

Mumbai FSI/FAR¹ conundrum:
The perfect storm: the four factors restricting the construction of new floor space in Mumbai

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Summary

Households in Mumbai consume an average of 2.9 square meter of floor space per person². This is one of the lowest residential floor area per person in the world. Over the last years, however, Mumbai has emerged as an economic regional powerhouse with a sophisticated workforce and a large middle class. Why should an affluent city have one of the worst housing in the world?

Four factors are responsible for Mumbaikars' very low floor space consumption – difficult topography, poor land use legislation, muddled property rights and deficient infrastructure. However, the factor with the most negative impact is the draconian reduction of FSI imposed by ill conceived land use legislation. The average FSI imposed on Mumbai's residents is also the lowest in the world for a city of this size. Criticism of Mumbai's FSI practice is certainly not new, but amending the FSI legislation has proven to be the most controversial issue over the last few years.

The argument for increasing the FSI is nevertheless quite simple: most of the land accessible from the city center in less than 1 hour is already occupied and is limited by topography; therefore there are only two possible ways to increase the average floor space per person: either by increasing the FSI, – i.e. building more floor space in already developed land – or by forcing a large number of households out of Mumbai to live in one of the faraway suburban municipality or somewhere else in India. For example, one way of doubling the consumption of floor space per person to 5 m² would require, on average, a doubling of the FSI. The only other way of increasing the current floor consumption to 5 m² would be to relocate about 6 million people out of the municipal area³ and to reallocate the floor space thus vacated to the remaining population. Clearly, forcibly evicting millions of people is not an acceptable alternative in a democratic country. The choice therefore is not whether the FSI should be brought in line with other large cities of the world, but how much and where should the FSI be increased and what other measures should be taken to support this increase.

¹ The regulation of the Floor Space Index (FSI, or in some other cities Floor Area Ratio (FAR)) is a common regulation linked with zoning. An FSI of 2, for instance, allows building an area of floor equal to twice the area of the plot on which it is built. An FSI of 2 therefore would allow 2000 m² of floor space to be built on a 1000 m² plot. If half of the land is built upon, the building would have 4 floors to fully use the allowed FSI.

² Extrapolated from Mumbai Census 1991 based on rooms per household. This figure seems to me terribly low as related to international experience. Let us assume that the 1991 Census underestimated the average floor space by say 50% and the real floor space was about 4.5 m² per person, this figure will still be extremely low and the argument developed in this paper would remain valid. The 2001 census housing data are not yet available.

³ The population within Mumbai municipal border is evaluated in 2004 at around 12 millions people.

Mumbai's real estate crisis: A dramatic situation affecting poor and rich alike

With an average of 2.9 m² per person, the consumption of residential floor space in Mumbai is one of the lowest in the world⁴. More than 50% of the city's population lives in slums. This type of record would be expected from a city in a desperate economic situation. However, this is not the case. Mumbai is a prosperous city with an expanding economy. An international property management firm – Cushman & Wakefield – characterizes Mumbai on its web site in the following manner⁵:

“Mumbai, the financial powerhouse of India, is also a major commercial center, and the headquarters to some of most respected Indian corporations and institutions apart from several high profile multinational subsidiary operations.

With well-developed financial and capital markets, a mature services economy, a strong infrastructural base and a highly skilled and efficient workforce, Mumbai is the primary gateway to one of the largest consumer markets in the world.

Till recently, Mumbai had the dubious distinction as one of the world cities with some of the most expensive real estate globally, this premier Indian metropolis remains one of India's more complex and demanding real estate markets.”

Of course Cushman & Wakefield is only monitoring the high end of the residential and commercial real estate market. However, the very low floor space consumption per person and the extent of slums are showing that their diplomatically euphemistic statement on the “most demanding and complex” real estate market applies also to the poor. What are the exceptional factors in Mumbai that would explain why a comparative affluence, a booming economy, and a well qualified workforce does not translate also into decent housing conditions?

Which factors are responsible for this situation? What is so exceptional about Mumbai?

The very low consumption of floor space coupled with very high real estate prices would suggest that a number of supply bottlenecks might be responsible. By comparing Mumbai to other metropolis in Asia it appears that indeed 4 factors are exceptional and contribute to the very low supply of floor space:

1. An exceptional topography that reduces the amount of developable land;
2. A draconian and ill-conceived land use policy restricting the area of floor space which can be built on the little land available;

⁴ To give an order of magnitude to these figures consider the following: Shanghai in 1984, recovering from more than 10 years of Cultural Revolution, had a floor area per person of 3.65 m². Shanghai' Municipality, at the time, considered that rapidly increasing floor consumption was to be the city's first priority. In 2003, the average floor space consumption in Shanghai was 13.1 m²/person. This was achieved in part by drastically increasing the FSI to allow redevelopment of obsolete buildings with relocation largely in situ.

⁵ <http://www.cushwakeasia.com/apoffice/Mumbai.htm>

3. Muddled property rights preventing households and firms to freely trade land and floor space as a commodity;
4. A failure to develop major primary infrastructure networks, which prevents the city to overcome its topographical constraint. In turn, the weakness of the infrastructure network is used to justify the restrictive land use policy.

These supply bottlenecks, which taken individually would not be exceptional, are seldom encountered simultaneously within the same city. Their combined impacts are mainly responsible for the abnormally low floor area consumption per person. There is not much that can be done to remove the topographical constraint. However, a coordinated effort to reform land use regulations, to improve property rights and to develop major primary infrastructure could significantly improve housing conditions and increase the consumption of floor space per person, in particular the floor space of the poor.

Let us look, first, at the nature of these bottlenecks and second, at what can be done to reform land use regulations, improve property rights and create new infrastructure to make housing in Mumbai consistent with the dynamic city aptly described by Cushman & Wakefield.

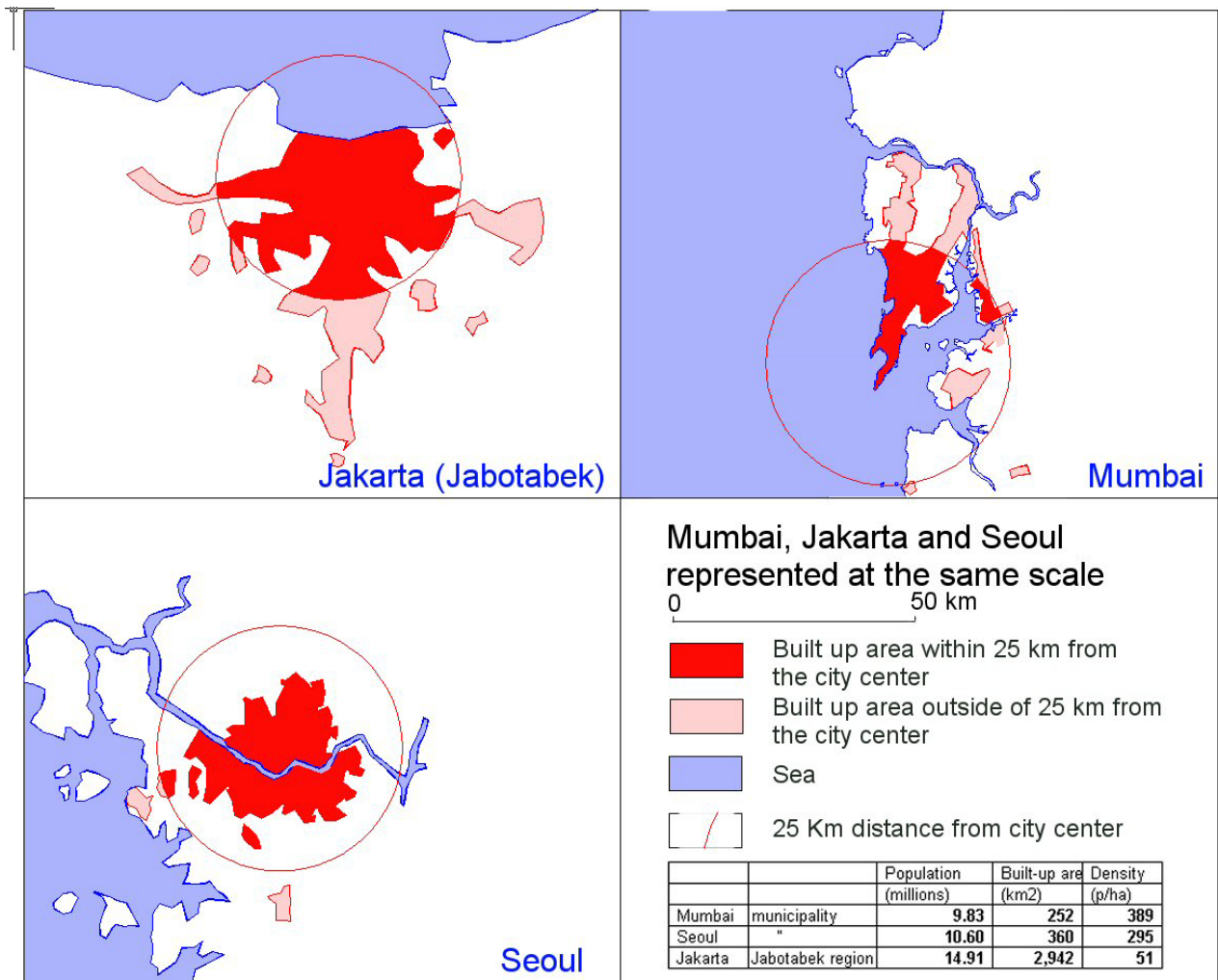


Figure 1: Comparison between Mumbai Jakarta and Seoul

A. Exceptional Topography

Mumbai's narrow peninsula, which at the time of the city's foundation constituted an attractive site to install a port, has become a liability stunting the city's economic growth and hindering its physical extension. A city located on a peninsula has less land to expand than a city located inland or than a port located along a straight coast.

To evaluate how severe is the topographical constraint in Mumbai, let us compare the area occupied by water in 3 large Asian cities: Mumbai, Jakarta and Seoul. Within a radius of 25 km from Mumbai's city center (Churchgate), sea and water bodies occupies 66% of the total area of the circle, as compared to 22% for Jakarta and 5% for Seoul! (see Figure 1). But the city doesn't even occupies the entire land area theoretically available: Because of the absence of bridges, the land area accessible at less than 25 km from the CBD is only 230 km², as compared to 1523 km² for Jakarta and 1864 km² for Seoul. Because of its geographical location Mumbai has only 15% of the land available in Jakarta, which is also a sea port. Mumbai could overcome this shortage due to topography by:

- (i) Using land more intensively, by reforming its land use policy
- (ii) Using land more efficiently, by clarifying property rights
- (iii) Expanding the land area available by improving access to the hinterland by developing its infrastructure, in particular rapid transit, bridges and highways.

B. A Draconian Land use policy

Cities where topography creates a constraint on land supply compensate the lack of land by increasing the height of buildings. In that manner, they are able to provide to their inhabitants about as much floor space as cities without topographical constraints. This is why cities located on islands – for instance, New York, Hong Kong or Singapore – are well known for their skyscrapers while cities located in flat plains without major water barriers, – like Paris, London and Berlin – are not. In Mumbai, by contrast, the amount of floor space which is allowed to be built on the land available is drastically restricted by regulations. Mumbai's land use regulations put exceptionally severe restrictions on the area of floor which can be built by unit of land. The regulations which are restricting the Floor Space Index (FSI)⁶ greatly reduce the floor space available for residence and business⁷.

How severe is the regulatory restriction on FSI compared to other cities in the world? In most large cities the FSI varies from 5 to 15 in the Central Business District (CBD) to about 0.5, or below, in the suburbs. In Mumbai the permitted FSI is uniform and in 1991 was fixed at 1.33 for the island city and 1.00 for the suburbs, although some higher FSI has been allowed punctually outside the island city area. Mumbai is exceptional not only because of its extremely low FSI but also because of the trend in FSI variations since the FSI regulations were imposed in Mumbai for the first time in 1964.

⁶ The regulation of the Floor Space Index (FSI, or in some other cities Floor Area Ratio (FAR)) is a common regulation linked with zoning. An FSI of 2, for instance, allows building an area of floor equal to twice the area of the plot on which it is built. An FSI of 2 therefore would allow 2000 m² of floor space to be built on a 1000 m² plot. If half of the land is built upon, the building would have 4 floors to fully use the allowed FSI.

⁷ In 1991, Mumbai began a program of Tradable Development Rights (TDRs). This program initially provided tradable extra FSI to developers for surrendering land for public purpose and, at a latter date, for providing free houses to slum dwellers or tenants of dilapidated dwellings. The most comprehensive review and analysis of the consequences of the FSI and TDR policy has been provided by V.K. Phatak in "The City, Vol 1 Number 4 (December 2002-January 2003) by Bombay First.

In most large cities of the world, as technology and infrastructure improve, the FSI in the CBD tends to increase, while the population density tends to decrease. A decrease in density corresponding to an increase in FSI is counterintuitive. However, it happens in most modern cities because a general increase in FSI is always associated with an increase in floor space per person and per job⁸. So more floor space is built on the same unit of land, but people and enterprises consume more of it, so population density tends to decrease.

Most cities of the world therefore have a policy to increase FSI with time. This progressive increase in FSI has two purposes; first, it allows households and firms to consume more floor space as their income increase without having to move to new areas in the suburbs; and second, an increase in FSI contributes to a decrease in the city spatial expansion in the countryside, decreasing population dispersion, transport costs and pollution due to transport⁹. In addition, in most cities, planners practically always establish the regulated FSI at a higher level than the FSI of existing buildings. This practice encourages the redevelopment of obsolete buildings.

In Mumbai, by contrast, the regulated FSI has constantly decreased since 1964 when it was first imposed in Mumbai¹⁰. The FSI was fixed at 4.5 in Nariman point in 1964 while it is now fixed at 1.33 in most of the island city. Many buildings predate the imposition of the FSI regulations and therefore have a FSI higher than 1.33. As a consequence, any redevelopment of old buildings would entail a loss of floor space, which, given the high price of floor space in Mumbai, make any redevelopment uneconomical and relocation in situ impossible. One need only to take a short walk through downtown Mumbai to see old dilapidated buildings which have never been replaced, not because of a lack of demand for floor space but because redevelopment would require a net loss of floor space and relocation within the city limits of existing occupants or business would be impossible.

With time the demand for floor space in Mumbai became so high that the State Government decided to tap the value of private real estate as a resource to finance its social programs – slum rehabilitation and reconstruction of rent controlled dilapidated buildings. Initially the State had restricted the trading of FSI (Trading of Development Rights TDR) in exchange for land or public facilities it did not have the resources to buy or built. The main objective of permitting TDRs was not to improve land use efficiency but to finance roads, housing or community facilities that the city did not have the means to finance from its own resources. The result was an increase of FSI above the 1.33 authorized in individual plots in dispersed locations where the infrastructure or even the street width were not necessarily compatible with the increased FSI. The increase in FSI for some private lots as a consequence of the institution of TDR was therefore not a deliberate spatial policy based on a perceived need to increase the available floor space, but purely a way of generating some financial resources for the local authority.

The total amount of additional FSI granted through TDR is not known, but it failed to alleviate the restriction on the construction of floor space imposed by the uniform FSI. The failure of TDR to increase significantly the floor space available to Mumbai's resident is not surprising. The Mumbai's municipality created an artificial shortage of floor space by restricting FSI to exceptionally low levels. Unsurprisingly, market price for floor space jumped to extremely high

⁸ We have to distinguish here between increasing the FAR for one building, which has no effect on average consumption of floor area, and increasing the FAR for a large area of the city, which significantly increases the supply of floor space and therefore decrease prices and increase average consumption of floor space.

⁹ The effect of FSI restrictions on urban expansion has been explored in a recent paper: "Analyzing Building Height Restrictions: predicted impacts, welfare costs, and a case study of Bangalore, India" by Alain Bertaud and Jan K. Brueckner. World Bank Policy paper # 3290, April 2004.

¹⁰ See Phatak 2003.

level. The municipality is cashing on the high prices it artificially created by issuing TDR. The municipality is therefore now in the position of a monopolist, nothing can be built in Mumbai without additional FSI and the municipality controls the FSI supply. However a release of FSI on a large scale will decrease floor price and therefore the Municipality's monopolistic power. The monopolist power of the Municipality is further reinforced by the limit on land supply imposed by topography, as discussed above.

Mumbai's fixed FSI has created the conditions of a zero sum game when it comes to floor space. Poor households have to face a constant reduction of their consumption of floor space, because they cannot compete with the increased consumption of more affluent households. The poor are therefore progressively pushed out of formal housing into slums or into what is called sidewalk dwellings. The only possible addition to the total floor space of Mumbai is therefore through densifications of slum and the creation of new sidewalk dwellings.

In addition to the FSI regulations Mumbai is subject to Coastal Zone Regulations (CRZ), which limit new constructions within 500 meters from the high tide zone, even in CRZ II where land is already developed. While this type of regulations is justified to protect coastal zones in rural areas it is an odd regulation in a city built on a narrow peninsula. With such regulation in place cities like Manhattan, Hong Kong, Singapore, San Francisco and Rio de Janeiro would have never been built! The CRZ-II regulations further reduce the supply of land and floor space which can be built and is, together with the low FSI, partially responsible for the low floor space consumption of the middle class and the poor living in Mumbai.

C. Muddled property rights are also responsible for low land use efficiency

Land use efficiency is not produced by clever master plans but by the continuous trading of property which progressively reallocate land to reflect current demand from consumers. Changes in land prices explain why warehouses are eventually transformed into apartments and obsolete factories into office buildings. The trading of properties depends on clear property rights. Any fuzziness in titles or in the right to dispose of property decreases the volume of real estate transactions and eventually freezes urban land into obsolete uneconomical land use. Over the last 50 years Mumbai has been submitted to a number of well intentioned but disastrously misguided laws and regulations which have nearly succeeded in freezing private land transactions in large areas of the city.

Compared to many other countries of Asia, it seems that India – with its very independent legal system – has a strong tradition of protecting property rights. While this may be true in principle, a number of legal and administrative measures have dramatically reduced the clarity of property rights in urban areas. The Urban Land Ceiling and Regulation Act (1976) (ULCAR) – now abrogated by the Government of India but still retained by the Government of Maharashtra – greatly reduced the ability to transfer property and to assemble land by the private sector. The ULCAR has contributed during about 25 years in practically freezing legal development of land by the private sector in urban areas unless in cases where exemptions were obtained. The effect of ULCA will be felt in the land use of Mumbai for many years even after the Act has been finally abrogated by the State of Maharashtra.

Rent control legislation, still active, is now one of the main culprits in preventing land to be used efficiently. The devastating effect of rent control legislation on the housing sector is well

documented both in India and internationally¹¹, and there is no point in describing again the negative effect this well intentioned measure has had on housing conditions. However, the negative effect of rent control legislation on urban land use is less well known.

Rent control prevents land from being redeveloped. The longer a building is under rent control the higher is the difference between controlled rent and market rent. Over time, the real rent paid to the landlord tends toward zero. As a consequence tenants never move; they are even able to transmit to relatives the right to occupy their apartment after their death. De facto, a large part of the property right is being progressively transferred from the landlord to the tenant, except the right to sell which remains with the landlord. But even this right to sell has been partially transferred to the tenants who have the right to sell their individual units by sharing the “key money” or “Pagdi” with the landlords. While landlords have still the right to sell entire buildings under rent control, they seldom do it. Indeed, what is the value of a building which provides a negative income? Therefore, the older and the more decrepit is a building, the less likely it is to be sold, rebuilt or even maintained.

The State Government has been well aware of the problem represented by the lack of maintenance in rent controlled buildings, which at time has resulted in the death of tenants in collapsing buildings. However, as in the case of the low FSI, the maintenance problem created by rent control was considered to be a market failure, and therefore the State Government decided to substitute itself to landlords to insure the maintenance of privately owned buildings under rent control.

To solve the problem, the State Government created the Bombay Building Repairs and Reconstruction Board to take over the maintenance of decrepit buildings and to redevelop buildings which have reached the point of being near collapse. The property rights of these buildings are therefore even more muddled after this move as rights are spread between, landlords, tenants and the Board in charge of maintenance and redevelopment.

It is interesting to note that when dilapidated buildings had to be rebuilt by the Board the State allowed to increase the floor area ratio from 1.33 to about 3.2 (Phatak, 2000) ; acknowledging that it was not possible to relocate the tenants in situ without increasing the FSI. The irony is, of course, that a building has to be near physical collapse to benefit from a FSI increase. A number of Mumbai’s residents have paid with their lives the failure of the State Government to correctly assess the exact time of the building collapse. Recently, the Government has introduced a new scheme of FSI incentives to promote private investments in reconstruction of dilapidated buildings. But the FSI increases are piecemeal and are not linked to any infrastructure investment or spatial strategy.

Residential buildings under rent control represent the majority of buildings in the island city. The effect on land use efficiency of freezing over more than 50 years the sale and redevelopment of so many buildings in the part of the city where there is most demand is certainly not trivial.

The urban land ceiling act together with rent control, by preventing the market to reallocate land use as the economic base of the city changed have certainly greatly contributed to the large number of slums and the low floor consumption in the city.

¹¹ See for instance Shlomo Angel “Housing Policy Matters”, Oxford University Press, 2000, and “A Review of Empirical Evidence on the Costs and Benefits of Rent Control” Bengt Turner & Stephen Malpezzi, 2003. “Rent Control”, Richard Arnott, September 1997.

D. Underdeveloped primary infrastructure

One of the main arguments for restricting FSI in Mumbai is that the existing infrastructure is already insufficient and would not allow higher densities. As we have seen, a general relaxation of the FSI would not result in significant higher densities but mostly in more floor space per person. It is true, however, that the infrastructure of Mumbai is underdeveloped, but in such an affluent city as Mumbai, blocking the construction of additional floor space rather than building more infrastructure is a bizarre policy choice.

How underdeveloped is Mumbai infrastructure? Let us concentrate on the most obvious area of underdevelopment: road and transport. Mumbai does not have yet any rapid road access to go from one part of the city to the other (the equivalent of a ring road or to rapid arterial roads found in most large cities of the world). Only 2 roads, none with limited access, allow to go from north to South, this include also the link between the airport and the CBD. There are only 5 access points by road to the mainland! The rail system in Mumbai is efficient and is carrying more passengers than buses¹², but it has not been modernized and extended for a long time and stations are not easily accessible from all parts of the city. The trains are also grossly overloaded. During peak hours, railroad-cars designed for 190 passengers are typically overloaded with 520 passengers (apparently, another world record). The bus system is paralyzed by the lack of major roads and the congestion created by the overloaded system. Most railways tracks are at grade and constitute barriers between neighborhoods and therefore contribute to road congestion.

The undeveloped road network makes it difficult to access quickly the only areas of possible urban extension located in Thane and Navi Mumbai. New bridges and rapid ferries linking the Mumbai narrow peninsula to the main land are the only way to eventually increase the supply of land available to development without increasing too much the commuting distance. For instance the distance from Churchgate to Navi Mumbai (south of Panvel Creek) would be only 26 km when the projected Mumbai Trans Harbour Link (MTHL) bridge¹³ would be built, compared to 41 km at present. The current distance between Churchgate and the closest point in Vashi is currently 31 km and, most of the time, requires more than one hour of driving. When the MTHL bridge is built, the distance to Navi Mumbai would be the equivalent of the distance from Churchgate to Jogeswari, except that the trip would take a much shorter time as a large part of the trip could be done at 60 km an hour over the new bridge.

The MTHL bridge is waiting for final approval at the time this report is being written. If implemented it would contribute significantly to allow Mumbai to grow and improve its land use without reducing the amount of space already used by housing and business. The comparison of the lay-out of three major cities built around a large bay – Mumbai, San Francisco and Hong Kong-Guangzhou-Pearl Delta – shows that new bridges to be built between the old Mumbai's docks and the main land are certainly not extravagant ([Figure 2](#)). The building of bridges across San Francisco bay and the Pearl River delta have transformed a topographic liability into an asset. The new cross city rapid roads and the approach to the new bridges would require substantial relocations. The possibility of relocation depends on a relaxation of FSI regulations. The new FSI rules should be spatially consistent with what is done in other large metropolis of the world: i.e. following a gradient linked to market land prices. FSI increase should not be provided on an ad hoc basis depending on the Municipal financing needs for individual projects.

¹² “Basic Transport & Communication Statistics for Mumbai Metropolitan Region” MMRDA, March 2001 page 137

¹³ Mumbai Trans Harbour Link (MTHL) bridge will be an eight-lane (two-way, four-lane) 22.5-km bridge connecting Sewri in South Mumbai to Nhava in Navi Mumbai.

Spatial structure of 3 metropolitan regions
constrained by topography:
Mumbai, San Francisco and Hong Kong-Pearl River Delta
Represented at the same scale

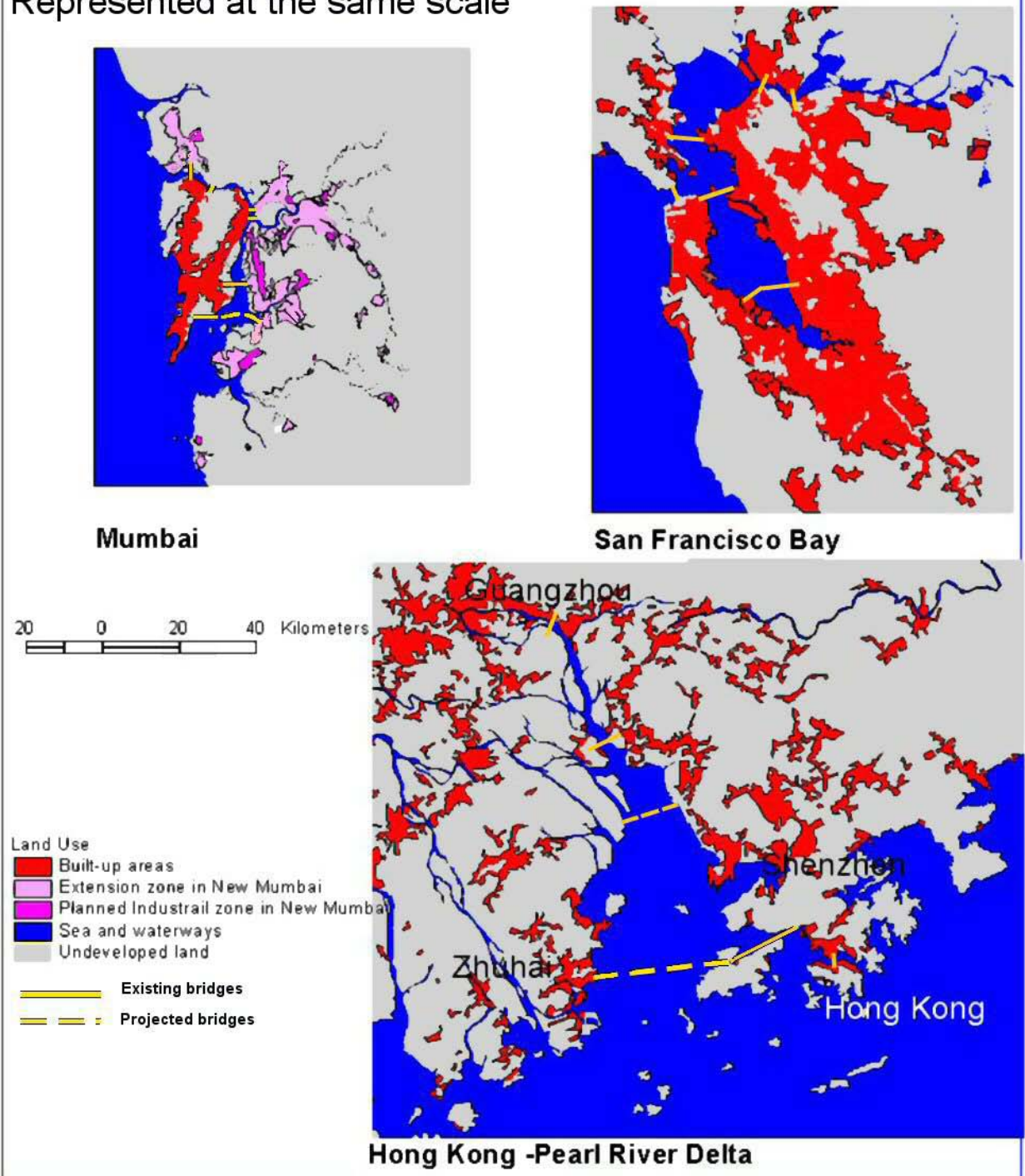


Figure 2: Spatial structure of 3 metropolitan regions constrained by topography

The real choice is not between increasing the FSI or not increasing it, but between increasing the FSI or relocating a large number of households out of Mumbai

The constraint imposed by the low FSI is by far the most damaging compared to the 3 others constraints constituted by topography, muddled property rights and poor infrastructure. This is because the low FSI compounds the effect of the three other constraints. In addition, reforming the FSI could be done rather quickly and without much expense, while reforming property rights raise a lot of legal issues, which will take time to resolve in legislature and in court. The building of new infrastructure will take time and money as we are talking about large primary networks.

However, relaxing the FSI is by far the most controversial policy issue in Mumbai.

The following statement – made by a former planning official during a meeting of the Maharashtra Economic Development Council in October 2003 – is typical of the types of argument raised by advocates of the FSI status quo:

“What will prevail in the end:

- the vision of private developers, who are pushing for increasing the Floor Space Index (FSI or FAR) so that they can build taller towers?
- or the vision of the common man, who is suffering because of a crumbling infrastructure?”

This commentator opposes the “vision” of the common man to the vision of the developer; he does not seem to realize that eventually if people in Mumbai want to consume more than the current 2.9 square meter of floor space some developers would have to build this floor space somewhere or several million people would have to leave Mumbai to make room for those who can afford floor space at the current high prices. The common man is likely to desire an increase of its living space and a decrease in the cost of floor space. So the vision of the common man is not necessarily opposed of the vision of the developer trying to respond to households demand.

The large profits that developers might make and the possible corruption of civil servants linked to an arbitrary and piecemeal increase in FSI constitute certainly a large part of the public concern justifying a rejection of FSI increase. However, while corrupt developers and officials might benefit from the present system, they are unlikely to benefit from an across the board transparent increase in FSI, as it would result in lower apartment prices and possibly lower land prices. There is no doubt that an increase in FSI and a streamlining of property rights would revive the building industry in Mumbai, many new jobs would be created and some people might very well get rich in the process. But, rejecting an increase in the construction of badly needed floor space because some developers or land owners might get rich is like preventing farmers to cultivate wheat in the middle of a famine because they might make money by selling their wheat.

Let us see what are the possible alternatives to increase the FSI, if it is agreed that it is desirable for all households and in particular the poorest to increase their floor area consumption:

There are really 2 possible scenarios:

First alternative: The FSI stays at the present level, the total area of floor space stays constant over time within Mumbai municipality; the rich increase their consumption of floor

space per person by paying extraordinary high prices per square meter and push the poor out of the city or on the sidewalks; or:

Second alternative: The FSI increases in many designated area within the municipal limits; the total floor space area double over 10 years (as was done in Shanghai) the municipality improve the infrastructure; the consumption of floor space increases for poor and rich alike; nobody has to leave the city or is pushed on the sidewalk. Eventually, sidewalk and slum dwellers join the main stream and are moved into formal housing.

The real questions are therefore, first, how much additional floor space should be built, second, where this new floor space should be built, and third, what mechanism should be used to allocate the new floor space between different income groups. The limited scope of this paper does not allow providing an answer to these three questions. However, here lays the real debate; and certainly not whether additional floor space should be built in Mumbai or not.

Most people associate an increase in FSI with an increase in density. It is true that an increase in FSI applied to only a few individual plots would result in a higher density on the affected plots, and as a consequence in a further decrease in infrastructure standards and quite possible in a windfall for the developer. However, what I am advocating here is very different from the piecemeal and ad hoc approach linked with the trading of TDR. I am advocating a well planned city wide adjustment of the current FSI to allow Mumbai's FSI to reach a level comparable to the best practice in other large cities of the world. The infrastructure will have to be redesigned and rebuilt in the areas where a large FSI increase is projected, not so much to take care of increased density than to correspond to modern standards of consumption. The new infrastructure could be financed by an impact fee imposed on developers at the time of reconstruction. In this manner the additional infrastructure cost will be borne entirely by those benefiting directly from an increased FSI but will not affect buildings which are not suitable or not ready for redevelopment.

This increase of FSI in specially designated areas of the city should aim at least doubling the consumption of floor space per person within 10 years. The infrastructure should be adjusted by broad areas corresponding to a planned and transparent phasing of FSI increase by zone rather than by plot as it is currently practiced. Historical buildings could be protected by being allowed to trade their potential FSI with non historical buildings located in the areas where FSI is being increased. Or alternatively, additional floor space could be built above the existing building, as has been done for Buckley court, provided that the original building is restored and maintained adequately.

The current situation, consisting in an immutable low FSI, results in a constant "squeeze" of lower income groups into less and less floor space. The only flexibility in the system rests in the expansion of floor space in slums and in forcing the poorest people in "creating" new floor space on sidewalks. It is time to radically reassess the past policy and discard the fear of change which have paralyzed Mumbai land use in the past.

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