ORF OCCASIONAL PAPER
211
SEPTEMBER 2019

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ISBN: 978-93-89094-79-4

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ABSTRACT

In January 2019 employees of the Brihanmumbai Electricity Supply and Transport (BEST) in Mumbai held an eight-day strike to demand, among others, higher wages. The strike affected nearly three million daily commuters in India's financial capital. It also highlighted the crises that have crippled Mumbai's municipal public transport service for years: after the cross-subsidies from the electric supply division of BEST to its public transport arm were discontinued in 2003, its fleet of buses shrank, leading to a drop in ridership and massive financial losses. To bail out BEST, the Municipal Corporation of Greater Mumbai (MCGM) has announced a financial assistance of INR one billion per month. This, however, falls short; the public transport undertaking has outstanding dues of INR 26 billion. At the same time, transport policies remain cars-centric and traffic congestion in the city has only worsened. This paper outlines the challenges confronting BEST and offers recommendations for regaining its financial stability .

Attribution: Dhaval Desai and Paresh Rawal, "What Ails India's Public Transport Systems? The Case of Mumbai", *ORF Occasional Paper No. 211*, September 2019, Observer Research Foundation.

INTRODUCTION

The Brihanmumbai Electricity Supply and Transport (BEST) is an undertaking of the Municipal Corporation of Greater Mumbai (MCGM) and has two streams—electric supply and transport—both headed by the same general manager.[1] Financial reports of the organisation reveal that a huge proportion of the total expenses of both are bracketed under 'share of general administration'.[2] In 2015-16, this was INR 701.9 million for the power supply vertical, and INR 1.10 billion for transport.[3]

Over the years, as traffic congestion in the city increased and the efficiency of BEST's bus fleet declined, it began facing operational difficulties. It continued to run its transport services using the cross-subsidies from the electricity vertical, which BEST earned by charging an additional levy from its power consumers in the form of a Transport Department Loss Recovery (TDLR) surcharge. Eventually, however, the Electricity Act of 2003 stopped the practice of cross-subsidy.[4] The Maharashtra Electricity Regulatory Commission (MERC), which got the rights to set power tariffs for BEST, challenged the TDLR surcharge levied as part of the power bills.[5] Subsequently, following a Supreme Court directive, BEST had to discontinue the TDLR surcharge beginning in November 2016.[6] Once the cross-subsidisation ceased, the losses snowballed and questions resurfaced regarding the business model and sustainability of BEST's transport services. (See Tables 1 and 2) The finances of the transport vertical suffered, even as the earnings from the electric supply arm also fell by 13 percent.[7]

TABLE 1: SWELLING LOSSES AND FALLING RIDERSHIP OF BEST'S TRANSPORT DIVISION AFTER THE DISCONTINUANCE OF TDLR				
Year	TDLR collected (INR)	BEST Transport Loss (INR)	Total Passengers	Loss Per Passenger (INR)
2012-2013	502,40,31,667.42	633,50,00,000	140,92,65,000	4.50
2013-2014	653,60,36,876.80	767,73,88,831	130,67,00,000	5.88
2014-2015	661,94,76, 394.50	858,01,75,273	122,12,90,000	7.03

Source: *BEST General Financial Statistics 2015-2016.*[8]

TABLE 2: BREAK-UP OF BEST'S TRANSPORT VERTICAL LOSSES – 2014-15 (INR)	
(A) Income	
Passenger receipts	1416,50,16,590
Other receipts	84,88,66,794
Share of general administration	8,26,67,718
Total income	1509,65,51,102
(B) Expenditure	
Fuel and operating materials	456,25,66,775
Establishment cost	1498,97,28,692
Administrative and general expenses	65,77,74,901
Repairs and maintenance	86,81,05,701
Other expenses	15,85,01,265
Depreciation	34,88,73,501
Interest on loans	98,92,56,280
Share of general administration	110,19,19,260
Total expenditure	2367,67,26,375
Total Loss (A-B)	858,01,75,273

Source: *BEST administrative report – 2014-15*

This paper examines the challenges confronting BEST and offers recommendations for regaining its financial stability. The rest of the paper is structured as follows: The next section gives a background on subsidies, describing the system in Mumbai for both buses and local trains, as well as global norms. Section 3 then examines the other challenges facing Mumbai's public transport, aside from financial constraints. The penultimate section outlines specific recommendations to reinstate the financial credibility of BEST, before concluding.

SUBSIDIES: MUMBAI AND GLOBAL NORMS

A comparison of BEST with the Indian Railways (IR), which operates Mumbai's suburban train services, illustrates the importance of cross-subsidies for the financial viability of a public transport service. Mumbai's suburban train services are the city's lifeline, ferrying nearly eight million commuters daily across the Mumbai Metropolitan Region (MMR).[9] A study of the finances of IR, which is also the core service provider for intercity and interstate public transport across India, may explain the ills that hobble BEST's financial health.

Railway transport is included in Schedule 1 of Government of India's list of industries to be reserved for manufacture of items exclusively in the public sector,[10] highlighting the importance of public transportation. Indian Railways, the world's fourth-largest railway network, has adopted a high degree of cross-subsidisation of its earnings from its money-making freight operations to plug the losses incurred by its passenger services. IR is unique for having the highest freight charges in the world, and also the lowest passenger fares. It manages to cater to its millions of passengers because of the cross-subsidies from the profits made by its freight operations. While 43 percent of IR's passenger fares is subsidised in non-suburban trains, the subsidy component is as high as 63 percent in the case of its suburban services, primarily serving the metropolitan regions of Mumbai, Delhi, Kolkata and Chennai.[11]

In the case of BEST, its audited financial report for 2014-2015 reveals that while income from the transport department was at INR 15.09 billion, the total expenditure incurred on transport operations was INR 23.67 billion,[12] resulting in a net loss of INR 8.58 billion or a net expenditure to income deficit of 36 percent. To offset this deficit, BEST will need a subsidy also of 36 percent; this is lower than the 63 percent subsidy provided by IR on its suburban services.

Globally, even some of the best public transport services are suffering losses and have to rely on government subsidy.[13] Governments in other cities also support their public transportation systems using different ways. There are, moreover, various forms of cross-subsidy models that public transportation systems use to offset their operational losses, including the following.[14]

a) While employer and local taxes on income are collected by national and local governments world-wide, a few cities hypothecate a portion of these taxes to pay for their public transport systems. Local payroll taxes are used for public transport both in the United States (US) and in Europe. The State of Oregon in the US has authorised local transit agencies to levy a payroll tax to generate revenue. Louisville and Cincinnati use municipal income taxes to finance public transport subsidies. In France, dedicated employment taxes known as *Versement* ('transport payment') have been used.

b) Earmarked local property taxes to fund public transport are common in the US and Canada, in cities like Minneapolis, New York, Boston, Denver, Detroit, Miami, Los Angeles, San Francisco and Vancouver. In some of these cities, property taxes are dedicated to public transport. While earmarking of property taxes for public transport is rare in Europe, many European countries, too, use part of the proceeds of property taxes to fund public transport.[15]

c) Many urban centres have practices of levying development charges on the residential and business districts to fund public transport. Examples of such funds are the Transport Impact Development Fund (TIDF) in San Francisco, 'density bonusing' in Portland, Oregon; and the development charge scheme in Hamburg,

Germany. These development levies are unique to each city, depending on their specific requirements.

i. Levy of development charges, whereby part of the cost of transport would be recovered by special charges on different land uses, usually levied at the time of new development of properties in the benefitting areas.

ii. Existing properties contribute toward their share of the benefit of public transport proportionate to the increase in property values resulting from public investment in the area.

iii. Connection charge, whereby a property owner pays a specific fee to be connected directly to the transit system.

d) All revenue earned from parking fees and traffic fines in Milton Keynes, a city in Buckinghamshire, England, are set aside to support public transport. This example shows the potential of these charges by linking them to environmental and transport planning processes in the growth curve of cities. Another scheme is implemented at the Heathrow, Stansted and Gatwick airports, where 25 pence of each parking transaction is credited to a separate budgetary pool that goes towards improving public transport within and around these airports.

FAILURE OF POLICY, ADMINISTRATIVE APATHY: OTHER CHALLENGES FACING BEST

Public transportation is a public service, an obligation of the state towards its citizens. Any deficit that arises from the imbalance in the costs incurred towards efficient operations and fare-box collections – which cannot be increased beyond a reasonable level to maintain

affordability of the users – is normally bridged through various subsidies. Therefore, while the objective is not to make profits, any service provider has to at least break even to ensure long-term sustainability and financial viability of operations. In BEST's case, mounting financial losses – as a result of the discontinuation of cross-subsidy beginning in 2003 – is only one of the various factors that have negatively affected its financial health and operational efficiency. Losses of INR 23.5 million per day have forced BEST to reduce its fleet of buses, leading to a steady decline in revenue. The number of buses in BEST's fleet dropped by 21 percent from 4,200 to 3,300 buses between 2013 and 2018, while 18 percent of the bus routes were scrapped over the same period owing to poor occupancy of less than 30 percent.[16] As of January 2018, the total number of daily commuters dropped to 1.93 million from three million in mid-2017.[17] As a result, the earnings from ticket sales reduced by INR 1.30 billion from INR 11.81 billion in 2016-17 to INR 10.51 billion in 2017-18 – or a drop of nearly INR 110 million per month.[18] Traffic congestion has also worsened because of ongoing work for the metro lines, increasing travel time. The average peak-hour speed of BEST buses has dropped by nearly half in a decade, from 16 kmph in 2008 to nine kmph in 2018.[19]

The waning popularity of BEST has led to a steep rise in the number of auto rickshaws plying the city. The number of autos has almost doubled in the past three years from 105,000 in 2016 to 207,000 in January 2019.[20] This reflects the increased demand for last-mile connectivity. The fast-multiplying numbers of auto rickshaws has also contributed to increased road congestion. Another reason for the fall in number of passengers of BEST buses is their lack of reliability. Cab aggregators and autos offer reliability and predictability in their services.

Over the years, BEST budgetary announcements have included several initiatives to increase revenue as well as augment the service's user friendliness. The key initiatives include trips exclusive for women which are operated on some of the heavy routes at peak hours;[21] the use of electronic machines to dispense tickets, reducing cost of printing and the workload of conductors;[22] and the use of flyovers and highways as 'Express Corridor Services' connecting prominent localities of Mumbai with extended suburbs.[23] The implementation of most of these initiatives, however, has been sporadic.

Another worrisome trend which can be seen in BEST budgets is the absence of capital expenditure. As BEST is always under pressure to make ends meet, the management is unable to match its operational and maintenance costs, thereby leaving no scope for provisioning of capex. The depreciation fund has not been utilised for acquiring new assets or technology. On the contrary, as discussed earlier, the service has reduced its bus fleet and routes (500 in 2013 to 412 in 2018) to minimise the cost of operations. Many of the routes that were cancelled were highly important, as they connected the marginalised sections of the city to the main arteries.[24]

Administrative apathy and political myopia

Lapses in administration have exposed the lack of strategic planning of the BEST officials.

- **Sale of assets to make ends meet**

BEST owns 29 bus depots in the city, each spread over an average area of three million sq ft. To keep its shrinking coffers from emptying out, the BEST administration decided to sell off its bus depots, including the Kurla one. Under a 'modernisation scheme', part of the depot was sold in

2006 to a private developer. The land where the depot stood, measuring 335,000 sq m, was handed over to the developer for INR 420 million. Shortly after, the same developer acquired the rights for the Mahim bus depot. The then MCGM Commissioner Ajoy Mehta, who is now Maharashtra's chief secretary, termed both transactions as the sale of 'family silver' to "take care of your (BEST's) inefficiencies".[25] (Both transactions happened before Mehta took charge of the MCGM.)

- **Scorched by AC buses**

BEST's unsuccessful and highly costly experiment with air-conditioned (AC) buses was another example of the lack of strategic planning. After 10 years of operating Ashok Leyland-made AC buses on a few select high-density routes in the city, the BEST administration in 2008-09 decided to decommission all old AC buses and replace them with 259 brand-new AC buses assembled by the Mohali, Punjab-based Jaycee Coach Builders Ltd. and sold under the Cerita brand, at a cost of INR 1.65 billion. Over the next decade, BEST spent INR 1 billion each year to maintain these "white elephants".[26] Frequent breakdowns and mishaps – for instance, buses catching fire– made BEST officials decide to take these vehicles off the roads in April 2017. One year after sitting unused at various bus depots, all the Cerita AC buses were auctioned to multiple bidders for a paltry INR 52.7 million, with each bus fetching approximately INR 269,000.[27] BEST also raised an additional INR 116.3 million from the sale of spares.[28]

Car-centric initiatives have added to BEST's woes

Most operational challenges encountered by BEST are not financial in nature. They stem largely on account of issues such as city planning and governance, government policies pertaining to public transport, and

traffic management. Most of the key decisions of the government to ease traffic congestion in Mumbai have so far focused only on increasing road connectivity and augmenting carriageway capacity by constructing flyovers and bridges. In the five-year period of 1995-1999, for instance, Mumbai saw the implementation of the ambitious Mumbai Traffic Improvement Mega Project (TIMP) by the Shiv Sena-BJP government. The '*Yuti Sarkar*' (Shiv Sena-BJP coalition government) that came to power for the first time in Maharashtra was also instrumental in taking a series of far-reaching decisions. One of the key decisions was the creation of the Maharashtra State Road Development Corporation (MSRDC) as a special government agency tasked with the execution of the TIMP, which included construction of 55 flyovers in Mumbai at a cost of INR 1.5 billion.[29] In the succeeding years, MSRDC also executed the Jogeshwari-Vikhroli Link Road (INR 2.21 billion),[30] the Santacruz-Chembur Link Road (INR 5.05 billion)[31] and the Sion-Panvel Elevated Road to provide the much-needed east-west connectivity. In addition, MSRDC has also constructed flyovers at the Dindoshi Junction in Goregaon, at the Santacruz airport, the *Times of India* press at Malad, Thakur Complex in Kandivali and at Barfiwala Lane at Andheri, to ease movement of vehicles on the Western Express Highway. Other mega projects such as the Bandra-Worli Sea Link, the Sion-Panvel Highway (INR 17 billion),[32] the Sahar Elevated Access Road (INR four billion)[33] providing connectivity to the Terminal 2 of the Chhatrapati Shivaji International Airport (CSIA) and the flyover connecting the Eastern Express Highway with Suman Nagar in Chembur were also completed by MSRDC.

Besides the MSRDC, the Mumbai Metropolitan Region Development Authority (MMRDA) has constructed the Eastern Freeway, while the MCGM, through its Roads Department, has undertaken a plethora of other concretisation and carriageway augmentation projects.

TABLE 3: ROAD-CENTRIC PROJECTS APPROVED BY MCGM		
	Projects in the Pipeline	Projected Cost (INR billion)
1	Three fyovers and road work to decongest Chheda Nagar Junction at Chembur[34]	2.49
2	BKC-Eastern Express Highway connector[35]	1.56
3	Two BKC fyovers [36]	2.27
4	Mumbai Trans Harbour Link [37]	178.43
5	Kurla to Vakola Junction fyover [38]	1.55
6	Goregaon-Mulund Link Road	46.78
7	Mumbai Coastal Road	129.69
8	Flyover on Ghatkopar-Mankhurd Link Road	4.76
9	Extension of Bridge from Ram Mandir Road to Relief Road at Jogeshwari	1.70
10	SV Road-Link Road connector at Borivali	1.21
11	Reconstruction of Mahim Causeway bridge	1.03
12	Road Over Bridge at Vidyavihar railway station	0.8842
13	Reconstruction of Carnac Bridge	0.5308
14	Reconstruction of Hancock Bridge	0.3941
15	Mithi River bridge near old Drive-In cinema	0.3583
16	Vikhroli ROB	0.3706
17	Bridge at Infnity Mall to decongest Mith Chowky junction	1.00
18	Elevated Road from Lokhandwala, Andheri to Malad	4.50
19	Bridges connecting Keshavrao Khadye Marg to Saat Rasta junction and Dr. E. Moses Road to Saat Rasta at Mahalaxmi station	3.00
20	Bridge at Parsiwada, Andheri east	1.50
21	Proposed Road over bridge from Kamal Amrohi Studio on JVLR to WEH	4.80
	Total Cost	388.80

Source: *MCGM Budget 2019-20.*[39]

The benefits of public transport over private transport are undisputed.[40] The overall impact on quality of air and reduction in noise pollution are some other advantages which should also be accounted for while framing urban mobility policies. Clearly, therefore, an urban government should opt for these low-cost and high-impact alternatives rather than resorting to cost-intensive and car-centric road development projects. The growth in the number of private vehicles in Mumbai will always outweigh not only the available road space, but also any additional road space that is created in the future.

TABLE 4: RISE IN PRIVATE VEHICLES IN THE CITY OF MUMBAI (1980-2016)				
Year	Private Cars	Two-Wheelers	Others (Autos, taxis, buses)	Total
1980	99200	176000	44800	320000
1990	180000	320000	80000	580000
2000	365000	550000	114000	1029000
2011	621000	1131000	276000	2028000
2016	920000	1772000	377000	3069000

Source: The Times of India [41]

While it took 20 years (1980 to 2000) for the city to reach the first-million mark from 320,000 vehicles, the next million mark was reached in just about a decade. The third million mark was breached in just five years. Every day, 700 new private vehicles are added to Mumbai's roads.[42] The scenario that has unfolded in Mumbai since the past 30 years proves that car-centric measures taken by the government have not eased traffic congestion, nor provided mass mobility options to the citizens.

GLOBAL BEST PRACTICES

Mumbai can learn lessons from some of the elements of the public transportation systems of certain global cities.

- **City of London**[43]

Transport for London (TfL) was created in the year 2000 as an integrated body responsible for London's transport system. Every day, about 30 million journeys are taken in Greater London: 6.3 million by bus, 11 million by car or motorcycle, 1.4 million by rail, one million by underground train, seven million on foot, 333,000 by bicycle and 150,000 on the DLR (Docklands Light Railway).

London's bus network is one of the largest and most comprehensive urban transport systems in the world. Every weekday, over 6,800

scheduled buses carry around six million passengers on over 700 different routes. Bus Priority Team (BPT) was formed within TfL in August 2002. The introduction of the central London congestion charging scheme (CCS) in February 2003 which was complimented with simultaneous improvements to the bus network saw a 33-percent drop in car traffic entering the zone. Over a third of London households do not own or have the use of a car and as such, rely heavily upon the public transport network. Traffic Enforcement Camera Operations (TECO) data was used to calculate bus journey times before and after the implementation of the lanes in Waterloo Bridge/Lancaster Place in 2003. The data showed that the northbound bus lane reduced mean running times. Reduced mean bus running times and the standard deviation of running times in both directions have benefited in excess of 38,000 passengers per weekday, 22,000 passengers on a Saturday and 15,000 passengers on a Sunday.

One of the most notable features of TfL, which is one of the world's most extensive bus networks catering to a daily ridership of about six million, is that it has outsourced all its buses and operation to private players in a structured and well-monitored manner – without abandoning its responsibility of ensuring a robust public transportation system. TfL is directly responsible for planning new bus routes, revising existing bus routes, specifying service levels, monitoring service quality, management of bus stations and bus stops, bus driver assistance in situations over and above job requirements, providing information for passengers in the form of timetables and maps at bus stops and online, operating 'CentreComm', the 24-hour command-and-control centre.[44] However, all bus operations are outsourced under a tendering system in which operators bid for routes and are paid per mile that each bus runs. Contracts are normally awarded for five years, with two-year extensions available if performance criteria are met. Operators need to provide the buses to

operate, provide staff to drive the buses and adhere to the TfL guidelines.

Bus operators like Abellio London Ltd., Arriva London North Ltd., Docklands Buses Ltd., H R Richmond Ltd., London Central Bus Company Ltd., Metroline Travel Ltd., and Sullivan Bus & Coach Ltd., have to follow the guidelines laid down by the TfL and are rated by the passengers and other monitoring mechanism developed by TfL.[45] Passenger feedback—on safety, cleanliness, staff behaviour—is primarily considered before renewing the contract to the operator.[46]

- **Seoul**[47,48]

Over 600 years old, the capital of South Korea is spread over 605 square kilometres of area, with 374.5 sq km available for human activities. Since 10.6 million people reside in this small area, Seoul has a very high population density. The city has over three million registered motor vehicles, and has been witnessing an increase in the number of passenger cars and two-wheelers annually.[49] Private vehicles make up 27 percent of all the daily trips in Seoul. Furthermore, the inter-city private vehicle volume traveling between neighbouring cities and Seoul has increased from 420,000 vehicles/day in 1996 to 2.45 million vehicles/day in 2002. Of the entire traffic volume, 25 percent pass only through the city of Seoul. In Seoul, the share of bus trips decreased from 1990 to 1997 due to the fast-growing subway supply and the increased number of private vehicles. However, after the regular bus lanes were extended, the bus service improved. Buses again became the predominant travel mode since 1998.

The exclusive median bus lane system was first introduced in Seoul under the Road Traffic Act in 1986, after which 218.5km of exclusive bus lanes were installed in 59 sections. Bus travel speeds have increased by about 30 percent compared to the period before the construction of the

exclusive median bus lanes, while the average number of passengers increased by around four to seven percent. In the case of Dobong-Mia-ro, in particular, which used to suffer serious traffic congestion, the average bus travel speed was improved by nine kmph from 11 kmph before the installation of exclusive median bus lanes to 20 kmph. Secondly, it was shown that the exclusive median bus lanes contributed greatly to ensuring that buses arrived on time. In the case of Dobong-Mia Road (15.8 km), the buses have a travel time deviation of plus/minus 2.7 minutes, while that of private cars is in the region of ±15.3 minutes. This increased the system's dependability and led to a positive shift to bus from private vehicles.

The total number of daily bus users in Seoul stood at 4.78 million in 2004 during the early stage of the introduction of the exclusive median bus lanes; this figure increased to 5.8 million (average increase of 21 percent on a daily basis) in 2011. Therefore, the Seoul Metropolitan Government regards the establishment of exclusive median bus lanes as having been effective in invigorating the use of public transportation.[50]

In July 2002, the new mayor announced reforms in Seoul's public transportation systems, resulting in a well-structured and efficient quasi-public operating public transportation system. The Seoul Metropolitan Government (SMG), through Seoul Public Transport Reform Act 2004, increased its authority and control over the bus service operation while retaining the private bus operators. Like London's TfL, SMG too has absolute control over the timetable, the fixing of routes and fare collection while leasing out its bus operation on tendering basis. Operators are responsible for the buses and staff to operate the bus service and are reimbursed according to the total distance of service per vehicle. TOPIS (Transport Operation & Information Service) and other evaluation tools are used to evaluate the services annually which forms the basis for incentives and penalties.

One of the other key factors which contributed towards success of Seoul public transportation system was the formation of 'Bus Reform Civic Committee'. This committee is composed of four members from civic groups, eight experts and scholars, three from bus-related businesses, and five from the city council and related organisations. The committee brought together all those involved in the bus reform: bus companies, bus unions, and civic groups and played a pivotal role in coordinating conflicts among them, thereby leading to a consensus which eventually brought this huge positive change in public transportation system.

RECOMMENDATIONS FOR MUMBAI

Merger of BEST and MCGM budgets

The prolonged strike in January 2019 has intensified the demand for a merger of the budgets of BEST and MCGM as one of the long-term solutions to the former's mounting financial problems. It is believed that the merger of budgets or cross-subsidisation from any other source will provide the backbone for BEST. The infusion of funds will help BEST raise capital for expenditure, which is bound to accrue benefits over the long term. It will also help BEST run the routes which, though not economically viable, will serve the society at large. The BEST management needs to explore alternative sources of revenue to finance its operational costs. While MCGM's Road Department has been allocated INR 23.82 billion and the Bridges Department INR 7.12 billion,[51] the municipal budget 2019-20, much to the chagrin of transport experts and activists in the city, allotted a meagre amount of INR 340 million to BEST's transport division. This money is meant for installation of electronic display boards inside the buses to indicate to the passengers the bus's current location.[52] The allocation of such a paltry sum – against the backdrop of the unsustainable losses reflected

the indifferent attitude of the municipal body towards its public transportation service.

Therefore, the recent announcement of the assistance of INR one billion by the newly-appointed Municipal Commissioner of the MCGM is a step in the right direction. While it will certainly not pull BEST out of its financial worries, it will at least help it to remain operational. Even this assistance has come with conditions. The MCGM, much in line with the global best practices, has directed the BEST management to work out a plan to procure an additional 3,000 buses through wet-leasing.[53,54] However, given the absence of any right of way for public buses – which will continue to jostle with private vehicles and cabs for every inch of Mumbai's road space – it remains to be seen whether the procurement of additional leased buses will make a difference to commuter experience.

This paper by no means suggests that the MCGM must bear the total loss of BEST's transport wing. However, it should bear at least all the 'justified losses'. The justified loss mechanism should include the losses which BEST incurs due to operating non-viable routes, increase in maintenance cost or any such activity beyond the control of BEST management. Subsidising the justified costs is a norm followed by all successful public transport bus systems the world over.

Metro rail and buses don't compete, they complement each other

The Mumbai Metropolitan Region Development Authority (MMRDA) has taken up a massive project of creating an intricate network of Metro rail in the city. While only one line connecting Versova in Andheri in the western suburbs to Ghatkopar in the eastern suburbs is currently functional, there are plans to introduce 13 other lines that will give an alternative mode of transport across the Mumbai Metropolitan Region (MMR). The city will then have all types of interconnectivity between its

business hubs and even its extended suburbs. The metro is seen as an ultimate solution to all the transportation woes of the city. However, transport experts reiterate that Metro alone cannot solve the city's traffic problems. Mumbai will need a judicial mix of all modes of transports to effectively tackle its transportation woes.[55] It needs to be understood that the nature of service provided by a metro and a bus are completely different; while metro is more suitable for long distances travel, the buses cater to the last-mile connectivity.

In New Delhi in 2008, the NSSO conducted face-to face interviews with households in catchment areas (colonies along the feeder routes) to determine willingness to use feeder services along 36 new routes as a metro link.[56] The objective of the survey was to find the proportion of the non-users likely to use the metro because of these proposed feeder services. The results showed that 72 percent of the respondents were willing to use feeder bus services while expecting an average frequency of not more than seven minutes and were willing to walk half a kilometre to the bus stop. This survey establishes a fact that Metro and Bus are not competing services but complimentary.

Prioritising public transport

While the financial recovery of Mumbai's BEST's transport division will need some innovative ways to cross-subsidise its operations and plug the mounting losses, many of its other operational challenges can be addressed by prioritising public transport over private cars. Specific solutions must be explored to ensure that buses are given priority on the roads: route rationalisation, dedicated bus lanes on all major arterial roads and ensuring the necessary traffic discipline, strict demarcation and implementation of no-parking zones, and inclusion of smaller-sized 'midi buses' on narrow streets and overcrowded, busy areas. In a welcome move, BEST has announced the purchase of 450 AC and non-

AC 'mini' and 'midi' buses by November 2019 and 80 electric buses by the end of the year in three phases. The e-buses will be procured with a 60-percent subsidy from the Government of India. The first phase will introduce 50 non-AC mini buses, and 12 non-AC midi buses up to September – all procured through a partial wet lease.[57]

To increase its user-friendliness and make BEST once again the preferred mode of transport for Mumbaikars, a range of technological solutions practiced by successful city transport providers need to be studied and solutions must be custom-tailored and implemented to serve Mumbai's unique needs. Of course, just as in most global cities that are known for their ease and efficiency of city transport, Mumbai – and indeed all of urban India – will have to sooner or later bring all its multiple transport services under a Unified Multimodal Transport Authority (UMTA), where all modes of city transport are seen from an integrated planning and development lens.

Tamil Nadu, for instance, is the first state in the country to legislate the Chennai Unified Multimodal Transport Authority (CUMTA) Act. Designed on the lines of the National Urban Transport Policy, CUMTA will ensure that all modes of public transport in the city would be operationally integrated and commuters are able to conveniently switch their transportation mode from Metropolitan Transport Corporation (MTC) buses and Chennai MRTS and vice-versa. This, however, is possible only if government policies are weaved around quantitative as well as qualitative improvement and enhancement of public transport.[58]

Over the next few years, Mumbai will see the Metro lines complementing the transport services currently being provided by the suburban railways and BEST. With the commissioning of the metro lines in the next few years, Mumbai will have the opportunity to integrate its three key transport services under a unified transport authority. Earlier

efforts in this regard, especially for introducing a common mobility smart card, have failed to fructify because of the unresolved issues pertaining to sharing of ticket sale income between the various transport providers. Several other administrative and jurisdiction issues have also ensured that the establishment of UMTA for Mumbai remains a pipedream.

The government must urgently recognise public transport as its first priority. Sadly, unlike global cities that boast of some of the best public transport systems, urban governments in India – especially the MCGM – have always confused the issue of public transport not as smooth and speedy movement of people, but of vehicles.

Overhauling BEST

After an eight-day logjam, the strike of the BEST employees in January 2019 ended with the appointment of Justice F I Rebello, a retired judge of the Bombay High Court, as the mediator. The two major things he must mediate on is the demand for a 20-step pay hike for employees of BEST transport division and the merger of BEST and MCGM budgets. However, both the BEST and the MCGM, as its parent organisation, need to consider a comprehensive overhaul of BEST as Public Transport service provider than just resolving the current crisis. As of now, BEST manages to recover 64 percent of its expenditure on the transport services and any future pay hike is bound to impact its financial health. On the other hand, Mumbai's suburban rail services operated by the Western and Central Railway zones of Indian Railways recovers only around 37 percent of its expenses on suburban services, while the rest is subsidised. BEST services in the city complement IR's suburban train services and though its share of passengers has considerably reduced, it continues to remain Mumbai's second-largest public transportation service provider. Therefore, the merger of BEST budget with the MCGM

budget or a model for cross-subsidisation from state, or both, should not come as a surprise. On the contrary, not doing that will be against the fundamental principle of the feasibility of any public transportation. According to the 2017-2018 budget of Transport for London (TfL), while the city's bus operations were carried out with gross expenditure of £ 2,218 million, they could only generate £ 1,466 million as gross income, giving a net loss of £ 752 million.[59] Interestingly, TfL does not call it a "loss". Instead, the deficit is showed as an integral part of the system's net "cost of service".

Cross-subsidisation alone cannot be a sustainable solution for BEST crisis. The subsidy amount can only help it survive and provide some time and space to improve its operations and efficiency. The combination of subsidy along with other reforms as suggested below will help BEST regain its lost glory as a leading transport service provider in the city and improve its financial health.

While the retired high court judge begins his mediation between the BEST and MCGM, he must also keep in mind some of the fundamental and urgent changes needed in BEST's transport operation:

- The government has long ignored the implementation of Bus Rapid Transport System (BRTS) in Mumbai under the pretext of not having sufficient space on the roads to have dedicated bus lanes. In fact, such has been the focus on capital-intensive projects such as the nearly-defunct mono rail and the fast upcoming metro rail projects that the Mumbai Metropolitan Region Development Authority (MMRDA) has quietly passed on the onus of BRTS in Mumbai on the BEST. Sometime in 2002, Consulting Engineering Services (CES) India was appointed by the MMRDA to plan, design and implement BRTS in Mumbai. The company came up with its blueprint in 2010 to set up 25-km stretches of dedicated bus lanes

each between Bandra and Dahisar along the Western Express Highway and between Sion and Cadbury Junction along the Eastern Express Highway. With dedicated bus lanes on either side of the median, the project was estimated to cost Rs 1,312 crore.

- The project was stalled, as the MMRDA passed on the responsibility to BEST. The BEST management needs to attract more commuters by having dedicated, exclusive bus lanes with adequate frequency of AC and non-AC buses. BEST needs to urgently redesign its existing routes in accordance to the vastly changed demographic patterns of the city. The route rationalisation needs to take into account the feeder routes, existing parallel routes and 'Pheri' routes.

- Alternative revenue generating schemes such as wet leasing, using its bus depot spaces during daytime for parking, and advertisements, should be explored. It would be helpful to learn from the example of Surat, India's first city to introduce a dedicated urban transport fund (UTF). The UTF was first recommended in the city's Comprehensive Mobility Plan formulated after the implementation the National Urban Transport Policy in 2006. The UTF was notified by the Surat Municipal Corporation in 2008. Created through budgetary allocations, the UTF recovers vehicle tax, parking charges and license fee for advertisement rights as its revenue components.[60] While the BRTS seems to have been given a silent burial in Mumbai cities like Surat have used innovative methods to raise revenue for its Sitiliink BRTS project. Given the high demand for real estate along the BRTS routes, the city government offered purchasable additional FSI to developers. Surat Municipal Corporation raised INR 2.21 billion by 2015 through the sale of FSI. The proceeds were accumulated in the UTF for the implementation, operation and management of Sitilink project, enabling the service provision at affordable fares.[61]

- A quasi-public system like the Seoul or London model of leasing out operations to private players should be seriously considered by BEST officials. To reap the benefits of its plan to procure additional buses on wet lease, the BEST must form a 'Bus Reform Citizens Committee' along the lines of Seoul's city buses to establish transparency and preempt any conflicts.

- BEST must introduce GPS-enabled real-time tracking of buses which should increase its predictability, reliability and re-instil commuters' confidence. It will enable a positive shift from private vehicles and increase the number of commuters.

- Any fare rationalisation must be considered only after the introduction of better, user-friendly and efficient services.

- The BEST management committee should appoint transport experts in addition to political representatives.

- Bodies like UMMTA need to be empowered with making holistic transportation polices for the city. Common ticketing for all modes of public transportation will then be easily implemented, and infrastructural investment decisions will be taken more wisely and efficiently.

CONCLUSION

For any restructuring of BEST either in terms of the undertaking's finances, or operations and management, Mumbai can learn lessons from some of the models adopted by global cities like London and Seoul with robust and efficient public transport systems. This paper proposes that these operational models can be put under the acronym of 'BEST': 'B' is 'Branched' route rationalisation; 'E' stands for 'Exclusive' bus lanes on major arterial roads in the city; 'S' is for the financial support of the

'State' or 'Subsidy'; and 'T' means the use of 'Technology' to improve service efficiency, predictability and user-friendliness. Some of the most efficient public transport systems have adhered to these 'BEST' principles. Unless they are applied for Mumbai's BEST along with the much-needed management, administrative and financial restructuring, it will be difficult to salvage its transportation division.

Unless BEST revamps its operations and works with renewed vigour, the infusion of billions of rupees from its parent organisation will fail to solve its manifold problems. It cannot continue to perform the way it currently functions and depend solely on financial aid. If the average speed of BEST buses is not improved, new technology to make it user-friendly is not adopted and new routes are not identified based on the changed demography of the city, then this largesse will become a millstone, which will surely drag down the country's richest municipal corporation.

In order to increase the falling ridership, the MCGM has announced a reduction in the minimum fare for a commute from INR 8 for a distance of 2 km to INR 5 for travel of up to 5 km. It is in this critical radius of 5 km – particularly from suburban railway stations to offices and homes – that the BEST ridership was seriously dented by shared autos and cabs. Routes between stations and business hubs like Churchgate-Nariman Point, Churchgate-Colaba, Churchgate-Chhatrapati Shivaji Terminus (CST), CST-Colaba, CST-Nariman Point, and Bandra (East)-BKC were previously high-capacity but had seen a mass exodus of passengers who find auto rickshaws and cab aggregators more reliable and reasonably priced.

The new fare structure introduced from 6 July 2019 has made bus commute more preferable once again for many. Bus ridership jumped by half a million after only one day.[62] In the next 10 days, the daily ticket

TABLE 5: THE NEW BEST BUS FARES W.E.F 6 JULY 2019		
Distance (Km)	Non-AC fare (INR)	AC fare (INR)
0-5	5	6
5-10	10	13
10-15	15	19
More than 15	20	25

sales increased from the pre-6 July 1.7 million to 2.5 million tickets on 15 July, or an increase of 47 percent.[63] The idea, clearly, is to flood the roads in the city with the right-sized buses and make the last-mile connectivity affordable. This will underline the core principle that public transport can outdo all other modes of private transport if it is made affordable. Whether this will continue to work in a sustainable manner, remains to be seen.ORF

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