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‘Mumbai’s
Infrastructure-
What is needed?’



'MUMBAI'S INFRASTRUCTURE- WHAT IS NEEDED?'



A panel discussion jointly
organised by
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and
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On 10th May 2016 at
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Preface

The story of Mumbai (earlier Bombay) is one punctuated with accidents which have made it what it is today.

Had it not been given as dowry to a UK prince in the early 17th century, it is unlikely that it would have become a key territory for East India Company. Even then, it was Surat, not Bombay, which was the prime port for West India.



"Mumbai can become the Gateway to India once again if (a) it can make living more liveable in this city, (b) make the city safer, and (c) make transportation easier and more comfortable without making it unaffordable."

Bombay's initial economic development took place largely between 1750 and 1850. That was when David Sassoon decided to settle here, migrating with his family from Baghdad. He transformed this city's landscape. He built Sassoon Dock for exporting cotton and opium and importing fabrics (it had railway lines going right into the port). This port later became the template for other ports that the British built.

In fact, India's first train could have been from Calcutta (now Kolkata), had it not been for a careless captain who sank the ship carrying the first carriages for the East Indian Railway. There was also the distracted clerk who dispatched the first locomotive to Australia instead of Calcutta. Fortune favoured Bombay.

Sassoon set up 17 textile mills in Mumbai each employing between 20,000 to 30,000 people. He thus made Bombay an industrial hub, and was its biggest employer. The Parsis and the Gujaratis joined in. Along with Sassoon, others pitched in to make Bombay the legendary place it is. This included Jeejeebhoy, Cawasji, Sunkerseth and many others who built this city.

Bombay was lucky that Imperial Bank which later became State Bank of India, chose this city as its headquarters. Many other banks followed suit. It also helped that both the cotton

exchange and later the stock exchange were located here. All combined to make Bombay the country's financial hub. Industry groups – Tatas, Mafatlals, Godrej, Bajaj and many others -- chose this city as the registered address for many of their corporate enterprises -- unlike many others who opted for Calcutta, which was once the capital of British India.

As a result, Mumbai today is the largest contributor of income tax to the exchequer. But if these were happy accidents, there were unhappy ones as well. Mumbai's management slipped away from its city administration to its political bosses – who were mostly from other places in Maharashtra. Mumbai's money went to develop the state, but its own infrastructural upgradation remained largely ignored.

As new businesses began moving to other states, reality kicked in. Maharashtra's legislators saw themselves losing out. During the past decade, more funds have begun to be allocated to this city.

But even today, its latest development plan mentions that the city will have inadequate facilities even in 2034. Demand for education will require 2,013 hectares (Ha), while the provisioning is for 1,165 ha. Medical facilities will require 573 ha, but what is available is 398 ha.

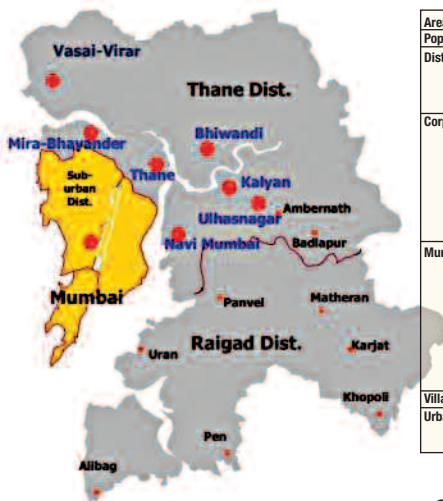
Clearly, therefore, the city will have to grow vertically, yet keeping enough open spaces. It will have to focus on a cleaner environment, better transport, and better livability.

Mumbai's planners are determined to make this happen. We hope and pray it will. Else Mumbai will fade in glory.

R. N. Bhaskar.

R.N.Bhaskar,
consulting editor, FPJ

Mumbai Metropolitan Region (MMR)



Area	4355 sq.km
Population About	22.2 million (2011)
Districts in MMR	1. Mumbai 2. Suburban 3. Thane 4. Raigad
Corporations in MMR	1. Greater Mumbai 2. Thane 3. Navi Mumbai 4. Ulhas Nagar 5. Kalyan-Dombivali 6. Mira Bhayandar 7. Bhiwandi - Nizampur 8. Vasai-Virar
Municipal Councils in MMR	1. Ambernath 2. Kulgao-Badlapur 3. Alibaug 4. Pen 5. Uran 6. Matheran Hill Station 7. Panvel 8. Karjat 9. Khopoli
Villages	1000
Urbanisation	94% Urban Population 6% Rural Population

Source: MMRDA

Year	Mumbai population
1961	41,52,056
1971	59,70,575
1981	82,43,405
1991	99,25,891
2001	1,19,78,450
2011	1,24,78,447

Source: Census

Background of Mumbai

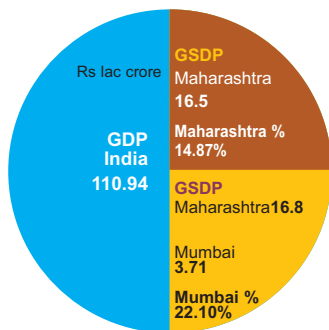
– Pankaj Joshi

For a city with its contemporary international importance, Mumbai has been a late bloomer. The first known sea route map of the world, Periplus of the Erythrean Sea, shows a number of locations on India's West Coast in Saurashtra and Sind, and further down south as well. However, Mumbai does not figure there despite a handy coastal location. Its first prominent international appearance was as a minor adjunct to the dowry of the Portuguese princess Catherine in her wedding to Charles II in 1661, who then leased it out to the East India Company in 1668.

Mumbai's real growth period began from the second part of the eighteenth century and continued for a century. This saw the city flourish both in terms of sea access (docks coming up), and inland connectivity through roads and later, rails. Buildings and textile mills followed suit. The role of David Sassoon as a trader, builder and mill-owner was a vital factor. Mumbai benefited from the American War of Independence and became a key supply source of cotton and a market for textiles for Britain. Much of Mumbai's initial wealth had come from the sale of opium to China.

Mumbai has continued to flourish - its natural advantages were combined with its healthy commercial base. In the post Independence period, population expansion took place due to migration which became a vital economic part of the state of Maharashtra. Geographically, the city expanded northward beyond the seven-island base (157 sq km) to include suburbs. Today, the jurisdiction of the Municipal Corporation of Greater Mumbai (MCGM) is over a 603 sq km area. Population has grown from 42 lakh in 1961 to beyond 1.25 crore today. Likewise, corporator wards have grown from 140 to 227. Each big city influences its surroundings too, and the recently defined Mumbai Metropolitan Region (MMR) comprises of 4,355 sq km, a substantially larger area covered by seven municipal corporations and nine municipal councils.

Mumbai and Maharashtra



Source: Economic Survey 2014-15

Tax collection (Rs crore)	Maharashtra	Total	Mah %
FY 2009	1,31,168.5	3,33,818	39.29%
FY 2010	1,45,507.6	3,77,854	38.51%
FY 2011	1,74,968.6	4,46,933	39.15%
FY 2012	1,77,363.3	4,75,428	37.31%
FY 2013	2,02,128.9	5,58,985	36.16%
FY 2014	2,29,494.9	6,38,588	35.94%
FY 2015	2,77,720.11	6,95,788	39.91%

Source: Economic Survey 2014-15

	Airport Passengers (in lakh)			Airport Cargo (in tonnes)		
	2013	2014	2015	2013	2014	2015
Domestic						
Mumbai	202.77	218.81	252.05	1,82,422	1,81,101	2,07,720
Pune	32.35	34.96	40.68	19,861	21,135	27,390
Nagpur	12.19	12.2	13.56	4,800	5,108	5,595
Aurangabad	4.36	4.41	4.24	724	843	1,250
Kolhapur	#	#	#	0	0	0
Juhu	1.67	1.65	1.56	1.2	429	417
Nanded	0.49	0.07	#	85.7	0	0
Solapur	0	0	0.02	0	0	0
Total	253.83	272.1	312.12	2,08,236	2,08,604	2,42,362
International						
Mumbai	97.3	100.93	112.03	4,52,741	4,67,641	4,86,540
Nagpur	0.44	0.44	0.45	406	416	436
Pune	0.6	1.01	1.23	0	10	0
Aurangabad@	0.03	0.06	0.02	0	0	0
Total	98.38	102.44	113.73	4,53,147	4,68,067	4,86,976

Source: Airport Authority of India @ Passenger traffic by chartered plane. # Passengers less than hundred

Importance of Mumbai

Maharashtra has a Gross State Domestic Product (GSDP) of Rs.16.5 lakh crore, which makes it the largest state in terms of GSDP. It accounts for 15% of India's Gross Domestic Product (GDP) of Rs.110.94 lakh crore. Maharashtra has consistently contributed 35-40% of India's total tax collections which again is a very significant portion. It is worth highlighting the contribution that the city makes to the state.

- Mumbai contributes 22.1% of Maharashtra's GSDP.
- Mumbai provides 80% of the domestic air traffic (passenger and cargo) of Maharashtra. It provides nearly the entire international air traffic.

The contribution of the MMR across different parameters of employment, tax contribution, trade and commerce, detailed alongside, is impressive. Mumbai again stands out within the MMR.

- Mumbai city comprises 0.20% of the entire land area of Maharashtra, and the MMR region accounts for 1.42%.
- On these respective land areas, Mumbai has 10.95% of Maharashtra's population and the MMR has 19.26% of the state population.
- It can, thus, be seen that Mumbai has more than half of the population of the entire MMR, on an area that is about 15% of the entire MMR.

This is largely due to the unusual north-south axis of the city whose geographical expansion has largely been to accommodate housing requirements of the burgeoning population, and balance those with work opportunities and travel time constraints.

Mumbai: congested and unsafe

Land area (sq km)	Sq km	Population (crore)	crore
603	Mumbai city	1.25	Mumbai city
4355	MMR area	2.20	MMR
3,07,713	Maharashtra	11.42	Maharashtra
0.20%	Mumbai share	10.95%	Mumbai share
1.42%	MMR share	19.26%	MMR share

Road accidents and fatalities

Year	Accidents	Number of deaths
2010	28,424	637
2011	25,471	563
2012	24,592	488
2013	23,512	502
2014	26,717	667

Suburban train fatalities

Year	Number of deaths
2009	3,706
2010	3,710
2011	3,458
2012	3,543
2013	3,513
2014	3,429
2015	3,289

Source: Media reports

Lakh people

Mode of daily commute

75	Suburban trains
40	BEST buses
50	Auto/ taxi
20	Private vehicles

Source: Census, web reports

Neglect of Mumbai

Despite this impressive record of activity and contribution, Mumbai's infrastructure offering has progressively lagged behind. The reasons behind this are more political than economic in nature.

- As an economy, Maharashtra is oriented towards secondary and tertiary activities. Its GSDP has a contribution of merely 12% from agriculture and the remainder comes from industry (25%) and services (63%).

- However, Maharashtra, geographically leans heavily towards agriculture. The Economic Survey of Maharashtra (2014-15), shows that land under cultivation comprises 75% of Maharashtra's total area of 3.08 lakh sq km, and the sown area is around 56%. Likewise, 55% of population is classified as rural. Clearly, 75 % of land and 55 % of population account for just 12 % of GSDP which is extremely unhealthy.

- It is logical and well-documented that a good part of the ministers of Maharashtra State throughout its existence have come from interior areas and very few from urban locations.

One of the unfortunate by-products of this trend has been neglect of cities like Mumbai in many areas:

Firstly, infrastructure has not kept pace with the demand from growth in population and enhanced economic activity.

Secondly, the connectivity requirements have not matched the geographic expansion of the city - both formal and informal. Mumbai's public transport, a cheap source of travel in a city which grows on a north-south axis, is now creaking and getting progressively unsafe as the growing number of accidents attest. These accidents are particularly reported on the suburban railway where the current load of 15-16 passengers per sq m of floor space is nearly three times the accepted standard. The traffic congestion on Mumbai's roads has as much to do with the increase in the number of vehicles as to illegal parking which blocks roads.



Growth in India's slum-dwellers population (in lakh)

Slum-dwellers	2001	2011
All-India total	523.72	654.95

Source: Census

Population in lakh

Slum-dwellers	2011	% of total
All-India total	654.95	
Maharashtra	118.48	18.09
Mumbai	51.63	7.88

Source: Census, estimates

Slum-dweller	%
Mumbai's share in slums as % in all India	7.88
Mumbai's share in slums as % in the state	43.57

Source: Census

Slums

This neglect has manifested itself in another manner – growth of slums.

- The last census showed that Mumbai has a 42% density of slum population vis-à-vis 23% for Maharashtra and an all-India average of 5%. This is again a beast which is more political than economic.
- Slums can survive and/ or grow only under patronage. Slum - dwellers are seen as vote banks.
- Slums create the exigency of providing housing for the State. The first legalisation for slum - dwellers was introduced prior to 1991. Then, the cut-off was extended to 2001. A further extension to 2005 was quashed by the High Court.
- Slums by definition bring down the average standard of living for a city or region. They are also poor paymasters for using utilities, which again impedes local infrastructure growth by reducing the funding available from operations.
- Slums as communities are not necessarily impoverished or unproductive. Still they are not significant revenue generators for the exchequer. They typically escape statutory levies and other taxes (including taxes on income). But these slum - dwellers pay protection money to slum lords who are believed to be close to key politicians.
- They squat on prime property and do not pay property tax. Any reduction in supply of area available for housing necessarily pushes up real estate prices. The high percentage of slum - dwellers in Mumbai is an indirect contributor to its real estate rates being the highest in the country.
- Slums also bring socio-economic issues like crime rates into focus and diminish the appeal of that city for work and stay.

New infra for good old Mumbai

Name of project	Project completion cost (Rs. crore)	Expected year
MUIP* : Roads, Flyovers, Subways, etc Extended MUIP : Project to complement the MUIP	3, 207	2017
Phase - I & II: 35 sub-projects are undertaken. (276 km roads, 14 flyovers, 3 creek bridges and 2 ROB)	2,607	May, 2018
Phase - III: 17 sub-projects (32 bridges, 3 tunnels and 133 km roads)	3,629	May, 2018
Multi-Modal Corridor from Virar to Alibaug: Construction of freeway having eight lanes for the vehicles besides dedicated lanes for buses (140 km)	9,500	2019
Mumbai Trans-Harbour link: Link from sea front at Sewri to Nhava (22 km)	11,370	2021

*MUIP: Mumbai Urban Infrastructure Project

Mumbai Metro Rail project

Project	Dimension	Km	Estimated outlay (Rs crore)	Status
Phase I	Versova- Ghatkopar	14	3,653	Functional
Phase - II	Dahisar-Charkop-Bandra-Mankhurd	40	25,607	Partly operational by 2019
Phase - III	Colaba- Bandra - SEEPZ	33.5	23,136	Operational by 2021
Phase - IV	Wadala - Thane	32	19,100	NA
Phase - V	No Data			
Phase - VII	Andheri - Dahisar	16.5	6,208	Operational by 2019
Monorail	Chembur - Wadala - Mahalaxmi	20	2,460	Second phase to be functional this year
Total		156	80,164	

Source: Economic Survey

MMRDA/MMRC

Alleviation of Mumbai's infrastructure has begun in the past decade by the Mumbai Metropolitan Region Development Authority (MMRDA). With its mandate not limited by any Municipal jurisdiction, it has taken up projects across transport infrastructure, transport networks, development of an international financial services centre and much more.

- The Mumbai Metro Rail Corporation (MMRC) has been actively pursuing an ambitious plan to augment the current public transport systems through a supplementary rail network which would establish point-to-point linkages to areas not well-connected currently.
- MMRDA estimates that 70 lakh commuters would benefit once this Metro Master Plan (total length estimates vary in the 160-180 km range across various revisions) is up and running.
- This could help decongest Mumbai. So, an added benefit would be of little or no need for supplementary road travel beyond the rail networks.
- Another focus of MMRDA is road connectivity across the region through a series of bridges and flyovers. Some major projects are the Eastern Freeway, the Santacruz -Chembur Link Road and the Jogeshwari -Vikhroli Link Road.
- In the pipeline are the Mumbai Trans Harbour Link (connecting Wadala with Panvel) as well as the Virar-Alibaug Freeway, plus other sundry road projects.

Here again the question is about the cost of this infrastructure. Planning modifications, sanctions at different levels and ground issues in implementation – all these drive up project cost. In infrastructure, a high cost escalation often negates some part of the socio-economic benefit cycle. As per the Economic Survey data, the entire Metro / Monorail project has an estimated outlay of Rs. 80,164 crore for its 156 km length, which translates into Rs.77 crore per km.

Affordable housing: what the numbers tell you

(Figures in millions unless stated otherwise)

Population	1200
Households (HH)	387.76
Estimated size of HH (number of persons)	3.09
Census est of size of HH (number of persons)	4.78
Annual growth of HH (%) - Census	3.46
Annual growth of HH acc to NSS 2009-10 and 2010-11 (%)	2.6
Annual Growth of population (%) - Census	2.2
Increase in annual population	24
Estimated new couples *	12
Of which couples buying new homes (10%)#	1.2
Renting homes (20%)#	2.4
Stay on with parents#	8.4
Existing Shortage	18.7
Annual incremental shortage (demand less actual construction)	
Note:(*) FPJ estimates; #Jones Lang LaSalle, India, estimates	

Footnote: Mumbai accounts for 1.03% of India's population. Moreover, 50% of Mumbai's population lives in slum. This category needs affordable housing urgently.

Source: MOSPI website

Affordable housing

To meet the housing needs of an ever-increasing population and to re-settle slum-dweller, housing is a priority.

The economics of staying and working in a city are influenced to a great extent by real estate costs (purchase or rent). Absence of affordable housing puts more pressure on transport. People have to travel long distance and as an alternative slums are created.

Affordable housing is totally localised with little forex outflow. Much more than Keynesian road-digging, it generates employment towards a commercially viable end. For that to happen, there are four main areas of attention:

- The seeker should have a buy-or-rent option. The rent market, therefore, needs friendly regulation to entuse properties to come onto the market.
- Procedural simplicity is badly needed.
- Complex processes involve unproductive use of time and money. Levies on the sector need to be rationalised more than anything else.
- Accountability is the last key area. Today, only the buyer is accountable to the mortgage provider. Also, the builder has to leverage access to good construction technologies and the smart-city approach to deliver value for money. The bureaucracy must be accountable for ad hoc decisions and delays from their side.

In housing, the biggest cost is that of land. Since land is limited in Mumbai, increased FSI with wider roads is the way out. Fewer levies of FSI is crucial for affordable housing.

Recommendations

The incentives of staying in Mumbai city for the average person are savings and quality of life.

- Focus is on faster and more comfortable Mass Transit System (MTS). It helps raise productivity. In addition, MTS makes a city liveable and reduces traffic congestion.
- If land is limited, cities must grow vertically. All new cities in the world – in China, Korea, Japan and others – are compact cities. Tall buildings, wide roads and open spaces are the solution. Compact cities save cost because drainage, water, electricity and other utilities are designed efficiently.

The Mumbai administration needs to recognise the problems manifested, which are taking the edge off its prime position and viability. Main areas that the administration needs to address are transport and housing. If these remain unaddressed expect people to migrate to other new and better designed cities elsewhere.

- For transport, it is necessary to speed up the approvals procedure for different infrastructure and transport projects. Delays not only escalate costs but the project also then deals with a different level of traffic which may take away some of its efficacy.
- Enhance the safety and dignity of travel in public transport. The Mumbai Metro experience has shown that safe, comfort and efficient system (proper queues, automated ticketing and ticket checking), make travel a pleasure resulting in higher passenger volumes and more revenue.
- Introduce co-ordinated ticketing across different modes of transport at the earliest. This makes it convenient for the traveller and the transport body finds fare collection easy.

- For customers using pre-paid cards, there should be variety of options to choose from in terms of validity. The money belongs to the customer. So, they should be provided with validity options like a week, or six months, or a year. Impounding a customer's money is just not fair.
- Ultimately, public transport must become more reliant, convenient and dependable than private transport. MMRDA aims for a level of connectivity where people do not have to travel more than an hour. If that is combined with a safe, reliable and comfortable public transport system, road congestion through private vehicles will automatically ease.
- In housing, it is necessary to curtail the growth of slums which can only happen when the cut-off dates do not get extended, and likewise, there is a cost-effective alternative to living in slums. This requires political will and strong judicial intervention.
- Affordable housing needs to be a priority. Worldwide, incentive schemes are quite successful. The corporation must understand that any subsidy burden they place on their books will be easily offset when property ownership rises. Worldwide cities are largely financed by property taxes. This must happen in Mumbai as well.
- Going forward, the blueprints for approval of housing projects must include elements like rainwater harvesting and solar energy, either through incentives or fiats. The process here too has started but it needs to accelerate.

End point – making living and working in Mumbai is a matter of pride. It must become as rewarding an experience as it used to be in the previous century.

The Mumbai-Infra panel



(LtoR) Ajoy Mehta, Municipal Commissioner; R. N Bhaskar, Consulting Editor, FPJ; Dilip G. Piramal, President, IMC; UPS Madan, Commissioner, MMRDA, Ashwini Bhide, Managing Director, Mumbai Metro Rail Corporation and Deepak Premnarayan, President Elect, IMC

Panel Discussion



Welcome address by Dilip G. Piramal, President, IMC: A sound infrastructure foundation is necessary for the overall socio-economic development of any state and particularly of the premier cities. Many international companies are keen on collaborating with India on infrastructure including public transportation, renewable energy and developing smart cities.

Mumbai is Maharashtra's and India's main economic engine. Authorities have taken several initiatives during the last few years to promote public-private partnership in sectors like power, highways, ports, highways, airports, tourism, and urban infrastructure. But rapid urbanization and the population influx puts pressure on the infrastructure of cities like Bombay.

In the last 30 years, in the state governments, the majority of the MLAs have been from the rural areas, which has somewhat diluted the emphasis on a strong development thrust to Mumbai. You look at Hong Kong and Singapore, they are also cities absolutely in the sea, and you can see how they have grown. In the seventies, Hong Kong and Singapore were no less backward or advanced than Bombay was. But today they have really gone somewhere and we have been just discussing policies and all.

Today, headlines say that either you can have affordable housing or you can have green spaces. And I am totally in favour of having affordable housing. If 1% of India's huge coastline doesn't have mangroves, it is not going to really hurt the economy. In any city, you have to go away with some of the lake places if you have to have more urbanization. And I have lived all my life in Mumbai, so I feel very strongly.

Elements of growth



ASHWINI BHIDE

Managing Director Mumbai Metro Rail Corporation

On safety, the Metro 3 system is the state-of-the-art, the most modern system, which is how tendering has taken place.

The communications-based train control system (CBTC) is the most latest signalling system which we have in India. From the safety viewpoint, we will have the latest surveillance system.

ASHWINI BHIDE: A city's competitive edge is through a robustly efficient public transport system, which fortunately has been Mumbai's case, primarily the 433-km suburban rail system. But over a period of time the system is oversaturated, and losing utility in relative terms despite the best capacity enhancement efforts by Indian Railway as well as MMRDA. Each train carries 5,000 passengers against its capacity of 1,700-1,800. People still use the suburban train system only for lack of options within Mumbai's geographical linear structure.

If Mumbai has to be the national financial centre and even an international finance centre over a span of 50- 100 years we have to enhance our existing public transport. The metro network plan is probably the best way forward.

UPS MADAN

Commissioner MMRDA

The Mumbai Urban Transport Project (MUTP) in 2000 was the first time in India where a State Government agreed to provide 50% funds with the railways to augment capacity in a city.

The next step now is other modes of transport, and the best option for Mumbai, is the metro.



U.P.S. MADAN: From the time a well-planned city was left by the Britishers upto the nineties and beyond, Mumbai has evolved and population increased multifold, but two important infrastructure components which grew at a very low pace were public transport and housing.

You had a linear city, with a business district at one end. In the nineties, BKC was not as developed as it is now. Today we have partial business hubs in Andheri and elsewhere but then people had to travel a long distance and the only mode was suburban trains and BEST buses for shorter distances. While both were efficient and reliable, lack of augmentation saw overcrowding and service quality declined. The modal split which once was aligned 88-90% towards public transport, has come down to about 68-69%.

New modes are needed, in line with worldwide trends. The Mumbai Urban Transport Project (MUTP) in 2000 was the first time in India where a State Government agreed to provide 50% funds with the railways to augment capacity in a city. A number of new technology rakes were introduced, new tracks laid, conversion from DC to AC system done, conversion of some nine coach trains to 12-15 coaches have all helped. The next step now is other modes of transport, and the best option for Mumbai, is the metro.



AJOY MEHTA

Municipal Commissioner

In housing, Mumbai today is 42% slums and 20% cessed buildings, so 62% of Mumbai today is entitled for free housing. Therefore, 38% of Mumbai has to pay for the 62%. Yes social equity is important and that has made housing very difficult.

AJOY MEHTA: Mumbai is the commercial capital, and without employment you cannot remain the commercial capital. Any infrastructure that you

create must generate and facilitate employment. Second, having created employment the next need is housing infrastructure. And of course, in parallel you need transport for connectivity.

After employment, housing and transport connectivity, next is quality of life. You need open spaces, theaters, hospitals, schools. But in this, you tend to forget those people who have a great capacity to contribute, but are at the margins. You need infrastructure which caters to social equity. Today just about 17% of the women are in the workforce in Mumbai. Are you creating infrastructure so that women and the differently abled can come forward, contribute to your economy? Is your infrastructure compliant to ensure that every citizen delivers to his best?

These are the four things to my mind that need to be done for infrastructure in Mumbai on an equal plane, and the whole challenge, administrative and political is to ensure that all four get delivered quickly and together.

Unique public transport and enhancements

ASHWINI: Globally the public transport system density is six people per square metre whereas Mumbai has 12-16 people per square metre, which is why so many people are dying. Today, the suburban rail system cannot be stopped even for a day. Without an alternative transport mode, railways will never be able to upgrade the way they desire.

MADAN: A question for MMRDA is making a thorough road from Churchgate to Borivali on both sides of the railway tracks. Foremost, one cannot encroach on the directive of another agency. This is Railway property, and in fact they have a plan of constructing an elevated corridor of railways over the railways. Practically too it is difficult. To just construct a bridge over the tracks, it sometime takes two years. Here you are talking of 60-70 km of along the track when we are allowed to work only 2-3 hours out of 24.

Inter-modal transfer is being coordinated in two ways. One is the physical way of linking stations of two different modes of transport. The other is the same tickets to be used for more than one mode of transport. We are working on both.

For improving BKC connectivity, we have planned connectivity via a bridge or elevated road from BKC G-Block to Eastern Express Highway. We have also invited tenders for two flyovers which will link BKC to the Sea-Link immediately after crossing the road from the Western Express highway. After coming from the Sea-Link, you can straight away take a bridge and enter BKC. The third initiative is a direct elevated road from BKC to Vakola Junction.

ASHWINI: On safety, the Metro 3 system is the state-of-the-art, the most modern system, which is how tendering has taken place. The communications-based train control system (CBTC) is the most latest signaling system which we have in India. From the safety viewpoint, we will have the latest surveillance system. Escalators, lifts, all even Wi-Fi system is being put in. The underground Metro will have platform screen doors.

MMRDA's role definition

MADAN: The unwritten law is that major regional projects should be taken up by MMRDA and local level projects by the Municipal Corporation. MMRDA is a regional authority, so projects which are regional come to us. For Metro, being public transport, the Government and MMRDA took a conscious decision that it be taken up by us. The MMRC was set up as an SPV between Government of India and Government of Maharashtra – they both and MMRDA provide funds.

MMRDA's role is first planning for the entire MMR (4,300 square kilometers) which is ten times the MCGM area, but with 50% of population in MCGM area. Second is execution of the major public transport projects across the MMR. Roads and flyovers and bridges are vital to connect the rest of MMR with the city. 2004 onwards all the major roads in the city were taken up for upgradation and augmentation. Then MMRDA constructed the Eastern Freeway. People going to Navi Mumbai, Thane or Pune have been benefited. Other flyovers constructed include the Sahar Elevated Road, the new Santacruz-Chembur Link Road, the JVLR, the Andheri-Ghatkopar Link Road. We may not realize today living in the city, but a person who comes back in the city after 4-5 years can see the difference.

Among upcoming projects one is the Mumbai Trans-Harbour Link (MTHL) where MMRDA will put in funds, an in-principle loan approval from JICA is in place and in 5-6 months work will be awarded. A multi modal corridor linking Vasai-Virar to Alibaug is also in the pipeline. We aim to link the entire MMR in a way that you can go from anywhere to anywhere within one hour.

The last important project is having an International Financial Services Center (IFSC) in BKC. Within the next decade you can definitely see a city which is very different from what we have seen today.

Metro enhancement

ASHWINI: Bandra-Kurla Complex is an example where growth and employment generation need to be complemented by connectivity. Once this corridor is completed, it is going to connect six such centers which are today not on the Mass Rapid Transit System network (MRTS).

The first corridor is done and the 11-km travel between Ghatkopar to Versova which used to take 70 minutes earlier has now come down to 17 minutes. We are aiming for such efficiency over our 172 km layout. This Rs.23,000-crore project has funding tied up through multilateral funding agencies, Central Government and a soft loan from Japan International Co-operation Agency (JICA). The tendering is over and we will start work after the monsoon, to complete it within the stipulated five years.

The advantage of a metro corridor is last mile connectivity which the suburban rail system does not provide. The metro network is planned such that there is a station at every one kilometer or so.

MADAN: The first Metro corridor came two years back from Versova to Ghatkopar and has been running with 3 lac ridership on weekdays. The Metro right now comprises of isolated corridors, but within the next four years the entire city will be covered with Metro corridors. Like major cities worldwide, you may have to change the Metro at a place, but you don't have to take another mode of transport.

We also introduced the first Monorail in the country. The 20 kilometers of monorail will be going through congested areas, making available a comfortable option of public transport. Monorail is a transport option for congested areas where other public transport modes like railway or metro could not be introduced.

AJOY: It will be linked to the station where possible. When we talk monorail, we are talking about local travelers.

ASHWINI: Monorail is not a mass rapid transit system, but a complementary system. Today suburban rails are carrying passengers much more than their capacity. The quality of travel is absolutely subhuman. Many people who are today taking cars would like to travel in a public transport system, if it could be a quality experience.

The way this Metro Master Plan has been prepared by MMRDA, with the help of DMRC, areas not connected by the suburban rail are captured. Again the suburban rail network in Mumbai is completely linear. It is North-South. There is no East-West connectivity. What is being developed via Metro is a grid, from anywhere to anywhere. The Metro network is planned in such a way that it actually enhances the utility of the suburban rail system and it further gives the last mile connectivity to any passenger.

Next point is possible delay due to rehabilitation issue. Without taking care of rehabilitation, and without public acceptance, we cannot proceed. Another query is about flooding in underground project tunneling. Tunneling is a 150-year old technology and all major cities in the world have tunnels. The way tunneling is done, the water table is managed, flooding won't be an issue.

Last is fares. Fares are fixed to maximize commuters. This transport system is there to make people shift from the road, from cars to metro system, or from the overcrowded suburban rail system.

BMC and open issues

AJOY: Corruption has to be dealt with system improvement. Yes, policing has a role, but finally you must repose trust. We are now taking things to a level where everybody must self-certify. We are the first city in the country which will launch a completely online building proposal approval system.

For roads, we have tried to reduce work time, and the police was cooperative. The police allow us to work during the day and now road maintenance happens much faster. Also, closing a road for 21 days for curing concrete is criminal in Mumbai, when you can have a seven-day concrete option.

Waste disposal is weighing on everybody's mind, especially since the Deonar fire. We need a shift towards scientific processing of garbage. We are going in for waste-to-energy, biomethanation and scientific segregation. We are also setting up a debris to construction material plant. The minute debris has a value, nobody dumps it.

For footpaths, it is it clear that there cannot be commercials on footpaths. Hawkers are a necessity, but we need regulation. Street selling is something that is recognized world over, but proper hawking zones have to be notified.

For parking we are proposing a Parking Authority for Mumbai which will map all parking spaces and then ensure that these parking spaces are efficiently used, and also inform a citizen in advance whether, at the destination, a parking would be available.

A road for emergencies is not possible. Mumbai's road network area is just 9% of its area against the world standard of 18%. We hope to start work on the Coastal Road by November. The expression of interest is out. Coastal Road will be the first road in Mumbai with a dedicated BRTS, so it's not just for cars. We will also create green spaces, cycling tracks, and play areas for children.

A big problem in Mumbai is trenching, for putting in power cables, data cables, gas lines, water lines, sewer lines. The trick is how quickly and how well you close your trench. We have now a system in place, where we will close an open trench in a small time, if we have consolidated demand.

On sewerage, we supply about 3,200 million litres of water every day to Mumbai and 1,200 million litres go untreated into the sea. The remedy, in the next four years, is sewage treatment plants to bring back 1,000 million litres back into the city for washing, cleaning and non-potable purposes.

In housing, Mumbai today is 42% slums and 20% cessed buildings, so 62% of Mumbai today is entitled for free housing. Therefore 38% of Mumbai has to pay for the 62%. Yes social equity is important and that has made housing very difficult. There are people today who don't live in slums or cessed buildings, for whom that we are talking affordable housing in the development plan. Let us not push this category of people into the slums.

Next is the mosquito issue. Mumbai surprisingly doesn't have malaria, the biggest incidence is dengue. People don't realize that dengue is a mosquito that breeds on clean water. The tray under your refrigerator, that little Feng Shui plant in the corner, that little tyre, all that collects water, and then leads to dengue.

The development plan is almost ready. We put the plan line-by-line in public domain as it was being made. We ourselves are correcting each rating as we move on. Probably by the end of May, drafting will be done.



Abhishek Karnani, Director, The Free Press Journal; Prakash Kulkarni, Editor, Navshakti-unit of The Free Press Journal and Ajoy Mehta, Municipal Commissioner share a light moment.



Prakash Kulkarni, Editor, Navshakti, handing over a token of appreciation to UPS Madan.



A section of audience listening to the informative discussion.



Abhishek Karnani, Director, The Free Press Journal seated with the audience.



R. N Bhaskar, Consulting Editor, FPJ and UPS Madan, Commissioner, MMRDA look on as Ashwini Bhide, Managing Director, Mumbai Metro Rail Corporation accepts her memento.



Panelists engage in a discussion.

**Vote of thanks by Deepak Premnarayan,
President Elect, IMC:**



I would like to thank the panelists for having such an informative discussion and everyone present here. It is a privilege to propose the vote of thanks in the end of the meeting. I thank the eminent panelists for their valuable time. It is surprising that they decided to participate in this discussion considering the amount of responsibilities they hold.

On behalf of IMC and its President Dilip G. Piramal, I would like to thank Free Press Journal for organising and partnering with us for this session. Over the last couple of years, you hear of people moving out of India. Youngsters want to move out in search of better quality of life. But after this discussion I am excited and I want to live in this country for next 30 years. The work done in the city, to improve the standard of living, makes me believe that it is the ideal time to buy land in Mumbai.

IMC would also like to thank the media and everyone who attended this discussion.





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