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MUMBAI: THE COMPACT MEGA CITY

The relationship between compact urban form and public transport efficiency is unique to Indian cities, and as **Philipp Rode** argues, could form the basis of a sustainable transport strategy that will support future urban growth.

Chirodeep Chaudhuri

The Bandra-Worli sea link forms part of the Western Express Highway.

In Greater Mumbai, the equivalent of more than twice the population of Denmark shares 450 km² of land. The key driver of Mumbai's compactness is its physical geography. There are only a few places where the composition of land and water demands the creation of a city. The natural harbour of New York, the bay of Tokyo and Rio de Janeiro are prominent examples. So is the opening of Thane creek, the largest natural harbour on India's west coast. Protected by a 650 km² island extending into the Arabic sea, the bay is now almost entirely urbanised by present-day Mumbai.

About a third of Greater Mumbai's population lives on the southern 'finger' of the island ,with more than two-thirds of the jobs located there. Attempts to shift jobs to more accessible areas of the region have initially failed; Navi Mumbai on the other side of Thane creek remains a ghost city and its vast amount of housing and office buildings are only slowly beginning to be occupied. This is largely seen as a result of real estate speculation and greater interest in developing South Mumbai, where the chronic shortage of office space promised far higher returns.

Implementing transport infrastructure and organising mobility while sustaining a strategic vision for development of the city is one of the most critical pressure points of urban governance in Mumbai. The exceptional densities of the city result in similarly unusual transport patterns. By far the largest group of commuters in Greater Mumbai – about 55 per cent – walk to work. Most of them are able to reach their workplace within 15 minutes or less, making the most significant contribution to the city's extremely low average commuting times of 25 minutes, a sharp contrast to the London average of 42 minutes. The distribution amongst other modes of transport is less surprising. Twenty-two per cent use trains and 14 per cent use buses as their main means of travel. Two wheelers account for 3 per cent, motor rickshaws and private cars each for 2 per cent of the commutes.

Access to the city is not a mere question of modal choice. In Mumbai, it dictates location, proximity and daily routines more than in most other cities, particularly for the urban poor. The enormous value attached to city access is expressed by the compromising living conditions. Personal living space of less than 3 m² is accepted as long as it keeps the promise of employment despite residential densities – in some cases of just two-storey slum houses – higher than the vertical urbanisation of Hong Kong or Manhattan.

City access further relies on a high degree of urban mix. The fine-grain topography of urban environments cater best for the enormous need for constant exchange, not least due to physical proximity allowing for inexpensive and flexible non-motorised travel. In India 'the poor need to live close to the rich.' However, higher housing standards, whether in terms of living space or amenities, are traded for ease of access. Ironically, centrally located informal dwellers are often re-located to allow for new transport infrastructure, further increasing the overall demand for mobility. Each family will be offered a 20 m² apartment at no cost. However, the new housing units built at the fringes of the city do not reflect any of the cultural and professional requirements of those being resettled. And the long and expensive trips to the centres of urban activity have deprived them from city access.

Mumbai has inherited the most extensive urban rail system on the Indian subcontinent. About 300 km of suburban rail served by 95 stations make use of the city's linear geography, moving 6.4 million people daily. However, the railway's success has become its greatest enemy. Passengers suffer a degree of overcrowding unknown on any other rail system of similar size. Each minute, trains arriving at Chhatrapati Shivaji Terminus and Churchgate Station inject 2,000 people into the city's historic core during rush hour. Nine-car trains designed to hold 1,700 passengers travel with up to 5,000 commuters, with an average of 13 people per day killed in rail related accidents.

Regardless of Mumbai's density and compactness, the city experiences a massive increase in motorised vehicles, generally following the same pattern of most cities in developing economies. Between 1991 and 2005, the number of motorised vehicles more than doubled from 0.6 to 1.3 million. With a total of 6 million cars, motorisation in India is still relatively low and almost exclusively an urban phenomenon. And while no city in India is prepared to accommodate this growth, Mumbai's dense urban environment proves particularly vulnerable to the flood of vehicles. The city's streets cover only about 11 per cent of its surface, compared to 21 per cent in Delhi and 22 per cent in New York City. And while the number of vehicles multiplied 37 times over the last 50 years, the length of the Mumbai's road network only doubled. Congestion is severe and due to the high stress levels of driving, the lack of parking and the overall affluence of the owners of those cars, about 70 per cent of private cars on the street are driven by chauffeurs.

The most significant road expansion programme is a controversial multi-million dollar off-shore ring-road, the Sea Link. The first segment, the 5.6-km Bandra-Worli Sea Link, is currently under construction. This US$350 million project boasts an eight-lane bridge, promoted as a new landmark for Mumbai. Built exclusively for fast moving vehicles, it is limited to four wheelers and above, thus catering to the city's 2 per cent of the population with private cars. In one hour it will serve just about the same amount of people as two trains arriving at and leaving from Churchgate Station. Although not designed to accommodate mass transport, recent political pressure may require two dedicated lanes for buses.

The latest plans for the city assumes that the total population within the metropolitan region will increase to 34 million by 2031. Within 25 years, an additional 12 million people will need to navigate the city's territory. Strategic planning for the location of homes, jobs, retail and other activities will end up as the single most significant transport strategy. Of similar importance will be the recognition of the fine grain, mix-use urban legacy that has made Mumbai such a unique mega city. Mumbai has the one-time opportunity to merge a strategy that improves the standard of living while maintaining its valuable compact urban form.

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