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Policy Brief

PAC/SL/PB5/11/2021 November 2021

A vision for an ideal public transportation system

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"A developed country is not a place where the poor have cars. It's where the rich use public transportation."
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Gustavo Petro
Member of the Colombia Senate

The Context

Cities in India are highly dynamic in nature and indicate various characteristics in terms of population, area, climate, urban form, occupational activities, transport and mobility, etc. While all such features systematize to the proper functioning of a city, the transport infrastructure plays a pivotal role. This transport mechanism is in turn linked to land use patterns and, also, intertwines all economic activities to each other. A good public transport structure leads to better mobility in a city, which makes the community highly productive, and leads to a substantial decrease in the economic costs of transportation.

With such dynamism in play, urban transport systems, especially public transport, play a critical part in the performance of all urban processes. While public transports and shared mobility have been a constant theme for debate when the provision of civic amenities in urban spaces are concerned, there exists a substantial gap in the implementation of a proper public transport framework, despite sufficient planning and mostly theoretical-based execution. This is because, while road infrastructure has been an important objective by the Government, the public transport framework has been neglected, and needs an urgent policy re-design and re-structuring in line with specific city features in India. It becomes even so more important due to the emerging concerns around events of climate change and road safety.

The Question

From a climate change, and a road safety perspective, how can the different levels of Government in India, create an incentive-based nudge amongst the different classes of people in the society that persuades them to individually resort to, as well as encourage the higher use of public transport during regular transits?

The Problem

With regards to the present state of the transport system in India, the issues are innumerous. Indian metropolitan cities like Delhi, Mumbai, Bengaluru, and Kolkata have been growing at a rapid pace. The population of the 4 mega-cities combined has increased from approximately 275 lakhs to a staggering 795 lakhs between 1981 and 2021, indicating a three-fold increase. The population of Delhi alone has increased by more than 400 per cent between this period. This population increase has been primarily due to the establishment of industrial clusters leading to economic growth. As a result, the average income of the people has improved substantially. This has in turn led

to a higher purchasing power of individuals, leading to an exponential growth in motor vehicles in the last few decades. This enormous growth in vehicular population can also be directly attributed to the increasing rate of urbanisation. Consider the city of Bengaluru, where the vehicle population in the city was around 30 lakhs, in 2019 as compared to 3 lakhs in 1981. Thus, as people resort to the higher purchase of private motor vehicles, the pressure on the limited road infrastructure increases.

As a result of the higher use of private vehicles, several problems have emerged; pollution, congestion, road accidents, improper road parking, encroachment, traffic bottlenecks have created several complications in the planning and policy perspective of urban mobility. This increased use of vehicles, especially private transports, has led to 3 major impacts on cities; higher emissions leading to the formation of urban heat islands, increased traffic congestions and road accidents. As a fact, out of the total fossil-based CO2 Emissions in India, 10.7 per cent can be attributed to the transport sector. This excess emission, coupled with the other events of climate change, has also led to the formation of urban heat islands which are prominent in high-density cities like Delhi. It is also worth mentioning, that these challenges are not limited to cities in India only, and are problems in the global north as well. While occupying only 2 per cent of the landmass on earth, and consuming two-thirds of the world's energy, urban centres generate more than 70 per cent of the total CO2 Emissions worldwide, being generated majorly from the power and transport sector.

Further, road safety has been a major challenge. In the World Bank report titled 'Guide for Road Safety Opportunities and Challenges in low and middle-income countries', it has been stated that, 'with less than 1 per cent vehicular population of the world, almost 11 per cent of road accidents take place in India'. Thus, road safety has been one of the major issues faced by pedestrians, non-motorised vehicles, and motorists due to reduced awareness, as well as the improper implementation of road safety models at the grassroot level.

A major cause of the problems stated above can be linked to the limited use of public transports, and there are several reasons for it. In Bengaluru, for example, out of the total population of 120 lakhs (2018), and a total regular commuter count of 51 lakhs, only 25 lakh people use public transports, which includes Bengaluru Metropolitan Transport Corporation (BMTC) buses, Metro, and the suburban rail systems. Thus, 50 per cent (25 lakh) of all commuters use private modes of travel, such as motorised two- and four-wheelers, privately hired autos, and cab aggregator services like Ola and Uber. Further, the total commuter count is expected to increase massively in the near future, as estimated in the Draft Master Plan 2031 for Bengaluru, and a lack of proper public transport may lead to higher challenges. The situation in several other Indian cities is also the same. While the government has undertaken several initiatives, such as the car rationing system, to control private vehicles on the road, the loopholes in the inter-institutional management of public transport still exist, leading to poor service delivery, and making the population disinclined towards its use.

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The Solution

Consider the following example in a city X, where on a certain transit route, the trip length is extended from the central business district to the periphery. While a BMTC bus takes around 2 hours to complete the trip, a private sedan may do so in less than 1 hour. The trip on the bus is highly inconvenient and uncomfortable. The solution to this is not to transfer all people from the bus and put them in sedans, but to create a social and physical infrastructure around public transport, which makes it as congenial as a sedan. Further, if we assume the bus carries around 40 people, there will be at least 10 sedans required to complete the same trip, leading to more fuel consumption, and even higher traffic, on the same stretch of the road.

To begin with, the solution to such a complex issue must be initiated by identifying the major cause of reluctance to use public transportation in the first place. This may be due to various reasons such as long travel hours, travel discomfort, low frequency and lack of transport options, the social stigma around public transports, safety issues, non-existent last-mile connectivity, seat spacing, etc. Added to this, a major problem in India is also the problem of purchase driven by the Veblen effect and a possible situation of conspicuous consumption. People in India, especially in higher-income groups, are usually reluctant to use public transports as a show of wealth and/or respect.

The next step in the solution should be to identify the reasons that incentivise people to use private transportation. This can be due to convenience, costs, distance, availability, and the possibility of the private mode of transport being safer than a mode of public transport. The solutions should be then be ideated in a 2-fold manner.

1. Reduce the issues related to public transportation leading to an unwillingness to use public transport, and
2. Replicate the benefits that people get in private transports to public transports.

However, the question is, how?

If we try to understand why public transports are not used, we must first identify the issues that individuals face in availing of such transports. We need to understand the reason why people choose cars, and private vehicles over public transport, or a cycle, or simply walking. It is because the total trip distance of walking to the transport + availing the public transport + walking to the destination may be much more exhausting vs just driving there. This is because para-transits are a challenge in the majority of Indian cities. This, in turn, leads to a failure of the high-capacity public transport system, which actually has the ability to reduce the vehicular load on Indian roads. This complex, interconnected, and interinstitutional issue can, however, be resolved by focusing on 4 key areas.

1. **Para-transit:** A majority of the transport authorities in India tend to provide added support, and physical infrastructure to buses, and metro systems. However, most people do not use public transport because of lack of connectivity in arterial regions, which connect consumer households to the origin stops, or workspaces to the destination stop. This can be solved by regulating para-transits in terms of routes, fares,

and trips, as well as salaries, and wages of facilitators, drivers, cleaners, etc. This would mean bringing para-transit modes such as auto-rickshaws under the umbrella of government rules, and regulations. While this may be challenging at an initial implementation phase, periodic dialogue with para-transit unions, and facilitator groups can be conducted to inform them about the motives of doing so, and the benefits that they would be getting from such an initiative. These initiatives should also be advertised to educate and inform the concerned population about the steps being taken, and the procedures involved in it.

2. **Convenience of Public Transportation and Reduction in Travel Time:** A major cause of reduced use of public transports is due to the inconvenience as a result of discomfort while travelling, over crowding, increased transit time, etc. This is because a majority of the vehicles used, especially buses, are old, and have been under considerable wear and tear over the years. Targeted upgradation and maintenance of the quality of buses, metros, and regulation of seating capacity can be considered as a step towards improving travel convenience.

Another challenge with regards to public transports is the high travel time, which makes it highly infeasible for a substantial number of people despite having reduced cost. This is because people often weigh time over money. The solution that may be considered in this case can be in line with the Tiebout theory of public expenditure, which mentions that if varying baskets of goods (government services) are provided at a variety of prices (tax rates), people with different personal valuations of these services and prices would move their choices accordingly to maximizes their personal utility. Thus, the introduction of varied modes/ options, in terms of seating capacity, spacing, vehicle design, etc., for the same route can be considered. For example, a route between point A and point B may have 2 types of high-capacity buses; one which has higher stops/ stations, and one with very few limited stops. The different modes may be considered under a differential pricing strategy and may be chosen by a separate consumer base. The intermediate stops can be further connected via government-regulated para-transit options. This solution may lead to a substantial reduction in travel time, and people may find it convenient in terms of costs and service delivery.

3. Transport Octopus cards, or Smart cards: With the onset of the COVID-19 pandemic, several transactional activities, especially payments have seen a shift towards digitisation, as also targeted by the Digital India movement of 2015. The same may also be considered for transactions related to public transports. While metro systems in India, have introduced 'Smart cards', they are not all integrated with bus systems, which people may avail to reach a metro in the first place. If an adequate number of para-transit modes, varied types of buses (Bus Rapid Transit system), and metro systems are integrated and regulated under common norms of the transport department, a 'transport octopus card' can be considered for payments. While this solution has been a best practice from Hong Kong's transport system, the only Indian city to do so has been Kochi. The adoption of this single-ticketing system will facilitate the ease of payment, especially for people who avail more than 1 mode of public transport during their regular transits.

4. Extended Advertisements: While the solutions mentioned above may be beneficial, they can lead to substantial losses in revenue for the government in the initial years of operations when improved facilities are introduced. A major cause of low revenue for the government has been due to lacking awareness, and information about public transport routes, and fares that are disseminated to the general public. If the improvement in service delivery and new initiatives undertaken are advertised in a systemic and strategic manner, the use of such public modes will increase. Thus, local awareness

campaigns, the use of hoarding, and social media should be considered to create awareness about the facilities being provided.

5. Road Engineering, and Prioritisation: Public Transports are also highly inconvenient due to high congestion, caused due to poor road designs. The Indian Roads Congress through various reports, notifications and orders have indicated road designs, traffic light systems, roads markers, and several other standards and specifications. However, very few Indian roads follow such standards. The poor design and improper road elements are also a major cause of increased road accidents. The city Municipal Corporations can thus, enforce that such specifications are incorporated on new roads being developed, or during road repairs.

Further, the existing transport regulation in India does not prioritise public transports, as seen in other countries such as Korea. Other than Delhi, no other city uses dedicated road lanes for public transports such as buses, or any para-transit modes of transport. Prioritisation through the exemption of tolls, dedicated lanes, etc., could be considered for high-speed Bus Rapid Transport (BRT) systems, as this may reduce travel time, and make public transports highly efficient.

The Conclusion

While the above-mentioned interventions are important, they are just indicative of a way forward to improve the public transport infrastructure in Indian cities. The problem thus identified, lies not in increasing the number of public transports, or introducing new modes of transport, but to innovate, integrate, and improve the existing, while providing a decent supporting environment for their efficient functioning. It is also worth mentioning that transport as a sector requires huge investments for improvement, and is characterised by a substantial gestation lag. Thus, adequate financing, integration of multi-modal transports, deployment of technology, and seamless institutional arrangements can lead to a gradual improvement of the service delivery of public transports, and incentivise the population towards the use of such provisions.

The Author

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