



Public Private Partnership: Mumbai Metro, India

Project Description

Mumbai Metro is a rapid transit system which is under construction in Mumbai. The system is designed to address both present and future needs of public transportation. The project was implemented under Built, Own, Operate and Transfer (BOOT) method and has been India's first PPP metro project in which all three phases (construction, operation and maintenance) were given to private players. The project involved an elevated 11 KM Light Rail Transit (LRT) system linking Andheri and Ghatkopar, via Asalpa, Marol, Chakala and Saki Naka. The construction of Mumbai Metro involved building up of a total of 146 KM of track, of which 32 KM is underground. The project was approved by the Government of Maharashtra in August 2004 and global bids were invited through an Expression of Interest (Eoi). Almost 150 bidders responded to the Eoi and a pre-bid meeting was held in November 2004 and final tender was given to Reliance Energy and Connex France. Veolia Transport and Hong Kong MRT were the other members of the consortium providing technical know-how.

The construction of first phase of Mumbai Metro commenced on February 2008 and is expected to enter into operation in December 2013.

PPP Structure of the project

The Mumbai Metro project was developed by means of constituting a special purpose vehicle (SPV) - Mumbai Metro One Private Ltd. (MMOPL), a joint venture of Reliance Infrastructure, Veolia transport (France) and Mumbai Metropolitan Region

Development Authority (MMRDA) holding 69 per cent, 5 per cent and 26 per cent of equity share capital respectively. MMOPL entered into a concession agreement with Maharashtra government to design, finance, build, operate, maintain and transfer the ownership and assets at the end of the concession period of 35 years. The cost of the project was estimated at Rs 2,356 crores, but due to delays in completion of project the cost has swelled by Rs. 1,935 crores. The total cost was financed on the basis of viability grant amounting to Rs 650 crores from Government of India and Government of Maharashtra. The remainder being financed by 70 per cent debt and 30 per cent equity. The private operators also raised debt of Rs 1,240 crores through consortium of banks- IDBI, Corporation Bank, Karur Vysya Bank, Canara Bank, Indian Bank and Oriental Bank of Commerce.

The project's master plan execution has been planned in three phases.

Phase I covers a total length of 62.68 KM including 11.07 KM Versova-Andheri-Ghatkopar route, the 20 KM Colaba-Bandra section and 31.8 KM Charkop-Bandra-Mankhurd route.

Phase II has been planned to cover the 7.5 KM Charkop-Dahisar route, the 12.5 KM Ghatkopar-Mulund route and 19.5 KM BKC Kanjurmarg via Mumbai Airport sections. Phase II will be executed in 2012-2017.

Phase III will include the development of the 18 KM Andheri East-Dahisar East route, the 21.8 KM Flora

Fountain and Ghatkopar and an underground section route and is expected to be executed in 2016-2021.

One of the key features of Mumbai Metro is latest signalling technology, including automatic train protection (ATP) and automated signalling to control the high-volume of train movements on the 11.07 KM route. For this, Siemens will supply the signalling systems required for the project, while Thales will supply the required communication systems. Additionally, the project has been focusing on development of an environmental friendly system to become Asia's first Green Metro, right from construction stage.

Even though work is progressing on the first line of Mumbai Metro, ambitious plans are in place to establish the system into nine line network by 2021.

Key Lessons

The Mumbai Metro case provides several insights that need to be highlighted so that lessons can be drawn and applied to other projects as well.

- **Assessing bid process is crucial:** The process of bid for choosing the successful bidder took more than 2 years. This led to a lesser number of bidders to bid for the project. Similar hurdles were experienced in the bid process for the Metro Line 2 as the concession agreement was based on the model concession agreement. These delays resulted in only one bidder finally submitting a bid for the project.
- **Delays in approval can derail the project:** There was a delay in obtaining approvals for the over bridge that passed over the railway line from the railway authorities. Project gets delayed from scheduled deadline because a railway was exploring the feasibility of another project invading the path of the metro line. It is recommended that authorities be cognizant of all other upcoming infrastructure projects that have the potential to

affect operations of the planned project while bidding out such projects and resolve the same prior to the appointment of a developer.

- **Specification on Assets transfer:** On the termination of the project through the efflux of time, 5 years before the expiry of the concession period (i.e. 35 years) a survey of the assets would be carried out to determine whether they are in working condition as given in the agreement. The survey is to be carried out by an independent engineer based on a schedule of specifications on the condition of assets. However, the schedule in the concession agreement does not have clear and robust specifications. Thus there is a risk of a difference of opinion between the concessionaire and the government and this can potentially lead to a dispute. The government could manage this better by incorporating clear and robust specifications on the condition it would want the assets to be handed over to the government.
- **Public support for the project:** For projects like this public support is necessary to ensure proper implementation. MMRDA ensured adequate public support for land acquisition and road expansion activities by a dialogue with the affected individuals.

Further Readings:

About Mumbai Metro, available at:
<http://mmrda.maharashtra.gov.in/mumbai-metro-rail-project>, last accessed on 16.11.2013.

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