



RESEARCH ARTICLE

THE URBAN SOCIAL INFRASTRUCTURE

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ABSTRACT

This research paper examines the rising development in urban social infrastructure in MMR (Mumbai metropolitan region), India. Contrasting the other planned metropolis of India, MMR was distinctively built as a planned transference of a huge urban city. The study centres on explaining the urban social infrastructure of this specific case study. An urban social infrastructure reflects the social attributes of the urban setting. In the instance of MMR, the government had a social agenda to encourage a social form based on socioeconomic division rather than an cultural one. Investigation of the data gives an insight to the result of this social agenda, and presents a basis to frame new ones. The study includes a broad review of secondary source data to create the speculative framework for the research. The review also involves an extensive inspection of the past, present and future of the whole MMR (Mumbai metropolitan region) to better understand the whole context of urban morphology and social infrastructure as a whole and also there effects, pros and cons. The research puts forth a study that explains the social infrastructure of MMR by social area investigation using variables, which are found from social aspects of any big city and native/radical factors of Indian settlements. The study depends not only on form and space analysis but also on understanding of local conditions. As the local conditions of working, living, the geographical factors all widely affect the social infrastructure of the city. This research lays the understanding of the rising social patterns in in developing cities.

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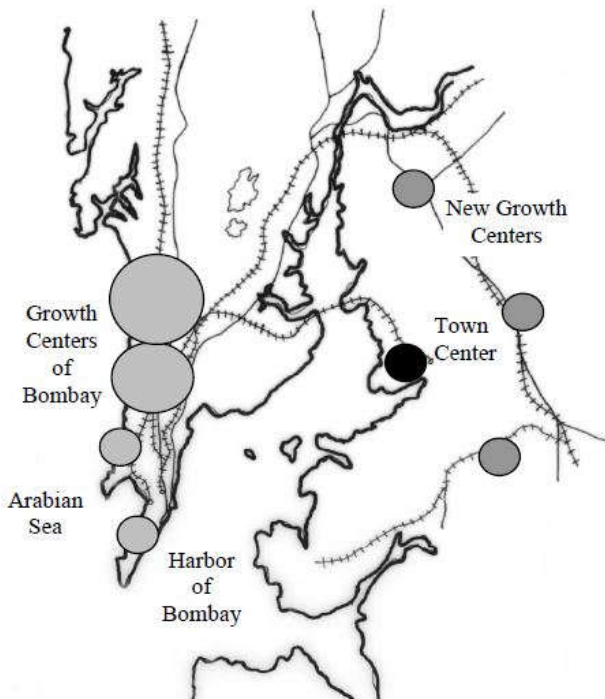
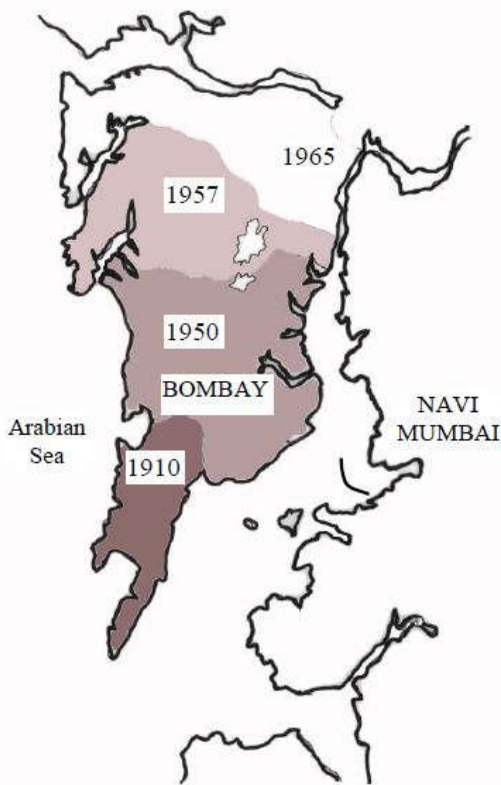
INTRODUCTION

The general objective of this research is to determine what regular patterns, present in the urban social infrastructure of planned cities in India. The urban social infrastructure is one of the numerous aspects of the urban form. The urban form of a city is mainly the result of the features of its built and social design as well as socioeconomic and political forces. It's a fusion of the spatial liaisons of a variety of elements. Diverse characteristics are drawn from the features influencing the built design and cultural features of the city. Physical and financial landscapes, land use and ownership, street patterns, planning regulations, and political events may influence the built design and pattern/forms of a city. A variety of actions influence the social infrastructure of the city. These include the cultural configuration of the city, religion, race, migration, and the housing typology. MMR is one of the first planned modern city developments built for a varied, middle class populace in India. Conventional Indian cities have developed over the years, and their social infrastructure is differentiated by residential segregation based on cultural, religious and

linguistic classes. The intention of this research is to explain and understand the social infrastructure of MMR. Socioeconomic factors, housing features, land use typology and cultural taxonomy will be used as key variables to study the urban social infrastructure of MMR. Urban forms arise because of duplication of these elements. The form of MMR will be studied at diverse hierarchical spatial levels: regional (node / township) and sub-regional (sector / neighbourhood). A holistic approach to the study of settlements includes understanding the interrelationships connecting their basic elements at a definite interlude of time. The study of the built form and structure of cities is the study of urban morphology.

Why is this study significant for urban development ?

The urban form of the city manipulates behavioural, economic and social processes within it. Thus, the study of human settlements has a wide view of all the actions it supports. The basic research here involves the search for an urban social pattern of MMR. This research concludes how the present social infrastructure relates to various theoretical frameworks. Therefore, this paper will supplement existing knowledge about social arrangements of planned urban development in India.



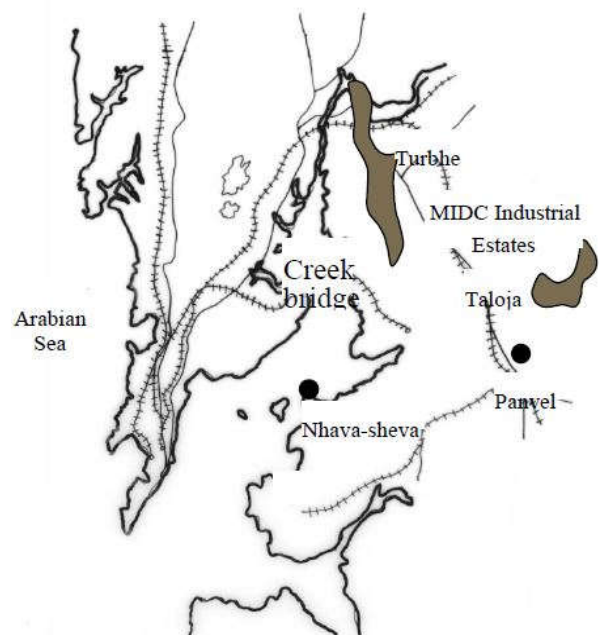
Planning history

MMR, India, conceived in 1972, is a new planned city region across the Mumbai marina. This planned decentralization was the result of efforts by the government to make Mumbai more sustainable. The topographical area of Mumbai is an archipelago. The primary settlement was conceived in the southern tip of the archipelago. Urbanization and subsequent suburbanization of Mumbai had created a linearity in the metropolis such that the Central business district (CBD) and housing areas had become very far apart. Mumbai's high concentration of docks, trading posts, textile mills and government offices had made it the prominent port of Western India.

South Mumbai is the centre of India's economical and service industries. This variety of occupations led to crowd congestion at an uncontrollable scale. In Mumbai, for the people who could not manage to make the long travels, squatter settlements all over Mumbai became the means of life. Navi Mumbai was planned to give an improved lifestyle, especially to the middle and lower class of people. Mumbai isn't a city built on Indian conventional planning typologies. The city of Mumbai had its foundation with a group of fishing villages until it was occupied by Portuguese in 16th century. In 1661, the Crown rented Bombay to the East India Company (EIC). Bombay was then established as a trading post. The EIC encouraged Indian and British merchants to settle in Mumbai. By the 1780s, the company had taken on the new role of ruler. The EIC, now as rulers, was interested in developing the city in a meticulous manner, and providing well-organized infrastructure. The marina was developed, the dock were modernized and the city was urbanised. There was a sturdy growth of mixed land use settlements. Commercial and residential areas were mixed because many traders carried on business from home. Municipal Regional Planning Board set up two committees to study the development of Bombay. They recommended the creation of a new town on the mainland across the marina and to develop the suburbs of Mumbai.

Now, Mumbai had reached a level of uncontrollable growth by the 1960s. The city's urban facilities were tested to the limit. Commuting distances had increased because of increment in suburbanization with no new proposal for the location of the CBD. The 1967 development plan estimated a residential shortage of 131,000 houses, and 24 percent of settlements were over crowded. The increase in the population and the virtual decrease in the urban usable land resulted in an utter chaos and created very difficult living and working environments for the people of Mumbai.

The infrastructure failed for the people.



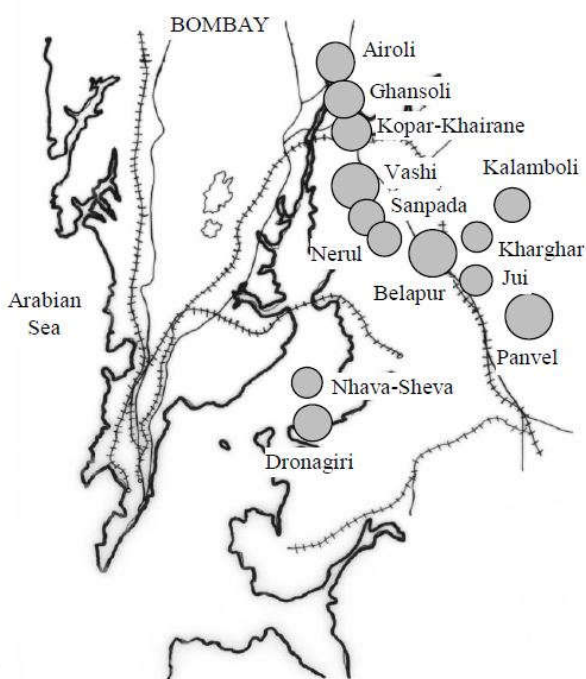
Development possibilities of the Site-

The chosen site had various development potentials ; These were (CIDCO, 1995):

1. The Maharashtra Industrial Development Corporation (MIDC) Estates at Turbhe and Taloja;
2. The plan for a modern, container port at Nhava-Sheva;
3. The existence of two municipal corporations at Panvel and Uran;
4. The newly commissioned bridge across the Thane creek, and transport corridors along Thane-Belapur;
5. The Thane-Pune NH4, Panvel-Uran rail and road links. The success of Navi Mumbai was thought to depend on the adequate creation of jobs (CIDCO, 1995).

The development plan took into account the provision of 750,000 jobs for a population of 2 million. This was necessary to: (CIDCO, 1995)

1. Make MMR self-contained and not a dormitory;
2. To decongest Bombay by shifting jobs that are concentrated in the southern part of Bombay;
3. To use the job centres with matching infrastructure provision as engines of growth for the new city.



Nodal system of MMR

1. The functioning of the region is based on the theory of neighbourhood planning as observed all around the world.
2. Neighborhood planning in the west was a form layout designed for an area with conditions for residences, streets, amenities and utilities with separation of vehicular and pedestrian flow.
3. Each neighbourhood is within a one square mile radius. Neighbourhoods could be placed in each other's proximity to create a larger urban framework. This also helped in the sharing of other, larger amenities by adjacent neighbourhoods.
4. The neighbourhood unit is used as a building block to build New districts around the globe. This theory of neighbourhood planning and its offshoot from Modernism was used in Navi Mumbai. In the case of Navi Mumbai, each neighbourhood was known as a sector.

5. Navi Mumbai consists of thirteen or nodes. Each node is self-contained for 100,000 to 200,000 people. Each node is divided into neighbourhoods (or sectors). The nodes contain residential, commercial, infrastructure and recreational uses.

The role of social infrastructure in the planning of MMR-

The planners of Navi Mumbai thought this was a fortuitous occasion to provide social justice to the millions of migrants and pavement dwellers of Bombay. In 1970, more than 30% of the population of greater Bombay could not afford a *pakka* (durable) house (CIDCO, 1973). Thus, it was recommended that housing should be constructed so that every income group can meet the expense of it. Progressive housing was proposed as the answer. The Housing schemes would be designed for the different income groups. For the lower income group, cost-effective, ground floor houses would be possible initially. Construction would be done with locally available, cheap material. More durable material could be used in the further stretch of time. The remaining two-thirds of the population could afford further expensive housing. For them, walk-up apartments of three to four floors would be designed. The plan took into account the fact that one-third of the housing in New Bombay would be sites-and-services plots. The Gandhian principle of self-help would be used to implement this agenda. The sites-and-services plots would have services such as roads, water, electricity and sanitation.

1. Individual families would then have to build their own homes (*swavalamban*).
2. The residents could design and implement their construction in any way they chose (*swatantrya*).
3. It recommended construction using cheaper concrete, using bamboo instead of steel reinforcements and setting up of local retail shops where residents would be able to buy inexpensive building materials for building their homes. (*swadeshi*) (CIDCO, 1973).

To assist residents moreover,

CIDCO sold the plots at a greatly subsidized rate and with a twenty-year repayment period. Housing for the middle income and high income groups would be in the form of CIDCO housing, cooperative housing groups or private builders. Navi Mumbai's founders saw the construction of large amounts of new housing as an opportunity to break down demographic divisions and to enhance social equity. The Draft Development Plan quoted "*there is a tendency in India that induces people to live in like groups, enclaves or ghettos of age long tradition of 'birds of the same feather flocking together'. In planned towns and cities this should be avoided to a great extent by allocating housing in neighbourhoods to members of different communities.*" (CIDCO, 1973)

The Urban Social Form-

All human settlement contains different elements. Communication of these elements form a pattern - the urban pattern. This urban pattern is an outcome of the connections between people and their social, economic and physical environments. Buildings and spaces are created by people and quite often characterize them (Kostof, 1991). If the residents build their buildings themselves, then they reflect their lifestyles. However, if government agencies or contractors

build them, they are more generic and may not represent the lifestyles of every household. Whatever the mode of construction, residents soon influence their urban environment, changing and modifying it to suit their way of life (Lozano, 1990). Simultaneously, people adapt to the physical environment around them. The human-environment relationship is a two-way process termed as the socio-spatial dialectic (Knox, 1995). Thus, urban form is not merely the architectural form of the city (Lozano, 1990).

"It is also a cultural expression"

Factors Impacting Urban Form-

Various factors influence the form of cities. Traditional settlements were shaped by (Lozano, 1990):

1. The way in which nature and man-made features satisfy needs for protection and defence.
2. The way in which physical and economic landscape allows for communication with other regions
3. The way in which the topography of a site suggests the construction of a human settlement.
4. The way in which climate leads to building solutions.

These factors influence the cultural and spiritual form of the cities as well. Traditional cities have used physical forms to interpret cultural and religious beliefs (Lozano, 1990). By this we can understand that different conditions and people shape various urban and social form/infrastructure of various type of places. The physical form is a variable of the social and built pattern of the city.

Physical Factors

The built form is influenced by factors as (Alexander, 1987):

- Land ownership
- Existing land use
- Planning regulations
- Street patterns

The physical expansion of the city is always bound and guided by land ownership, and natural and manmade obstacles. A city replaces existing land use. Thus, it is necessary to determine existing land use as a pre-condition to urban growth and form. The change of land use from rural to urban depends on the existing land use, and the ownership. Some farmers may sell their land more easily than others may. The rural land may also have been subdivided. Plots of varying sizes and shapes influence the layout of the streets and of individual buildings (Knox, 1995). Planning controls influence development to a great extent. Master plans and regional plans provide long-range strategies for development. Various economic, social and political circumstances influence the social pattern (Scargill, 1979). While some processes are culture-specific, others are global in scale.

Social Factors

These factors are (Alexander, 1987, Kosambi, 1986):

- Cultural composition of the city
- Religion
- Race

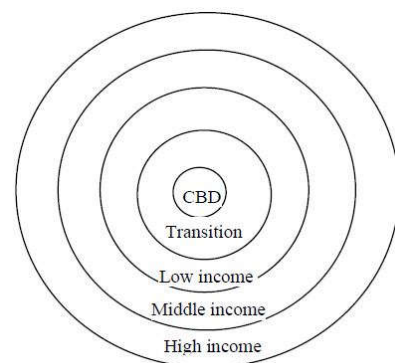
- Migration
- Economic considerations
- Political and historical events

Social factors in India

India is among the most stratified of all known societies in the world (Srinivas, 1992). The caste system of India separates and hierarchies the Hindus. The external manifestation of the separation and hierarchy through particular attributes of the castes brings about social stratification of the urban social pattern (Marriott, 1992). Clothing, language, rituals, marriage and death ceremonies distinguish one caste from another. In India, the forms of social stratification are many. Along with the caste exist occupational stratification, linguistic stratification and religious stratification. The social stratification is very deep and varied. The Indian theory of social stratification depends on caste, linguistic, religious and ethnic diversity of the country (Gupta, 1992). Stratification implies a differentiation based on a set of criteria. The population may be stratified based on income, language, religion or occupation (Bougle, 1992). Hierarchy permits components of the whole to be ranked with relation to each other (example: income and prestige). However, all elements cannot be arranged vertically. The differences may also be placed in a horizontal system (example: language, religion). Thus, theoretically, vertical and horizontal systems of stratification exist. The real world, unfortunately, differentiates itself into only hierarchical status containing inequality (Gupta, 1992). The term ethnic group refers broadly to people "with some similar characteristics which go beyond their mere place in a societal division of labour" (Brass, 1974). Ethnic characteristics refer to language, culture, territory, diet and dress, and in the case of India, sometimes reinforced by common work roles. The characteristics caste, class religion, and language are discussed below. Berreman (1965) says:

"Caste systems rank people by birth described group membership rather than by individual attributes. Class systems by contrast define the rank of their members according to their individual attributes and behavior"

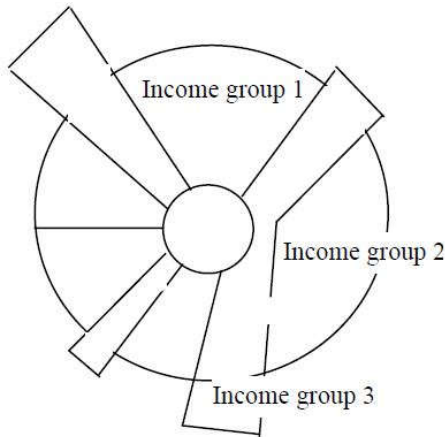
Theories of urban social forms



Concentric Zone Theory

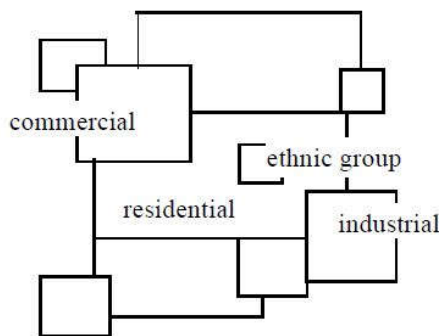
It is a descriptive framework to analyze spatial organization of land use in a city and its change over time. It was partly based on economic factors. The model made many assumptions such as uniform land surface, free market, accessibility to a single-centered city, heterogeneous population and a commercial,

industrial base (Herbert and Thomas, 1990). Burgess' research on the distributional pattern of various groups of society led him to conclude that the city was made up of concentric zones with the central business district (CBD) at the centre.



Sector Theory

Hoyt studied the city as an economist concerned with how the housing market worked. Rental value was the main criterion for studying the pattern (King and Golledge, 1978). He said that residential sectors of similar rent are situated in wedges radiating from the centre. The wedge pattern represents residential area growth (Scargill, 1979). Neighbourhoods for each income group are common. The model also accounts for growth along transport routes. For example, industries may cluster around the railway line or low-income housing along a riverbank. This model also accommodates growth (Hartshorn, 1992).



Multiple Nuclei Theory

The multiple nuclei theory was put forth by Harris and Ullman. This model proposes that patterns in many cities be arranged around several centres (Scargill, 1979). This is because concentration of certain activities may prove to be more beneficial. Concentric zones or sectors may emerge from these nuclei. This is not a generalized model. It is more specific to

some cities (King and Golledge, 1978). It gives strength to cities with original nucleus in the centre, and decentralization.

Conclusion

The intention of this research is to define the urban social infrastructure of MMR, India. This exact case study was selected for two reasons: It's the first planned metropolis that is not a capital or township, and the government had a definite social and political intention. One of the social objectives in the planning of Navi Mumbai was to use the government mechanism to branch out the spatial division of the inhabitants based on socioeconomic criteria. Cultural communes have always described conventional habitations in India. The government had a very practical interest in avoiding cultural confrontation. It was also influenced by the concept of the city converting from heterogeneous to a homogenous society, and formulated a policy to support it. The research outlines this social purpose. Conventional Indian cities have always had a sturdy cultural element in their urban social form. The segregation is attributed to the cultural variables, caste, religion and language. The Hindu laws and accords defined residential locations for different castes. This was the primary reason of segregation in residential neighbourhoods. Three major theories stated were concentric zone theory, sector theory and multiple nuclei theory. These theories makes us realize the urban social forms and its change over the course of time. The concentric zone theory compares the form of cities to populace mobility. Progression and incursion based on social and economic status is the basic assumption of this theory. Mobility and immigration are the key variables of this theory. The second theory, sector theory, is an investigation primarily of economic variables. Wedge patterns demonstrating income groups are the conclusion of the theory. The multiple nuclei theory recommends that patterns could be arranged around several centres.

So, in totality we can understand that the urban social infrastructure of a city is a result of various different elements creating an equation, the solution to which creates and shapes the city as a whole.

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