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 m^2 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]

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.

Railways

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

Photo Credit[4]

Background

Hong Kong is a very densely populated city, with more than seven million people occupying a land area of only 1,104 km^2. 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.

[3] Margo, Vassallo, and José Manuel. 2015. "Asociación Público Privada en América Latina. Aprendiendo de la experiencia". CAF. Accessed February 8, 2019. http://scioteca.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

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 asses 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] Verougstraete, 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.