

Will Mumbai Prioritise the Bus Rapid Transit System?

SUDHIR BADAMI

The Mumbai Metropolitan Region Development Authority and the state government have decided to focus on the “big-ticket” options of a metro and monorail to address the transportation challenge. But both are expensive and will prove inadequate. The “small-ticket” Bus Rapid Transit System project that the MMRDA has passed on to other organisations for execution is the best solution.

Sudhir Badami (Sudhirbadami@gmail.com) is a member of the Government of Maharashtra's Steering Committee on BRTS for Mumbai.

Many times challenges and opportunities come hand in hand and in different forms. Thus far, the responsibility for implementation of the Bus Rapid Transit System (BRTS) in Mumbai was with the Mumbai Metropolitan Region Development Authority (MMRDA).

Transport Options

Given the fact that the main lifeline of Mumbai's transportation is the suburban railway system, followed by the Brihanmumbai Electric Supply and Transport (BEST) bus transport system and that the two are overloaded with passengers, the state government felt that augmenting public transport capacity and also speeding up traffic would address the commuting woes of the residents of Mumbai.

Unfortunately, the options chosen by the state government are highly capital-intensive long duration projects, and sadly, will meet much less than the real need of Mumbai. These options, which are the

metro rail and the monorail and the sea links and the elevated corridors, do not provide sustainable and equitable solutions. A very large majority of the people will have to continue to bear the miserable conditions even after these projects have been executed.

The BRTS, which is being erroneously conceived and propagated as a feeder service to the suburban railway or metro rail, is, in fact, a very viable, quickly implementable scheme running not as a supplementary or complementary but as a competing independent facility.

In order to expedite start and completion of their selected transportation options and other projects for the makeover of Mumbai, the state government and MMRDA seem to want to execute all the 16 odd “big-ticket” development projects simultaneously, without giving adequate thought to the repercussions for the residents of Mumbai, now and in the coming years. In the process, perhaps, due to the resulting shortage of qualified and experienced manpower within the MMRDA or for some other considerations, the organisation has decided not to pursue with the BRTS projects themselves, and, in fact, has asked the Municipal Corporation of Greater Mumbai (MCGM) and BEST to take it forward.

This decision is, in one way, not a happy one from the viewpoint of the progress of

the much-delayed BRTS project, since much work has already been done in the feasibility study made by the MMRDA. But, on the other hand, it is also a positive development as control now comes to the agencies, which can set the pace and design schemes with their vision and overcome hurdles quickly with the sole intention of making a success of the project.

'Big-Ticket' Options

The figure touted till recently for the 146.5 km of the Mumbai Metro Master Plan (MMMP) by the Delhi Metro Rail Corporation (DMRC)/MMRDA/government of Maharashtra was Rs 19,525 crore. This will actually be more than Rs 60,000 crore (Badami, EPW, 18 November 2006). Costs apart, its projected capacity will be only 36,000 persons per hour per direction (pphpd). With only two lines running north-south, south of Andheri, the capacity is only 72,000 persons per hour (pph), while the requirement is 1,70,000 pph after the Mumbai Urban Transport Project (MUTP) is completed (now expected to be completed only by 2015). The Andheri-Dahisar stretch will add another 36,000 pph.

Thus, we know that the metro cannot meet requirements. One more aspect we should be aware of is that with Mumbai being a functioning and living city with multi-utilities lying underground, there will be major hurdles in quick construction of the project. Add the high costs of the project and it can be safely said that the MMMP will, optimistically speaking, take 20 to 25 years for completion. The MMMP was conceived with the idea of getting some car users onto the metro as also some of the rail users. From that limited consideration, the MMMP makes sense. However, it will not actually address the overall transportation and traffic problems of Mumbai. The demonstrated cost of Rs 60,000 crore plus does not include the fact that in Mumbai the underground section will be at 25 m to 30 m depth in hard basalt rock, unlike the Delhi Metro's run at about 15 m depth in hard soil or soft rock. Considering these, the cost could be even higher.

Knowing these facts, the MMRDA and the state government have embarked upon

another high visibility transportation project of 100 km of monorail. Based on the bid cost rate of Rs 150 crore/km arrived at from the bid price of the Ghadge Maharaj Chowk to Chembur via Wadala, the 100 km monorail plan will cost Rs 15,000 crore for a meagre capacity of 10,000

project, this move will ensure delaying the project further.

It is also possible that in order to not to lose their potential commuters to BRTS even before the metro routes came up and let them find it more convenient and affordable, the MMRDA may declare the

Chart 1

Mode of Transport	Cost in Rs/Km	Capacity (pphpd)	Period of Implementation	Overall Cost	
Mumbai Metro Master Plan 146.5 Km	More than Rs 415 crore/km	24,000 to begin with and 36,000 ultimately	20 to 25 years (Optimistic)	More than Rs 60,000 crore	Capacity 28% in deficit of what is needed
(i) Elevated metro rail (106 km)	Rs 205/- crore/km				
(ii) Underground metro rail (40.5 km)	Rs 975 crore/km				
BRTS – (Proposed by author 200 km)	About Rs 15 crore/km inclusive of rolling stock	45,000	3 to 5 years	Rs 3,000 crore	Capacity 5% in excess of what is needed
Monorail (Proposed by MMRDA 100 km)	Rs 125 crore/km	8,000	3 to 5 years	Rs 12,500 crore	
Skybus (Proposed by author 80 km)	Rs 75 crore/km	18,000 to 54,000	3 to 5 years	Rs 6,000 crore	Along with BRTS, it will have a capacity 35% more than what is needed

Source: "Urban Transport in Mumbai Two Choices for the Future" by Sudhir Badami, *Economic & Political Weekly*, 18 November 2006; Ref 4724 9944, MMRDA updates press reports and MMRDA web sites, making course corrections since the revisions in costs have occurred due to inflation since 2004 to 2010 and experience gained during metro rail and monorail construction execution delays from 2006.

pphpd. The award cost for the first line has been brought down to about Rs 125 crore/km, the compromise seems to be the capacity – now further reduced to 8,000 pphpd.

At these capacities, BEST is already running its buses, albeit at slower speeds. The state government and the MMRDA are aware that the problems posed by the underground utilities faced by the Metro Line One will have to be met by the monorail as well. This would also delay its implementation and the corresponding costs added on.

Considering these, it appears that the MMRDA has advised the government, to open all 16 odd makeover projects simultaneously, i.e., all the nine lines of the metro, four lines of the monorail, the icon towers, makeover of Mantralaya, the rental housing schemes, etc, and make funds available. These are the "big-ticket" projects which will keep MMRDA's engineers busy and Mantralaya happy. That is the reason why the "small-ticket" project of the BRTS was consciously being delayed by the MMRDA, and now they have decided to do away with it without discarding it formally, by asking MCGM/BEST to take it forward. Without officially dumping the BRTS

routes selected by them as their right of way and deny running of BRTS on those arteries.

These are all very challenging situations for BEST and MCGM. Given the competitive spirit of these organisations and the long history of service to the citizens, both BEST and MCGM will take up the challenge with a sense of responsibility and dedication. Executing BRTS and operating it is the only way BEST can make its transport wing function without cross subsidy from its electricity supply wing.

'Small-Ticket' Option

The crushing overload in the suburban trains, besides providing extreme discomfort, is also responsible for about 4,000 fatalities every year. Since 200 km of BRTS

Style Sheet for Authors

While preparing their articles for submission, contributors are requested to follow EPW's style sheet.

The style sheet is posted on EPW's web site at <http://epw.in/epw/user/styletocontributors.jsp>

It will help immensely for faster processing and error-free editing if writers follow the guidelines in style sheet, especially with regard to citation and preparation of references.

can be fully implemented within three to five years, adding capacities to the tune of 1,80,000 pph, the issue of fatalities would be effectively addressed.

Bus frequencies on the trunk BRT routes could be as high as one every 20 to 30 seconds, providing the commuter a near-seamless travel. With level boarding and alighting, the BRTs further the cause of seamless travel. This also meets the requirements of barrier free transport for persons with disability, the elderly, the expectant women, the infirm and many who have arthritic ailments.

The comparative statement for various options are given in Chart 1 (p 33).

At the outset itself the average speed BRT could attain is about 25-30 km/hr, which when the service is fine-tuned, can increase to 40 km/hr as is being done in Bogota. Despite the high frequency, there are gaps between two buses and this space can effectively be used by emergency services without interfering with the BRTs performance.

Under the BRT scheme, the buses do not have to manage with near-chaotic traffic, its starts and halts are confined to limited locations such as at bus stops and BRT road junctions, leading to travel that is practically jerk free and all the buses with air-conditioned comforts and good modern suspension system lead to travel that is even superior to a metro.

And at a cost of Rs 15 crore/km inclusive of rolling stock, lifts, escalators and ramps, BRTs is the most viable option we have. Environmental friendliness arises out of the fact that in emissions per passenger kilometre, the BRTs is close to one-fourth of petrol cars, one-third of diesel cars and half of metro rail. From global warming and climate change perspective too, it is a preferred option.

A word on how the road space should be utilised will not be out of place. A car lane can provide a capacity of up to 3,000 cars per hour. A recent traffic survey at various road junctions and road arms shows a maximum flow occurring on the three

lane Peddar Road in Mumbai; the figure observed was as low as 5,400 vehicles per hour in peak hour. That means only about 1,800 vehicles per hour per lane pass by, i.e., about 2,500 pph per lane. In comparison, an average BRTs throughput is about 20,000 pph. A 2 m wide cycle way also has a capacity of about 3,600 pph. Pedestrian throughput on a 1.5 m walkway touches 4,500 pph. Considering that every user of public transport walks some distance and some travel their full commute by bicycles, providing priority status to BRTs, cycleways and pedestrians at grade footpaths and giving secondary status to all other modes such as motorised vehicles would be appropriate. This may mean, in the absence of adequate road space, reducing the space for personal vehicles, thereby achieving high commuter throughput.

It is now up to the foresight of the administrators of MCGM and BEST and the elected representatives to make a success of the opportunity that has come their way.



ASER Centre invites applicants for the post of **Senior Research Associate**

Background: ASER Centre (www.asercentre.org), a non government organization, designs and facilitates the Annual Status of Education Report, one of the largest household surveys of children conducted in India. The Centre works in three core areas: (1) survey, assessment, evaluation, and research activities that aim to generate new evidence on the outcomes of social sector programs, especially in the field of education; (2) training activities with groups and institutions to build capacity to design and implement similar initiatives; (3) evidence-based advocacy with stakeholders at different levels.

Job overview: Senior Research Associates will be based in New Delhi and will work in close coordination with the Central Research Team and regional teams to lead or participate in research, assessment or evaluation projects, including definition of tools and methods; coordination of fieldwork; collation and analysis of data; report writing and dissemination of findings. They will also participate in designing and teaching course modules in these areas.

Eligibility: Suitable candidates will:

- Be graduates in any discipline with at least 3 years' experience in designing, conducting and coordinating assessment/research projects in the social sector;
- Demonstrate clear conceptual understanding as well as practical experience of using quantitative or qualitative research methodologies;
- Demonstrate ability to work with large data sets using statistical software such as STATA or SPSS, and/or with qualitative data using appropriate software packages;
- Be proficient with M.S. Office;
- Have strong written and oral communication skills in English and Hindi (or another Indian language);
- Be comfortable working both independently and as part of a team;
- Demonstrate attention to detail in all aspects of their work;
- Be willing to travel extensively within India (mainly rural India);
- Be able to deal with difficult field situations, handle intense work pressure and deliver under tight deadlines.

Honorarium: Rs 3–3.5 lakh per annum, negotiable for exceptionally strong candidates.

To apply: Send a resume and a cover letter explaining why you are interested in this position to: aser.contact@gmail.com