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PROJECT SUMMARIES PART 1

Municipal Public-Private Partnership Framework

The Municipal Public-Private Partnership Framework can be found at www.thegpsc.org and www.worldbank.org/ppplrc

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Transportation

Integrated Multi-Modal Transportation

1. Moncloa Transportation Exchanger, Madrid, Spain



Photo Credit¹

Background

Madrid's metropolitan area has a population of about six million people, with most of them located in the center of the city. To help mobilize residents and visitors, the city maintains a metro, an urban bus network, an extensive network of high-capacity freeways, interurban buses, and railway services. To ensure effective service delivery, the city needed a way to better integrate the different transportation modes, urban and metropolitan.

This led to the introduction of a transportation exchanger. Transportation exchangers are intermodal nodes of urban and interurban transport networks that facilitate the integration of different transportation types and minimize the inconvenience to travelers of transfers during transport. They are equipped with air-conditioning, commercial areas, and other facilities that make travelers more comfortable. This type of infrastructure provides an optimal mode of transfer from regional and inter-regional buses or railway services to metro networks and urban buses.

The Moncloa transportation exchanger was initially constructed in 1995 using public funds. As demand for public transportation grew, however, the Moncloa exchanger's capacity was pushed to its limits during peak hours. This caused problems for travelers trying to enter Madrid, delaying commutes, and contributing to excessive levels of air pollution. In addition, according to the city's urban development plans, demand was expected to continue to grow over subsequent years, further intensifying the need to expand and improve the exchanger.

¹ Museo8bits (https://commons.wikimedia.org/wiki/File:Nuevo_intercambiador_Moncloa_DSC00088.JPG), „Nuevo intercambiador Moncloa DSC00088“, <https://creativecommons.org/licenses/by-sa/3.0/legalcode>

² All currency conversions are approximations based on current exchange rates at the time of writing.

Project Structure

In light of budget limitations and the country's general economic situation, the public authority invited the private sector to participate in the expansion. In August 2005, Consorcio Regional de Transportes de Madrid (CRTM), Madrid's transportation authority, initiated a public tender to award a 35-year concession for the construction, maintenance, and operation of the Moncloa exchanger. The contract was awarded to a consortium comprising Itineris Infraestructuras, Sacyr, and Castromil y Transportes la Unión and the concession agreement was signed on 1 March 2006.

The project was structured so that the concessionaire receives revenue from three different sources. First, for interurban bus passengers, the concession company receives: (i) a fixed payment from CRTM, guaranteeing a minimum demand, and (ii) a sum paid by bus operators corresponding to actual demand. Second, it receives a tariff paid by long-distance transit passengers. Third, the concession company is entitled to leverage opportunities for commercial revenues, such as commercial and office space leases, vending, ATM spaces, and advertisement sales at the facility. Transit operators collect the transportation exchanger tariff as part of the ticket price paid by passengers embarking or disembarking at the exchanger and then pass these monies on to the concessionaire.

Under the original project structure, the private partner assumed all financial and demand risks. At that time the investment cost was estimated to be EUR 112.78 million (USD 127.5 million²) and the user tariff for passengers on transit lines within CRTM's authority, which comprise the majority of the passengers that use the facility, was contractually fixed at EUR 0.1476 (USD 0.17) (VAT included) per user. The contract also included a clause that established a variable concession term/duration, depending on the real yields obtained by the concessionaire. The variable term mechanism would permit the concessionaire to finish the concession five years earlier (maximum) should the traffic be higher than expected, or five years later (maximum), if actual traffic proved to be lower than expected. Thus, the concession term would also act as a cushion against demand risk.

In 2007, however, there was a modification in the project's design due to a new environmental regulation, which increased the investment cost by 17.2 percent. To compensate for the increase in cost, the tariff for passengers on CRTM lines was increased to EUR 0.20 (USD 0.23) per passenger. Rather than passing the tariff increase on to end-users, CRTM and the bus operators agreed to jointly absorb the additional cost, meaning they did not increase their fares to reflect the increase in the tariff payable to the transport exchanger concessionaire.

In addition, due to significant discrepancies between forecasted and actual traffic through the exchanger, the demand risk was modified so that the concessionaire assumed the demand risk only for transportation lines that did not depend on CRTM. To this end, CRTM guaranteed a minimum fixed payment for user traffic on the lines dependent on CRMT. This mechanism was vital to ensure the project's continued feasibility, as the financial conditions and demand forecasts estimated at the beginning of the contract were notably different from those at the time of financial close in 2009.

The concessionaire ultimately delivered a facility more than 46,000 m² in size with 1,000 linear meters of tunnels and four different levels: Level Zero (street access); Level One (bus station); Level Two (metro-bus connection and commercial zones); and Level Three (two metro lines). The renovated facilities were opened in February 2008 and the number of metro users transiting the exchanger rose from 44,000 in 1995 to 110,000 by 2011.³

Railways

2. Hong Kong Mass Transit Railway Corporation, Hong Kong SAR, China



Photo Credit⁴

³ Margo, Vassallo, and José Manuel. 2015. "Asociación Público Privada en América Latina. Aprendiendo de la experiencia". CAF. Accessed February 8, 2019. <http://sciooteca.caf.com/handle/123456789/758>.

⁴ Exploring life (https://commons.wikimedia.org/wiki/File:Mass_Transit_Railway.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

Lessons Learned

The Moncloa exchanger helped to improve Madrid's mobility by making it easier and more pleasant for passengers to use multiple public transit options. Through this PPP, Madrid was able to develop quality infrastructure within a relatively short period of time and with less direct pressure on the public budget.

This project highlights the following:

- The importance of robust demand studies permeates all aspects of a PPP project. Municipalities need to take care to avoid making or accepting overly optimistic demand assumptions and should consider technical options that can deliver the same level of service at a reduced capacity, and thus with lower construction, maintenance and operation costs.
- Contractual mechanisms such as minimum fixed payments and variable contract term clauses can be used to reduce the amount of demand risk borne by the private partner and so increase the project's commercial viability. However, the PPP agreement must plainly delineate the conditions and processes that determine if, when, and how the private partner becomes entitled to a variation or fixed payment, to manage the contingent liabilities of the municipality and limit the likelihood of disputes. In addition, particular consideration must be given to fixed payments, as these can represent significant disbursements for the municipality over the life of the PPP.

Background

Hong Kong is a very densely populated city, with more than seven million people occupying a land area of only 1,104 km². Every day, over 11 million commuter trips are made using Hong Kong's public transportation system, which includes railways, trams, buses, minibuses, taxis, and ferries. This public transport system requires significant public investment, especially for Hong Kong's railways, which serve as its primary public transport modality.

Project Structure

In 1975, Hong Kong's public administration established the Hong Kong Mass Transit Railway Corporation (MTRC), a publicly owned corporation responsible for providing metro services.

Although it is majority-owned by the public administration, it is highly profitable and operates without public subsidies. This is possible because the MTRC generates profits not only from the mass transit railway but also from its real estate business.

When planning a new railway line, the MTRC does not only assess the cost of construction but also prepares a master plan to assess the potential for property developments along the railway line. Subsequently, it purchases the development rights for 50 years from the public administration, which is the right “to construct property above railway stations and depots, and land adjacent to the railway.” At the time of purchase, the price of these development rights takes no account of any rises in value expected to result from the transport project, i.e. the “before rail” land premium.

Subsequently, the MTRC publicly tenders these development rights to private developers, with an additional land premium that takes into account the added value from the planned railway expansion. The private developers assume the construction and commercialization risks and bear the cost of the residential and commercial properties they develop. The MTRC is responsible for supervising the works undertaken by the private developers, carrying out related civil works, and enforcing technical standards and requirements for the interface between its railway premises and the property developments.

Revenues generated by the residential and commercial properties are shared between the MTRC and the private developers. For residential units, if the private developer manages to sell all of the units before a contractually fixed deadline, the MTRC receives an agreed proportion of the profit generated from these sales. If units remain unsold by the deadline, the MTRC absorbs the unsold units and determines whether to sell or lease them on the open market. For shops and office units, the MTRC earns a share of the revenue from the commercial leases held by the developers, or it may keep

a portion of the assets developed to generate long-term rental income. This model also provides a revenue stream for the Hong Kong public administration, through taxes as well as dividends, as it is the majority shareholder of the MTRC.

Lessons Learned

The MTRC is regarded by some as the gold standard for transit management worldwide. From 1998 to 2013, property-related operations have generated almost twice the amount of money spent on railway line construction (profit from property operations totaled more than HKD 88 billion, or approximately USD 11 billion). The MTRC shows how transit-oriented development schemes can be effectively deployed as a means to fund vital infrastructure.⁵

However, in considering the model's ability to be replicated in other cities, it is worth considering the following:

- Hong Kong is a particularly vibrant and densely populated international commercial center, in which land is scarce. Private sector interest in the development rights sold by the MTRC is especially high due to the limited availability of land and the relative strength of the Hong Kong local economy.
- High traffic volumes on the railway network – Hong Kong has an average of 4.5 million passenger trips on metro lines every weekday. The high traffic volume creates particularly large commercial potential for the properties connected to the railway network.
- The close relationship between the MTRC and Hong Kong's public administration, which has helped facilitate the design of the project, including the granting of development rights alongside the railway lines.
- The MTRC has well-developed, internal expertise in managing and developing property, which may be difficult to replicate in a first or single attempt at this type of revenue model, especially in contexts with more limited market potential.

⁵ Veroustraete, Mathieu, and Han Zeng. *Land value Capture Mechanism: The Case of the Hong Kong MTR*. ESCAP, 2014. Accessed February 17, 2019. https://www.unescap.org/sites/default/files/Case%204_Land%20Value_Hong-Kong%20MTR.pdf.

3. Challenging Case: Yongin Everline Light Rail Transit, Seoul, Republic of Korea



Photo Credit⁶

Background

Anticipating an increase in travel demand based on Yongin City's development plans, in 1996 Yongin City proposed a PPP to establish the Yongin Everline Light Rail Transit (LRT). However, the project had to be deferred to 2001 due to insufficient bids received. The PPP project was re-announced in 2001 and in 2002 received only one project proposal submission, from a consortium formed by Daewoo Industrial Co. Ltd. and Bombardier Transportation. The Daewoo-led consortium was selected as the preferred bidder in 2002 and subsequently established Yongin Rapid Transit Co. Ltd.

Project Structure

The PPP agreement was signed in 2004 between Yongin City and Yongin Rapid Transit Co. Ltd. The consortium was awarded a 30-year concession to design, construct, and operate the Yongin LRT, which was to cover about 18 km at an estimated investment cost of KRW 728 billion (USD 646 million). The agreement stipulated that ownership of the LRT would belong to Yongin City. Yongin City would guarantee 90 percent of a predetermined, minimum revenue (i.e. a minimum revenue guarantee or MRG) over the 30-year operation period. At the same time, the consortium was required to provide additional equity (subject to a cap) in the event of any cost overruns.

Lessons Learned

The project started construction in 2005 and was completed in 2009. In the intervening period, however, a research institute determined that the estimated passenger volume would reach only 32,000 passengers per day, due primarily to competition from other public transport options that had been built or improved during the LRT's construction period. This figure was far below the 2001 estimate of 140,000. To satisfy its 90 percent MRG, this shortfall in demand would cost Yongin City an estimated KRW 2.5 trillion (USD 2.2 billion).

To avoid this financial burden, Yongin City reportedly denied the construction completion approval, a precondition to the consortium's receipt of construction payments. Instead, it proposed to move forward with operating the line without the completion approval. This led to the cancellation of the implementation agreement and an escalation of the dispute to international arbitration in 2011. In 2012, an international arbitration court ordered Yongin City to pay a total of KRW 779 billion (USD 692 million) to Yongin Rapid Transit Co. Ltd, as compensation for the project costs accrued before the cancellation of implementation agreement and the losses arising from opportunity costs.

After the termination of the original agreement, Yongin City and the Yongin Light Rail Co. Ltd. renegotiated a new, 30-year contract, which was subsequently signed in mid-2012. Under the new arrangement, the MRG provision was removed, but the city agreed to pay about USD 20 million per year in operation and management fees, in addition to assuming responsibility for the debt associated with the LRT system.

In April 2013, Yongin Everline officially opened but attracted only about 9,400 users per day in its first month of operation, and around 10,000 people per day as operation continued. This traffic volume is even lower than the significantly reduced 2011 estimate of 32,000 per day. If this continues, the LRT is expected to cost taxpayers around USD 2.7 billion over the next 30 years, including maintenance.

In September 2014, the situation improved following implementation of the Metropolitan Unity Fare system, which integrated the fare for the LRT with surrounding transit systems and improved station-to-station connection. After the integration, the ridership level of the Yongin Everline tripled in less than six months to an average of 30,000 passengers per day, close to meeting the most recent demand forecast of 32,000.⁷

This project highlights the following:

- The risk of making or accepting overly optimistic demand forecasts, as optimism bias can present significant fiscal risks for the municipality in the long run. In estimating demand, the municipality should endeavor to account for competing projects, existing or planned, such as where multiple public transit options operate along the same corridor.

⁶ Minseong Kim (https://commons.wikimedia.org/wiki/File:Yongin_Everline_Livery_Animal_1.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

⁷ Park, Jin Young, and Jinsu Mun. Korea's Railway PPP (Public-Private Partnership) Projects. Gyeonggi-do: The Korean Transport Institute, 2014; Shin, Tom. 2007. "Light Rail Transit Projects in Korea: Case Study of Two International Projects." World Services Group. Accessed February 17, 2019. <https://www.worldservicesgroup.com/article.aspx?id=2097>;

Sang-soo, Kwon. 2013. "Yongin Everline: New Train, Few Passengers." *Korea Joongang Daily*, June 1, 2013. Accessed February 17, 2019. <http://koreajoongangdaily.joins.com/news/article/article.aspx?aid=2972459>.

- The importance of investing in qualified, independent transaction advisors and selecting the project company through transparent and competitive procurement processes.
- In the event of conflict or crisis, both parties should be open to renegotiation to seek the

best available solution. Although the solution may not wholly reverse the damage that has already occurred, it can prevent or greatly mitigate future damages

Busses

4. City Bus Terminal, Sheberghan, Afghanistan



Photo Credit⁸

Background

Bus passengers in Sheberghan had to wait for buses outside on the main road, sometimes for hours, without access to public toilets or other facilities. There was also no organized parking space for drop-offs and pickups, which caused traffic jams and frequent road accidents. After receiving complaints from residents about the lack of a bus station in the city, the municipality decided to construct a modern bus terminal and to enter into a PPP for its operation and management to ensure its long-term sustainability.

The bus terminal was inaugurated on 13 November 2013 and the project site comprises a canopy, shops, a restaurant, modern toilets, and other facilities. The municipality plans to use the lease revenue it will receive from the private partner for reconstruction projects throughout the city.⁹

Project Structure

The municipality built the bus terminal and made the project site available to a local private investor. Of the total USD 230,000 investment cost, the municipality contributed USD 50,000, a United States development aid agency contributed USD 120,000, and the private partner provided the remaining USD 60,000.

Lessons Learned

This PPP promises not only to help address traffic problems and improve the comfort of bus passengers, it also should allow the municipality to generate revenue from leasing the shops to the private partner. This project shows how blending funding and financing sources (in this case combining contributions from public, bilateral development partner, and private sources) can help de-risk projects in more fragile contexts and jurisdictions with less developed PPP markets, where it may be more difficult to attract private investment. If successful, blended finance projects can serve as important demonstration projects that may help catalyze additional private investment, including wholly privately financed PPPs.

⁸ Julian-G. Albert (https://commons.wikimedia.org/wiki/File:Coach_buses_in_northern_Afghanistan.jpg), „Coach buses in northern Afghanistan“, <https://creativecommons.org/licenses/by/2.0/legalcode>

⁹ USAID. n.d. “Sheberghan Bus Terminal Includes Two Public-Private Partnerships”. ICMA. Accessed December 3, 2019. <https://icma.org/documents/sheberghan-bus-terminal-includes-two-public-private-partnerships>;

Wadsam. 2013. “Modern bus station to be established in Sheberghan”. Accessed December 3, 2019. <https://wadsam.com/afghan-business-news/modern-bus-station-to-be-established-in-sheberghan-343/>.

5. Modern Bus Terminal and Municipal Market, Danlí, Honduras



Photo Credit¹⁰

Background

The municipality of Danlí in Honduras had an outdated and disorganized bus terminal and was suffering from high traffic congestion on its main roads due to the accumulation of street sellers. To address these problems, an improved and expanded Danlí bus terminal and municipal market was proposed to the municipality, which included 418 commercial stalls, warehouse space, meeting rooms, parking space for 60 buses, waiting rooms and ticket stalls.

Project Structure

The HNL 99,232,126.97 (USD 4 million), 19,000 m² project originated as an unsolicited proposal from Flefil y Asociados to the municipality of Danlí. The project, as proposed, did not require public funding or financing, but it did seek public financial guarantees.

The project site was transferred to Flefil y Asociados for construction of the upgraded and expanded facilities, at a price agreed in the transfer agreement. The private partner would be responsible for evaluating the land, sub-ground structures, and all the characteristics of the terrain before commencing construction, so that no unexpected or additional costs related thereto could be claimed against the municipality. In 2016, Flefil y Asociados solicited approval for the transfer of contractual rights to Celaque Constructora and this was granted on 26 May of the same year.

On completion of construction, Celaque Constructora would recoup its investment, plus a reasonable rate of return, by selling commercial stalls to transporters, current tenants, small and medium enterprises, and/or the municipality, at a price preset by the municipality and included in the PPP agreement (HNL 34,000/USD 1,390 per m²). If the municipality elected to buy some or all of the commercial stalls, it would be entitled to

rent them to persons not able to purchase a stall. Celaque Constructora would also be entitled to sell the improved bus terminal spaces to small and medium carriers at a price preset by the municipality and included in the agreement (HNL 30,000,000/USD 1,200,000).

The municipality would be responsible for operating and maintaining all common areas and agreed not to grant construction permits for similar works within the project zone. If the contract is terminated early due to force majeure, the municipality would only be obliged to compensate for the works completed prior to the termination date. Other risks, such as environmental, design, financial, and construction, would be borne by Celaque Constructora.

The entire project was designed to be energy-saving and easily accessible by people with physical limitations. It was inaugurated at the beginning of 2018 and is expected to benefit more than 400,000 people.

Lessons Learned

It was reported that, towards the end of 2017, vendors of the previous market (intended future tenants of the new facilities) began gathering on the streets around the newly constructed bus terminal and market to sell their products, which led to high congestion and several mobility problems. The vendors' argument for selling on the streets centered on the price of the market stalls, which they considered too high for them to proceed with acquiring the new stalls. Several efforts were made to facilitate the purchase of the market stalls, without much immediate success. This led to an agreement between Celaque and the Vendors Association, signed in April 2018, which provided that the stalls would be purchased collectively by the Association, with financing from a local financial institution or individually by each vendor, depending on the case. This financing would be guaranteed by the government.

Problems persisted, however, and the traffic congestion caused by the street sellers was creating serious threats to the safety and mobility of the community. To solve this problem, the Government of Danlí issued an executive order in June 2018 ordering the cessation of all sales activities on the street outside the new market and mandated the expulsion of all the street sellers. In addition, owing to the rise of "private" bus terminals operating near the new terminal, the executive order required all bus operations going in and out of the municipality to use the new

¹⁰ Jaetguz (https://commons.wikimedia.org/wiki/File:Anillo_PerifericoTegucigalpa.jpg), „AnilloPeriferico Tegucigalpa“, <https://creativecommons.org/licenses/by-sa/3.0/legalcode>

bus terminal. The executive order also expanded the number of market stalls to be allocated to vendors and stipulated that the municipality would act as guarantor in favor of the vendors/stall-buyers before any financial institution that would provide loans for stall acquisition.¹¹

This project highlights the following:

- The ability and willingness of end users to pay for a new or improved infrastructure asset or a better quality of service cannot be taken for granted. Pricing should be determined in close consultation with intended end user demographics, here the intended market stall purchasers. This consultation is both an opportunity to explain and justify any new or

increased price resulting from a project, and so increase willingness to pay, and to gauge the actual ability of intended end users to absorb any increased cost

- Where end user fees cannot realistically be expected to fully fund the project, additional options need to be explored – in this case government guarantees to give vendors improved access to finance for purchasing the new stalls.
- The municipality's responsibilities do not end when a PPP project begins to be implemented by the private partner. It must remain an active and supportive partner willing to take all actions reasonably within its powers to promote the success of the project – in this case regulating street sellers and competing bus terminals.

6. Challenging Case: Bus Terminal-cum-Commercial complex, Mohali, India



Photo Credit¹²

Background

Mohali's bus terminal was not meeting the transport demands of a growing city, which had burgeoned into a commercial and institutional hub and an investment destination for IT, electronics, and real estate development. To better meet the demand for bus services, the Greater Mohali Area Development Authority, the Department of Transport, and the Government of Punjab decided to pursue a PPP for the design, construction, operation and transfer of a new bus terminal. As the terminal facility alone, however, was not viewed as commercially desirable enough to attract investors, the project design incorporated the development of adjacent commercial facilities to increase its financial viability.

Project Structure

The project design, considered to be the first-of-its-kind "busopolis" in India, included three main facilities: a bus terminal with passenger amenities and retail space; a hotel with a helipad; and a

commercial office tower. Revenue from the bus terminal would be derived primarily from the "adda" fee – a fee collected from all buses exiting the terminal, in addition to revenues from commercial leases to vendors, parking, a cycle stand, and advertising. Hotel operations, including landing charges for use of the helipad, and the sale, long-term lease or rental of commercial developments for retail and office space, were expected to provide substantial additional revenue for the concessionaire.

The private partner undertook to design, build, finance, operate and transfer the bus terminal and adjacent commercial facilities, in return for a 20-year concession for the bus terminal and a 90-year concession for the commercial complex. Investment costs were estimated at approximately INR 431 crore (USD 60 million) but, due to a change in project scope and delays in implementation, the total project cost was later revised to INR 530 crore (USD 74 million).

The private partner was selected through a two-stage international competitive bidding process. The project was awarded on the basis of minimum eligibility requirements and the highest bid for the upfront concession fee, payable to the Greater Mohali Area Development Authority. The winning bidder, an Indian infrastructure construction conglomerate, offered an upfront fee of INR 57 crore (USD 8 million), in addition to the payment of an upfront project development fee of INR 1,25 crore (USD 200,000) to the Government of Punjab, which was fixed at 5 percent of the upfront concession fee. In addition, the private partner agreed to pay the Development Authority an annual concession fee of INR 2,85 crore (USD 400,000), which would increase by 15 percent every three years.

¹¹ Coaliana. n.d. "Proyecto "Terminal de buses y plaza comercial municipal, Danií – El Paraíso"". Accessed November 27, 2019. <http://app.sisocs.org/index.php?r=ciudadano/FichaTecnica&control=Contratacion&id=13>.

¹² ak sa (https://commons.wikimedia.org/wiki/File:Punjab_Bus.jpg), "Punjab Bus", <https://creativecommons.org/licenses/by-sa/2.0/legalcode>

The project investment cost was financed with a debt-to-equity ratio of 0.86:1. The private partner's equity contribution included revenue generated from the sale of a fixed amount of commercial space at an agreed minimum rate. As a credit enhancement, the private partner agreed to a firm tie-up of 50 percent of the funds from the sale of the commercial space required to finance the project before the first loan disbursement.

Lessons Learned

The busopolis project commenced operations by the end of 2016 and was expected to realize around 2,000 bus-trips daily. However, reports from 2017 indicated that the bus terminal was receiving only around 200 buses and 100 people per day, due to users and drivers continuing to use a pre-existing bus stand and thereby avoid the usage fee charged by the new terminal. In addition, several investors that purchased space in the complex's commercial

areas have reported that they have not received the offices and shops they purchased in 2010 or a refund of the purchase price after the developer failed to hand over the spaces in 2012 as agreed.¹³

This project illustrates how the municipality's responsibilities do not end when a PPP project begins to be implemented by the private partner. It must remain an active and supportive partner willing to take all actions reasonably within its powers to promote the success of the project, including taking steps to promote or require the use of the new or improved asset. In addition, the municipality should have a team in place with sufficient capacity to monitor the private partner's compliance with its obligations under the PPP agreements, communicate with the private partner, and, where necessary, take actions to ensure the private partner complies with its obligations.

7. Challenging Case: Amritsar Intercity Bus Terminal, Punjab, India



Photo Credit¹⁴

Background

Traffic at the Amritsar Bus Terminal, which was serving 1,800 to 2,000 bus arrivals per day, far exceeded the capacity of the available facilities and the existing terminal building was in poor condition. To address this problem, the Department of Transportation (DoT) of the Government of Punjab (GoP), facilitated by the Punjab Infrastructure Development Board (PIDB), decided to expand the terminal using a PPP scheme.

Project Structure

After undertaking a two-stage bidding process, the project was awarded to Rohan Rajdeep Infrastructure (RRI), a partnership between Rohan Builders (India) Pvt. Ltd., Rajdeep Buildcon Pvt. Ltd., and Rajdeep Road Developers Pvt. Ltd.) in February 2004, for a concession period of 11 years and five months. RRI undertook responsibility for financing, building, operating, and maintaining the Amritsar Intercity Bus Terminal Complex. To ensure

quality, RRI agreed to submit monthly progress reports to the public authority.

RRI's revenues would come from tariffs paid by buses for use of the terminal, commercial leases for shops, sale of advertising space, and parking fees. RRI agreed to pay PIDB a one-time, fixed project development fee of INR 35 lakhs (USD 50,000), as well as a monthly lease payment to the public authority of INR 50,000 (USD 700) over the concession period.

The contracting authority agreed not to develop any similar facilities within a 10-km radius during the concession period, to ensure that there would be no competition that might hinder RRI in realizing the forecast demand for the terminal.

Lessons Learned

When the project was tendered, it was estimated that the terminal would receive 2,000 to 3,000 buses per day. Actual demand, however, proved to be far less, with only about 1,100 regular buses and 600 minibuses using the terminal on average each day. This may be to some extent attributable to the fact that some buses reportedly began operating from outside of the bus terminal, possibly to avoid paying the terminal usage fee. To compensate for this, the contracting authority issued a notification that all intercity buses must stop, drop off, and pick up passengers from inside the Amritsar Bus Terminal. The notification, however, has reportedly had limited impact.¹⁵

¹³ SBI Capital Markets. 2011. "PPP in Urban Transport Infra." *Infrastructure Today*, January. Accessed February 14, 2019. <https://www.candcinfrastructure.com/images/PPP%20in%20Urban%20Transport%20Infra.pdf>;

Government of India Department of Economic Affairs, Database of Infrastructure Projects in India, available at: <https://pppinindia.gov.in/infrastructureindia/web/guest/home>;

Singh, Harmaneep. 2019. "Mohali Terminal Chairman Booked for Duping Buyers." *Times of India*, February 27. Accessed February 14, 2019. <https://timesofindia.indiatimes.com/city/chandigarh/mohali-terminal-chairman-booked-for-duping-buyers/articleshow/68195418.cms>;

Rozana Spokesperson. 2017. "Mohali ISBT: Dream Project of Former Deputy CM Proved a Failure." *Rozana Spokesperson*, October 23. Accessed February 14, 2019. <https://www.rozanaspokesman.com/news/punjab/mohali-isbt-dream-project-of-former-deputy-cm-proved-a-failure.html>

¹⁴ Photo in the public domain published by Simbu123 https://commons.wikimedia.org/wiki/File:ISBT_Amritsar.jpg

¹⁵ Ministry of Finance, Government of India. n.d. "Amritsar Intercity Bus Terminal Project." PPP India. Accessed January 10, 2019. <https://www.pppinindia.gov.in/toolkit/ports/module3-rocs-aibtp1.php?links=aibtp1>.

This project highlights the following:

- Throughout the project cycle, it is important to consult with key stakeholders on the most salient elements of the project. Pricing in particular should be determined in close consultation with intended end user demographics, in this case the bus operators. This consultation is both an opportunity to explain and justify any new or increased price resulting from a project, and so increase willingness to pay, and to gauge the actual ability of intended end users to absorb any increased cost.

- The municipality should establish and maintain robust monitoring and enforcement mechanisms to ensure compliance with contractual obligations, including its own. Where the municipality agrees to the inclusion of a non-compete provision in the PPP agreement, for example, it must carefully consider in advance how it will ensure compliance with this provision through the life of the PPP.

8. Challenging Case: Bus Terminal and Commercial Complex, Dehradun, India



Photo Credit¹⁶

Background

Located 236 km from New Delhi, Dehradun is the capital city of the State of Uttarakhand and a popular tourist and educational hub in northern India. To accommodate the city's growing population and an influx of tourists, the Mussoorie Dehradun Development Authority (MDDA) – the municipal development authority – decided to build an Inter-State Bus Terminal (ISBT) and Commercial Complex in Dehradun using a PPP scheme.

Project Structure

Following a two-stage bidding process, Ramky Infrastructure Ltd was announced in 2003 as the successful bidder based on the highest annuity payment to the MDDA. Under the ensuing PPP agreement, the project developer undertook to design, finance, build, operate, and maintain the ISBT (Phase 1) and commercial entertainment complex (Phase 2). The contract was a 20-year concession agreement, extendable by an additional ten years. At the end of the concession period, both ISBT and the commercial area were to be transferred back to the MDDA. The project developer would generate revenue from the following: (i) usage fees charged to the expected 750 buses per day; (ii) lease rental from the commercial area; and (iii) miscellaneous other value-added user services and commercial activities.

The project was to be financed without any contribution from the MDDA and the MDDA was expected to receive a fixed annual lease payment from the developer of INR 81 lakhs (USD 114,000), which would increase 5 percent each year after an initial, four-year moratorium. The MDDA was expected to receive about INR 19.16 crore (USD 2.7 million) over the entire concession period.

Lessons Learned

Phase 1 of the project – the ISBT complex – has been completed and in operation since June 2004. Halfway through the concession period, however, allegations arose that the private developer was not properly maintaining the facilities of the ISBT. In particular, complaints have been received about the poor maintenance of toilets, the lack of sanitation, and the lack of drinking water availability. Furthermore, Phase 2 of the project – the commercial complex – has not been built despite transfer of the leased land from the MDDA, due to a protracted dispute between the parties over the maintenance of the ISBT and the annual lease payment due from the private developer. Nonetheless, the PPP agreement remains in place. The MDDA is reportedly not willing to assume liability for the INR 20 crore (USD 2.8 million) loan assumed by the private developer to construct the ISBT.¹⁷

¹⁶ ArmouredCyborg (https://commons.wikimedia.org/wiki/File:UTC_bus.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

This project highlights the following:

- Service parameters should be clearly defined and included among the key performance indicators (KPI) of the private partner. In the case of a bus terminal, the private operator's service parameters may include, for example, the frequency with which toilets must be cleaned and maintained. Likewise, the municipality may assume an obligation to ensure adequate access to basic infrastructure services, such as piped water and sewerage. These obligations should be plainly defined and delineated in the PPP agreement, to ensure both parties' responsibilities are clear.

¹⁷ Ministry of Urban Development Government of India, Confederation of Indian Industry. n.d. *Compendium on Public Private Partnership in Urban Infrastructure - Case Studies*. Accessed November 27, 2019. https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/documents/India_urban-infrastructure.pdf.

¹⁸ Shkurte ramushi (https://commons.wikimedia.org/wiki/File:A_street_in_the_center_of_Peja.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

¹⁹ Dinarama, Vesa. *Analysis on Public-Private Partnership Kosovo*. Balkan Monitoring Public Finances, 2017. Accessed January 29, 2019. <http://wings-of-hope.ba/wp-content/uploads/2016/12/D3.4.4.3.-Analysis-on-Public-Private-Partnerships-Kosovo.pdf>;

Bregant, Ljerka G., and Dalia Dubovske. *Comparative Analysis of Lessons Learned from Recent Development in the Implementation of PPP Program in the Western Balkan Region*. Montenegro: ReSPA, 2015. Accessed January 29, 2019. <https://www.respaweb.eu/download/doc/ReSPA+PPP+Working+Paper.pdf/303a4782ecd38f039d270ac39dba69ee.pdf>.

²⁰ Felipe Restrepo Acosta (https://commons.wikimedia.org/wiki/File:Bogotá_biariculado_de_TransMilenio_por_la_av._Caracas.JPG), „Bogotá biarticulado de TransMilenio por la av. Caracas“, <https://creativecommons.org/licenses/by-sa/3.0/legalcode>

- It is also important to have robust monitoring, communication, and enforcement mechanisms to ensure both partners' obligations are met and that the private partner meets its service delivery standards. These mechanisms should be designed to promote effective communication between the two parties to the PPP, so that any disputes over compliance are proactively identified and resolved.

9. Challenging Case: Urban Transport Services, Peja, Kosovo



Photo Credit¹⁸

Background

In the municipality of Peja, Kosovo, the population's transportation needs were served by a mixture of numerous private buses and taxis, which was contributing to increased congestion and air pollution. This led the municipality to consider ways of designing and implementing a more efficient urban transit system, to ease congestion and encourage people to use public transport.

Project Structure

Following a tendering process that took about 15 months, the municipality awarded a PPP contract for bus services to a private partner on 17 April 2012. The deal had an estimated value of EUR 4 million (USD 4.6 million) and a term of ten years. Under the PPP contract, the private partner undertook exclusive responsibility for providing bus transportation services and designing, constructing, and maintaining bus stops on land provided by the municipality. At the end of the term, the bus stops would transfer to the municipality, but the buses would remain the property of the private partner.

The private partner would derive revenue from the ticket fares charged to passengers and by selling advertising space near bus stops and on buses. The municipality agreed to give exclusive bus operation rights to the private partner to help ensure the realization of demand for the bus services.

Lessons Learned

After the PPP agreement entered into effect, the municipality reportedly failed to comply with the exclusivity provision, as it struggled to end the operations of illegal bus and taxi services. Consequently, the private partner had to compete with these other transport service providers, which significantly impacted the revenues of the private partner. The private partner and the municipality had discussions to address the problem but could not agree on a viable solution. As a result, the PPP agreement has been suspended. No further publicly available information has been found following the suspension of the PPP agreement.¹⁹

This project illustrates the importance of establishing and maintaining robust monitoring and enforcement mechanisms to ensure compliance with contractual obligations, including those assumed by the municipality. Where the municipality agrees to the inclusion of a non-compete provision in the PPP agreement, for example, it must carefully consider in advance how it will ensure compliance with this provision through the life of the PPP.

²¹ United Nations Development Program. 2008. *Examples of Successful Public-Private Partnerships* (Vol. 15). Special Unit for South-South Cooperation, UNDP, Accessed July 3, 2019. <http://tcdc2.undp.org/GSSDAcademy/SIE/Docs/Vol15/10Colombia.pdf>;

Global Mass Transit Report. 2011. "TransMilenio Bogotá." Global Mass Transit. Accessed July 3, 2019. <http://www.globalmasstransit.net/archive.php?id=7392>; CEPS. 2015. "Bus Rapid Transit: TransMilenio." Pocacito. Accessed July 3, 2019. https://pocacito.eu/sites/default/files/TransMilenio_Bogota.pdf;

Ardila, Arturo. 2015. "Study of Urban Public Transport Conditions in Bogotá, Colombia." PPIFA. Accessed August 10, 2019. https://ppiaf.org/ppiaf/sites/ppiaf.org/files/documents/toolkits/UrbanBusToolkit/assets/CaseStudies/summy/sum_bogota.html#2;

GDI. 2017. "Bus-Rapid Transit Systems as Cost-Effective Transportation Alternatives: The Case of TransMilenio, Bogotá." Global Delivery Initiative. Accessed August 10, 2019. https://www.globaldeliveryinitiative.org/sites/default/files/case-studies/sabatino_delivery_note_1_v2_10-23-17_0.pdf;

Leal, T. Monica, and Robert L. Bertini. n.d. "Bus Rapid Transit: An Alternative for Developing Countries." Robert L. Bertini. Accessed August 10, 2019. <http://bertini.eng.usf.edu/papers/brt.pdf>;

Hidalgo, D. n.d. "TransMilenio: A High Capacity – Low Cost Bus Rapid Transit System Developed for Bogotá, Colombia." Codatu. Accessed August 10, 2019. <http://www.codatu.org/wp-content/uploads/Transmilenio-A-high-capacity-low-cost-bus-rapid-transit-system-developed-for-Bogota-Colombia-D.-HIDALGO.pdf>.

10. Transmilenio Bus Rapid Transit Project, Bogotá, Colombia



Photo Credit²⁰

Background

Colombia has experienced a dramatic population increase in its urban centers. Bogotá, the capital city, has absorbed a large proportion of the people migrating to cities from more rural areas. This population shift led to heavy congestion of roadways due to the increase in the use of private vehicles as well as the particular structure of bus transport operations in Bogotá. Specifically, under Colombian law only bus companies can provide public transportation services, which means, in principle, that they should own the buses. In reality, however, the bus companies owned less than ten percent of the bus fleet. Their primary operating method was to rent their routes to bus owners, which by law had to be affiliated to a bus company, in return for a monthly fee plus an upfront, lump sum payment for the right to operate specific routes. As the bus companies were naturally incentivized to establish, and thereby lease, more routes and the local transportation authority lacked the capacity to evaluate the real need for them, the number of routes and buses increased exponentially. The resulting competition among bus operators, which derived their revenues from the actual fares collected, led to dangerous and notorious practices, including reckless driving and mistreatment of passengers.

In 1999, the city of Bogotá established TransMilenio S.A., with representation from several public agencies, to manage a Bus Rapid Transit (BRT) system in the city to alleviate these problems and provide the city with a better transportation system, one that aimed to be cost-effective and help reduce the level of air pollution in the city. The city had initially considered constructing a metro system to meet its public transit needs. During the planning phase, however, the city found that the capital investment needed for the metro would more than double that of the BRT and that the metro would cover only 8 percent of the city, as compared to the

85 percent offered by the BRT. Accordingly, the city elected to pursue the delivery of a high-quality BRT system instead.

Project Structure

TransMilenio S.A was given responsibility for designing, planning, and monitoring the BRT system in Bogotá, which operates under the same name as TransMilenio, as well as coordinating all the other stakeholders involved in the operation of the BRT system. TransMilenio S.A awards competitively tendered contracts for the provision of bus services to private sector operators, which must own their buses. Payment is linked to kilometers operated, instead of passengers serviced, which is meant to help curtail the dangerous prior practices of reckless driving and mistreatment of passengers.

The private sector operators are consortia of traditional local transport companies and national and international investors, which own the buses and hire drivers and maintenance personnel. The private operators are also involved in the larger BRT system's operation and maintenance, as well as ticketing and fare collection. As there are no operating subsidies from public authorities, the private operators recover their investments through the collection of fares paid by passengers. Accordingly, the private partners assume the demand risk, but also stand to retain the full benefit if fare revenues are higher than expected.

TransMilenio operates as a PPP, in which the public sector provides fixed capital investments, funded through fuel and other local taxes, while the private sector provides and operates the bus fleet and high-technology ticketing systems within an agreed framework. The system consists of a trunk-and-feeder route grid with 9 core routes serving 114 stations, and buses with capacities of 160 or 270 passengers. The core routes (trunk lines) have four exclusive-use lanes (two in each direction) located

²² United Nations Development Program. 2008. *Examples of Successful Public-Private Partnerships* (Vol. 15). Special Unit for South-South Cooperation, UNDP, Accessed July 3, 2019. <http://tcd2.undp.org/GSSDAcademy/SIE/Docs/Vol15/10Colombia.pdf>;

Global Mass Transit Report. 2011. "Trans Milenio Bogotá." Global Mass Transit. Accessed July 3, 2019. <http://www.globalmasstransit.net/archive.php?id=7392>; CEPS. 2015. "Bus Rapid Transit: TransMilenio." Pocacito. Accessed July 3, 2019. https://pocacito.eu/sites/default/files/TransMilenio_Bogota.pdf;

Ardila, Arturo. 2015. "Study of Urban Public Transport Conditions in Bogotá, Colombia." PPIFA. Accessed August 10, 2019. https://ppiaf.org/ppiaf/sites/ppiaf.org/files/documents/toolkits/UrbanBusToolkit/assets/CaseStudies/summy/sum_bogota.html#2;

GDI. 2017. "Bus-Rapid Transit Systems as Cost-Effective Transportation Alternatives: The Case of TransMilenio, Bogotá." Global Delivery Initiative. Accessed August 10, 2019. https://www.globaldeliveryinitiative.org/sites/default/files/case-studies/sabatino_delivery_note_1_v2_10-23-17_0.pdf;

Leal, T. Monica, and Robert L. Bertini. n.d. "Bus Rapid Transit: An Alternative for Developing Countries." Robert L. Bertini. Accessed August 10, 2019. <http://bertini.eng.usf.edu/papers/brt.pdf>;

Hidalgo, D. n.d. "TransMilenio: A High Capacity – Low Cost Bus Rapid Transit System Developed for Bogotá, Colombia." Codatu. Accessed August 10, 2019. <http://www.codatu.org/wp-content/uploads/Transmilenio-A-high-capacity-low-cost-bus-rapid-transit-system-developed-for-Bogota-Colombia-D.-HIDALGO.pdf>.

in the center of the city's streets, while the feeders operate without exclusive lanes and assess no additional fare for their use.

In November 1999 Transmilenio S.A. began the bidding processes for trunk line operations by requesting proposals. All the commercial risks, including passenger demand, were assigned to the private operators. The bidding process proved to be a success as, in April 2000, four different companies were awarded concession contracts to provide and operate 470 new buses. At the same time, the tender for the concession for the fare collection system was ultimately won by a local company operating jointly with an experienced fare collection system provider. Separately, a Spanish technology group won the bid to operate the system's control center, and tenders were also conducted for the feeder service contracts.

Over a 24-month construction period, the new infrastructure for TransMilenio's first phase was completed under the direction and supervision of the local public works agency, the Institute for Urban Development (IDU), and delivered by local companies under traditional public procurement contracts. The infrastructure consists of 38 km of trunk lines and seven feeder zones covering 100 km; 4 terminal stations, 4 intermediate integration stations; 53 stations; 17 pedestrian facilities, plazas and sidewalks; and facilities for parking and maintenance. The total investment for Phase I infrastructure was USD 213 million, funded by a local fuel surcharge (46%), general local revenues, largely from a capital reduction of the partially privatized power company (28%), a credit from the World Bank (6%), and grants from the national government (20%). The infrastructure was completed through 58 construction contracts with national firms and 48 supervision contracts.²¹

Lessons Learned

Bogotá's TransMilenio has been regarded as among the global best practice cases for PPP in BRT and the model has been adopted in more than 100 cities worldwide. With three phases in operation, it covers 114.4 km; has 9 terminals and 11 parking facilities; includes 143 regular stations and 12 service corridors; offers 22 bike-parking sites with 5,260 parking spaces; and provides 5,017 external points to add credit to fare cards. In addition to operating buses, TransMilenio recently opened a 3.3 km gondola lift system (cable cars) connecting a specific area in the south of Bogotá with poorer neighborhoods on the Bogotá hills, which further connects these communities with the rest of TransMilenio system.

With the BRT development, reports have indicated that average travel time has decreased by 32 percent, property values along the main line have increased by 15-20 percent, tax revenues have increased, air quality has improved along the BRT routes, and road fatalities have decreased by 60 percent from 1,299 in 1996 to 551 in 2007.

This project highlights the following:

- Stakeholder engagement was key to delivering the TransMilenio project, aided by strong municipal leadership that helped promote interest in and support for the project, despite the diversity of interests and initial skepticism of some of the parties involved. This engagement included key knowledge exchange activities that sought lessons from other international examples of cities that had successfully implemented BRT systems; an objective timeline that helped generate political support from local officials; and close engagement with local bus operators during the project development process, many of which ultimately took part in the project.
- Even in a generally successful project, problems can arise. TransMilenio has received some recent criticism domestically due to concerns over pricing. Since the PPP operates wholly without subsidies from the government, the private operators depend on fares to maintain BRT operations and recover their investments. The flat fare (currently fixed at approximately USD 1) appears to have increased faster than some riders' income levels, making it susceptible to criticism for being unaffordable to low-income users (with average daily incomes of USD 3).²²

Airports

²³ Photo on the left:
[Poudou99 \(https://commons.wikimedia.org/wiki/File:Saint-Pétersbourg_-_Aéroport_-_2015-12-15_-_IMG_0757.jpg\)](https://commons.wikimedia.org/wiki/File:Saint-Pétersbourg_-_Aéroport_-_2015-12-15_-_IMG_0757.jpg),

<https://creativecommons.org/licenses/by-sa/4.0/legalcode>

Photo on the right:
[MoukhamedovR \(https://en.wikipedia.org/wiki/File:Pulkovo_International_Airport.jpg\)](https://en.wikipedia.org/wiki/File:Pulkovo_International_Airport.jpg), „Pulkovo International Airport“

<https://creativecommons.org/licenses/by-sa/3.0/legalcode>

²⁴ Citibank. 2015. "World-class Investors Drawn to St. Petersburg Airport Project". Citibank. Accessed December 3, 2019. https://www.citibank.com/icg/sa/public_sector/casebook/docs/pdf/1289433_City_of_St_Petersburg_Government_Case_Study.pdf;

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Pulkovo Airport Saint Petersburg. 2013. "Pulkovo Airport is One of the World Best PPP Projects". Pulkovo Airport Saint Petersburg. Accessed December 3, 2019. <https://pulkovoairport.ru/en/about/news/2013/1980/>.

11. Pulkovo International Airport, St. Petersburg, Russian Federation

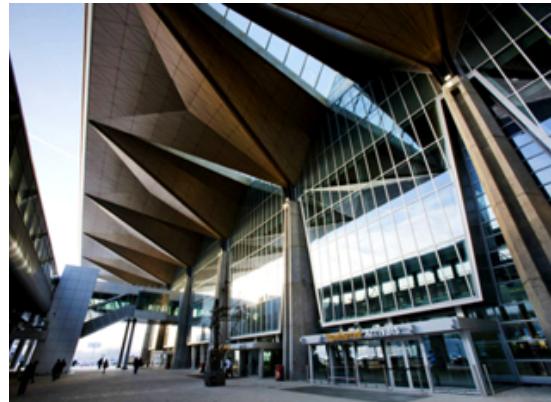


Photo Credit²³

Background

St. Petersburg is among Russia's most well-known tourist destinations, the nation's second-largest center for business activity, and its second-largest city, with a population of six million. Accordingly, the city needs to have a modern, well-functioning airport. St. Petersburg's Pulkovo Airport, however, was significantly over capacity, which was negatively affecting the level of service provided as well as passenger and airline satisfaction. To address these issues and to facilitate economic growth and social development in the growing city, the City Government of St. Petersburg (the City) developed plans to renovate the existing terminal, construct a new terminal, extend the apron, and construct a new energy center for the airport. A PPP was proposed to deliver the project to limit the impact on the public budget.

Project Structure

The City conducted a feasibility study and tender process in line with international best practice. The project attracted interest from seven consortia during the prequalification phase and a great deal of interest from international commercial banks. Following a competitive bidding process, in late April 2010, amidst the global financial crisis, the City executed a PPP agreement with the Northern Capital Getaway (NCG) consortium. NCG consisted of VTB Capital (50 percent), Fraport AG (35.5 percent), Koltseva Holdings Ltd (7.5 percent), and Horizon Air Investments SA (7 percent). The total project cost was estimated at EUR 1.2 billion (USD 1.36 billion). The private partner undertook to build, maintain, and operate the facility for 30 years.

The project was funded with a debt-to-equity ratio of 63 percent to 37 percent. NCG contributed the initial equity capital of EUR 440 million (USD 499 million). The long-term debt (15-year tenure) of EUR

750 million (USD 851 million) was provided by a commercial syndicate and international financial institutions (IFIs). The IFIs included the International Finance Corporation (IFC) and the European Bank for Reconstruction and Development (EBRD), which provided loans of about EUR 70 million (USD 79 million) and EUR 100 million (USD 113 million), respectively. Notably, due to Pulkovo Airport's ability to generate revenue in Rubles, US Dollars, and Euros, debt for the airport was raised in all three currencies. This helped ensure an optimal financing structure for the project. This project is reportedly the first PPP in the country that did not require any state subsidies or guarantees.

The concessionaire derives revenue from aeronautical and non-aeronautical activities at the airport. The concessionaire also agreed to pay the City concession fees that are expected to total EUR 650 million (USD 737 million). The figure is equivalent to an average of 9 percent of the revenue expected to be generated by the airport over the 30-year project period. After the concession period, ownership of the airport, with its significantly improved facilities, will transfer to the City.

Lessons Learned

This project was chosen as one of the 100 most innovative and inspiring urban infrastructure projects in the world in "Infrastructure 100: World Cities Edition Top 100 Projects." In 2013, it was selected by the IFC and Infrastructure Journal as one of 40 PPPs in emerging markets that reflect best practices for governments partnering with the private sector, earning the silver medal award for the Asia, Middle East and North Africa region.²⁴

This project highlights the following:

- Strong leadership can be a key driver of a successful project. The then-Governor and one

of the deputy governors took ownership of and championed the project. By displaying a clear vision and commitment to applying global best practices in implementing the project, their leadership helped generate confidence and support among other stakeholders. In addition, high-level commitment to the project also facilitated the formation of a strong project team, which included senior officials, that could manage and drive the project on a day-to-day basis.

- The project benefited from investing in qualified advisers. One of the directives of the project champions was to engage experienced international advisers, including the World Bank Group (as the strategic advisor), Citibank (as the transaction advisor), and Mott MacDonald (as

the technical advisor), among others. This helped ensure the completion of a robust feasibility study and competitive procurement process that received strong interest from the market, despite the City's limited PPP experience.

- Be open to the bidders' comments and suggestions during the project development cycle, including at the procurement stage. In this case, the project structure improved significantly as the project team heard and responded to the views and ideas expressed by the bidders during the bidding process. This well-structured, interactive, and transparent bidding process also helped facilitate the selection of the private partner that best fit the City's strategic aims.

12. Commercial and Landside Operations of I Gusti Ngurah Rai International Airport, Bali, Indonesia



Photo Credit²⁵

Background

Run by PT Angkasa Pura I (AP1), I Gusti Ngurah Rai International Airport (Bali Airport) is Indonesia's second-busiest international airport. AP1 is an Indonesian state-owned enterprise responsible for managing 13 airports in the eastern region of Indonesia, including Bali Airport. It serves 13 million passengers per year, with an annual growth rate of 10 percent. Most of the airport's revenues historically came from aeronautical activities, such as passenger service charges and aircraft landing and take-off fees. This was partly attributable to a lack of expertise in non-aeronautical (i.e. landside) commercial operations on the part of AP1. To gain insight into international best practice in landside commercial operations, AP1 decided to pursue a PPP with a multinational private company with expertise in the field.

Project Structure

In 2012 AP1 selected GVK, an airport development company based in India, to prepare, develop, operate, and manage the landside commercial facilities at Bali Airport. GVK received a 65

percent stake in the landside airport management concession.²⁶ The management contract with GVK was established on a base fee and an incentive fee-based remuneration structure. The Indonesian government reportedly funded all capital expenditures for the renovation of the landside facilities.

In developing the commercial activities, AP1 and GVK organized an open, online selection program to ensure that the selection of business partners would be conducted in a more professional, transparent, accountable, responsible, independent, and fair manner.

In 2013 AP1 and GVK issued some new tenders for commercial activities at Bali Airport. The bidding for retailers resulted in more than 200 prospective bidders for the contracts. Eventually, DFS and Dufry International won the bid for a five-year contract to operate retail and duty-free shops at Bali Airport. AP1 also signed five-year concession agreements with three food and beverage operators, namely Bogajaya, Sumber

²⁵ Photo on the left: Photo in the public domain published by Craig https://commons.wikimedia.org/wiki/File:Flughafentower,_Denpasar_Airport,_Bali.JPG

Photo on the right:
→ (https://commons.wikimedia.org/wiki/File:Denpasar_Airport_200507-4.jpg), „Denpasar Airport 200507-4“,

https://creativecommons.org/licenses/by-sa/3.0/legalcode

²⁶ Under Indonesian law, foreign investors can only own a 49% stake in an Indonesian airport but can own a majority stake in a management concession.

Mas Utama, and Taurus Gemilang. Tenders for other services, such as high-street fashion retailers, car rentals, hotel lounges, and travel agencies, were also issued in 2013.

Lessons Learned

The partnership between AP1 and GVK produced the following notable results:

- Increase in non-aeronautical revenues by 15 times (2009 versus 2014), reflecting an increase from IDR 6 billion (USD 444,000) to IDR 92 billion (USD 6.8 million);
- Increase in customer satisfaction score from 2.89 in quarter three of 2012 to 4.9 in quarter two of 2016, on a total scale of 5;
- Ranked World's Third Best Airport for 2015 in the category of 15-25 million passengers per year, based on an Airport Council International survey; and
- Ranked the Best Airport in Indonesia for Airport Service Quality based on an Airport Council International survey.²⁷

The project benefitted from:

- A clear vision on the part of high-level officials regarding the strategic aims of the PPP. In this case, the contracting agency acknowledged its relative lack of experience in generating non-aeronautical revenue. To improve this facet of its operations, the contracting agency solicited participation from an experienced, international firm, to leverage their knowledge and insight regarding non-aeronautical operations.
- A project structure that provided the private partner with sufficient control of the project to warrant its investment, while also facilitating knowledge sharing. Specifically, the private partner was given a 65 percent stake in the management concession. This arrangement provided the private partner with the right to be included in the airport commercial strategic business unit as one of the decision-makers, while at the same time ensuring the involvement of representatives from AP1 who could gain insight from their strategic partner.

²⁷ Airport World. 2019. "GVK's Bali International Airport Awards Duty Free and Retail Contracts." Airport World. Accessed February 16, 2019. <http://www.airport-world.com/news/general-news/2632-gvk-s-bali-international-airport-awards-duty-free-and-retail-contracts.html>;

GVK. n.d. "Indonesia." GVK. Accessed February 16, 2019. <https://www.gvk.com/ourbusiness/airports/iiaindonesia.aspx>;

GCR. 2016. "India's GVK plans Indonesia's first privately-built airport." Global Construction Review. Accessed February 16, 2019. <http://www.globalconstructionreview.com/markets/7indias-gvk-plans-indo7nesias-fir7st-priva7tely/>;

Rahayu, Martha Eva. 2015. "PT Angkasa Pura I: Pendapatan Non-aeronautical Melonjak Hingga Ratusan Kali." SWA. Accessed February 16, 2019. <https://swa.co.id/swa/trends/management/pt-angkasa-pura-pendapatan-non-aeronautical-melonjak-hingga-ratusan-kali>;

PTI. 2013. "GVK calls tenders for services contracts at Bali airport." *The Economic Times*, May 29. Accessed February 16, 2019. <https://economictimes.indiatimes.com/news/international/gvk-calls-tenders-for-services-contracts-at-bali-airport/articleshow/20332322.cms>;

Angkasa Pura. 2014. "Selesaikan Proyek Bandara I Gusti Ngurah Rai, Angkasa Pura Airports Gandeng Umkm Dan Pengusaha Lokal." Information. Accessed February 16, 2019. <https://api1.co.id/en/information/news/detail/selesaikan-proyek-bandara-i-gusti-ngurah-rai--angkasa-pura-airports-gandeng--umkm-dan-pengusaha-lokal>;

IBNS. 2013. "GVK hands over Bali airport project contracts." *Sify News*, May 13. Accessed February 16, 2019. <http://www.sify.com/news/gvk-hands-over-bali-airport-project-contracts-news-default-nfnxp0eeecbsi.html>.

Ports

13. Tecon 1 Container Terminal at Suape Port, Pernambuco, Brazil



Photo Credit²⁸

Background

Established in 1978 as part of an industrial development zone, Suape Port in the State of Pernambuco, Brazil, occupies an area of 13,500 hectares in a prime location at the intersection of the main commercial long-haul routes that link the eastern coast of South America to other continents, as well as routes that connect the north and south of Brazil. Pernambuco is situated in the northeast of Brazil, an area that was experiencing larger than average economic growth at the end of the 1990s. As part of a strategy to make the port a container shipping hub for the region, the Government of Pernambuco conducted an international, competitive tender for a PPP using a concession scheme to develop the first dedicated container terminal at Suape Port (Tecon 1). To assist with this, the Government of Pernambuco hired the International Finance Corporation (IFC) to be its principal advisor on the PPP.

²⁸ Bradleyzm ([https://commons.wikimedia.org/wiki/File:Porto_de_suape_em_Pernambuco_\(foto_drone\).png](https://commons.wikimedia.org/wiki/File:Porto_de_suape_em_Pernambuco_(foto_drone).png)), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

²⁹ World Bank. 2013. *Brazil: Suape Container Terminal (English)*. Public Private Partnership Series. Washington, D.C.: World Bank Group. Accessed February 17, 2019. <http://documents.worldbank.org/curated/en/359901468001165124/pdf/96878-BRI-PUBLICPPPStories-Brazil-Suape-ContainerTerminal.pdf>;

Suape. n.d. "The Port of the Future." Suape. Accessed February 17, 2019. <http://www.suape.pe.gov.br/en/port/the-port-of-the-future>.

the assets are to be transferred to the State of Pernambuco. Project revenues are derived from the tariffs charged to terminal users. No contractual cap on transshipment tariff rates was imposed, as these are customarily market driven.

ICTSI is expected to invest USD 385 million in port operations and infrastructure over the concession period. Container terminal operations began three months after the signing of the PPP agreement and, between 2001 and 2007, ICTSI invested about USD 80 million in human resources, information technology, equipment, sheds, and yards for storing general cargo and containers.

IFC's role in the project included: advising the port authority; reviewing the institutional, legal, and marketing aspects of the PPP; analyzing the various project structuring options; preparing the transaction documents; marketing the project; and advising the government throughout the bidding process.

Lessons Learned

Currently, Suape Port is Brazil's largest port in terms of overall movement and has shown above-average annual growth among Brazilian public ports. The Tenco 1 terminal has an annual capacity of about 600,000 twenty-foot equivalent units (TEUs) and handled 398,000 in 2015 and just under 400,000 TEUs in 2016. ICTSI expects to handle over half a million TEUs annually by the end of the concession. Brazilian authorities are also pursuing plans for a concession for a second container terminal at Suape Port.²⁹

This project highlights the following:

- Competitive procedures for selecting the right private partner can help the contracting authority measure and compare the expertise and financial strength of the bidders. In this case, the Government of Pernambuco was able to award the contract to an experienced company with more than 50 other ports in its global portfolio and proven competence in its operations.
- Proper identification and selection of projects is a key element of successful PPPs. In this case, there was a clear need and strategic opportunity to develop the area, commercially exploit it, and sustain operations over the long-term.
- Engaging qualified, external advisors can help deliver sound PPPs. The IFC's capacity and extensive international experience in advising on PPPs supported the successful preparation and award of this concession.

Project Structure

International Container Terminal Services (ICTSI) of the Philippines was selected as the winning bidder from three qualifying proposals. ICTSI offered the highest commercial bid, agreeing to pay minimum lease payments of nearly USD 175 million (NPV during the concession period), equivalent to a 244 percent premium over the minimum lease amount of USD 51.5 million – at the time a record premium for a Brazilian port concession.

The PPP agreement was signed in March 2001, with ICTSI undertaking responsibility for financing construction, procuring and installing equipment, and operating the terminal as a common-user container terminal open to all carriers, operators, and cargo. ICTSI assumed the financial risk and agreed to clearly defined obligations for service quality. The concession covers a non-renewable 30-year period, at the conclusion of which

14. Challenging Case: Doraleh Container Terminal, Djibouti



Photo Credit³⁰

³⁰ Skilla1st (https://commons.wikimedia.org/wiki/File:The_container_terminal_at_the_Port_of_Djibouti.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

³¹ MTBS. "PPP project prospects in the African Indian Ocean ports: Opportunities for Value Optimization." Presentation for the 9th Indian Ocean Ports & Logistics Conference, White House, Rotterdam, January 22, 2015. Accessed January 25, 2019. <http://www.transportevents.com/presentations/Mozambique2015/MTBS.pdf>;

Ibrahim, Djama. "Djibouti Ports: Infrastructure & Investments." Abbot Lake: Origin of the world and lunar landscapes, Djibouti, November 25, 2015. Accessed January 24, 2019. <https://www.slideshare.net/TristanWiggill/djibouti-ports-infrastructure-investments>;

APO. n.d. "Legal battle for control of Djibouti Ports comes to Hong Kong," Africa News, December 2. Accessed January 25, 2019. <https://www.africanews.com/2019/02/12/legal-battle-for-control-of-djibouti-ports-comes-to-hong-kong/>;

Parks, Philip. 2010. "Case Study: Doraleh Container Terminal Djibouti IFC Ports PPP Seminar." Cairo, April, 2010. Accessed January 25, 2019. <https://docplayer.net/35967682-Case-study-doraleh-container-terminal-djibouti.html>; MIGA. n.d. "Project Djibouti: Doraleh Container Terminal S.A.R.L." Miga. Accessed May 27, 2019. <https://www.miga.org/project/doraleh-container-terminal-sarl>;

and WestLB AG – with guarantees provided by the Multilateral Investment Guarantee Agency (MIGA) totaling USD 160 million. The main financing was provided under an Islamic, Sharia-compliant structure, with a 10-year tenure that included a two-year construction phase; with another USD 103 million provided by the African Development Bank and Proparco under a 10-year senior loan. The remaining investment cost was financed through equity. The project generates its revenue from terminal handling charges, while the government also receives income through import and export taxes.

The terminal, with an annual capacity of 1.5 million shipping containers, opened in 2009 and is estimated to have created around 10,000 direct and indirect jobs. It was regarded as Africa's most advanced container terminal, equipped with modern facilities offering world-class productivity of 34m/hour/crane average. It has been reported that the net income of the new terminal ranges between about USD 55 to 80 million per year.

Lessons Learned

In February 2018, the government of Djibouti unilaterally terminated the 30-year contract with DP World, stating that the move was needed to "save the country's sovereignty and economic independence." The government also accused DP World of bribing the head of PAID to get advantageous terms for the concession. Concurrently, the government of Djibouti took control of the terminal, forcing DP World employees to leave the country. It was reported that, in 2013 before termination, the Djibouti government sold 23.5 percent of PAID's shares to China Merchant Holding International (CMHI). Following the sale of these shares, PAID signed a deal with CMHI to build the new Doraleh Multipurpose Port, which opened in 2017.

World Bank. 2013. *Transport and Logistics in Djibouti: Contribution to Job Creation and Economic Diversification*. Washington, D.C.: World Bank Group. Accessed May 27, 2019. <https://openknowledge.worldbank.org/handle/10986/13245?show=full&loc=attribute=en>;

Ship Technology. 2018. "The Fight for Doraleh: the Legal Battle over Djibouti's Port." Ship Technology. Accessed May 27, 2019. <https://www.ship-technology.com/features/fight-doraleh-legal-battle-djiboutis-port/>;

The Maritime Executive. 2018. "Djibouti Terminates DP World's Concession at Doraleh." Maritime Executive. Accessed May 27, 2019. <https://www.maritime-executive.com/article/djibouti-terminates-dp-world-s-concession-at-doraleh>;

EABW. 2019. "Djibouti Ordered to Pay US\$385 Million For Breaching Doraleh Container Terminal's Rights." *Busiweek*, April 5. Accessed May 27, 2019. <https://www.busiweek.com/djibouti-ordered-to-pay-us385-million-for-breaching-doraleh-container-terminals-rights/>.

³² Photo in the public domain published by Nyttend https://commons.wikimedia.org/wiki/File:Arroyo_Bridge_replacement.jpg

³³ PABs are tax-exempt debt instruments allocated by the U.S. Department of Transportation (DoT) to qualifying authorities, for projects that leverage private investment. The aggregate amount of tax-exempt bonds that can be allocated by the DoT is capped at USD 15 billion. The aim of the PAB facility is to attract greater private sector investment in transportation infrastructure by reducing the cost of capital for eligible projects by providing tax-exempt debt instruments.

Following the unilateral termination, DP World commenced arbitration against Djibouti before the London Court of International Arbitration. DP World accused Djibouti of breaching the agreement by revoking DP World's exclusive rights and developing a partnership with CMHI on other port projects. DP World also denied the allegations of corruption, noting that the agreement was approved by the Djibouti parliament. The arbitral tribunal found in favor of DP World, finding that the contract with the government of Djibouti is still valid and binding. The Tribunal awarded DCT USD 385 million plus interest for Djibouti's breach of DCT's exclusive rights and another USD 148 million for historic non-payment of royalties, plus costs and fees incurred in arbitration. DP World is also pursuing litigation against CMHI before courts in Hong Kong SAR, China. A wholly publicly owned

Djiboutian company called SGTD now runs the Doraleh Container Terminal.³¹

This project highlights why prospective private partners may express concerns over the possibility of expropriation when entering into PPPs, especially in emerging PPP markets where there is little or no past practice. The private partner to a PPP is likely to insist on robust, contractual protections in the event of such adverse government actions with equally reliable dispute-resolution mechanisms, including international arbitration, as well as assurances that any ensuing court or arbitral award is enforceable against the public partner. While the public partner to a PPP may have legitimate reasons to terminate the partnership early, the private partner needs to be sure its financial interests are protected in the event of such a decision.

Roads, Tunnels, and Bridges

15. Bundled Bridge Replacement, Pennsylvania, United States



Photo Credit³²

Background

The State of Pennsylvania needed to replace a series of small bridges spread throughout the state. The Pennsylvania Department of Transportation (PennDOT) selected bridges based on the need for replacement and a set of deliverability considerations, including minimizing disruption to the public; minimizing changes to existing alignment; maintaining existing profiles; limiting impact to utilities, waterways, and other users; and minimizing environmental impacts. Through this process, more than 2,000 bridges were screened, and 558 were selected. PennDOT then aggregated the repair and maintenance of these bridges into a single PPP project under its old bridges' rehabilitation program. While the average investment cost for each individual bridge was estimated to be as low as USD 2 million, the aggregate project was large enough to attract

serious investors and significant competition, which may not have been the case with multiple, smaller projects.

Project Structure

The winning bidder of PennDOT's public tender for the aggregated bridges project was Plenary Walsh Keystone Partners (PWKP), a consortium that includes companies specializing in large infrastructure projects and local construction companies. The resulting PPP agreement has a duration of 28 years, with 42 months of construction, 25 years of contracted maintenance, and an estimated value of USD 1.1 billion. Other key stakeholders in the project include the local governments where the bridges are located.

The project is financed through a combination of tax-exempt Private Activity Bonds (PABs)³³

issued by PennDOT worth USD 793 million, plus private equity contributions totaling USD 58 million. The financing is to be repaid through milestone payments linked to the achievement of prescribed levels of work, totaling around USD 224 million, and periodic availability payments that include both a fixed element (90 percent) and a CPI-indexed element (10 percent) of around USD 35 million. The performance-based availability payments were set to begin once construction of the bridges had been substantially completed, to incentivize early completion of construction. A portion of the milestone and availability payments due will be used by PennDOT to pay the PAB purchasers. Accordingly, payment of the PABs is linked to the achievement of required asset performance levels.

Lessons Learned

By bundling, the project achieved economies of scale for due diligence, project preparation, and the tendering process, and thereby saved time

and money. Specifically, it is estimated that the efficiency inherent in bundling numerous projects together will save taxpayers approximately 30 percent of what it would otherwise have cost to replace the bridges. In addition, this project will address a sizeable portion of the structurally deficient bridges in the state. Logistically, this would have taken an estimated ten to fifteen years for PennDOT to complete on its own. Instead, the private partners assume the construction risk and can better mobilize a large-scale construction effort than the resource constrained PennDOT.

Although the project is considered a success in terms of clearing PennDOT's backlog of bridge repairs, progress has proven somewhat slower than expected, with the completion date moved from 2017 to 2019. Challenges such as higher than anticipated costs, difficulties obtaining right-of-way access, and issues related to utility coordination have been cited as causes of the delay.³⁴

16. Challenging Case: Hangzhou Bay Bridge, China



Photo Credit³⁵

Background

To showcase China's rapid development and further stimulate growth, Ningbo and Jiaxing municipal governments decided to pursue the construction of a trans-sea bridge connecting the two municipalities in 1993. The trans-sea bridge was expected to help boost economic development in the Yangtze River Delta, known as the Golden Industrial Triangle.

Project Structure

In 2001, after nearly a decade spent completing feasibility studies and designing the bridge, the Ningbo and Jiaxing municipal governments and 17

private enterprises jointly set up a project company called Ningbo Hangzhou Bay Bridge Development Co. Ltd. The project company was tasked to build the bridge under a Build-Operate-Transfer (BOT) scheme with a concession term of 30 years. The project company would be responsible for delivering and managing the bridge over the life of the project, including preparation, financing, construction, operation, maintenance, and transfer; as well as overseeing and coordinating related projects and ancillary facilities. The project company invested RMB 11.8 billion (USD 1.42 billion) in the project, of which RMB 149 million (USD 18 million) was provided by the 17 private enterprises.

³⁴ GIH. 2017. "Pennsylvania Rapid Bridge Replacement Project." GitHub. Accessed January 25, 2019. https://github-wbtools.s3.amazonaws.com/local-umbraco/media/1455/gih_showcaseprojects_penn-bridges_art_web.pdf;

Delmon, Jeffery. *Small-Scale Municipal PPP*. Washington, D.C.: World Bank Group, 2014. Accessed January 25, 2019. https://www.thegpsc.org/sites/gpsc/files/26_feb_small_scale_municipal.pdf;

Plenary Walsh Keystone Partners. 2015. "What is The Rapid Bridge Replacement Project?" Paraidbridges. Accessed January 25, 2019. <http://paraidbridges.com/projectoverview.html>;

Engineering News-Record. 2018. "Cost constraints slowing PennDOT rapid bridge replacement program." Roads & Bridges. Accessed January 25, 2019. <https://www.roadsbridges.com/cost-constraints-slowing-penndot-rapid-bridge-replacement-program>.

³⁵ Glabb (https://commons.wikimedia.org/wiki/File:Hangzhou_Bay_Bridge_South.JPG), „Hangzhou Bay Bridge South“, <https://creativecommons.org/licenses/by-sa/3.0/legalcode>

The primary revenue source for the project was expected to be toll fees. Additional income would come from hotels, restaurants, gas stations, and a viewing tower located on a platform in the middle of the bridge. Based on the feasibility studies, the project was expected to recover the capital cost in 15 years with a return on investment (ROI) of 12.58 percent (including construction period).
f 12.58 percent (including construction period).

³⁶ Wang, Queena Likun. *Case Study on P3 Failures in China: Taking Hangzhou Bay Bridge as an example*. Hamilton, Ontario: McMaster University, 2016. Accessed May 25, 2019. https://www.eng.mcmaster.ca/sites/default/files/uploads/case_study_on_p3_failures_in_china_report-likun_wang.pdf;

Urio, Paul. *Public-Private Partnerships: Success and Failure Factors for In-Transition Countries*. Lanham, Maryland: University Press of America, Inc, 2010. Accessed May 25, 2019;

Ke, Yongjian, Shou Qing Wang, and Albert Chang. "Public-Private Partnerships in China's Infrastructure Development: Lessons Learnt." Paper presented at CIB international Conference: Changing roles: New roles, New challenges, Noordwijk, January, 2019. Accessed May 25, 2019. https://www.researchgate.net/publication/260267511_Public-Private_Partnerships_in_China's_Infrastructure_Development_Lessons_Learnt;

Torres, Adrian. "PPPs in Australia." ADB Presentation, Tokyo, Japan, June 2, 2015. Accessed May 25, 2019. <https://www.carecprogram.org/uploads/3-PPPs-in-Australia-1.pdf>.

³⁷ Photo in the public domain published by OSX [https://commons.wikimedia.org/wiki/File:Cross_City_Tunnel_entrance,_Harbour_Street,_Sydney,_New_South_Wales_\(2010-10-16\)_01.jpg](https://commons.wikimedia.org/wiki/File:Cross_City_Tunnel_entrance,_Harbour_Street,_Sydney,_New_South_Wales_(2010-10-16)_01.jpg)

iv. After the private companies' divestment, the public sector became the majority shareholder (85 percent), such that the risks that had been assumed by the private sector were transferred back to the government.

The platform in the middle of the bridge that offered hotels, restaurants, and viewing deck was ultimately closed down to reduce costs.

This project highlights the following:

- Municipalities should try to consider all of the potential risks throughout the entire life of the life and strive to ensure a fair allocation of risks between the public and private partners. Transferring too much risk to the private partner can result in or contribute to project failure.
- PPPs entail a long-term agreement, over the course of which both parties need to be willing and properly incentivized to work together to ensure the project's success. This may include allowing reasonable accommodations, permitting alterations in the scope or design of the project, and not taking actions that would threaten the project's viability, including by agreeing to limit or prohibit competing projects.³⁶

17. Challenging Case: Cross-City Tunnel, Sydney, Australia



Photo Credit³⁷

Background

To ease congestion in the Sydney Central Business District (CBD), the Roads and Traffic Authority of New South Wales (NSW) planned to build a cross-city tunnel (CCT) – a 2.1 km twin two-lane motorway running east and west beneath the Sydney CBD. The estimated total project cost was as high as AUD 1.050 billion (USD 712.7 million). Due to the high cost, the NSW authority decided to pursue a PPP to deliver the project.

Project Structure

In October 2000 a total of eight consortia expressed interest in bidding for the project. Of the eight, three were shortlisted, leading to the selection of Cross City Motorway Pty. Ltd. (CCM), a consortium comprising Bilfinger Berger AG, Baulderstone Hornibrook Pty. Limited, and Deutsche Bank AG, as the winner in 2002. CCM was selected due to its innovative design, more aggressive traffic forecast, and willingness to provide an upfront payment of around AUD 100 million (USD 68 million) to the NSW state

³⁸ Torres, Adrian. "PPPs in Australia." ADB Presentation, Tokyo, Japan, June 2, 2015. Accessed May 25, 2019. <https://www.carecprogram.org/uploads/3-PPPs-in-Australia-1.pdf>;

APC, Chan, Lam PTI, Chan DWM, and Cheung, E. 2008. "Risk-sharing mechanism for PPP Projects – the case study of the Sydney Cross City Tunnel." *Surveying & built environment* 19, no. 1: p. 670-80. <http://hdl.handle.net/10397/31862>; Omega Centre. 2014. "Project Profile, Australia, Sydney Cross-City Tunnel." Omega Centre. Accessed June 4, 2019. http://www.omegacentre.bartlett.ucl.ac.uk/wp-content/uploads/2014/12/AUS_SYDNEY_PROFILE.pdf;

RTA. 2017. "Cross City Tunnel : Summary of Contracts." New South Wales Government. Accessed August 16, 2019. https://www.treasury.nsw.gov.au/sites/default/files/201702/Cross_City_Tunnel_contacts_summary_2008_update_lowres.pdf;

Quiggin, John. 2005. "Improving public infrastructure contracts with the private sector: Lessons from the Cross-City Tunnel." Parliament. Accessed August 19, 2019. <https://www.parliament.nsw.gov.au/lcdocs/submissions/45268/Sub%2072%20Quiggin.pdf>;

Graham, Danny. "The use of PPPs for infrastructure investments in urban areas." OECD. Accessed August 6, 2019. <https://www.oecd.org/gov/budgeting/45039865.pdf>;

Lawther, C. Wendell, and Lawrence L. Martin. 2015. *Private Financing of Public Transportation Infrastructure: Utilizing Public-Private Partnerships*. Lanham, Maryland: Lexington Books.

government. According to the proposal submitted by CCM, the project would be delivered at no cost to the government.

The consortium was responsible for financing, designing, building, operating, and maintaining the CCT. The state government bore the risks relating to native title, force majeure, uninsurable events, and legislative and government policy. Meanwhile, the consortium bore the design, construction and commissioning risks, delay and completion risks, demand risks, ground/geotechnical condition risks, and operation and maintenance/facility management risks.

Based on CCM's high traffic estimate of around 86,000 to 90,000 vehicles per day, the project attracted both local and international financiers. Debt was provided by Deutsche Bank, Westpac Banking Corporation, and other syndicated debt financiers; while equity was provided by CKI Tunnel Investment (Malaysian) Ltd. (50%), Bilfinger Berger BOT GmbH (20%), SAS Trustee Corporation (12.5%), JP Morgan Nominees Australia Ltd. (10%), PSS Board (3.75%), and CSS Board (3.75%). It was expected that toll fees would recover the costs of design, construction, and maintenance of the CCT.

Lessons Learned

Construction started in January 2003 and the CCT officially opened to the public in August 2005. It was the first motorway in Sydney to have full electronic tolling. However, the toll was set relatively high, at around AUD 3.56 (USD 2.42) each way, which was the highest per km of any toll road in Sydney. Owing likely in part to the high fee, the actual traffic was only around 30,000 vehicles per day – less than half of the forecasted amount.

At the same time, the government elected to close off some surface roads to benefit from the presumed reduction in traffic on the surface that would result from the opening of the tunnel. These roads were meant to be set aside for use by pedestrians, public transport, and cyclists.

However, the closure of the surface roads caused some public controversy. Public opinion regarded the closure of the surface roads as a scheme to 'funnel' traffic to the CCT, to ensure the financial viability of the project, rather than as a decision made purely for traffic planning purposes.

The private consortium requested compensation from the government or a toll subsidy, but the government declined. Less than two years after opening the tunnel, the private consortium went into bankruptcy, with outstanding debts of AUD 560 million (USD 380 million).

The government then sold the project to ABN Amro and Leighton contractors in 2007 for a sale price of AUD 700 million (USD 475 million). The original creditor banks were all paid in full and the equity investors received their expected return due to the high selling price. Currently, the tunnel is privately owned and operated and is expected to be returned to the NSW state government in 2030.

This project highlights the following:

- Determining the appropriate price, taking into account the willingness and ability of end-users to pay, is essential in user-funded projects.
- Municipalities must be wary of optimism bias in demand forecasts, especially when demand is difficult to guarantee, as in the case of a toll road with free or cheaper alternative routes.
- A PPP is first and foremost a "partnership." When problems arise, the public and private partner need to be able to discuss in good faith all possible means of mitigating the damage.
- The municipality should have an appropriate communications strategy in place to manage public perception of the project. Ultimately, the public partner is responsible for ensuring public support for a PPP and realizes the full benefit of the project only if users and the broader population view the project positively.³⁸

Water Supply and Sanitation

Water Supply Services

18. Water and Sanitation System, Bucharest, Romania



Photo Credit³⁹

Background

The municipality of Bucharest was facing numerous challenges related to its water supply and sanitation system, including leaks in its water supply distribution network and an inadequate metering system. This contributed to high water losses (nearly 50 percent) and lower revenue collected by the municipality. The municipality also imposed relatively low tariffs and maintained a complicated ownership structure over the water infrastructure assets, which led to a lack of incentives to improve efficiency. At the same time, the municipality's water and sanitation system needed to be brought into compliance with European Union (EU) standards.

To address these issues, the municipality decided to pursue a PPP for the operation and maintenance of its water and sanitation system with assistance from the International Finance Corporation (IFC) as its transaction adviser. In designing this PPP, the municipality aimed to: (i) improve the consumer service level with minimal tariff increases through efficiency gains; (ii) make the system as self-sufficient as possible by transferring most of the investment responsibilities to the private sector, and (iii) avoid a private monopoly.

Project Structure

Based on the municipality's goals, IFC recommended a long-term concession that would allow the municipality to retain ownership of the assets while delegating responsibility for the provision of water and sanitation services and all

related capital investments to a private partner. Upon approval by the municipality, IFC helped conduct the prequalification process and drafted the concession contract.

Six large, multinational companies were prequalified and, in 2000, Vivendi of France (now Veolia) won the bid to operate and maintain the water and sanitation system for 25 years. The award was based in large part on Vivendi having proposed the lowest average net present value tariff, which was about EUR 0.17 (or USD 0.19) per cubic meter. Subsequently, Vivendi entered into a subsidiary joint venture, named Apa Nova București, which would serve as the operating entity and counterparty to the concession agreement. Apa Nova București was owned 80-percent by Vivendi and 20-percent by the municipality. The joint venture concessionaire is responsible for all operations and capital investments.

The contract included time-based performance targets for improvements in service quality and delivery as the key performance indicators for the private partner, as well as penalties for non-compliance. It also included a periodic tariff review scheduled at five, ten, and fifteen years, with readjustments in the event of project returns above or below a predefined band.

The project was financed by loans provided by multilateral development banks and commercial banks, including the European Bank for

³⁹ Mihai Burlacu (https://commons.wikimedia.org/wiki/File:Sector_6,_Bucharest,_Romania_-_panoramio.jpg), „Sector 6, Bucharest, Romania - panoramio“, <https://creativecommons.org/licenses/by-sa/3.0/legalcode>

Reconstruction and Development. Vivendi also contributed approximately EUR 35 million (USD 39 million) in equity.

Lessons Learned

This project is reported to have achieved quite a number of positive outcomes during the concession period. It obtained 100 percent compliance with EU water quality standards, recorded an increase in overall customer satisfaction (up from 46 percent in 2002 to 75 percent in 2009), expanded the coverage area (covering 92 percent of the city), and reduced leakage, non-revenue water, and commercial losses related to under-billing and theft. By 2008, efficiency gains had produced cost savings totaling USD 49 million. As of 2010, Apa Nova București had invested more than USD 250 million in upgrading and servicing the system without public subsidies. Despite operating without a subsidy, the project has been able to provide a relatively high level of service quality. It has also kept tariffs below the Romanian average. Of Apa Nova București's USD 250 million investment, USD 66 million was invested in pipe replacement and other measures to reduce leakage, which should help keep costs and tariffs low in the long term.

⁴⁰ Apa Nova. 2019. "Who we are." Apa Nova București. Accessed February 12, 2019. <https://www.apanovabucuresti.ro/en/company/who-we-are/the-concession-contract/>;

International Finance Corporation. 2010. Public-Private Partnership Impact Stories Romania: Bucharest Water and Sanitation. Washington, D.C: World Bank Group. Accessed November 27, 2019. https://www.ifc.org/wps/wcm/connect/234b1a1c-feaf-4829-9257-a0700af9acb9/PPPStories_Romania_Bucharest_WaterAndSanitation.pdf?MOD=AJPERES&CVID=IHJa0WD;

Earhardt, David, Melissa Rekas, and Martina Tonizzo. *Water in Bucharest: A Utility's Efficiency Gain under a Concession*. Washington, D.C: World Bank Group, 2011. Accessed February 13, 2019. <http://documents.worldbank.org/curated/en/579001468330990816/pdf/655980BRI00PUB0arest0water00PUBLIC0.pdf>;

Teicher, Julian, Bernadine Van Gramberg, Marius Profirou, and Cristina Neesham. 2013. *Sharing Concerns: Country Case Studies in Public-private Partnerships*. Newcastle: Cambridge Scholars Publishing;

World Bank Group. 2016. "PPI Project Summary: Romania, Bucharest – Concession Agreement for Water and Sanitation Services." PPPLRC. Accessed May 25, 2019. <https://ppi.worldbank.org/public-private-partnership/ppi-project-summary-romania-bucharest-concession-agreement-water-and-sanitation-services>.

This project displayed several characteristics that bear highlighting:

- Tariff increases were tied to improvements in service delivery, providing an additional incentive for the project company to operate efficiently.
- The largest factor in efficiency gains came from the improvement in labor productivity. This was obtained in part by investing in new equipment that increased employee safety and productivity, delegating more responsibility to the staff, and selling 10 percent of the shares in Apa Nova București to workers in 2007 to improve relations between management and workers. Increased energy efficiency, collection efficiency, reduced leakage, and reduced non-revenue water further contributed to the efficiency gains.⁴⁰

19. Small Scale Water Infrastructure, Busembatia, Uganda



Photo Credit⁴¹

Background

Busembatia is a small town in Uganda with a population of about 14,500. Its water sources are limited and the ones it has are often contaminated, affecting the health and economic well-being of its people. A locally run facility was able to provide water of an acceptable quality, but only served 200 people and provided a very low standard of service. The town was struggling to fund efforts to provide a more reliable supply of water without grants from either donors or the national government, as local funding for public capital investments was tightly constrained. While the private sector was active in operating water

distribution networks in small towns throughout Uganda, this participation was limited mainly to basic management contracts, with little to no private financing of new investments.

Project Structure

In 2010 the International Finance Corporation (IFC), with support from the Austrian Development Agency, the Public-Private Infrastructure Advisory Facility (PPIAF), and DevCo, a multi-donor facility affiliated with the Private Infrastructure Development Group (PIDG), helped to deliver a small-scale water PPP in Busembatia by providing three types of assistance: (i) transaction advice; (ii) public sector

capacity building; and (iii) access to finance. The project aimed to leverage existing private sector participation in the operation of water distribution networks by developing a standard operation and maintenance contract suitable for small towns and rural growth centers that could be modified to include the design and construction of extensions to the distribution system.

The management contract would have a term of five to ten years, as compared to the one to three years typical of existing management contracts in Uganda, to make it more attractive to private operators and lenders.

Following a prequalification process, three local companies were invited to bid for a five-year management contract. In 2010, the contract was awarded to Tradint Limited, one of the largest local water system operators in Uganda. Tradint Limited was selected because its proposal met the minimum technical requirements, it had already secured a financing arrangement with lenders, and it offered the lowest bid price of USD 270,000.

Under the management contract, the private operator assumed exclusive responsibility for managing the assets and providing services to Busembatia town, paying utility expenses and taxes, and collecting user charges in accordance with a schedule of tariffs and rates agreed with the local authority and fixed in the contract.

The local authority retained responsibility for setting tariffs in accordance with an approved business plan, ownership of the underlying assets, and responsibility for managing critical situations in case of contract termination or dispute. Tradint Limited further agreed to install at least 400 new connections during the first two years of the contract (by 2012) and not to seek a tariff increase throughout the duration of the management contract.

While prior experience in Busembatia and similar towns in Uganda indicated that tariffs would be sufficient to cover operation and maintenance costs, the majority of the capital investment would be funded by performance-based subsidies provided by the Global Partnership for Results-Based Approaches (GPRBA), formerly known as the Global Partnership on Output-Based Aid (GPOBA).

This grant funding, however, would be released in phases throughout the project and could only be disbursed upon certification of commissioning and verification of outputs. Accordingly, the private operator would have to pre-finance the investment to access the output-based grants.

For pre-financing, Tradint Limited obtained a loan of USD 100,000 from a local commercial bank, DCFU Bank. This was the first time in Ugandan history that a local bank provided financing for a small-scale water supply project.

Lessons Learned

A total of 430 connections were installed during the first year of the project alone. About 750 water distribution stations in Busembatia now provide an uninterrupted water supply that serves thousands of people in the area. In addition, water production has increased from eight to twenty-one cubic meters per hour and collection rates have increased from 70 to 85 percent.

This project displayed several notable characteristics:

- Extending the contract duration to five years, compared to the previous standard practice of three years, provided the private partner with greater assurance of investment recovery.
- The involvement of bilateral and multilateral partners, including the IFC as transaction advisor, helped stimulate local banks' interest in the water sector and increase the understanding of PPPs among local stakeholders.
- The output-based grant helped incentivize local private sector participation, including domestic financing, in the extension of Busembatia's water supply system.⁴²

⁴¹ Davide Restivo from Araau, Switzerland ([https://commons.wikimedia.org/wiki/File:Water_drop_impact_on_a_water-surface_-_\(1\).jpg](https://commons.wikimedia.org/wiki/File:Water_drop_impact_on_a_water-surface_-_(1).jpg)), „Water drop impact on a water-surface - (1)“, <https://creativecommons.org/licenses/by-sa/2.0/legalcode>

⁴² IFC. 2016. "A Water Project Revives a Ugandan Community." IFC. Accessed February 13, 2019. https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/a-water-project-revives-an-ugandan-community;

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International Finance Corporation. 2012. Uganda Small-Scale Water Infrastructure Program. Washington, D.C: World Bank Group. Accessed November 27, 2019. [https://ppp.worldbank.org/files/documents/Handshake1_SmallScale_Uganda.pdf](https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/documents/Handshake1_SmallScale_Uganda.pdf);

Jamieson, Jane, and Victoria Delmon. "PPPs in water and sanitation: Ensuring Foundations of Equal Access to Infrastructure." Presentation presented at Law Justice and Development Week, Washington, D.C, December 13, 2012. Accessed February 13, 2019. <https://slideplayer.com/slide/5745093/>.

20. Challenging Case: Drinking Water Supply, Jakarta, Indonesia



Photo Credit⁴³

Background

Jakarta, the capital and largest city of Indonesia, was facing a water crisis. In 1997, only 42 percent of its residents had access to piped water and even many of these piped water users still relied in part on groundwater or bottled water. Those without piped water connections, particularly residents of disadvantaged neighborhoods, largely drew their water from community ground pumps, which provided intermittent flows and very poor-quality water. This inequality in access to piped water and in the quality of water was partly attributable to the tariff structure imposed by the municipal water utility, which disincentivized connecting poorer households. Later that year, the local government decided to pursue a PPP for the provision of piped water in Jakarta in an attempt to address the problem.

Project Structure

To increase the opportunities for local companies to participate in the project, the public utility was split into two coverage areas, comprising the portions of the city to the east and west of the Ciliwung River. Two major international water companies expressed interest in providing piped water under this arrangement, though by law each would need to partner with a local company in order to operate as a public utility. Accordingly, a PPP would need to be executed for each coverage area.

Different international and Indonesian partners would form the private sector side of each PPP and the government-owned municipal water utility, PAM Jaya, would act as the public partner to both PPPs. However, none of the private companies were chosen on the basis of open, competitive procurement. Instead, the companies were selected based on personal relationships with government officials. The government further determined, unilaterally, which international company would pair with which Indonesian company.

In June 1997 both private consortia signed 25-year agreements with PAM Jaya, in accordance with which they undertook responsibility for operating and managing Jakarta's water supply system in their respective service areas, east and west, with an emphasis on expanding coverage to poorer residents. The private partners were further responsible for maintaining the customer database and billing. PAM Jaya retained ownership of the underlying assets.

The private companies originally agreed to invest USD 318 million in the first five years of the contract to expand coverage and improve service delivery. While the private partners ultimately invested only USD 188.6 million over this period, the shortfall may be partly attributable to the fact that expected investments were denominated in Indonesian Rupiah, which suffered rapid depreciation following the Asian Financial Crisis that began in 1997. Further into the contract term, in November 2007, the operator for east Jakarta received a USD 5 million loan from the World Bank and, in May 2008, the Asian Development Bank provided USD 50 million in financing to the operator for west Jakarta. Additional information on financing is limited, due to a lack of transparency concerning project details.

Funding for the project was premised on fixed payments by PAM Jaya to the private partners based on the volume of water supplied and billed, which effectively decoupled the private partners' revenue from the actual billing revenue received. Accordingly, the government remained free to adjust user tariffs and to charge different user categories variable tariffs, while paying the private operators the same fixed amount per volumetric unit supplied. It was hoped that de-linking the private partners' profits from the billing revenue would remove a key disincentive to expanding coverage to poor neighborhoods, where billing revenue is typically low. In addition, the fee payable to the private operators

⁴³ Photo in the public domain published by Harlimedit <https://pxhere.com/en/photo/1422229>

was indexed to the Rupiah-USD exchange rate and the Indonesian inflation rate. As a result of the above mechanisms, the public partner assumed the risk of currency exchange and actual cost recovery.

This proved challenging when the Asian Financial Crisis struck only a few months after the contracts were signed, resulting in political and economic turmoil in Indonesia and a drastic depreciation of the Rupiah. As the fee payable by PAM Jaya was tied to the USD, payments owed to the private partners rose at the same time as revenues from customers fell. When the contracts were signed, the average tariff charged to consumers was eleven percent higher than the fee payable to the private operators. By 2001, the fee owed to the private partners was 60 percent higher than the average tariff. Due to political tensions, PAM Jaya was unable to raise tariffs in a manner sufficient to compensate and was forced to acquire more and more debt to cover its liabilities to the private operators. This cycle would repeat itself several times when the government lacked the political will to raise tariffs during periods of inflation. As a result, PAM Jaya struggled to make the payments due to the private operators, which in turn diminished their profits. The situation did not change much even after the contracts were revised in 2001 and again in 2004 to provide for regular tariff increases and to reallocate some of the risks.

While the contracts set ambitious performance targets, they provided little in the way of enforcement and incentives. The agreements envisioned universal piped drinking water coverage for Jakarta by 2023, with a target of 70 percent of Jakarta's population by 2002, as well as a significant reduction in non-revenue water and improvements in the quality of service and overall quality of the water.

Lessons Learned

After 18 years of operation, water service coverage has only reached 59 percent, with coverage remaining particularly limited among low-income households. The water leakage level was still at 44 percent as of 2013, down from 56 percent under PAM Jaya but above the contractual target of 35 percent by 2003. In 2014, the deficit incurred by Jakarta's municipal water utility stood at IDR 1.18 trillion (USD 84 million) and was expected to reach IDR 18.2 trillion (USD 1.3 billion) by the time the contracts would conclude in 2022. However, water-focused non-governmental organizations in Jakarta challenged the constitutionality of the concession agreements in court. In 2018, the Supreme Court ordered the Jakarta government to terminate contractual relations with the two private partners.⁴⁴

This project highlights the following:

- Transparent processes and public engagement improve the likelihood of delivering a successful PPP. This includes conducting a competitive procurement process and disclosing key information about the project to the public, subject to appropriate restrictions on the disclosure of confidential or proprietary information. Openness and transparency tend to promote public support for and confidence in a project, while closed processes may engender mistrust.
- Both parties to a PPP should plan for and remain flexible in the face of the external adversity during the life of the partnership. In this case, it was not possible to predict the Asian Financial Crisis, but its occurrence exposed some flaws in the structure of the PPP that began to threaten its long-term viability. Both parties should be ready to come together in good faith to negotiate appropriate modifications to respond to significant, unpredictable changes in circumstances and, in case either party refuses to do so, the PPP agreement should have sufficient safeguards in place to ensure a reasonable outcome. The latter can range from provisions permitting the aggrieved party to procure independent, third-party technical assessments with binding recommendations, to mediation and, ultimately, more formal dispute resolution mechanisms, such as arbitration.

⁴⁴ Petriella, Tanita. 2014. "DKI Terus Merugi Akibat Kerja Sama dengan PAM Lyonaise dan Aetra." *Jakarta Bisnis*, April 18. <http://jakarta.bisnis.com/read/20140418/77/220319/dki-terus-merugi-akibat-kerja-sama-dengan-pam-lyonaisedan-aetra;>

Ramadhan, Ardito. 2018. "MA Putuskan Penghentian Swastanasi Air, Ini Kata Aetra." *Kompas*, March 22. <https://megapolitan.kompas.com/read/2018/03/22/15021601/ma-putuskan-penghentian-swastanasi-air-ini-kata-aetra;>

United Nations Development Program. 2008. *Examples of Successful Public-Private Partnerships* (Vol. 15). Special Unit for South-South Cooperation, UNDP, Accessed February 12, 2019. <http://tcdc2.undp.org/GSSDAcademy/SIE/Docs/Vol15/22Indonesia.pdf>;

Philippe Marin. *Public-Private Partnerships for Urban Water Utilities: A Review of Experiences in Developing Countries*. Washington, D.C.: The World Bank, 2009. Accessed May 25, 2019. https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/ppp_testdumb/documents/FINAL-PPPsforUrbanWaterUtilities-PhMarin.pdf.

21. Desalination Plant, Ensenada, Mexico

Photo Credit⁴⁵

Background

In 2012 the municipality of Ensenada in Mexico was facing a deficit in water supply of 130 liters per second. Furthermore, Ensenada's growing population, Valle de Guadalupe's developing winegrowing industry, the area's tourism boom, and the increase in commercial exchange with East Asia were further straining the already insufficient supply. To help address this issue, the public authorities decided to pursue the construction of a desalination plant in Ensenada using a PPP.

Project Structure

The project consists of a 20-year concession for the design, construction, operation, and transfer of a desalination plant that will have a nominal production of 250 liters of desalinated water per second (7,884,000 m³ of drinking water per year) through reverse osmosis. In addition to the desalination plant, the planned works included facilities for seawater capture, pre-treatment and post-treatment; a pumping station; pressurized pipeline; concentrate discharge system to the ocean; storage tanks; pumping plants; and pipelines to connect the plant to Ensenada's water distribution system.

The contracting authority is Baja California's water state commission - Comisión Estatal del Agua de Baja California (CEA). The project was awarded through an international public bidding process to OHL Medio Ambiente Inima S.A.U. (Inima), which, following the award, established an SPV called Aguas de Ensenada, S.A. de C.V. on 31 August 2011.

The project cost was estimated at more than MXN 1 billion (USD 50 million). The project would be financed by an MXN 490 million (USD 25 million) loan from the North American Development Bank; MXN 162 million (USD 8 million) in non-reimbursable federal resources from the national infrastructure fund - Fondo Nacional de

Infraestructura; and MXN 355 million (USD 17.8 million) in private financing. The rate of return was forecasted at 17.55 percent. The contract provided that at least 25 percent of the capital provided by the private partner must come from the investor's risk capital and that the remaining amount may be complemented through loans.

The project's funding source is a payment and administration trust (fideicomiso de administración y pago), which will backstop and cover the investment fixed tariff and the operation and maintenance fixed tariff. The fideicomiso would be established by the public services state commission, Comisión Estatal de Servicios Públicos de Ensenada (CESPE), with the revenues obtained from the rights granted under the water consumption services. The establishment of the fideicomiso was a precondition to the contract entering into force. Once the contract entered into force, CESPE would continue depositing money into the fideicomiso, with a view to creating a contingent fund of a sum equal to six months of the consideration, plus VAT, that CEA is obliged to pay to Aguas de Ensenada monthly.

Among the risks retained by the public sector are the portion of non-reimbursable financing provided by the Fondo Nacional de Infraestructura and the contract payment and demand risks. The risks transferred to the private partner include obtaining necessary permits; carrying out investments and expenses necessary to realize the project (that is: to construct, furnish, test, operate, and maintain the plant); and meeting the quality standards established in the contract. The design, risk capital contribution, and loans are the sole responsibility of the private partner.

The CEA's monthly payment comprises the following sums: a) a fixed cost for investment executed with credit; b) a fixed cost for investment executed with risk capital; c) a fixed cost for

⁴⁵ Beau Hudspeth - Digi-Gen Design Studios - Photography (<https://commons.wikimedia.org/wiki/File:Ensenada-mexico-night-flag-sm.jpg>), „Ensenada-mexico-night-flag-sm“, <https://creativecommons.org/licenses/by-sa/2.5/legalcode>

investment; d) a fixed cost for operations; e) a variable cost of operation per m³ of drinking water; and f) the monthly volume in cubic meters of drinking water measured as it exits the plant.⁴⁶ The plant started operations in June 2018.⁴⁷

Lessons Learned

This project shows how different financing options can be successfully blended in one project. In this case, the project was able to mobilize

several different financing sources under the State Development Plan, which sets guidelines for properly managing resources available through different financing sources for water investment programs. As a result, the public authorities were able to combine and leverage a combination of resources available at the federal and state levels as well as from international financing institutions, to optimize their application.

⁴⁶ Campos, Maria. 2013. "Prestación de servicios públicos municipales en asociación público-privada: El caso de la Planta Desaladora en Ensenada, Baja California." CCA. Accessed May 25, 2019. http://www.cca.org.mx/ps/funcionarios/muniapp/descargas/Documentos_de_apoyo/informaciontematica/capp/Caso_PlantaDesaladora_Ensenada.pdf;

Proyectos Mexico. 2019. "Diseno, Construcion, Equipamiento, Operacion, Mantenimiento Y Conservacion de una Planta Desaladora en Ensenada, Baja California." Proyecto Mexico. Accessed May 25, 2019. https://www.proyectosmexico.gob.mx/proyecto_inversion/0839-planta-desaladora-de-ensenada/;

Border Environment Cooperation Commission. 2012. "Desalination Plant Ensenada, Baja California". Certified Projects. Accessed April 5, 2019. <https://becc.org/projects/certified-projects/desalination-plant-ensenada-baja-california>.

⁴⁷ NADB. n.d. "Investing in the People & Environment of the U.S.-Mexico Border." NADB. Accessed April 5, 2019. http://www.nadb.org/Reports1/Press_Releases/spanish/2018/110618.pdf.

⁴⁸ Photo Credit: Roland (https://commons.wikimedia.org/wiki/File:Dar_es_Salaam_aerial.jpg), "Dar es Salaam aerial", <https://creativecommons.org/licenses/by-sa/2.0/legalcode>

22. Challenging Case: The Dar Es Salaam Water and Sewerage Authority (DAWASA), Dar es Salaam, Tanzania



Photo Credit⁴⁸

Background

Dar es Salaam is Tanzania's former capital and largest city. Before this project, the city's water and sewerage infrastructure, built in the 1970s, was in poor condition, even posing significant potential health hazards. In 1997 the government established the Dar es Salaam Water and Sewerage Authority (DAWASA) to develop and operate the city's water infrastructure. However, it failed to provide much improvement to the city's water and sewerage system. Leakage and illegal connections contributed to around a 50 percent loss of the water produced. Equipment was outdated and the billing and collection system was extremely inefficient. Filters and sewage pumping stations were out of operation, resulting in partial treatment of water and significant pollution of the coastline. Revamping the entire system would require a considerable amount of money.

In 2002, the International Monetary Fund (IMF) and the World Bank offered debt relief assistance to Tanzania under the condition that the Government of Tanzania privatize its SOEs, including DAWASA. The government agreed.

Project Structure

Following a recommendation by the IMF, the government invested around USD 145 million to upgrade DAWASA before selling the company. Multilateral donors provided loans to the Tanzanian

government to finance the project. The African Development Bank (AfDB) provided a loan of about USD 47 million, while the World Bank, the European Investment Bank, and Agence Française de Développement (AFD) provided a total of USD 98 million in financing. The World Bank also contributed another USD 61.5 million for restructuring DAWASA.

The project underwent six years of negotiations with private companies and several bidding processes. Initially, there were four private companies interested in the project, namely Northumbrian Water Group, Saur Internationale, Vivendi Environment (also known as Veolia Environment), and Biwater Gauff Tanzania Limited (BGT). However, three of the four companies pulled out due to concern over the high level of risk transferred to the operator. BGT (a joint venture between United Kingdom-based Biwater International and a German engineering firm, HP Gauff Ingenieure) then became the sole bidder, though it never fully satisfied the qualification criteria. As a result, BGT won the bid with no objection from the World Bank as the transaction advisor.

Following the award, BGT created an operating company called City Water Services Limited (CWS) in partnership with a local investor, Super Doll Trailer Manufacture Company Limited (STM). BGT owned 51 percent (the minimum required by the winning bidder) of the shares in CWS and

⁴⁹ African Development Bank. 2010. *Dar es Salaam Water Supply and Sanitation Project – Project Completion Report*. African Development Bank Group. Accessed December 3, 2019. https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Tanzania_-_PCR-Dar_es_Salaam_Water_Supply_and_Sanitation_.pdf;

Biwater Gauff (Tanzania) Ltd. v. United Republic of Tanzania, ICSID Case No. ARB/05/22. Accessed December 3, 2019. <https://www.iisd.org/itn/2018/10/18/biwater-v-tanzania/>;

Nwokorie E.C. 2018. *Public-Private Partnership Coordination: Lessons from Tanzanian Water Sector*. In: Farazmand A. Global Encyclopedia of Public Administration, Public Policy, and Governance. Springer, Cham. https://link.springer.com/referenceworkentry/10.1007%2F978-3-319-31816-5_3548-1;

Nyambura-Mwaura, Helen. 2008. "How to water a parched city: a Tanzanian tale". Reuters. Accessed December 3, 2019. <https://www.reuters.com/article/us-water-tanzania-idUSWAL74805620080319>;

Triche, Thelma. 2012. *A Case Study of Public-Private and Public-Public Partnerships in Water Supply and Sewerage Services in Dar Es Salaam*. Washington: World Bank Group. http://documents.worldbank.org/curated/en/919501468118750634/pdf/690320RE_VISED00ion0in0Dar0es0Salaam.pdf;

Triche, Thelma. 2013. "Tanzanian Tales: Why PPP Failed to Scale a Mountain of Water Problems". Water World. Accessed December 3, 2019. <https://www.waterworld.com/international/wastewater/article/16201846/tanzanian-tales-why-ppp-failed-to-scale-a-mountain-of-water-problems>.

STM owned 49 percent. Subsequently, CWS operated under a lease contract with DAWASA to provide water supply and sewerage services in Dar es Salaam for ten years. DAWASA was also responsible for funding and implementing capital investments. The project was primarily financed through external loans, with CWS providing USD 8.5 million in equity.

Under the contract, CWS was responsible for: (i) increasing revenue (doubling monthly collections within 12 months); (ii) identifying and regularizing unregistered connections; (iii) introducing a new billing system; (iv) renovating the city's water and sewerage infrastructure; and (v) reducing water losses from an estimated 70 percent to 44 percent in the first three years.

After it took over operations in August 2003, however, CWS faced numerous challenges. These challenges included failures by CWS shareholders to provide their agreed equity contributions; below forecast average monthly collections in 2004/05 (only 52 percent, less than that achieved by DAWASA in 2002/03); very low new water meter installation rates (only 2,500 out of the 170,000 water meters required); and launch of a billing software system, which proved inadequate. CWS also inherited many disputed and unverifiable connections, including the army camps' water connection. CWS had to disconnect the army camps' water supply due to an unpaid bill of over TZS 200 million (USD 172,000), leading to a backlash from the Tanzanian soldiers. CWS also retained approximately 1,400 DAWASA employees but had limited mechanisms and incentives to change the company culture or improve their performance.

These challenges crippled the finances of CWS. It failed to pay a regular rental fee to DAWASA and to deposit First Time Connection Tariffs into the account of that program. CWS also periodically withheld tariff collections from landlords to cover its operating costs. By March 2005, its accumulated losses were nearing USD 12.3 million.

Subsequently, CWS tried to renegotiate the contract with the government, including through the involvement of a mediator, but the parties failed to reach a consensus. In May 2005 DAWASA delivered notice to terminate the contract, which was opposed by CWS. This stalemate, coupled with the declining public support for privatization and an upcoming election, prompted the Minister of Water to intervene. Within the first 18 months of the contract period, the Tanzanian government deported the expatriate managers of CWS and the contract was subsequently terminated.

Lessons Learned

In August 2005, CWS brought the case to two different international arbitration tribunals in parallel, namely the ICSID Tribunal and UNCITRAL Tribunal. The former found that the Government of Tanzania did violate some treaty obligations, but the breaches did not cause CWS any losses. Therefore, CWS was not awarded any compensation. The UNCITRAL Tribunal rejected CWS' claims and instead awarded approximately USD 3.8 million in damages to DAWASA.

In June 2005, a public corporation called Dar es Salaam Water and Sewerage Company (DAWASCO) replaced CWS. DAWASCO also faced the same challenges as CWS but, over the next five years, operational performance improved. In 2018, DAWASA was merged with DAWASCO with the aim of providing better services to the citizens of Dar es Salaam.⁴⁹

This project highlights the following:

- An appropriate allocation of risks is a key factor in the design of a successful PPP. In this case, significant risks were transferred to the private operator, although the sole bidder never fully met the qualification criteria. On taking control of the operations, the private partner had difficulty managing an already very precarious operating environment.
- Both parties should conduct robust due diligence before entering into a PPP. In this case, the private operator seemingly relied solely on the information set forth in the tender documents regarding the status of the water infrastructure that would be transferred from DAWASA. Had it independently verified the data, it may have learned beforehand that some of the information in the tender documents was inaccurate and adjusted its plans accordingly.
- It is important to understand the operating context and adjust the PPP's objectives to reflect the actual circumstances on the ground. In this case, the private operator had difficulty curtailing illegitimate water connections and seeking redress when customers refused to pay water bills, in part due to inadequate legal mechanisms for enforcement. Nonetheless, the PPP agreement set ambitious targets for regularizing connections and increasing collections within relatively short timeframes.

23. Challenging Case: Water Supply Project, Mysore, Karnataka, India



Photo Credit⁵⁰

Background

Uninterrupted access to tap water remains a luxury for some Indians, as many water supply systems in India suffer from inefficiencies stemming from leakages and inadequate maintenance. This results in significant costs for Indian households, due to the need to invest in water storage tanks and filters as a backup in case of interruptions to piped water supply.

Starting in 2004, the Government of Karnataka (GoK), together with the World Bank, launched the Karnataka Urban Water Sector Improvement Project (KUWASIP). The project, first piloted in three cities in Karnataka, was aimed at reforming the water supply and sanitation sector in Karnataka state. Based on the initial success of the program, the GoK replicated the project in other cities in Karnataka, including Mysore in 2008.

Project Structure

A six-year concession to rehabilitate Mysore's century-old water supply system and oversee its operation and maintenance was awarded to Jamshedpur Utilities and Services Co. Ltd. (Jusco) in November 2008 through an open bidding process. The project was valued at INR 1.64 billion (USD 23.4 million). The government's Jawaharlal Nehru National Urban Renewal Mission financed the project, requiring no investment from the private company. The project comprised three phases: one year of preparation, three years for rehabilitating the system, and another two years for operation and maintenance.

According to the agreement, the public sector (Mysore City Corporation and the GoK) was responsible for pricing and disconnecting illegal water connections, with help from the private company to survey and map out the illicit connections in the city. The private company was responsible for operating and maintaining the system, as well as collecting fees from consumers

and then handing these funds over to the public sector. The agreement also stipulated performance clauses, under which the private company would be entitled to bonuses for strong performance. Accordingly, financial, pricing and demand risks were borne by the municipality. Responsibility for operation and maintenance was assumed by the private operator, while both parties would share the technical risk.

Lessons Learned

After Jusco took over the water supply system in Mysore, revenue collection improved from INR 160 million (USD 2.3 million) in 2008-09 to INR 250 million (USD 3.6 million) in 2011-12. In January 2013 alone, the revenue reached INR 230 million (USD 3.3 million). Jusco has also identified 70,000 illegal connections. Of these, Mysore City Corporation has regularized 19,000.

However, the project later encountered the following challenges:

- There were discrepancies between the data in the original agreement and what was found by Jusco through its survey. The agreement stated that the network of pipelines was over 910 km with 117,000 connections, while in fact the pipeline network was 1,910 km with 174,000 connections. The discrepancies have caused changes in the scope of work and increased the estimated cost of the project, leading to a renegotiation process.
- The municipality seconded the employees of Vani Vilas, the city's existing waterworks department, to work under Jusco, but there have been reports of conflict between Jusco and the employees of Vani Vilas.
- In part due to the issues discussed above, project implementation was slower than expected. The new system was only able to connect 61,000 of the 174,000 identified households. Of the 61,000, only 13,000 homes are receiving continuous water supply.

⁵⁰ Maksym Kozlenko (https://commons.wikimedia.org/wiki/File:Brass_water_tap_in_park.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

- In 2012, protesters urged the city to cancel its agreement with Jusco. Their concerns centered on insufficient access to drinking water, unsatisfactory progress in the modernization project, and high water bills.

This project highlights the following:

- A well-structured PPP should ensure that both parties have appropriate incentives to ensure the long-term success of the project. In this case, the private company did not directly invest in the project and so had little incentive to protect and renegotiate the project contract after discovering the data discrepancies.

- If public employees will be transferred to management by the private partner, the municipality should closely engage with these stakeholders and carefully consider how best to facilitate this transition.
- Pricing must always be determined in an equitable and transparent manner, with due regard for the willingness and ability of end-users to pay. Public opinion, in this case expressed through protest, was that the higher water bills were not justified by improved service levels, leading to dissatisfaction among the population.⁵¹

Wastewater Treatment

24. Waste Water Treatment Plant, Udaipur, India



Photo Credit⁵²

Background

Udaipur, a city located in the water-scarce Indian state of Rajasthan, is an economically dynamic city and a popular tourist destination. Before 2012 Udaipur city produced, on average, around 70 million liters of sewage per day. Due to the city's inadequate wastewater infrastructure, the city was struggling to maintain the cleanliness of its lakes, which were being contaminated by the raw residential sewage. In September 2012, a court order was issued to hotels and the municipality to deal with the problem. The local authority decided to pursue a PPP to deliver the infrastructure needed to comply with the court order.

Project Structure

In 2012, a 25-year PPP contract to develop the city's first Wastewater Treatment Plant (WWTP) was executed between Hindustan Zinc, a major corporate zinc mining company, and the local government authorities, including the Udaipur Municipal Corporation and Rajasthan State-Owned Urban Improvement Trust. From the publicly available sources, the project appears to have

originated as an unsolicited proposal initiated by Hindustan Zinc, whose involvement in the project was apparently motivated primarily by its goal of finding options for additional water resources that would reduce its dependence on freshwater extraction, as well as its efforts to increase production and sustainability.

The private partner undertook to design, build, own, and operate the WWTP for the full term of the contract, after which it would be transferred to the Government of Rajasthan in 2039. The private partner was also responsible for fully financing the investment cost of the new WWTP (estimated at USD 27 million), land acquisition, and construction of the WWTP and the 78 km pipeline linking the WWTP with the industrial complex. The local government contributed 70 percent of the cost for the pipeline connecting the city's sewerage system with the WWTP. From the publicly available sources reviewed, it is unclear what entity contributed the remaining 30 percent of the cost of this pipeline or is responsible for its operation and maintenance. The WWTP was expected to have the capacity to

⁵¹ The World Bank. 2013. "Karnataka: Three Towns Pilot 24/7 Water Supply." The World Bank. Accessed May 21, 2019. <http://www.worldbank.org/en/news/feature/2013/01/01/karnataka-three-towns-pilot-water-supply>;

Yousaf, Shamsheer. 2013. "Mysore's 24x7 water project falls short of targets." *Live Mint*, March 26, 2013. Accessed May 21, 2019. <https://www.livemint.com/Politics/veuBt9zArpvuusyysCLnTk/Mysores-24x7-water-project-falls-short-of-targets.html>.

⁵² TeshTesh (https://commons.wikimedia.org/wiki/File:Udaipur_views_Rajasthan_India_2015.jpg). <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

treat 20 million liters of sewage per day, or about 30 percent of Udaipur's domestic sewage, using moving bed bio-reactor technology.

The treated effluent produced by the WWTP, amounting to 20,000 m³ per day, would be used by Hindustan Zinc for its mining and smelting operations, specifically the beneficiation plant at the mine, during the smelting process, and the cooling towers of the captive power plant. However, the company's operations only required 9,500 m³ of treated effluent per day, so the excess would be used in horticulture or released back into the river. In addition, the WWTP would produce treated manure, amounting to 120 tons per year, which would be sold by Udaipur Municipal Corporation to local farmers. Sales of the treated manure were expected to generate annual revenue of around USD 156,000.

Lessons Learned

During the construction period, the private partner encountered several challenges. Concerning land acquisition, the company had difficulty identifying a financially viable site for the WWTP and negotiating with local stakeholders. Further challenges arose in the process of laying pipe-network in busy areas and from operational difficulties at the Hindustan Zinc Industrial Complex. However, these problems

were overcome through the continued effort of the private partner to communicate closely with neighboring communities and the local government to acquire necessary approvals and to obtain acceptance of marginal modifications to project scope and design.

Construction was completed in 2014 and the project has helped Hindustan Zinc reduce its water extraction by 60 percent, from 16,500 m³ per day to 7,000 m³ per day. It also improved the water quality of the Ahar River and Pichola and Udai Sagar lakes, increasing the appeal of the area as destinations for tourists. Based on this success, Hindustan Zinc has announced its intent to increase the project's capacity from 20 to 60 million liters per day.⁵³

This project highlights the following:

- PPPs work best when both parties' interests are plainly aligned. In this case, the project company's aim of reducing its reliance on freshwater extraction aligned squarely with the municipality's need to improve wastewater management. Accordingly, this gave rise to an opportunity for a mutually beneficial project, which further encouraged the parties to work together to address the various problems encountered during the construction phase.

25. Integral Treatment of Wastewater and Bio-Solids, Municipality of Saltillo, Mexico



Photo Credit⁵⁴

Background

The municipality of Saltillo was reportedly not complying with environmental laws on wastewater and was discharging its non-treated wastewater into regional bodies of water. In addition to incurring substantial fines for the municipality, the untreated discharge was contaminating local waters and presenting a growing health hazard for the surrounding inhabitants. Accordingly, construction of appropriate wastewater infrastructure was urgently needed.

Project Structure

The resulting PPP project is a 20-year concession for the design, construction, operation, and maintenance of a primary wastewater treatment plant with the capacity to treat 1,200 liters of wastewater per second, as well as an auxiliary plant with the capacity to treat 70 liters per second. In addition to these plants, the project entails construction of four emitters to carry wastewater to the primary plant and a treated water supply network serving five sites within the municipality of Saltillo. At the end of the 20-year contract, the developer would transfer the new infrastructure and its operation to the municipality.

The project was awarded to Frisco S.A de C.V. through a public national bidding process, in which 16 companies competed. IDEAL Saneamiento de Saltillo, S. A. de C. V., the special purpose vehicle created for this project, began construction in April 2006 and commenced operations in April 2008.

IDEAL took on the risks related to the design, financing, construction, commissioning, and operation of the project. It also assumed the permitting and licensing risks. Political, demand and inflation risks were retained by the municipality.

⁵³ Water Scarcity Solutions. 2016. "Innovative public-private partnership to improve water quality and availability, Udaipur, India." Water Scarcity Solutions. Accessed February 12, 2019. <https://www.waterscarcitysolutions.org/wp-content/uploads/2016/02/A-Innovative-public-private-partnership.pdf>:

India Sanitation Coalition. n.d. *Sewage Treatment Plant – Hindustan Zinc Limited*. India Sanitation Coalition. Accessed November 27, 2019. <http://www.indiasanitationcoalition.org/resources/Case-Study-Hindustan-Zinc.pdf>;

CSR Box. n.d. "CSR Project by: Hindustan Zinc Ltd." CSR Box. Accessed March 28, 2019. https://csrbox.org/India_CSR_Project_Hindustan-Zinc-Ltd-Sewage-Treatment-Plant-Rajasthan_7398.

⁵⁴ Rubén Mendoza Cabrera (https://commons.wikimedia.org/wiki/File:IMG_9872_Saltillo,_Coahuila,_México.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

The municipality of Saltillo was responsible for establishing a payment guarantee to the benefit of IDEAL. To establish the guarantee, the municipality obtained a current-account credit facility through Mexico's National Bank of Public Works and Service. In order to access such a facility, the municipality obtained the financial support of Trust (fideicomiso) No. 1902, known as the infrastructure investment fund (Fondo de Inversión en Infraestructura), through the National Bank of Public Works and Services. This trust is a source of direct and alternative payments for the administration of the resources allocated to the project.

The municipality, as the project's primary source of funding, pays into the Fideicomiso, which in turn pays IDEAL a monthly tariff made up of three elements: a) investment fixed costs; b) operation fixed costs; and c) operation variable costs. The tariff is contingent on the quantity and quality of water treated at each of the plants.

The estimated investment for the project was MXN 436 million (USD 22 million). Of this amount, 29.4 percent was contributed by the Infrastructure

⁵⁵ MuniAPP. 2013. "Asociación Público-Privada Entre la Empresa Ideal Saneamiento de Saltillo S.A. de C. V. y el Municipio de Saltillo Coahuila." CCA. Accessed April 1, 2019. http://www.cca.org.mx/ps/funcionarios/muniapp/descargas/Documentos_de_apoyo/informaciontematica/capp/Saneamiento_Integral_Aguas.pdf;

Paz, Jussaira R., and Priscilla Delgadillo Diaz. 2017. "Asociaciones Pùblico Privadas (APP's)." Contraloría del Poder Legislativo. Accessed April 1, 2019.

http://www.contraloriadelpoderlegislativo.gob.mx/pdf/Cursos/A_P_P.pdf.

⁵⁶ El Diario. 2016. "Arranca Cogeneración de Energía Eléctrica y Térmica en Planta Tratadora." Accessed April 1, 2019. <http://www.eldiariodecoahuila.com.mx/locale/2016/8/3/arranca-cogeneracion-energia-electrica-termica-planta-tratadora-594631.html>.

⁵⁷ Reyes, Jose. 2019. "Finalmente será útil la planta tratadora de Saltillo, venderán el agua a empresas de Ramos Arizpe." Vanguardia, February 21. Accessed May 21, 2019. <https://vanguardia.com.mx/articulo/finalmente-sera-util-la-planta-tratadora-de-saltillo-venderan-el-agua-a-empresas-de-ramos-arizpe>.

⁵⁸ Rahul Bhadane (https://commons.wikimedia.org/wiki/File:Surat_Aerial_View.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

Investment Fund; 50.8 percent was debt; and the remaining 19.8 percent was the private investor's equity contribution.⁵⁵

Lessons Learned

Reports indicate that in 2016 the wastewater treatment plant started operating a system for electric and thermic energy co-generation, which will allow the plant to stop emitting greenhouse gasses and also produce the energy needed to run the plant.⁵⁶ Furthermore, it is reported that, by the second half of 2019, the plant will start selling treated water (between 1 to 6 liters per second) to three companies that have expressed interest.⁵⁷

It has also been reported that the project has benefited agricultural works in the region, as it enabled a change from forage crops to vegetables, which have a higher commercial value. The project further promised to increase the commercial value of the previously polluted lands, as the project will help to significantly decrease or eliminate discharges that were producing unpleasant odors and harmful environmental impacts.

26. Industrial Water Supply, Surat Municipal Corporation, India



Photo Credit⁵⁸

Background

As the economic capital of Gujarat, Surat City was experiencing booming industrial growth, particularly in the textile and diamond industries. To meet the resulting rapid increase in water demand amidst

an existing shortage, the city needed to reduce its dependence on groundwater and be more innovative in its approach to water management.

Project Structure

In 2014 India's Surat Municipal Corporation (SMC) and the Asian Development Bank (ADB) jointly initiated a wastewater recycling project with a total estimated cost of INR 2.8 billion (USD 40 million). The project aimed to deliver infrastructure that

could recycle sewage and generate industrial-grade water, including through the construction of new, state-of-the-art tertiary treatment plants (TTPs). The TTPs would be equipped with sand filtration, ultrafiltration, reverse osmosis, and activated carbon filter technologies and have the capacity to treat 726 million liters per day (MLD) of wastewater and distribute it for reuse by industries located in the city.

Through a competitive bidding process, M/S Enviro Control Associates (I) Pvt. Ltd (with M/S Hyflux from Singapore as their technological partner) won the bid for the EPC (Engineering, Procurement, and Construction) contract. As per customary practice in the SMC, the winning bidder for the EPC contract would automatically be awarded the contract to operate and maintain (O&M) the plants under a separate agreement for a period of 10 years. The plants would be handed over to the SMC at the end of the concession period. The Government of India, the Government of Gujarat, and SMC contributed INR 415 million (USD 5.83 million), INR 466 million (USD 6.55 million), and INR 378 million (USD 5.3 million), respectively, to the project. SMC also provided the land to build the TTPs and was responsible for supplying the wastewater for recycling by the plants.

Project revenue was expected to come primarily from user charges collected from industries that purchased the recycled water. The user charge was set at about INR 19.84 (USD 0.28) per 1,000 liters of water (based on a yearly increment on an indexation base). The fee was less than the price SMC charged to industries for freshwater, which was around INR 23 (USD 0.32) per 1,000 liters.

Revenues received were expected to cover the total annual O&M cost of INR 277 million (USD 4 million).

The TTPs in the Bamroli and Dindoli areas would take in domestic sewerage water and supply the treated, recycled water primarily to textile factories in the Pandesara and Sachin industrial clusters, which house over 400 printing and dyeing units.

Lessons Learned

To date, SMC has been converting 57 MLD of sewerage into 40 MLD of treated water distributed to industries in Pandesara. The TTPs output capacity is expected to expand to 115 MLD by March 2019. Total income received from the sale of industrial-grade water through November 2017 was reportedly INR 747 million (or USD 10.6 million). SMC is also planning to extend the project's scope by supplying recycled water to other industrial clusters outside of the city.

The project was originally intended to be wholly privately financed, that is requiring no direct financial support from the government, and was procured as such in 2011. However, despite successfully awarding the project, it could not be executed as initially conceived and required

some restructuring. Subsequently, the project was divided into two contracts, one for EPC and another for O&M, and retendered in 2017. Under this arrangement, the EPC portion would be paid in full by the government, while the ensuing costs of O&M would be recovered from the revenue generated by the project.

Ultimately, the project's O&M component is self-sustaining, in terms of the cost and revenue received. It has allowed SMC to reduce the strain on water resources in the city, while limiting the public fiscal burden of the project. The project has been identified by some as a leading example of successful wastewater treatment projects in India.⁵⁹

The project highlights the following:

- Developing and preparing a successful PPP can take time and municipalities should be open and responsive to changes as the project develops. In this case, following the first unsuccessful effort to tender and deliver the project, the PPP needed to be restructured in order to be viable over the long term.
- Pricing should be carefully determined in light of all of the municipality's aims in pursuing a PPP. In this case, the user charge for the recycled water was set at a rate below the fee charged for freshwater. While this may have contributed to the project requiring some government support, it was also key to ensuring demand for the recycled water, and so the long-term financial viability of the project, as well as achieving the city's aim of conserving freshwater resources,

⁵⁹ Langa, Mahesh. 2018. "In managing water, Surat takes lead." *The Hindu*, September 16. <https://www.thehindu.com/news/national/other-states/in-managing-water-surat-takes-lead/article24962211.ece>;

CIPS. "Innovation in Waste Water Treatment." Presentation, Surat Municipal Corporation, September 4, 2014. Accessed May 18, 2019. http://www.cips.org.in/documents/VC/2014/4th_Sept/TTP_Surat_040914.pdf;

Smart City. "Detailed Project Report for Recycling / Reuse of Wastewater, Tertiary Sewage Treatment Plant of 40 mld Net Output Capacity at Dindoli to Generate Industrial Grade Water Under Smart City Surat." Bhatar, Surat: Smart Municipal Corporation, n.d. Accessed May 18, 2019. https://smartnet.niua.org/sites/default/files/webform/abd_7_dindoli_ttp_detailed_project_report.pdf;

Surat Municipal Corporation. "Tertiary Sewage Treatment Plant." Presentation for the Drainage Department, November 16, 2017. Accessed May 21, 2019. https://smartnet.niua.org/sites/default/files/resources/bamroli_ttp_16_11_2017.pdf;

Smart Cities Council. 2018. "Surat makes sure every drop of waste water treated." Smart Cities Council. Accessed August 8, 2019. <https://india.smartcitiescouncil.com/article/surat-makes-sure-every-drop-waste-water-treated>;

Dash, Dipal K. 2018. "Water Lessons from Surat's Sewage Plant." *Times of India*, July 15. Accessed August 1, 2019. <https://timesofindia.indiatimes.com/city/delhi/water-lessons-from-surats-sewage-plant/articleshow/65001349.cms>;

Chiplunkar, Anand. "Surat Wastewater Recycling Project through PPP Approach." Group Discussion on Urban Sanitation, Surat, April 7, 2011. Accessed August 1, 2019. <https://www.slideserve.com/cosmo/surat-wastewater-recycling-project-through-ppp-approach>;

ICRA Management Consulting Services Ltd. 2012. *Preliminary Feasibility Report Mysore City Corporation: Waste water recycling & Reuse project - Tertiary treatment of secondary treated waste water from Kesare Sewage Treatment Plant to supply recycled water for industrial use*. Infrastructure Development Department - Government of Karnataka. Accessed Accessed November 27, 2019. https://idd.karnataka.gov.in/storage/pdf-files/78_DMA_PFR_WasteWaterRecyclingMysore_Final.pdf.

Solid Waste Management

27. Municipal Waste Thermal Treatment Plant, Poznań, Poland



Photo Credit⁶⁰

Background

In response to new European Union (EU) regulations on waste management, the City of Poznań in Poland started planning the construction of a mixed municipal waste-to-energy power plant, referred to as an energy for waste “EfW” project. The project would be the first PPP in this sector in Poland.

⁶⁰ Photo in the public domain published by Pylarer <https://pixabay.com/photos/landfill-waste-management-waste-879437/>

⁶¹ Ferek, Agnieszka, Magdalena Kosewska-Kwaśny, et al. 2013. Public-Private Partnership in Waste Management. Warsaw: Crido Taxand, Baker & McKenzie, Centrum PPP. http://www.centrum-ppp.pl/Content/Uploaded/files/PDF/crido_odpady.pdf;

Sirghi, Petru. 2015. "Public Private Partnership: Case of Poland." PhD diss., Warsaw School of Economics. Accessed May 1, 2019. https://www.academia.edu/25410148/PUBLIC_PRIVATE_PARTNERSHIP_CASE_OF_POLAND;

Suez. n.d. "At Poznan, in Poland, waste is converted to electricity to meet the growing needs of the population." Suez. Accessed February 7, 2019. <https://www.suez.com/en/our-offering/Success-stories/Our-references/Poznan-energy-from-waste>.

produced by the facility. The project's capital investment cost was estimated at PLN 725 million (USD 192 million). The project is funded in part by a EUR 84 million (USD 96 million) subsidy from the EU Cohesion Fund, with the remainder financed by equity contributed by SITA Zielona Energia and a non-recourse loan provided by a consortium of three commercial banks.

The city pays the private partner based on its approximate operation costs, disaggregated into fixed and variable costs; debt service requirements in the form of principal installments and financing costs; and the planned profit of the private partner. The payment amount is calculated on the basis of the accounts submitted by the private partner to the city each month. The amount payable by the city is then reduced by revenues generated by the private partner through the sale of electric and thermal energy, and certificates.

Lessons Learned

The waste-to-energy plant officially started operations in 2017, producing both electrical power and heat. At present, 30 percent of the City's domestic electricity consumption is generated by the new facility. In addition, the plant has reduced the City's expenses for treating urban solid waste by 20 percent, resulting in estimated annual cost savings of EUR 34 million (USD 38 million).⁶¹

This project highlights the following:

- PPPs should be pursued purposefully, with clear objectives and justifications for procuring a private partner. In this case, the project concept originated from the municipality's need to improve its solid waste management and the decision to use a PPP stemmed from the municipality's relative lack of capacity in the preferred project type, namely waste-to-energy.

28. Municipal Solid Waste Treatment Project, Wenzhou, China



Photo Credit⁶²

Background

The City of Wenzhou was generating approximately 400,000 tons of household waste each year, with an annual growth rate of 8-10 percent. Household waste was collected and disposed of in two existing landfills that were approaching maximum capacity. In 2002, the local government decided to pursue a PPP to address the issue.

Project Structure

The local government entered into a PPP with a local private company, Wei Ming Environmental Protection Engineering, to build and operate a new municipal solid waste (MSW)-to-energy incinerator plant. The incinerator plant was designed to handle 320 tons of MSW per day and generate up to 25 million kWh of electrical power annually. The project was broken down into two phases. In the first phase, the plant would be expected to treat 160 tons of MSW per day. This would enable the plant to produce 9 million kWh per year, of which 7 million kWh would be available for sale. The second phase would then add another 160 tons per day in MSW treatment capacity to the facility.

The private contractor agreed to invest a total of CNY 90 million (USD 13 million) to build the plant and then operate, manage, and maintain it for 25 years, excluding a two-year construction period. The private partner will transfer the plant to the government without any additional compensation at the end of the 25-year concession. It was forecast that the project would break even after 12 years of operation.

The private contractor is entitled to the following support from the public partner: (i) a service or tipping fee for the disposal of MSW assessed at a rate of CNY 73.8 (USD 11) per ton; (ii) an exemption from paying corporate income taxes for the first five years of operation; and (iii) an immediate refund of VAT. The private partner generates revenue through sales of the electricity generated by the plant and the waste disposal service fee paid by the city.

The project was facilitated by: (i) China's 2005 Renewable Energy Law, which required electrical power network operators to purchase electricity generated using renewable sources; and (ii) China's Regulation on the Price of Electricity from Renewable Energy and Fee Sharing, which raised the electricity tariff for electrical power generated by MSW-to-energy facilities from CNY 0.54 (USD 0.08) per kWh to CNY 0.66 (USD 0.10) per kWh.

The plant has been in operation since 2003.⁶³

Lessons Learned

This project highlights how targeted legal and regulatory reforms can support the delivery of PPP projects. In this case, the project was aided by, inter alia, legal changes that increased both the demand for the project output and the tariff charged for that output, as well as a targeted tax incentive.

⁶² Pascal3012 (https://commons.wikimedia.org/wiki/File:Vue_générale_de_Wenzhou.JPG), „Vue générale de Wenzhou“

<https://creativecommons.org/licenses/by-sa/3.0/legalcode>.

⁶³ ADB. 2010. "Urban Innovations and Best Practices." ADB. Accessed April 1, 2019. <https://www.adb.org/sites/default/files/publication/27864/urbandev-prc-nov2010-waste.pdf>.

29. Keppel Seghers Waste-to-Energy Plant, Singapore



Photo Credit⁶⁴

Background

Between 1970 and 2000, Singapore experienced significant growth and urbanization. As a result, the city-state's solid waste generation grew at 8 to 10 percent every year, from an estimated 1,200 tons per day in the 1970's to 7,700 tons per day at the turn of the century. After considering a variety of technologies, including composting, baling, and others, the government decided on mass-burn incineration to dispose of solid waste.

The decision to invest in mass-burn incineration was driven primarily by four characteristics of this technology: (1) up to 90 percent waste volume reduction; (2) electricity generation capacity; (3) bottom-ash and fly-ash recycling; and (4) scrap metal recovery.

Following the construction of Singapore's first Waste-To-Energy (WTE) plant in 1979, the Singapore government would go on to construct three more WTE plants for the country under Design-Build (DB) contracts with the private-sector. This left the government responsible for the financing and operational risk, which was also capital intensive in construction and operation.

Project Structure

With the lifecycle of the first WTE plant winding down, the Singapore government decided to develop a fifth site for its waste management system. However, instead of using the DB-method as with the previous four, the country opted to pursue a different PPP model in the hope of increasing competition in the waste incineration sector.

In 2001 the government tendered the development of the new plant with a focus on having the private sector partner take on the financial, design and demand risks associated with the project. It was not well-received by the market and only one, non-compliant bid was received. The lack of interest was believed to stem from developers being unwilling to bear the demand risk due to the uncertainty of

waste growth and the lack of guarantees around the facility's waste streaming.

Following the failed tender, the Singapore government commissioned a study to investigate the waste incineration industry. The outcome of this research yielded the following recommendations:

- Adopt a DBOO (Design, Build, Own, Operate) scheme with full 'take-or-pay' approach;
- The government should enter into 'take-or-pay' agreement with the developer to buy 100 percent of incineration capacity at a price determined through the tender;
- The government should bear demand risks by giving the operator full capacity payment, regardless of the plant's actual utilization rate.

The government reopened the call for proposals, this time electing to offer a 25-year concession contract with 'take-or-pay' approach. This led not only to more market engagement but also to a successful procurement process, with Keppel Seghers being awarded the concession in late 2005 and opening the site for commercial operations in 2009.

Lessons Learned

Singapore now has four WTE plants in operation (the first plant was decommissioned in 2009), which handle all incinerable waste collected. Two of the plants are owned and operated by Keppel Seghers, which handles about 50 percent of the daily collection. The others are operated by Singapore's National Environment Agency (NEA).⁶⁵

This project highlights the importance of engaging with and understanding the needs of the market in pursuing a PPP. A failed tender may be the result of a failure to design a project structure sufficiently in line with industry standards and the needs of private sector investors. Careful study of and engagement with market actors to determine the right balance of risks and incentives can be key to the successful delivery of a PPP.

⁶⁴ Maksym Kozlenko (https://commons.wikimedia.org/wiki/File:Keppel_Viaduct,_Singapore.jpg).

<https://creativecommons.org/licenses/by-sa/4.0/legalcode>
⁶⁵ Tuan, Loh Ah. 2016. *Waste-to-Energy Plants – Public-Private Partnership Singapore*. Accessed December 3, 2019. https://d20cc0ihd6a5bt.cloudfront.net/wp-content/uploads/sites/837/2016/03/B4_2_TUAN-Loh-Ah_KeppeI-Seghers-Engineering-Singapore.pdf.

30. Solid Waste Management, West Bank and Gaza



Photo Credit⁶⁶

Background

Decades of conflict have led to underinvestment in infrastructure and the provision of public services in the West Bank and Gaza, especially in solid waste management. This is true in the case of Hebron and Bethlehem, which house nearly 1 million people and are the poorest governorates in the West Bank. Of the 500 tons of waste generated daily in Hebron and Bethlehem, most was abandoned, illegally dumped, or deposited in unsanitary dumps. The amount of solid waste was predicted to grow, yet the governorates were lacking in sanitary landfill space and funding – presenting health and environmental risks to the residents of the West Bank. To address the existing unsanitary dumpsites, the Palestinian Authority established the Joint Services Council for Hebron and Bethlehem (JSC-H&B) to oversee the solid waste management system. It also sought help from the World Bank Group and other donor partners to finance a sanitary and modern landfill equipped with access roads and transfer stations at Al Minya.

The Palestinian Authority sought assistance from the International Finance Corporation (IFC) to help design a PPP for the operation and management of the landfill and related facilities tailored for the region, and to procure a qualified private partner to manage the facility.

Project Structure

The project was structured using blended financing, as follows:

- i. USD 28 million was raised from the authority and local governments, as well as from donors, such as the World Bank, European Union, United States Agency for International Development, and Islamic Development Bank, among others; and
- ii. USD 8.3 million from the Global Partnership on Output-Based Aid (GPOBA), now known as the Global Partnership for Results-Based Approaches (GPRBA). This money would be disbursed based on the achievement of specific service improvements, including adequate waste

gathering and transferring solid waste to the landfill, as well as financial sustainability targets as set by local stakeholders.

The GPOBA's involvement reassured the private sector bidders, as it supported JSC-H&B's capacity to pay the private operator. The GPOBA's results-based disbursements also incentivized the performance of the selected private operator and, at the same time, encouraged local governments to use the landfill.

Seven international and regional private sector operators expressed interest in the project. Of the seven, three were pre-qualified and submitted bids, namely Hera Holding (Spain), WATT S.A. - MESOGEOS SA & EPEM SA (Greece), and Entag-Ecaru-Comeback (Egypt-Palestine). The Greek consortium was awarded the project in 2013 following a two-stage selection process involving a technical evaluation and a financial bid. The concession has a flexible term with a minimum of five years and a possible extension of up to two years. The continuation is contingent on the remaining volume in the landfill cells.

The private operator is responsible for the operation and maintenance of two transfer stations, at Tarqumiya and Hebron, and the Al-Minya landfill, including the long-haul transfer of waste from the transfer stations to the landfill. JSC-H&B is responsible for paying charges per ton of waste managed at the Al-Minya landfill and the two transfer stations, as well as for providing a minimum waste guarantee of 500 tons per day to the operator. Meanwhile, waste and user fee collection were the responsibility of the local governments.

As a result of this project, greenhouse gas emissions are expected to be reduced by 13,400 tons over seven years, or 3.2 million tons of carbon dioxide equivalents (CO₂e) within 20 years of the project's economic life.

⁶⁶ World Bank. <https://www.worldbank.org/en/about/partners/brief/west-bank-and-gaza-cleaner-cities-ppps-and-innovative-financing-approaches>

Lessons Learned

Approximately 840,000 people in Hebron and Bethlehem are estimated to have benefitted from the improvements in solid waste management services. In return, customers appear more willing to pay for these services, as evidenced by steadily improving fee collection rates and billing-to-cost ratio for services in Hebron and Bethlehem. A report showed that both governorates had recovered around 82 percent of billed fees, 42 percentage points higher than at the start of the project. It was also reported that JSC-H&B now covers 84 percent of its operating costs from its revenues – indicating improved financial sustainability of the project. The project has also expedited the closure 17 unsanitary dumpsites.

In the future, JSC-H&B is planning to set up centers where customers can pay service fees and file quality-related complaints. It also plans to bundle waste management fees with other public services fees that citizens regularly pay.

This project highlights the following:

- Blending funding and financing sources (in this case combining contributions from public, bilateral and multilateral development partner, and private sources) can help de-risk projects in more fragile contexts and jurisdictions with less developed PPP markets, where it may be more difficult to attract private investment
- There is value in adaptability and flexibility. In this case, considerable effort was made to improve the project scope and structure during the bidding and tendering phase. For example, during this process it was decided that the project needed to be redesigned to

attract smaller firms, which were believed to be more likely to invest in a challenging operating environment. Flexibility was also key in successfully implementing the project across different local authorities. For instance, the type of instrument used to collect waste charges was permitted to vary from one locality to another.

- Assistance is available from bilateral and multilateral development partners, such as the World Bank and the IFC. In this case, the World Bank was able to help with funding the landfill and building institutional capacity, while the IFC assisted with structuring the PPP and securing GPOBA funding.
- Engage with stakeholders early and often. The JSC-H&B communicated directly with local government participants and encouraged them to proactively contribute to the project, especially in setting the project targets. It conducted several focus group meetings at the initial stages of the project to understand the concerns of stakeholders and encourage their early and continuous engagement.
- Performance-based payments can help to align incentives. GPOBA's performance-based disbursements helped to enforce the private operator's compliance with the performance indicators set by JSC-H&B, as this was necessary to safeguard its revenue stream and return on investment.⁶⁷

⁶⁷ The World Bank. 2018. "West Bank and Gaza: Cleaner Cities with PPPs and Innovative Financing Approaches." The World Bank. Accessed May 31, 2019. <https://www.worldbank.org/en/about/partners/brief/west-bank-and-gaza-cleaner-cities-ppps-and-innovative-financing-approaches>;

IFC. *West Bank & Gaza: Solid Waste Management*. Washington, D.C.: IFC, 2013. Accessed May 31, 2019. https://www.ifc.org/wps/wcm/connect/e9b7ed6a-c842-473a-b35b-9365b99699a0/PPPStories_WestBankGaza_SolidWasteManagement.pdf?MOD=AJPERE&S&CVID=IHIBKti;

World Bank. 2018. *West Bank and Gaza – Solid Waste Management OBA Pilot in West Bank Project (English)*. Washington, D.C: World Bank Group. <http://documents.worldbank.org/curated/en/330331546546200432/pdf/icr00004568-final-12282018-636818041626273401.pdf>.

Information and Communication Technologies (ICT)

31. IT Network Integration, Barcelona, Spain



Photo Credit⁶⁸

Background

The Barcelona City Council wanted to accelerate the integration and expansion of its existing information technology (IT) network (fiber optic and Wi-Fi), which was divided into five different IT networks and managed by six different companies. It also wanted to procure a better, safer, and customized IT service for its own use. To this end, the council, through its Municipal Institute of Information Technology (IMI), decided to pursue a PPP to integrate the management of its active and passive networks⁶⁹ to leverage efficiencies in investment, management, and monitoring. The PPP involved bundling a number of activities that were previously isolated to improve efficiency and finance investments in new equipment.

Project Structure

The resulting PPP entailed the financing, operation, management, and transfer of IMI's active and passive IT networks, in addition to some small-scale construction works. The design of the project was settled on through a competitive dialogue process, which the city initiated by inviting private operators to submit designs for the IT infrastructure in accordance with guidelines set by the city council. Once the design work was completed, IMI, as the entity in charge of IT provision for the council, began the tender process. The same two private operators that participated at the design stage then submitted bids. Tradia Telecom S.A. won the contract in January 2014, and began operations in March of the same year, with a total contract duration of ten years. In this case, due to the comparatively small size of the project, compared with Tradia's assets, no special purpose vehicle was used.

The project uses a creative business model under which the concessionaire provides corporate services to the city and IMI allows the concessionaire to sell spare capacity in the infrastructure created by the PPP, which is owned by the city, on the wholesale market. Tradia assumed the construction, financing, inflation, demand, operation, and equipment supply risks, while IMI took on the risks related to land and space acquisition and availability, as well as the political risks. Both partners shared the design risk.

Under this scheme, the private operator finances the investment in upgraded IT infrastructure and, in return, receives availability payments, plus the right to sell excess network capacity to telecommunications operators. Tradia would pay an estimated EUR 7,562,500 (USD 8,550,730) for the initial investment cost of purchasing and installing new equipment (NXM and Wi-Fi), while IMI would pay EUR 1,150,000 (USD 1,300,300) per year, including VAT, for Tradia's IT operation service. IMI also receives an annual fee of EUR 220,000 (USD 250,000) from the private operator for the use of the infrastructure that the operator can then sell to other operators on the wholesale market. The internal rate of return (IRR) was forecast at 11.3 percent over the 10-year period. However, on 9 May 2014, three months after the contract went into effect, the Spanish parliament passed Law 9/2014 – General Law on Telecommunications, which reportedly impacted the expected IRR.

⁶⁸ Harvey Barrison from Massapequa, NY, USA ([https://commons.wikimedia.org/wiki/File:Barcelona_2015_10_10_0488_\(22749913489\).jpg](https://commons.wikimedia.org/wiki/File:Barcelona_2015_10_10_0488_(22749913489).jpg)), „Barcelona 2015 10 10 0488 (22749913489)”,

<https://creativecommons.org/licenses/by-sa/2.0/legalcode>

⁶⁹ Active networks involve commuting and routing equipment and passive networks involve fiber-optic cables, poles, and boxes that will be relayed to the operator. This is: nodes within the municipal and urban corporate network, citizen Wi-Fi network hot spots, urban Wi-Fi, corporate fiber-optic network, urban mobility control network and urban tunnel telecontrol network, dark fiber network of the 22@ district, urban tunnel telecontrol network items of equipment, and radio links. Due to the complexity of the networks, the measurements of each of them could vary, which concessionaire would have to accept.

The network-sharing model at the core of this project allowed the private firm to make an up-front investment in new and improved IT infrastructure, providing Wi-Fi throughout the city council's buildings and at access points in the outdoor network, while at the same time generating new revenue for the city. In addition, it has been reported that the operating costs for the city's IT administration increased by no more than EUR 7,400 per year.

Between 2011 and 2015, the number of city council buildings with fiber optic connections grew by 26.2 percent, the number of kilometers of fiber optic cable laid increased by 116.8 percent, and the number of Wi-Fi hot spots increased by 119.39 percent. Despite a change of government, the contract was not affected, though the previous smart city strategy was reevaluated.

Lessons Learned

The project reportedly yielded benefits for both Barcelona's public administration and its residents, including improved service in the city council's offices and the expansion of Wi-Fi service throughout the city. It is also reported, however, that legal and regulatory changes have made it more difficult for Tradia to sell the spare network capacity.⁷⁰

This project highlights the following:

- Innovative project structures, such as bundling several IT services and contracts that were

previously separated, can facilitate better and more efficient management and operations, while also making the project more attractive to private investors. At the same time, this may help guarantee the same quality standards across the bundled services.

- PPPs should be pursued purposefully, with clear objectives and justifications for procuring a private partner. In this case, the city evidenced a clear and consistent development strategy, which facilitated the cooperative design of the project with prospective private operators in advance of the tender.
- Permitting the sale of the new infrastructure's spare capacity provided an additional and innovative funding source. Creative approaches to additional funding mechanisms can help make PPPs more commercially viable and appealing to the private sector.
- Permitting the sale of the new infrastructure's spare capacity was a creative funding source that made the project more commercially viable and appealing to the private sector.
- Municipal PPPs may be subject to unforeseeable impacts resulting from decisions made by higher levels of government. Municipal PPP agreements should plainly allocate the risks related to changes in law and regulation and, to the extent possible, include responsive mechanisms that protect both parties.

32. Next Generation Nationwide Broadband Network, Singapore



Photo Credit⁷¹

Background

To enhance Singapore's global competitiveness and meet its future economic and social needs, the Singapore government decided to develop a new Next Generation Nationwide Broadband Network (NBN). The NBN involved a fiber-to-anywhere network project offering open access, competitively priced, ultra-high-speed broadband access from

1Mbps to 1Gbps for consumers and businesses. To this end, the Singapore government decided to pursue a PPP to leverage private sector innovation and capacity and optimally allocate the risks, rewards, and responsibilities between public and private sectors.

⁷⁰ Salvador, Jordi, Joan E. Ricart, Francesc Trillas, and Miquel R. Planas. *Barcelona Gix: IT Network Integration (Spain)*. IESE Business School: Barcelona, 2017. Accessed January 26, 2019. <https://www.iese.edu/wp-content/uploads/2019/03/ST-0445-E.pdf>.

⁷¹ Someformofhuman (https://commons.wikimedia.org/wiki/File:Singapore_Skyline_Panorama.jpg), „Singapore Skyline Panorama“,

<https://creativecommons.org/licenses/by-sa/3.0/legalcode>

Project Structure

Using a two-stage competitive bidding process, the government selected the OpenNet Consortium as the Network Company (NetCo) responsible for the passive infrastructure of the NBN (e.g. the fiber optic cable) and Nucleus Connect as the Operating Company (OpCo) responsible for the active infrastructure of the NBN (e.g. routers, switches, and network access equipment). NetCo would receive financial support from the government of up to SGD 750 million (USD 550 million), while OpCo would receive up to SGD 250 million (USD 184 million). The private partners would need to cooperate to design, build, and operate the all-fiber optic network, to connect every home, office, and institution in Singapore.

Under this PPP scheme, the government is responsible for timely disbursements of public funds and establishing an appropriate regulatory framework for the Next Generation NBN to support market investments. The private partners are responsible for implementing a sustainable business model for the Next Generation NBN over the longer term, deploying technological solutions and technical expertise, and understanding and meeting the needs of end-users.

⁷² IDA. *Building Singapore's Next Generation Nationwide Broadband Network: Towards a Next Generation Connected Nation*. Singapore: IDA, 2010. Accessed February 17, 2019. http://www.itu.int/net/wsis/stocktaking/docs/activities/1291981845/Towards%20a%20Next%20Generation%20Connected%20Nation_Singapore.pdf;

Infocomm Media Development Authority. n.d. "What is the Singapore Next Generation Nationwide Broadband Network?". Accessed February 17, 2019. <https://www.imda.gov.sg/industry-development/infrastructure/next-gen-national-infocomm-infrastructure/wired/next-gen-nbn/what-is-next-gen-nbn/industry-structure>;

Grewal, Harin. "Case Study: Singapore's Next Generation Nationwide Broadband Network." Presentation, Singapore, November 16, 2019.

⁷³ Paul Sableman ([https://commons.wikimedia.org/wiki/File:KC_Streetcar_\(31551392370\).jpg](https://commons.wikimedia.org/wiki/File:KC_Streetcar_(31551392370).jpg), „KC Streetcar (31551392370)”, <https://creativecommons.org/licenses/by/2.0/legalcode>

33. Free Public Wi-Fi and Interactive Kiosks Project, Kansas City, United States



Photo Credit⁷³

Background

Cisco and Sprint, two major IT companies in the United States, proposed an unsolicited project to the Kansas City government to install free public Wi-Fi and interactive kiosks. These facilities would provide internet access to residents and visitors

Lessons Learned

The Next Generation NBN began commercial operations in August 2010. Since then, competitively priced fiber-optic broadband services have become available for businesses and private consumers through more than 12 different service providers and over 40 fiber-optic based broadband access plans. The project benefits not only individual consumers and businesses but also information communications (infocomm) companies. In particular, individuals benefit from richer mobile and wireless services, businesses benefit from ready access to a robust network that supports data-intensive transactions, and the infocomm companies benefit through the expanded infocomm market. The expanded market can open up new revenue streams and business opportunities.⁷²

This project highlights the value of an open, transparent, and competitive procurement process and conducting robust project preparatory work, which helped allow this project to be delivered at a low cost without compromising the efficiency or effectiveness of the infrastructure. Key efforts in this respect included conducting studies of overseas deployments and engaging and consulting with the private sector closely and early in the process to better understand the project's impact and implication and, at the same time, to understand the type of government support required to incentivize the industry.

through their mobile devices. The project further promised to streamline the city's operations, stimulate economic development, and improve the quality of life of the city's residents. The free public Wi-Fi and interactive kiosk project would use the existing Sprint Wi-Fi network, which was already serving as the backbone of Kansas City's Smart City framework. The Kansas City government accepted the proposal.

Project Structure

After carefully negotiating the security and contract terms, an agreement between the Kansas City government and Sprint+Cisco was executed in June 2015. Under this agreement, the private companies would install devices that provide free public Wi-Fi along the 2.2-mile Kansas City streetcar line. They would further install a series of 25 interactive digital kiosks for smart lighting and video surveillance along the streetcar line, which would use Sensity's NetSense platform. This is an intelligent Internet of Things (IoT) platform that can transform each lighting fixture into a sensory node, thereby saving money and energy, while the video

sensors can collect real-time data for the smart city, ensuring public safety along Kansas City's downtown streetcar line.

The total capital cost of the project was USD 16 million, of which the city government agreed to contribute about USD 3.7 million. The local government earns revenue from collecting advertising fees from the kiosks, which it shares equally with its advertising manager, Smart City Media. Once the local government has recouped its capital costs, which is estimated to take around four to five years, the revenue-sharing proportions will be adjusted to 25 percent for the city and 75 percent for Smart City Media.

Cisco and Sprint supplied the remaining USD 12.3 million in capital investment cost. While the private investors do not receive any direct financial returns from the project, they receive exclusive rights to access and use the data collected by the kiosks. The data collected on Wi-Fi use can be

used to understand the viability of expanding Wi-Fi coverage to other areas of the city.

Lessons Learned

In early 2016, the 25 kiosks were installed. They can be used by the citizens to access the Internet through their connected mobile devices freely, as well as to find information about city services, current events, transportation, local business information, local history, and entertainment. The kiosks can also be used as an emergency alert system, which in turn may enhance public safety.⁷⁴

This project highlights how an unsolicited project proposal may lead to a successful PPP, provided it is accompanied by substantive due diligence on the part of the municipality, especially regarding alignment with strategic development plans and priorities, need and demand for the project, anticipated project outcomes, and the contract terms.

34. Establishment of High Capacity Wireless Infrastructure, Pimpri-Chinchwad, Maharashtra, India



Photo Credit⁷⁵

⁷⁴ Fishman, Tiffany D., and Michael Flynn. *Using public-private partnerships to advance smart cities*. New York: Deloitte Center for Government Insights, n.d. Accessed February 11, 2019. <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Public-Sector/gx-ps-public-private-partnerships-smart-cities-funding-finance.pdf>.

Sprint. 2016. "Sprint Launches Free Wi-Fi Services as Part of Kansas City's Smart City Initiative." *Sprint Newsroom*, May 5. <https://newsroom.sprint.com/sprint-launches-free-wi-fi-service-as-part-of-kansas-citys-smart-city-initiative.htm>.

⁷⁵ Nimoclick (https://commons.wikimedia.org/wiki/File:Street_scape.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

it needed both for its daily operations and to extend online services, such as e-governance, e-education, and e-health, to its citizens.

Project Structure

Following an open, competitive tender initiated in December 2007 by PCMC, the bid offers were evaluated by an independent party. PCMC awarded a 10-year concession to IL&FS, along with its joint venture partners Software Technology parks of India, Fujitsu India Ltd, and Lifestyle Networks Ltd. The concession involved the design, financing, installation, management, and maintenance of ISP services for PCMC offices, businesses, and citizens in the PCMC area; wireless infrastructure; extending services to citizens, including internet and value-added services, such as e-governance (over the proposed infrastructure) and commercial transactions. It was based on a revenue-sharing arrangement with the PCMC, which would provide the land needed for installing the infrastructure on a rental basis.

During the contract period, the annual amount to be paid to the PCMC by the joint venture was fixed at 2.5 percent of the first INR 25 crore (USD 3.5 million) of revenue, plus 4 percent of any additional revenue above that amount. In addition, the contract provided an alternative, minimum revenue share to be paid to the PCMC, which increases annually. For example, the required minimum payment in year three is INR 6,400,000 (around USD 90,000).

By year ten, this amount increases to INR 21,400,000 (USD 300,700). The estimated project cost is INR 428,400,000 (USD 6.02 million).⁷⁶

Lessons Learned

This project highlights how properly structured PPPs can produce win-win solutions for municipalities, the private sector and municipal

constituents. This may be especially true in project types that lend themselves to the private sector's unique capabilities, for example information technology projects that can readily benefit from the private sector's ability to adapt to and leverage new technologies.

35. Municipal Geographic Information System (GIS), Surat Municipality, India



Photo Credit⁷⁷

Background

In India, many municipalities and other urban local bodies have adopted a municipal Geographic Information System (GIS). The municipal GIS is intended to create, store, maintain, and facilitate retrieval of property data in a digital format along with geo-coordinates. This is particularly helpful for municipalities facing increased population growth and urbanization. There are many advantages associated with municipal GIS, including:

- Improving tax collection and thereby increasing revenues;
- Enhancing the city's information system for urban planning, monitoring, administration, licensing and approvals, and community development; and
- Better monitoring and maintenance of infrastructure, such as roads, streetlights, electric poles, footpaths, and maintenance holes.

Surat Municipal Corporation (SMC) is one of the municipalities in India that has designed, developed, and implemented a web-based GIS application complete with GIS database using a PPP.

Project Structure

SMC awarded the GIS project to Antrix corporation (a wholly owned Government of India Company) and its partner Scanpoint Geomatics Ltd.

The project was structured in six phases, with the first five phases to be completed in 18 months.

The phases were: 1) Project design; 2) Preparation of base map with geo-corrected coordinates; 3) Data collection (primary and secondary); 4) GIS project development – the web-based GIS application was customized for public use and SMC departments; 5) Testing, installation, commissioning, and training; and 6) Maintenance – three years of post-implementation support to SMC by the private partner.

Lessons Learned

This project provides an example of how incorporating a GIS system into the e-governance system through a PPP can benefit a municipality. SMC's GIS system launched in January 2015 and has helped with asset management, revenue realization, planning, and general decision-making processes. SMC recently added new services for the public through the GIS system, including health monitoring using dynamic health heat maps, information on permit issuances for citizens, and details on building usage certificates issued. In the future, SMC plans to expand its GIS services to integrate water supply connections with property map data and to map and track container pickups for a solid waste management system.⁷⁸

⁷⁶ Ministry of Urban Development, Government of India. n.d. "Compendium on Public Private Partnership in Urban Infrastructure." Smart Cities Mission. Accessed January 24, 2019. http://smartcities.gov.in/upload/uploadfiles/files/Compendium_of_PPP_CasesMoUDs.pdf.

⁷⁷ Photo Credit: Rahul Bhadane (https://commons.wikimedia.org/wiki/File:Aerial_view_of_Surat,_Adajan_Side.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

⁷⁸ Ceinsky Tech Ltd. 2018. "Government Solution Success Story." Ceinsky. Accessed May 20, 19. <https://www.ceinsky.com/success-stories/government-success-story/technology-advancement-municipal-gis/>;

DARPG. "Design, Development and Implementation of Web Based GIS Application Along with GIS Database at Surat Municipal Corporation (SMC)." Presentation, Surat, n.d. Accessed May 20, 2019. https://darpag.gov.in/sites/default/files/SMC%20GIS%20Project%20Implementation%20%281%29-min_0.pdf;

DARPG. n.d. *Web-based GIS application at Surat Municipal Corporation*. New Delhi: DARPG. https://darpag.gov.in/sites/default/files/Surat%20GIS_0.pdf.

⁷⁹ Photo in the public domain published by Nitinwork https://commons.wikimedia.org/wiki/File:Bhopal_road.JPG

⁸⁰ Ministry of Housing and Urban Affairs. n.d. *Smart Roads (Smart Poles and Street Lights) on PPP Basis – Bhopal.* New Delhi: Smartnet. https://smartnet.niua.org/sites/default/files/resources/3_0.pdf;

Khan, Danish. 2017. "Ericsson, Bharti Infratel Bag Smart City deal for Bhopal City, to deploy 400 smart poles with WiFi service." *The Economic Times*, April 1. <https://telecom.economictimes.indiatimes.com/news/ericsson-bharti-infratel-bag-smart-city-deal-for-bhopal-city-to-deploy-400-smart-poles-with-wifi-service/58161194>;

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Bhopal Smart City Development. *Request for proposal of Intelligent Street Pole: Selection of Bidder for Implementing Smart City Pan City Projects in Bhopal under PPP on*

36. Smart Poles and Streetlights, Bhopal, Madhya Pradesh, India



Photo Credit⁷⁹

Background

Bhopal is the capital city of Madhya Pradesh and has a population of 2.4 million. It is the economic center of the state and reportedly among the greenest cities in India. As it attempts to transition into a more global city, it is currently pursuing a number of smart city projects under India's "Smart Cities Mission." Two such projects, namely smart poles and intelligent streetlights, have been bundled into one PPP project.

Project Structure

In 2017 the Bhopal Smart City Development Corp. Ltd. (BSCDCL) awarded the project to Swedish telecommunications equipment manufacturer Ericsson and the telecoms tower company Bharti Infratel. The project cost was estimated at INR 6.9 billion (USD 98 million), including INR 3.9 billion (USD 55 million) in capital expenditure and INR 3 billion (USD 43 million) in operational expenditure over 15 years under a Design-Finance-Build-Own-Operate-Transfer (DFBOOT) model. The project as structured would require no financial investment from the city.

The two components of the PPP comprised:

- Smart poles: installation of 400 smart poles across the city, which will function as, inter alia, energy-efficient and remotely controllable LED streetlights, surveillance cameras, environmental sensors, Wi-Fi hotspot providers, and electric vehicle charging points.
- Intelligent Street Lights: installation of 20,000 LED streetlights to replace the conventional sodium and mercury lamps. The new lights offer features such as remote operation and control of the streetlight system, SMS reporting in the event of failures, and detection systems to monitor power theft.

The Intelligent Traffic Management System hub in the Smart City's office will track these smart poles and streetlights, as well as the traffic cameras. The Smart Pole Command Control Center was opened on 8 May 2018. As of December 2018, BSCDCL was further planning to equip 100 smart poles with sensors to track and kill mosquitoes and collect information about mosquito breed, due to the rise in vector-borne ailments like zika, dengue, and Chikungunya.

Funding will be derived from the energy savings realized (a minimum of 35 percent guaranteed savings is required), pole-mounted advertisements, and the 180-km of fiber optic cable laid beneath the poles. The revenue is to be shared between the BSCDCL and the private operator.

Lessons Learned

In June 2018, a report indicated that there was little coordination between BSCDCL, Bhopal Municipal Corporation (BMC), and the traffic police concerning the installation of smart poles. As a result, too many poles may have been installed. BMC installed poles for the gantry, while traffic police installed poles for signals and CCTV. This highlights the importance of ensuring good coordination among all stakeholders, including diffuse municipal agencies, in implementing a PPP.⁸⁰

37. Bangalore One, Government of Karnataka, India



Photo Credit⁸¹

Background

Citizens of Bangalore were faced with inconvenient and uncomfortable conditions when visiting government offices. Long waiting times, limited visit times and dates, little flexibility in payment methods, strict compliance of service provision with citizens' residential locations, and different services available through one government department being provided at different office locations were among the obstacles that made accessing government services more difficult than it needed to be.

To improve governance and service delivery, and in line with comparable initiatives around India, the Government of Karnataka decided to implement a PPP e-governance project named Bangalore One to provide information and government services using the concept of one-stop-shop facilities.

Project Structure

Following a competitive selection process, a consortium consisting of CMS Computers Ltd. and Ram Informatics Ltd. was selected as the implementing partner for the Bangalore One project. The consortium and the Directorate of Electronic Delivery of Citizen Services entered into a service level agreement to ensure the delivery of the project and compliance with established level of service standards.

Following the signing of the agreement, the consortium developed an application software (single application interface for all services) and initially implemented it in 15 citizen service centers in different parts of Bangalore city. The public partner provided furnished centers, information technology hardware, and a data center. At the same time, the participating government departments in the city made their essential data available. The 2,000 ft², uniformly designed

citizen service centers accommodate 15-20 non-government staff offering services from 8 am to 7 pm in two shifts (8:00 - 1:30 pm and 2:00 – 7:00 pm), 365 a year, excluding national holidays, complete with the necessary hardware and networking equipment.

The government departments are not required to make any upfront investment, but they are obliged to pay service charges for services rendered on a transaction basis. The private partner and the directorate receive a share of the transaction charges. The public partner retains responsibility for ensuring service provision to citizens. Axis Bank is the official financier for the project, using a one-day float. The cash collected at the centers is picked up by the bank at the end of each day (day 1); day 2 is the reconciliation/float period and on day 3 the funds are transferred to the government departments and can be tracked online. Through the one-day float mechanism, the bank bears part of the project's operating expenses.

The objective of Bangalore One is to offer all central, state and local government services through these facilities so that citizens and businesses need only go to government offices for complex requests. Initially, the activities carried out in the service centers were to include: payment of water, electricity and telephone bills; payment of property taxes; filing of grievances; issuing khatha, birth/death certificates; issuing and renewing driver's licenses; booking railway and airline tickets; providing application forms for new passports; and collecting taxes. The project aims, among other things, to increase the productivity of official government offices by handling the most time-consuming and routine activities outside these premises.

BOOT Model. Madhya Pradesh: Bhopal Smart City Co. Ltd, 2016. Accessed August 12, 2019. http://smartcities.gov.in/upload/tender/582d4607ab71fbh_opalSmartCity_Part1.pdf;

Chen, Zhuolun, Nikhil Kolsepatil, Sonali Malik, Tejas Shinde, Ashish Verma, Soumya Chaturvedula, Emani Kumar, Benjamin Hickman, Parmitte Mohanty, and Lily Riahi. *District Energy in Cities Initiative in India*. Bhopal: District Energy in Cities Initiative, November 2, 2017. Accessed August 12, 2019. <http://www.districtenergyinitiative.org/sites/default/files/Bhopal%20Rapid%20Assessment%20Report%20Version%201.0.pdf>.

⁸¹ Victorgrigas (https://commons.wikimedia.org/wiki/File:Bangalore_guy_on_phone_crossing_street_2_November_2011_-7-3.jpg). „Bangalore guy on phone crossing street 2 November 2011 -7-3“, <https://creativecommons.org/licenses/by-sa/3.0/legalcode>

E-governance access will also be possible through other channels outside the citizen services centers, including electronic kiosks, mobile phones, and online. Citizens and business entities will have the option to pay for the services in cash, online, by card, by cheque or through demand drafts.

Lessons Learned

The Bangalore One project launched in April 2005 with 14 centers offering 13 services. As of March 2016, more than 100 centers were operational, offering more than 100 services with more than 400 counters per shift serving more than two million of citizens every month. The project was replicated in other cities in Karnataka and has expanded beyond the designated service centers. For instance, Bangalore One is now available on minibuses with built-in infrastructure, through mobile applications, and at commercial complexes. The project has won several awards, such as the 2005-06 CSI-Nihilent e-Governance Award for "Best in-service orientation" and CSI Nihilent Award 2012 as "Best project for sustainability."⁸²

The project highlights how municipalities can leverage the private sector strengths, including around innovation and commercial orientation, in the performance of traditional public functions. This project benefited from clearly defined needs and objectives on the part of the public partner, as well as trust and cooperation between the public and private entities involved, which typically reflects an alignment of incentives.

⁸² Nisg. 2013. "Projects: Bangalore One – Integrated Citizen." National Institute for Smart Government. Accessed May 28, 2019. [https://www.nisg.org/project/74/](https://www.nisg.org/project/74;);

APHRDI." Presentation on Bangalore One Project." Three Day Residential Training Program, AP HRDI, Bapatla, January 5, 2017. https://www.aphrdi.ap.gov.in/documents/Trainings@APHRDI/2017/1_jan/Best%20Practices/kumudavalli.pdf.

Public Markets

⁸³ Photo published in the public domain by Judgefloro https://commons.wikimedia.org/wiki/File:04009jfGeneral_Kalentong_Street_MarketPlace_Landmarks_Mandaluyong_Cityfvf_19.jpg

⁸⁴ United Nations Development Program. 2008. *Examples of Successful Public-Private Partnerships* (Vol. 15). Special Unit for South-South Cooperation, UNDP, Accessed on July 3, 2019. <http://tcdc2.undp.org/GSSDAcademy/SIE/Docs/Vol15/6Philippines.pdf>;

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ESCAP. 2008. "The Mandaluyong market, Philippines." Accessed January 25, 2019. https://www.unescap.org/ttdw/ppp/ppp_primer/96_the_mandaluyong_market_philippines.html; World Bank Group. 2016. "Summary of Mandaluyong City Market rebuilding on a BOT basis (UNDP)." PPP LRC. Accessed January 25, 2019. <https://ppp.worldbank.org/public-private-partnership/library/summary-mandaluyong-city-market-rebuilding-bot-basis-undp>;

Esc Pau. n.d. "Mandaluyong City, Philippines: Case Study (Public Buildings)." Esc Pau. Accessed January 25, 2019. https://www.esc-pau.fr/ppp/documents/featured_projects/philippines_mandaluyong_city.pdf.

38. Mandaluyong City Market, Manila, Philippines



Photo Credit⁸³

Background

Mandaluyong City's primary market in Metro Manila, Philippines, located along Kalentong Road, was destroyed by a fire in 1991. The government then allowed about 500 traders to set up stalls along sidewalks as a temporary measure.

However, this led to both traffic congestion and sanitation problems. The city government did not have sufficient public capital to build a new market nor the fiscal space to take on the additional debt that the construction of a new market would have required. Thus, it decided to rebuild the market using a PPP, based on a newly adopted Build-Operate-Transfer (BOT) Law.

Project Structure

Following a competitive tender, the city government awarded the contract to build the market to Macro Founders and Developers, Inc. (MFD). The project was structured as a 40-year concession to build, operate, and manage the market, after which the property would be handed back to the local government. A seven-story commercial center, named "The Marketplace" was designed to include a public market, street-front stores, a parking garage, commercial shops, department stores, a bowling alley, and a movie theatre.

The Asian Financing and Investment Corporation (AFIC), a subsidiary of the Asian Development Bank, provided a 10-year concessional loan to finance the project. The project was funded with the following mix: 25 percent private equity, 25 percent advances from shops, and 50 percent debt. The concessionaire assumed most of the project's risks (e.g. technical, financial).

The city is responsible for operating the public market and collecting fees from stalls. MFD is accountable for maintenance and security in the public market and operating and maintaining the commercial complex. The city retained the ownership of the land used in the project but did not require lease payments from MFD for its use. MFD collects revenues from the commercial complex to recoup its capital and operating costs. At the end of the 40-year contract, MFD will transfer the operation and maintenance of the commercial complex to the city.

The city also receives revenues from business and entertainment taxes levied on activities at the market. These taxes generate additional income for the city of approximately PHP 10 to 20 million (USD 191,000 to 382,000) per year. In addition, as part of the construction of the public market, MFD constructed a box culvert from the main road to the San Juan River. This box culvert has helped address the frequent flooding problems in the area.

Lessons Learned

Construction of a new public market and shopping mall reportedly created around 600 long-term jobs and helped improve the surrounding area due to the construction of the box culvert that helped with the flooding problem. Based on this success, this project is being replicated widely in the Philippines.

This project highlights the following:

- Municipalities should be open to innovative approaches to financing, including blending multiple sources of financing. In this case, the financing for the project comprised a concessional loan from a subsidiary of the ADB, private equity, advances from shop-owners, and commercial borrowing.
- Similarly, municipalities should think broadly with regard to potential funding sources for infrastructure projects. This project was able to generate revenue from a variety of activities at the commercial complex, which may be used to subsidize the lower-cost vendor facilities in the public market.

39. Pike Place Market, Seattle, United States



Photo Credit⁸⁵

Background

In the late 1960s, the citizen head responsible for urban renewal plans decided to modernize the Pike Place Market in Seattle. To this end, a group called Friends of the Market called for a vote on the plan to save the market in 1971, leading to the establishment of the Pike Place Market Preservation and Development Authority (PDA) in 1973.

Project Structure

PDA is a non-profit, public company chartered by Seattle City in 1973 with a mandate to manage 80 percent of the properties in the nine-acre Market Historic District. PDA also acts as an oversight body responsible for the long-term development of the market, with the aim of ensuring that the market would remain a place that welcomed everyone, residents and visitors, regardless of their background. The PDA council members are appointed by the mayor, while a separate, non-profit entity, the Pike Place Market Foundation, was established to provide funding and oversee community organizing, coordination, and support. While the PDA acts as a public steward responsible for all operational funds, the Market Foundation is responsible for devising fundraising strategies and actually fundraising for the project.

The project includes a nine-acre complex comprising a public market, more than 500 units of rental housing - mostly for low- and moderate-income residents, luxury condos, a boutique hotel, a bed-and-breakfast, a children's day-care and pre-school, a community health clinic, a food bank, and a neighborhood senior center.

The project derives its core revenue from the market tenants through rents, utility fees, and other property management activities, including parking fees (collectively accounting for approximately 60 percent of the total revenue), as well as other investments and bonds (around 40 percent of the total revenue). The market's operation and

maintenance costs (including security, insurance, property management, and marketing) are sourced from the revenues obtained from the rental income. Any revenue surplus and revenues coming from bonds are used to fund new developments – helping to make the project sustainable in the long term.

Lessons Learned

This project has had some demonstrated success as a small business incubator, in addition to helping connect local farmers to consumers, providing social services and affordable housing, and preserving historic buildings. The market remains a popular tourist destination for the city. The project received the Rudy Bruner gold medal for Urban Excellence in 1987.

The project faced some challenges in its initial phase, including generating support from the community for a 40-year development scheme, securing funding, and managing the incremental renovation and rehabilitation of properties. The project benefited from its long-term property ownership structure, clear vision and goals, advanced financing mechanisms, and innovations in community involvement.

Recently, the project has been expanded to include a public plaza connecting the market with the central waterfront, a food hall with four new producer-based businesses, 40-units of low-income senior housing, a community center, and 300 additional parking spaces. The expansion was fully financed by issuing USD 26 million in bonds, a portion of which was used to pay down existing debt.⁸⁶

40. Challenging Case: Bocaue Public Market, Bocaue, Bulacan, Philippines



Photo Credit⁸⁷

Background

As part of its broader development plan, the municipality of Bocaue in Bulacan decided to pursue the delivery of a public market through a PPP.

Project Structure

The project consisted of two parts: (1) the public market, with an investment cost of around USD 1.2 million; and (2) a commercial center, with an investment cost of around USD 3.8 million. It was intended that the revenue generated from the commercial center would be sufficient to subsidize the lower-cost tenants of the public market.

The municipal government received assistance from the United States Agency for International Development (USAID)-funded Build-Operate-Transfer (BOT) III Project to prepare the tender documents, conduct the bidding, and finalize the contract. After a competitive bidding process, the municipality entered into a build-transfer contract with Meditech on 24 March 1998 to complete the first part of the project, the public market.

Construction of the public market began in November 1998 and was completed in July 1999. However, the project struggled to attract local vendors to occupy the new market building.

In particular, prospective vendors expressed concerns over:

- i. Rental fees;
- ii. The size of the stall spaces, particularly in the wet market;
- iii. Inadequate ventilation inside the building, resulting in high temperatures; and
- iv. The structural integrity of the building.

In light of these issues, the municipality and Meditech were discouraged from pursuing the project's second phase, construction of the commercial center.

Lessons Learned

This project highlights the importance of engaging with stakeholders as early as possible in the project development process, to generate support for the project and understand the needs of prospective users, including with regard to pricing and service delivery standards. In this case, a lack of engagement with the prospective tenants during the project development process reportedly contributed to a number of misconceptions and objections by the prospective tenants after the market was completed.⁸⁸

⁸⁷ Ramon F Velasquez (https://commons.wikimedia.org/wiki/File:Bocaue_Public_Market_in_Bulacan.jpg), „Bocaue Public Market in Bulacan“, <https://creativecommons.org/licenses/by-sa/3.0/legalcode>

⁸⁸ ADB, *Philippines: Public-Private Partnerships by Local Government Units*. Manila: ADB, 2016. Accessed June 24, 2019. <https://think-asia.org/bitstream/handle/11540/6806/philippines-ppp-lgus.pdf?sequence=1>.

Food Infrastructure

41. Slaughterhouse Redevelopment, Cagayan de Oro City, Philippines



Photo Credit⁸⁹

⁸⁹ Chicco111 (https://commons.wikimedia.org/wiki/File:CAG_Skyline_2017.jpg), <https://creativecommons.org/licenses/by-sa/4.0/legalcode>

⁹⁰ Republic of the Philippines. 2017. "Redevelopment of the CDO City Slaughterhouse PPP Project." Public-Private Partnership Center. Accessed June 24, 2019. https://ppp.gov.ph/press_releases/redevelopment-of-the-cdo-city-slaughterhouse-project/

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Background

The livestock industry, particularly poultry, is at the heart of the economy of Cagayan de Oro City. In 1995 livestock production reached 158,000 heads, of which 135,000 were chickens. The only slaughterhouse in the city, however, was inadequate to cater to the needs of the growing industry and the demands from the population, as it also served neighboring towns. In 2000 the local government of Cagayan de Oro identified the need to upgrade and modernize the slaughterhouse and in 2003 it undertook a pre-feasibility study to prepare the project as a PPP.

Project Structure

The project was awarded to Mega Integrated Agro-Livestock Farm Corporation (MEGA FARM) in 2004, through a competitive bidding process, in the form of a 25-year Build-Operate-Transfer contract with a total investment value of USD 3 million. The project entailed converting the old slaughterhouse into a 2.45-hectare modern abattoir complex containing, inter alia, a slaughterhouse for small and large animals, as well as supporting facilities, such as water treatment, a livestock auction market, a deep well water source, and meat delivery vans.

Under the PPP agreement, the private operator pays the city a monthly facility usage fee in exchange for the right to operate the expanded facility. The revenue to pay this fee and recover the private partner's investment is derived from the slaughter and delivery fees the private operator collects from the users of the facility. These fees can be increased by not more than 10 percent,

provided that they are: (i) justified by increases in the actual cost of operations, and; (ii) they are no higher than the average fees charged by three comparable private slaughterhouses in Visayas and Mindanao. However, the periodicity in which such fees can be increased is not reported. The government also exempted the private operator from real property and business taxes, but not from regulatory fees.

Lessons Learned

This project benefited from several characteristics and steps taken by the municipality to improve its commercial appeal, including:

- The prime location of the facility, as the abattoir is located near to both livestock sources and the market, which helps limit transportation costs; and
- Direct incentives provided by the local government, namely the property and business tax exemptions.

The project was selected to be featured on the Philippines' PPP website as an example of the country's successful PPPs.⁹⁰

42. Grain Silos Project, Punjab, India



Photo Credit⁹¹

Background

A country known for its agricultural production, much of India's food grain is nonetheless stored in old warehouses. These outdated facilities use open-air cover and plinth (CAP) facilities, which are prone to damage and vulnerable to changing weather conditions. As a result, some USD 14 billion in food grain production was being damaged annually, according to the Food and Agriculture Organization (FAO).

The storage problem was particularly acute in Punjab, known as the "breadbasket" of India. Punjab produces around 22 percent of India's total food production, yet it had a seven million tons shortage in storage capacity. To help address this problem, the state government decided to pursue a pilot PPP with help from the International Finance Corporation (IFC) as transaction advisor. The PPP aimed to procure a private firm to build, own, and operate 50,000 metric tons (MT) of storage using silos, which are vertical sheet-metal, automatically operated structures that provide real-time monitoring of grain temperature and infestation. The silos were expected to facilitate bulk preservation and ensure the quality of stored grains for three years to avoid waste.

Project Structure

In 2010 the Punjab State Grain Procurement Corporation (PUNGRAIN), acting as the contracting agency, awarded a 30-year concession to LT Foods Limited, a Delhi-based food processing company with 40 years of experience in processing, storing, and marketing Basmati rice globally. The private partner was selected through a competitive bidding process based on a technical evaluation and lowest level of fixed tariff.

Under the contract, LT Foods is responsible for financing, designing, constructing, operating, and maintaining four 12,500 MT silos (total capacity of 50,000 MT) in Amritsar, Punjab. These silos

are to be used for storage of grain procured by the government for its food subsidy schemes and under its support-price operations. LT Foods was obliged to purchase the necessary land, build the facility, and prepare the silos for operation before the concession agreement became effective. At the end of the concession, the facility will remain with the private operator for private use. The total project cost was estimated at about USD 7 million. The project received debt financing from YES BANK and Rabobank.

PUNGRAIN maintains responsibility for: (i) procuring and delivering the grain in bags to the concessionaire for storage in the silos; (ii) making payments for guaranteed fixed storage service charges and variable service charges; (iii) setting standards and specifications; and (iv) monitoring and verifying the private partner's performance. Although PUNGRAIN retains the payment and demand risks, the financing, construction, commissioning, operating, and performance risks are transferred to the concessionaire. The fixed payments are meant to reduce the operating risks of the concessionaire.

The initial tariff for a fixed charge for the agreed tonnage (irrespective of the capacity used) was around INR 1,400/MT (USD 20/MT), and the variable reception and dispatch service costs were 7.5 percent of the fixed service charge. However, these rates were later deemed too high, resulting in the fixed fee being reduced to INR 1,100/MT (USD 16/MT) after a renegotiation process. It has been estimated that the government will save approximately USD 6 million over the concession period as a result of the renegotiated fee.

Lessons Learned

The 50,000 MT silos, which opened in April 2011, received a gold recognition award from the IFC, based on the role the project played in helping to reduce problems related to the conventional CAP

⁹¹ Thagadooran (<https://commons.wikimedia.org/wiki/File:Dhaniyangal.jpg>), "Dhaniyangal", <https://creativecommons.org/licenses/by-sa/3.0/legalcode>

storage model and system of commission agents. The “Amritsar model of silos” project has become the role model for the Food Corporation of India (FCI) as well as other state governments in erecting silos across India.⁹²

This project benefitted from the following:

- A transparent and competitive bidding process, which helped lead to the selection of a qualified, experienced private partner on a least-cost basis;

- Clear delineation of the responsibilities and risks allocated between PUNGRAIN and the private partner, with objective and enforceable standards and specifications;
- Strong commitment to the project on the part of the public contracting party; and
- The willingness and ability of the parties to renegotiate the fixed storage fee to ensure the project’s viability over the long term.

43. Kalangala Integrated Infrastructure Programme, Bugala Island, Uganda



Photo Credit⁹³

Background

Bugala Island, with a population of 60,000 located in Lake Victoria, Kalangala District, was situated within one of Uganda’s poorest districts. Two-thirds of the economically active population on the island were engaged in fisheries and agriculture. However, they lacked adequate infrastructure along the agricultural supply chain, such as safe, regular access to the mainland, and reliable electricity and clean water, which are vital for growing and promoting agriculture and fishing activities.

The complexity of developing multi-sector, small-scale island infrastructure had limited private sector investment in the island. In 2005 the residents sought assistance from InfraCo Africa’s to rehabilitate and expand their infrastructure. To this end, InfraCo Africa partnered with the Ugandan government to establish a special purpose vehicle (SPV) called Kalangala Infrastructure Services (KIS) to oversee the provision of four infrastructure services on the island, namely a ferry boat connection, electricity, clean water, and roads.

Sally, Madhvi. 2018. “Government Expects to Create 15 Lakh Tonnes Silo Capacity Under PPP by 2019.” *The Economic Times*, September 22, 2018. Accessed June 5, 2019. [https://economictimes.indiatimes.com/news/economy/agriculture/government-expects-to-create-15-lakh-tonnes-silo-capacity-under-ppp-by-2019/articleshow/65907877.cms?from=mdr](https://economictimes.indiatimes.com/news/economy/agriculture/government-expects-to-create-15-lakh-tonnes-silo-capacity-under-ppp-by-2019/articleshow/65907877.cms?from=mdr;);

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Manuj, P. 2018. “Silo Storage of Food Grain in Gathers Momentum.” *The Hindu Business Line*, September 5, 2019. Accessed August 1, 2019. <https://www.thehindubusinessline.com/economy/agri-business/silo-storage-of-foodgrain-gathers-momentum/article24873035.ece>;

Project Structure

KIS is a private, mixed-utility company created to design, finance, construct, own, operate and maintain four infrastructure projects, namely:

- Two roll-on/roll-off commercial ferries, each with a capacity of 18 vehicles and 109 seated passengers;
- A 1.6 MW hybrid solar and thermal power plant;
- A series of solar-powered, pump-based water supply systems to replace the existing system; and
- Upgrading the island’s main 66 km road from an unpaved dirt road to a Class B gravel road.

The Government of Uganda offered political risk protection in the form of a sovereign guarantee under the SPV agreement. In the event of an adverse political event, the government agreed to purchase all project components with a termination amount sufficient to repay all equity and outstanding debt held by KIS.

The USD 44 million in capital costs would be financed through a combination of equity, debt, and grants. Equity capital would be provided by the Industrial Development Corporation of South Africa, the Uganda Development Corporation, InfraCo Africa, and the Emerging Infrastructure Fund.

Commercial debt would be provided by Nedbank Capital Ltd., which benefited from a credit guarantee issued by the United States Agency for International Development (USAID) and GuarantCo Ltd. Grants would be provided by the Private Infrastructure Development Group (PIDG) and the Netherland's entrepreneurial development bank, FMO.

The operational costs would be recovered through:

- The revenues KIS derives from user fees collected for ferry transportation, electricity, and water services;
- A consumption-based subsidy (for water and electricity) offered by the Global Partnership on Output-Based Aid (GPOBA) – now known as the Global Partnership for Results-Based Approaches (GPRBA), to be disbursed during the first four years of operations; and
- A shadow toll (subsidy) for road usage.

Lessons Learned

KIS was created in 2005 but the project did not begin to show significant progress until 2013, due to limited initial funding and a relatively lengthy bureaucratic processes for obtaining the necessary legal approvals from various government agencies.

Once the four components of the project became fully operational, Bugala Island's economic growth contributed to making Kalangala one of Uganda's wealthiest region. As a result of the improved connectivity, the fishing community now has improved beach management units, speedier access to fish processing facilities and refrigeration, access to more information and markets, and access to clean water for local fish processing.

In addition, Bidco Oil Palm Ltd. acquired 10,000 hectares on Bugala Island, of which 3,500 hectares were provided for 1,700 small-hold local farmers for oil palm plantation and related mill facilities. The KIS also created jobs for Bugala Island residents, facilitating a transfer of knowledge and technology. Currently, negotiations are underway

between the KIS and the Government of Uganda to scale-up the solar power generation, refurbish and operate the Kalangala Town Council electrical grid, and further upgrade of the main road.

This project benefited from the following:

- Bundling four the four different infrastructure projects together allowed for multiple revenue streams, diversification, and economies of scale, while increasing the investment size to an amount more attractive to both equity investors and commercial lenders. The multiple revenue streams helped mitigate the demand risk and may ultimately prove sufficient to fund the construction and maintenance of other infrastructure projects.
- Support from the central government and bilateral and multilateral development partners, in the form of guarantees and grant funding, which helped catalyze private investment in a previously underserved region.⁹⁴

Shukla, Shyamala, and Neeraj Gupta. *Grain Storage: Public-Private Partnerships*. Washington, D.C.: World Bank Group, 2017. Accessed August 18, 2019. <http://documents.worldbank.org/curated/en/388561506353678403/pdf/119986-WP-PUBLIC-60p-PIQGrai-nStoragePPPsONLINE.pdf>.

⁹³ By WorldIslandInfo.com (https://commons.wikimedia.org/wiki/File:Egrets_and_hut,_Bugala_Island.jpg), „Egrets and hut, Bugala Island“, creativecommons.org/licenses/by/3.0/legalcode

⁹⁴ Warner, Michael, David Kahan, and Szilvia Lehel. *Market-Oriented Agricultural Infrastructure: Appraisal of Public-Private Partnerships*. Rome: FAO, 2009. Accessed June 3, 2019. <http://www.fao.org/3/i0465e/i0465e00.pdf>;

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Public Parking

44. Challenging Case: Automated Multi-level Car Park, Connaught Place, New Delhi, India



Photo Credit⁹⁵

⁹⁵ Klaus Nahr from Germany ([https://commons.wikimedia.org/wiki/File:0285_New_Delhi_-_Connaught_Place_2006-02-10_15-20-35_\(10542560745\).jpg](https://commons.wikimedia.org/wiki/File:0285_New_Delhi_-_Connaught_Place_2006-02-10_15-20-35_(10542560745).jpg)), „0285 New Delhi - Connaught Place 2006-02-10 15-20-35 (10542560745)“, <https://creativecommons.org/licenses/by-sa/2.0/legalcode>

⁹⁶ Shrangi, Vatsala. 2017. "Delhi's Hi-Tech Ghost Parking Lots." *DNA News*, January 21, 2017. <https://www.dnaindia.com/india/report-delhis-hi-tech-ghost-parking-lots-2294616>;

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Background

Connaught Place, located in the heart of New Delhi, India, is one of the city's busiest markets. The increasing number of vehicles visiting Connaught Place, however, was straining the existing road and causing congestion due to unauthorized parking. To ease the congestion, the New Delhi Municipal Council (NDMC) decided to construct automated multi-level parking lots in Connaught Place using a PPP.

Project Structure

NDMC awarded the project to DLF, one of India's largest real estate developers. DLF undertook to design, finance, construct, and operate the automated multi-level car parks, called "CAPITOL POINT," under a 30-year concession, at the end of which the car parks would be transferred to NDMC. The CAPITOL POINT would be an 11-floor, state-of-the-art, automated car parking system with a capacity of 1,408 vehicles, equipped with technology, such as car lifts, pallets, and computerized control systems that could operate 24/7. The building would also have commercial units and office space on its first two floors. The project cost was estimated at INR 1.2 billion (USD 17.1 million).

NDMC assumed responsibility for site-related risks, including acquiring permission for the installation of enabling infrastructure, providing space, and undertaking civil repair and resurfacing works, if required. The private concessionaire accepted most other risks, including for financing, demand, operation, and maintenance.

DLF would pay NDMC about INR 2.2 million (USD 31,325) per year as a lease payment for the space provided. DLF would derive its revenue from the car park user fees collected, as set by the municipality (about INR 10 (USD 0.14) per hour, per car), and rental fees for the commercial units and office spaces.

Lessons Learned

The multi-level car park opened in June 2012. As of 2017, the parking lots were reportedly under-utilized, with less than 15-20 percent of the space being used. This may be due to customers preferring to park on the roads. Reports indicated that the facility was not very user-friendly, noting that it took more than 20 minutes to get to the parking lot and retrieve a car. News reports also indicated that DLF had difficulty correcting for the lower than expected demand. NDMC reportedly suggested using the traffic police to enforce regulations against illegal parking on the streets, to direct more people to use the parking lot.

This project highlights the following:

- It is important that the PPP project design suitably takes into account end-user needs, preferences, and alternatives. This includes considerations related to the asset design and function, accessibility of the location, affordability of fees, and cost-benefits as compared to other options. Demand should not be taken for granted. During project preparation, the municipality should engage with prospective end-users to understand how their needs can best be met.

- The public partner should remain an active and supportive partner even after a PPP project enters into operation by the private partner, as it is ultimately the public authority's responsibility to deliver necessary services to the public.

Where obstacles to effective implementation arise, the public partner should be actively involved and prepared to provide all reasonable assistance to promote the project's success.⁹⁶

45. Underground Parking and Commercial Services Center, San Borja, Peru



Photo Credit⁹⁷

Background

The district of San Borja, a vibrant center for commercial activity in Lima, Peru, was facing a significant deficit in public parking. To help alleviate this problem, the district elected to pursue a PPP to deliver much-needed underground parking.

Project Structure

The project emerged from an unsolicited proposal that the private partner proponent indicated would be self-financed, meaning the project was expected to generate its own revenues sufficient to recover costs and provide a suitable rate of return without any public financial contribution or guarantees. The proposed contract covered a period of 32 years and the project had an estimated investment value of USD 13,479,600.

Under the project agreement, the private partner would undertake to design, finance, build, operate, maintain, and transfer a facility comprising 14,320 m² of underground space that would function as a three-story parking and service center. The space is located below a public park and the completed facility would include 353 parking spaces (9,160 m³) and commercial enterprises, such as banks and pharmacies (5,180 m³). It has been estimated that 2,800 vehicles would use the parking center on a daily basis. It also has been estimated that the construction phase would create between 600

and 800 jobs and that, thereafter, the project would create about 40 permanent jobs.

The proposed contract would entitle the municipality to an eight percent share of the gross income, before sales tax, from the parking fees and rental income from commercial space. The private party would have the exclusive right to set and negotiate prices for both the parking and commercial rental operations.

Two concession agreements, one concerning construction of the parking and service center and another concerning the usufruct and surface rights, were approved by the municipal parliament for signature on 18 December 2018, but the contract signing has yet to be confirmed.⁹⁸

Lessons Learned

This project highlights the possibility of optimizing limited space in dense, urban areas by considering underground development projects. It further highlights how municipalities should think broadly when considering potential sources of project revenues. A public parking garage, for example, may be designed to include commercial spaces that can create additional revenue streams, in the form of commercial leases, and make the project more attractive to end-users, who can benefit from the conveniently located commercial services.

Hindustan Times. 2012. "At Rs. 10 Per Hour, Connaught Place Gets its First Multi-Level Parking Lot." *Hindustan Times*, June 13, 2012. Accessed August 18, 2019. <https://www.hindustantimes.com/delhi-news/at-rs-10-per-hour-connaught-place-gets-its-first-multi-level-parking-lot/story-sXqIMhPjCOyWizvhKgTh6M.html>;

NDMC. *New Delhi's Municipal Council's Smart Parking RFP*. New Delhi: NDMC, 2016. Accessed August 13, 2019. <http://smartcities.gov.in/upload/tender/58a1a9148b320RFP-SMART-PARKING.pdf>.

⁹⁷ Photo in the public domain published by Roger Haro, https://en.wikipedia.org/wiki/File:San_Borja_Sur_1.JPG

⁹⁸ Municipalidad de San Borja. n.d. "Acuerdo de Concejo N 057-2018", "Acuerdo de Concejo N 004-2016", Acuerdo de Concejo N 018-2015, "Iniciativas Privadas". Municipalidad de San Borja. Accessed November 27, 2019. <http://website.msb.gob.pe/index.php/component/search/?searchword=eco park&ordering=&searchphrase=all>.

46. Parking Area under Rivera Navarrete Avenue, San Isidro, Peru



Photo Credit⁹⁹

Background

San Isidro, Peru's financial center, faced an estimated deficit of 10,600 parking spaces, which contributed to widespread illegal parking and high levels of congestion. Accordingly, the municipality was willing to consider an unsolicited proposal from a private developer that sought to build an underground parking facility beneath a major thoroughfare.

Project Structure

The unsolicited proposal was structured as a 30-year concession for the design, financing, construction, operation, and maintenance of a three-story underground parking area that could accommodate 822 vehicles. The facility would be built along four blocks of Rivera Navarrete Avenue,

the main corridor of the San Isidro area, and had an investment value of approximately USD 25 million. The project company would take on all the technical and financial risks and recoup its investment from parking fees collected over the concession period.

The project was planned with four main access points, two of which were specially prepared to be accessible by people with disabilities. In addition, the parking facility would include ATMs, bicycle docks, carbon dioxide detectors, a guidance system to help drivers find available parking spots, automatic entrance and exit gates, and security cameras. In parallel, the main avenue was renovated with eight-meter wide sidewalks, state-of-the art street lighting, and additional urban furnishings, such as benches and traffic signals.

Lessons Learned

The project was inaugurated in September 2016 and the parking tariff is charged by the minute, rather than by the hour. The municipality is entitled to receive 10 percent of the monthly gross revenue generated by the parking area.¹⁰⁰

This project highlights the possibility of optimizing limited space in dense, urban areas by considering projects that utilize space belowground.

⁹⁹ Miguel Angel Chong (https://commons.wikimedia.org/wiki/File:Rivera_Navarrete_Ave_Lima_PE.jpg), „Rivera Navarrete Ave Lima PE“, <https://creativecommons.org/licenses/by/3.0/legalcode>

¹⁰⁰ MSI. n.d. "To the Neighbors of San Isidro and Public Opinion in General." Municipalidad de San Isidro. Accessed January 15, 2019. <http://msi.gob.pe/portals/>.

¹⁰¹ Ché Lydia Xyang (https://commons.wikimedia.org/wiki/File:Queen_Elizabeth_II_Medical_Centre_helipad_-_panoramio.jpg), „Queen Elizabeth II Medical Centre helipad - panoramio“, cropped by AT, <https://creativecommons.org/licenses/by-sa/3.0/legalcode>

47. Challenging Case: Queen Elizabeth II Medical Center Car Parking Project, Western Australia, Australia



Photo Credit¹⁰¹

Background

In 2009 the Queen Elizabeth II Medical Centre Trust (the Trust) and the State of Western Australia (the State) began detailed planning to improve the parking facilities at the Queen Elizabeth II Medical

Centre (the Site). The improvements were aimed at providing existing and future users (patients, visitors, and staff) with good, efficient, and secure access to health services. The new car park would consolidate the parking infrastructure and so free up other parts of the Site for other important, health-related projects and initiatives, including the New Children's Hospital Project (NCH).

Project Structure

The Trust made land within the Site available to enable the State to enter into a PPP agreement with a private developer. Following a competitive and transparent tendering process, the project was awarded to Capella Parking Pty Ltd. (Capella). The contract term was fixed at 26 years, and the estimated project cost totaled AUD 140 million (USD 100 million). Under the contract, Capella is accountable for designing, financing, constructing,

operating, and maintaining a new multi-deck car park facility at the Site. In addition, Capella is responsible for operating and maintaining other car park facilities at the Site over the contract term, including street-level parking spaces and the NCH car park. It is also responsible for constructing a childcare center on the roof of the multi-deck car park and three retail outlets along Hospital Avenue.

The project was financed by Capella through a mixture of debt and equity. It was ultimately delivered without any significant capital contribution by the State or the Trust. The State and the Trust are not required to share any losses that may occur upon refinancing of the debt but are entitled to 50 percent of the benefit of any refinancing gains.

¹⁰² Capella Capital. 2013. "QEII Medical Centre Car Parking Project." Capella Capital. Accessed January 25, 2019. <https://capellacapital.com.au/projects/qeii-medical-centre-car-parking-project/>;

Department of Treasury, *Public-Private Partnerships: Queen Elizabeth II Medical Centre Car Parking Project*. Perth: Government of Western Australia, 2012. Accessed August 18, 2019. http://www.treasury.wa.gov.au/uploadedFiles/_Treasury/Infrastructure_Strategy/120105%20-%20QEII%20Car%20Park%20-%20Project%20Summary.pdf;

Government of Western Australia. 2018. *Special Inquiry into Government Programs and Projects*. Western Australia: Public Sector Commission. <https://www.wa.gov.au/sites/default/files/2019-07/Special%20Inquiry%20into%20Government%20programs%20and%20projects%20-%20Final%20Report%20-%20Volume%202.pdf>.

¹⁰³ User: (WT-shared) Shoestring at wts wikivoyage (https://commons.wikimedia.org/wiki/File:Downtown,_Thimphu,_Bhutan.JPG), creativecommons.org/licenses/by-sa/4.0/legalcode

Under the agreement the State assumed responsibility for financing and constructing the new NCH's car park and for ongoing maintenance at that parking site. Capella took on the responsibility for operating this car park and would be entitled to collect and retain all revenues generated from it.

Over the operating phase of the project, Capella derives its revenue from the receipt of staff and visitor parking charges, and commercial rental income from the retail outlets. Capella bears the full car demand risk and is also required to pay a license fee to the Trust of approximately AUD 2 million (USD 1.4 million) per year, payable in quarterly installments.

Lessons Learned

Construction of the car park began in September 2011 and was completed in November 2013, eight months ahead of schedule. The completed facility increased the total number of available parking bays from 3,000 to over 5,000. However, due to a decision to cap staff parking fees at a rate below that specified in the agreement with Capella, as well as delays in the opening of the NCH that negatively impacted Capella's revenues, the State has had to pay compensation to Capella totaling about AUD 15.89 million (US\$11.38 million) through the end of August 2017. In February 2018, a Special Inquiry was initiated to review and amend the contract with Capella concerning policy changes that may trigger compensation under the contract.¹⁰²

PPP projects are prone to changes, especially during the implementation period given the typically long duration of a PPP agreement. When and if a problem is identified, it is best for the parties to proactively engage to address the issue immediately rather than deferring the decision, as any delay can prove expensive for one or both parties. This project highlights the importance of identifying and addressing potential future adverse occurrences in the PPP contract to the fullest extent possible, as that is the foundation of the partnership in the event that any problems arise.

48. Challenging Case: Multi-level Car Park, Thimphu City, Bhutan



Photo Credit¹⁰³

Background

To help address traffic congestion in Thimphu City, the capital of the Kingdom of Bhutan, the Royal Government of Bhutan (RGOb), through Thimphu Thromde, planned the construction of both on- and off-street parking facilities in the city center, to be delivered through a PPP.

Project Structure

With help from the International Finance Corporation (IFC), acting as the transaction advisor, the city entered into a 22-year PPP concession contract with KCR Private Limited. KCR Private Limited is an SPV set up by the winning consortium following competitive tendering and award. The SPV comprises CE Construction Private Limited (Nepal), KNG Private Limited (Bhutan), and Rinson Construction Private Limited (Bhutan).

Under the PPP agreement, KCR is responsible for designing, developing, financing, operating, and maintaining two multi-level car parks (MLCPs) located at either end of the city's main road. The two facilities are required to contain at least 550 parking spaces. Commercial facilities are allowed to occupy 20 percent of the total MLCP area. In addition, KCR is responsible for refurbishing, operating, and maintaining about 1,000 existing, off- and on-street public parking spaces in the city center.

KCR is responsible for financing the full cost of the project and will earn revenue to recoup its investment entirely from parking fees and commercial rental income. KCR further agreed to pay the city an annual concession fee of USD 230,000. Most risks, especially finance, design, construction, and demand, are carried by KCR.

Lessons Learned

The two MLCPs in Thimphu, which were expected to be completed by 5 November 2017 and 1 July 2018, respectively, were still under construction as of January 2019. Recent reports indicated that both MLCPs were expected to open in the first half of the calendar year 2019. KCR requested an extension of both the construction completion date and the concession period due to changes in the project design, an increase in the scope of work, and an unexpected need to relocate utility cables. These changes led to a rise in the project cost from BTN 450 million (USD 4 million) to almost BTN 800 million (USD 7 million).¹⁰⁴

Keeping construction cost-efficient and on-schedule under changing circumstances can be a significant challenge for any infrastructure project. Due diligence during the planning and project preparatory phases are vital to preventing cost overruns. At the same time, the PPP agreement should explicitly account for any changes to the project scope, design or works that increase the project cost and provide a clear framework for adapting to such a change, with due regard to the allocation of risk among the parties and the viability of the project.

¹⁰⁴ International Finance Corporation. 2015. *Public-Private Partnership Stories – Bhutan: Thimphu Parking*. Washington, D.C: World Bank Group. Accessed November 27, 2019. https://www.ifc.org/wps/wcm/connect/5e9b7c12-9e17-47ef-9b53-9b23b9f7919a/PPPStories_Bhutan_ThimphuParking.pdf?MOD=AJP_ERES&CVID=IHovEo0:

Seldon, Pema. 2018. "Thimpu Thromde to Give Parking Space with One Hand but Takes with Another." *The Bhutanese*, July, 21. Accessed June 21, 2019. <https://thebhutanese.bt/thimphu-thromde-to-give-parking-space-with-one-hand-but-takes-with-another/>;

Cheki, Karma. 2018. "Multi-Level Car Parking to be Completed by the End of this Year." *Kuensel*, August 15. Accessed June 21, 2019. <http://www.kuenselonline.com/multi-level-car-parking-to-be-completed-by-the-end-of-this-year/>;

Lhamo, Phurpa. 2019. "MKCP at Norzin Lam to Open this Month." *Kuensel*, January 8. Accessed August 1, 2019. <http://www.kuenselonline.com/mlcp-at-norzin-lam-to-open-this-month/>.

Government and Judicial Facilities

49. Administrative Center, Tlajomulco Municipality, Jalisco, Mexico



Photo Credit¹⁰⁵

Background

The municipality of Tlajomulco de Zuñiga in Guadalajara, Mexico, needed a way to relieve the problems stemming from the sprawl of its public offices, which were in a state of disrepair, and to adapt to a growing population that was outpacing its capacity to provide adequate administrative services to residents. To this end, the municipality chose to pursue a PPP to deliver a new, central facility for the performance of its public administrative functions.

Project Structure

The municipality solicited bids for a PPP, under which the private partner would design, finance, build, operate, and transfer the new Tlajomulco Administrative Center (CAT). Four bidders participated in the national competitive tender and Operadora Audaz S.A. was selected as the winner. A 30-year PPP agreement was signed on 24 February 2011 between the municipality and Desarrolladora Centro Administrativo Tlajomulco S.A.P.I. de C.V., the project company created for the delivery of the project.

The project risks were allocated as follows. The municipality would be responsible for risks related to permitting, land rights and acquisition, archeological finds, demand, furniture and equipment replacement, and inflation. The private party would take on the risks relating to design, cost overruns, construction, operation and maintenance,

latent defects, and interest rates and financing. Both parties would share risks related to force majeure and change of law.

The project entailed the delivery of: (i) an administrative building with an area larger than 6,200m² (sufficient to accommodate more than 630 public servants and with a capacity to serve more than 2,000 visitors daily), including closed-circuit television, access controls, alarms, and automated systems; (ii) a multiple-use gymnasium with a capacity for 700 sitting or 1,500 standing visitors for cultural, sporting, social, and political events, to include a high-fidelity sound system, air conditioning, and multiple-use courts; (iii) external facilities, such as soccer pitches and a skating rink, and a 390-space parking area; and (iv) a road project involving the renovation of 7 km of main roads, bike routes, a modern water and sanitation system, and installation of traffic lights around the new administrative center.

The agreement provided for an initial up-front investment of nearly MXN 250 million (USD 13 million) by the private partner. In return, the municipality agreed to make monthly payments to the private partner of MXN 4.4 million plus VAT (USD 230,000). This payment consists of a monthly payment for the investment in facility construction, a payment for building management services (provided in an effective manner), and a payment for any variation in services. The monthly payments

¹⁰⁵ Photo in the public domain published by Alejandro Hernández Osuna <https://www.flickr.com/photos/155674394@N06/45098016025/in/photostream/>

are limited to a maximum of 349 months and represent less than 5 percent of the municipality's revenues and approximately ten percent of its current expenditure, in accordance with the prevailing law. To enhance its creditworthiness, the municipality incorporated a fideicomiso (trust account) and opened a contingent line of credit, guaranteed by federal funds, to back the monthly installment payments.

Lessons Learned

The construction works of this project were completed on 17 January 2012.¹⁰⁶

It should be noted that the governing legal framework for this project involved three regulatory instruments: i) the city council's internal regulation; ii) the municipality's governance and public administration regulation; and iii) the municipality's investment and service provision projects regulation. A regulation that specifically addressed the possibility of entering into a PPP did not originally exist, but one was enacted to allow this project to move forward.

In addition, the municipality's regulations did not contemplate definite mechanisms or institutions for the representation of opposition political parties or civil society in the project's development.

However, for this project, the project concept was formally approved by all political parties' representatives, which helped ensure more stakeholder support for the project.

While many of the public servants involved in pursuing this project had education and experience in project management and finance, the project structuring and technical preparation required the participation of external experts and advisors. As this shows, even well-staffed and experienced municipalities may benefit from qualified, outside technical assistance in preparing and delivering PPP projects.

Finally, this project benefited from the level of detail with which the municipality identified and understood its needs and objectives, which were reflected in the tender documents. This provided a basis for private participants to enter and deliver the administrative center in accordance with clear and reliable objectives and standards.

¹⁰⁶ Pineda, Carlos A. R. *Case Study on Public Private Partnerships for the Administrative Center Tlajomulco (CAT), in the Municipality of Tlajomulco de Zunig, Jalisco, Mexico.* Jalisco: CCA, 2013. Accessed May 13, 2019. http://www.cca.org.mx/ps/funcionarios/muniapp/descargas/Documentos_de_apoyo/informaciontematica/capp/Caso_APP_Tlajomulco.pdf.

¹⁰⁷ J.-H. Janßen (https://commons.wikimedia.org/wiki/File:Dublin_Castle_Gates_of_Fortitude_and_Justice_05.JPG), „Dublin Castle Gates of Fortitude and Justice 05“, <https://creativecommons.org/licenses/by-sa/3.0/legalcode>

Photo Credit: https://commons.wikimedia.org/wiki/File:Dublin_Castle_Gates_of_Fortitude_and_Justice_05.JPG

50. Bundled Courts Project, Ireland



Photo Credit¹⁰⁷

Background

The Government of Ireland announced a bundled court PPP project as part of its EUR 2.25 billion Infrastructure Stimulus Package and Public Private Partnership Program in July 2012. The project involved the construction of new courthouse buildings in four locations and refurbishment and expansion work on existing courthouses in three locations.

The facilities covered by these seven priority projects were in poor condition and in urgent need of improvement, as identified by the Courts Service. The project aimed to help reduce waiting times and the costs of litigation. In addition, it was hoped that improvements in court buildings in locations around the country would enhance judicial service delivery through the use of improved facilities and technology.

Project Structure

The National Development Finance Agency (NDFA) published a contract notice and five expressions of interest were received for pre-qualification by June 2014. After analyzing these expressions of interest,

four consortia were shortlisted and, in October that year, the NDFA issued an invitation to submit bids. Following the receipt of the bids and after a detailed evaluation process, in June 2015 the NDFA selected BAM PPP PGGM as the preferred bidder.

The NDFA, as procuring agent on behalf of the Courts Service, awarded the concession contract to BAM PPP PGGM to design, finance, build, and maintain the seven courthouse facilities for a 25-year period. Under the contract, BAM Courts Bundle Limited, the project company created to deliver this project, would also be responsible for providing services such as: cleaning, building and asset maintenance, waste management, pest control, passive security, energy management, grounds maintenance, life cycle replacement (fixtures, fittings, buildings), and IT cabling and infrastructure.

The facilities range in size from 1,354 m² to 8,490 m² and total 36,872 m². Construction works reportedly cost EUR 154.5 million (USD 173.29 million) and began in early 2016. The financing structure is a fully funded solution structured and arranged by the Bank of Tokyo-Mitsubishi UFJ. Ltd. that includes senior debt provided by Mitsubishi UFJ, a private placement solution by Talanx Asset Management GmbH, and an equity contribution by BAM PPP PGGM.

¹⁰⁸ BAM PPP. 2019. "Irish Courts." BAM PPP. Accessed August 11, 2019. [https://www.bamppp.com/en/our-projects/irish-courts/](https://www.bamppp.com/en/our-projects/irish-courts;)

Ryan, Brendan. "Courts Bundle PPP Project." Market Launch Presentation, Kilkenny Courthouse, May 13, 2014;

BAM PPP. 2019. "Our Work- BAM Building – Civic Buildings." BAM Ireland. Accessed August 11, 2019. <https://www.bamireland.ie/our-work/bam-building/civic-buildings/courts-bundle-ppp/>;

BAM PPP. 2018. "Mullingar Courthouse Officially Unveiled to Complete Nationwide €149 Courthouse Project by BAM." BAM Ireland. Accessed August 11, 2019. <https://www.bamireland.ie/2018/11/23/mullingar-courthouse-officialy-unveiled-to-complete-nationwide-e149m-courthouse-project-by-bam/>.

due until construction was completed and services commenced. These regular payments are also subject to availability- and service-based performance deductions.

Some of the courts are new facilities, while others required only refurbishment and extension works. Several of those in the latter category were protected structures that required intensive preservation work for historical conservation purposes. Furthermore, the courts are located in areas with possible archaeological remains, such that the private partner needed to obtain archaeological licenses for all seven sites prior to the financial close.

Lessons Learned

The courthouses were delivered throughout 2017 and 2018 and have entered into service. This has reported been regarded as a highly successful PPP arrangement.¹⁰⁸ This project highlights how innovative project structures, such as bundling multiple construction and rehabilitation projects into one contract, can leverage economies of scale for the design and construction of government facilities. In addition, bundling can help make the project more attractive to private investors and may help guarantee the same quality standards across the bundled projects.

