

PAKISTAN METROBUS - FACTS AND PERSPECTIVES

This refers to a recent article published in this newspaper of August 02, 2015 by Dr. Farrukh Saleem alleging undue haste and high cost in execution of Pakistan Metrobus System (PMBS). The contents of the article are not based on adequate research and full appreciation of facts. The fact that contracts for such projects in the present Government are awarded after a meticulously carried out tendering process strictly in accordance with PPRA rules, has not been kept in view. Following facts are being stated for the facility and full appreciation of the readers:-

- a) The PMBS has a dedicated and signal free corridor for which 13 vehicular underpasses and 02 flyovers have been constructed. It has many distinct features which are not available in the examples quoted in the article. The whole project was approved at a total cost of Rs.44,840M. Transparency of procurement process followed by Government is evidenced by the fact that the project was completed at a total cost of Rs.42,810M resulting in substantial saving of over Rs.2,000M. The tendering process conducted for this project can be reviewed by any person at any forum.
- b) BRTs worldwide were commissioned in various years. A correct cost comparison would account for year of construction of the quoted examples and adjustments to year 2015 prices as PMBS was commissioned on 4-6-2015. Adjusted cost of infrastructure based on average annual inflation rates for respective countries, extracted from the website of world bank (www.data.worldbank.org) are as under:-

Sr. No.	Name of BRT System	Year of Commission	Cost per Kilometer (USD)	Average Annual Inflation Rate Since Commission (%)	Adjusted Cost for 2015 (Million USD per Kilometer)
1	Ahmedabad Janmarg (India)	2009	2.4 M	6.84	3.57
2	Changzhou (China)	2008	4.0 M	4.01	5.27
3	Beijing (China)	2004	4.8 M	4.60	7.87
4a	Paris (First Line - France)	2005	7.0 M	1.38	8.03
4b	Paris (Latest Line - France)	2011	8.54 M	0.88	8.84
5	Istanbul (Turkey)	2007	8.8 M	7.43	15.61
6	Lahore MBS	2013	11.0 M	8.00	12.83
7	PMBS	2015	20.0 M	8.00	20.0

- c) The per kilometer cost also varies depending upon the extent of roadway improvements supplementary to the main corridor. Some of the major roadway improvements in PMBS include a cloverleaf interchange at Peshawar Morr (PKR 4,940M), new bridge on Nala Lai (PKR 352M), rehabilitation of existing road network and other additional works (PKR 2,705M). After adjustment of these components not directly related with the project, the cost is reduced to USD 16.360 M per Km.
- d) Generally, the international per kilometer cost does not include costs of land acquisition, escalators, elevators, platform sliding doors, generators, etc. in the civil works costs. For example land acquisition in our country is necessitated because of right of way

constraints which factor is absent in more developed cities where existing planned right of way is used. Escalator/elevators are required to facilitate passenger access to elevated section, trenched section and platforms located in the center of the existing right of way. In the case of PMBS, costs for these items are included in the total project cost of PKR 44,840M. The information available on quoted BRT examples was reviewed through website (www.worldbrt.net and www.brtdata.org) and following information pertaining to additional facilities was revealed:

Sr. No.	Name of BRT System	Escalators	Elevators	Generators	PSDs	Passing Lane
1	Ahmedabad Janmarg (India)	X	X	X	√	X
2	Changzhou (China)	√	√	X	√	X
3	Beijing (China)	X	X	X	X	X
4a	Paris (First Line - France)	X	X	X	X	X
4b	Paris (Latest Line - France)	X	X	X	X	X
5	Istanbul (Turkey)	X	X (< 20%)	X	X	X
6	Lahore MBS	√	X	√	√	√
7	PMBS	√	√	√	√	√

X=Not provided √= Provided

- e) After adjustment of the cost of additional facilities like elevators, escalators, PSDs, passing lanes and generators (PKR 2,935M) the PMBS cost is further reduced to USD 15.09M per Km.
- f) One to one comparison of cost is not justifiable due to differences in geometric design (elevated, at-grade and trench sections) and various other BRT features provisioned for facilitation of passengers. For example, in PMBS, 8.6 Km is elevated and 4 Km is trench section which have a significant impact on cost. As seen in table below, PMBS is designed to include all types of sections whereas other BRTs are pre-dominantly designed as at-grade facilities.

Sr. No.	Name of BRT System	Length of Section (Km)			
		Elevated	At grade	Trench	Total
1	Ahmedabad Janmarg (India)	0	39.0	0	39.0
2	Changzhou (China)	0	54.0	0	54.0
3	Beijing (China)	0	79.0	0*	79.0
4a	Paris (First Line - France)	0	19.0	0*	19.0
4b	Paris (Latest Line - France)	0	9.6	0*	9.6
5	Istanbul (Turkey)	0	51.7	0	51.7
6	Lahore MBS	8.3	18.7	0	27.0
7	PMBS	8.6	9.8	4	22.4

* : Some trench section are present but they are insignificant.

As may be seen from the above table, all of the quoted examples are at-grade facilities. If PMBS was also planned as at-grade facility its per km cost would work out to **USD 10.780M per Km.**

- g) PMBS was designed for a peak capacity of 24, 480 passengers per hour per direction (pphpd). As may be seen from the table below the capacities of quoted BRT examples are far less, except Istanbul Metrobus:

S.No	City	System Capacity (pphpd)	No of Docking Bays	Demand (pphpd)
1	Ahmedabad	3,570	1 (For Standard Bus)	1,200
2	Changzhou	8,160	1 (For Articulated Bus)	3,450
3	Beijing	8,160	1 (For Articulated Bus)	2,850
4	Paris	8,160	1 (For Articulated Bus)	-
5	Istanbul	24,480	3 (For Articulated Bus)	18,900
6	Lahore	24,480	3 (For Articulated Bus)	5,000
7	PMBS	24,480	3 (For Articulated Bus)	4,000

Source: BRT Planning Guide, 2007

It may be seen that except for Istanbul all of the other quoted examples are designed at smaller passenger ridership necessitating single docking bay at the stations.

Currently, the PMBS passenger demand is 4000 pphpd. PMBS would have exhausted its capacity in the initial days of its operation if planned at Ahmadabad BRT's capacity. If PMBS was designed at a reduced System capacity like other quoted BRTs, the cost per kilometer of PMBS would have reduced to **USD 5.460M per Km**.

The writer's assertion that the metro bus projects in Punjab are highest cost undertakings is also not correct as the Boston BRT, built at a price of **USD 53.000M per Km** holds the record of being the most costly BRT in the world, followed by Nagoya @ **USD 47.000M per Km**), Pittsburgh West Busway @ **USD 31.500M per Km**, and Brisbane @ **USD 24.000M per Km**. [Source: Hensher, D. 2008, Frequency and Connectivity: the Key Drivers of Reform in Urban Public Transport Provision, Institute of Transport and Logistics Studies, University of Sydney].

Expeditious execution of projects has multiple benefits and as such it is in appropriate to say that Government was in a rush. One, it obviates the need for project revisions resulting in cost overruns. Two, it facilitates unleashing project benefits to the public sooner than later. Three, it minimizes public inconvenience during the construction phase.

We have utmost respect for all of our honorable Column Writers and fully recognize their right to formulate and hold opinion on national issues. We however, do expect that while stating facts, careful due diligence and adequate research is carried out to ensure that the facts at least are not distorted.

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