on investment. The Mt Eriama water treatment plant in Papua New Guinea was built using this modality.

Concessions. These are the most complex PPPs. They involve the rehabilitation and expansion of an existing asset as well as its operation over time, under an exclusive license. Concessions require careful structuring and monitoring if the public good is to be protected, and for the PPP to deliver the appropriate value for money.

Figure 2: Forms of Public-Private Partnership Contracts



* This case study was prepared by the Pacific Private Sector Development Initiative, with input from the Pacific Region Infrastructure Facility and its Urban Development Sector Working Group.

