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Revitalizing Mumbai Textile Mill Lands for the City

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Revitalizing Mumbai textile mill lands for the city

A Dissertation Presented

by

VINAY ARUN SURVE

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF ARCHITECTURE

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Architecture + Design Program
Department of Art, Architecture and Art History

Revitalizing Mumbai textile mill lands for the city

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Architecture and Art History

DEDICATION

For my beloved Aai (mother), Bhau (Father), Manish (Brother), Tejas (Brother),
Bhakti (Sister in law), and Tunnu (Nephew).

And

Professor David Dillon

ACKNOWLEDGMENTS

I would like to start by thanking the institution, UMASS Amherst for providing every support system in achieving this milestone. This thesis would not have been possible without late Prof. David Dillon who inspired me to take a stand towards my thesis topic. I remember his inspiring words when he saw an attitude and energy in my initial thesis discussions and asked me to maintain that attitude till the end. I owe my deepest gratitude to my mentor and chair Prof. Kathleen Lugosch for her limitless support throughout my Masters curriculum. Her understanding, encouraging and constructive guidance have provided a good basis for developing my thesis.

I would like to thank my committee members Prof. Alexander C. Schreyer and Prof. Max Page along with Prof. Joseph Krupczynski and Prof. Skender Luarasi for providing valuable inputs, suggestions and advice. In addition, I would like to extend my thanks to Prof. Sigrid Miller and Prof. Caryn Brause for sharing their approach towards a particular problem in design in their respective studios, which helped me to achieve my goal towards thesis. Further, I would like to extend my thanks to Prof. Ray K. Mann for giving me support and opportunity to get hands-on experience in handling a construction site, which gave me exposure to building construction techniques in cold climates.

I am very grateful to my mom, dad, brothers and sisters for their continuous emotional support and incomparable love and care. I owe my deepest gratitude to my studio mates with whom I shared thoughts, discussions and ideas to shape up my ideas. Lastly, I offer my regards and blessings to all of those who supported me in any respect during the completion of the project.

ABSTRACT

REVITALIZING MUMBAI TEXTILE MILL LANDS FOR THE CITY

SEPTEMBER 2011

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M.ARCH, UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor Kathleen Lugosch

Cities are always in transition and so the city's Architecture should respond to it. Transition brings opportunities of growth, expansion, improvement in social and urban fabric along with new development strategies. My thesis explores the current trend of textile mills development in the heart of the city of Mumbai, its drawbacks and proposes a development plan for a mill premise for the benefit of the city. It is an attempt to preserve the city's old fabric, which at one time was a city in itself and merge its fabric with the new development in a cohesive manner.

I was looking at the response to the historic city and how you add new work to it by superimposing or juxtaposing. The success of the building is in its layering, its discovery by the visitor and its ability to make a public building truly public. My ideas come from observation: of the site, of nature, of people moving in the city.

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CHAPTER 1

STATEMENT OF INTENT

There is a basic difference of vision between a planner and an owner's approach to the redevelopment of the cotton mill lands in Mumbai. A vision of a planner is to take a holistic view on the issues related to the city. For a visionary planner, a “city” is referred to as people, streets, transportation, vegetation, buildings and places and so its response to the development is in reference to this landscape adding life to the city. It is my intention to explore the transition of this development by layering the mill fabric with the new urban development in the city. I would like to take a holistic view of the available land and look it as an asset meant to be put to the fullest benefit for the city and further represent the interest of the owner, state and the workers. I intend to merge small group of mill lands together and prepare a development plan for a single group of mill lands.

The building and infrastructure of old cities have value, in that they reveal the history through their physical forms. The existence of the old with the new, where both hold importance in the service they provide is what generates the genius loci of these cities. It is only the physical presence of these structures that conveys the history of the growth of the city, and imparts the spirit of the city. To completely wipe them off the fabric of the city would be like blanking off completely an important era of the history¹. The fabric, though functionally obsolete, represents an important era in the development of this metropolis. Here is an opportunity to preserve old mill Architecture and create low cost housing, playgrounds, cafeterias, green promenades along with new office spaces to bring new business to the city that drives the economy of the country.

The present economic forces make it difficult for the mills to continue running within the city. The fact that the textile mills that are located on, now is a very highly priced inner city property makes it subject to a number of economic and political forces. Also the changing technology, including the use of machines with high speeds is incompatible with the existing buildings making them functionally obsolete, as they cannot withstand the vibrations. Also the large volumes and larger windows do not allow the humidity to be controlled to meet the requirements of the new weaving technology. However, these buildings are strong edifices, capable of serving many more years of life if maintained well. They leave a legacy of space and structures which still stand.



Figure: 1 Aerial view of the city²

The ongoing development is in favor of high rise residences, elite class clubs and hotels without paying attention to the city's issues. The question arises: who has the first claim to such lands. Is it the mill owner, who have been given countless concessions by the government to run their industries and who had surrendered their mills to government when they were unable to run? Or the workers / public, where up to 40% of people do not even have roof over its head? Or the public at large, who are reeling under acute shortage of open space, one of the lowest in the world.³

Along with preserving these buildings, it is my opinion to create public open spaces in different mill plots and merge new functions giving public access to the premise which was restricted in the past and now even after it is abandoned. The current open space requirement to population in the city is alarming and as low as 0.04 acre per population of 1000 as compared to 5.3 acres in New York, 4.84 acres in London and 4.4 acres in New Delhi.⁴ Also taking owners interest into consideration, surrounding site conditions and generating employment opportunities, I would like to convert some of the existing mill structures into new workplaces for small scale business and propose new office complex which emerged from the current landscape, creating an urban mill fabric. Here is the challenge to have public spaces along with private work spaces having shared common amenities. Because of the high value of real estate and as per Charles Correa's report⁵, the available Floor Space Index used in public parks and public buildings should be used in the same plot commercially. Here is another opportunity to use the excess Floor Space Index to generate more jobs in the city.

Notes

¹ <http://www.intbau.org/archive/Mumbai.htm>

² <http://img267.imageshack.us/img267/2120/45797143295037522aco6aazo0.jpg>

³ <http://urbanplanningblog.com/507/revitalizing-mumbai-%E2%80%93-the-mill-land-issue/>

⁴ http://docs.google.com/viewer?a=v&q=cache:VuuAjY06eGgJ:www.bcpt.org.in/webadmin/publications/pubimages/openspaces.pdf+open+space+requirement+to+population+in+the+city+of+mumbai&hl=en&gl=us&pid=bl&srcid=ADGEESiQ4MFhmmIpsLeBrUXxD0pbSRIEguLE36YA_nE51jpDmbe78Edg2xVuGisBYX_98yMjN6MW_bsTrzrCFKQhzpWBk0OYF3HjfXHbwLiVHqf2x1SFij257n0LAgFUSb8ZhGUDe4&sig=AHIEtbQK7hQDDfjxPqEYnJ6DYqsWWCxIxA

⁵ Chapter – 11

CHAPTER 2

MUMBAI - GEOGRAPHY



Figure: 2 City View¹

India's first and world's sixth biggest metropolitan area, capital of Maharashtra state, commercial, financial & entertainment capital of the country, home to over 21 million people, density of 25000 people per square kilometers , Mumbai is the most populous city in India & second most populous city in the world. It connotes more than just the land area and material wealth. It is not just a city but it's a concept, a dream cherished by millions of citizens.

In the past Mumbai was considered as the most important port & a gateway to the west because of its geographical position. Located on the western coast of Maharashtra,

Mumbai spans a total area of 603 sq. km (233 sq. mi) with a total coastal length of 180 km. (112 mi) Mumbai is bounded by Arabian Sea to the west. All parts of the city are efficiently connected by Mumbai's mass transit system consisting of trains and buses. Predominantly organic in its urban form, the city consists of 10% vehicular road coverage.

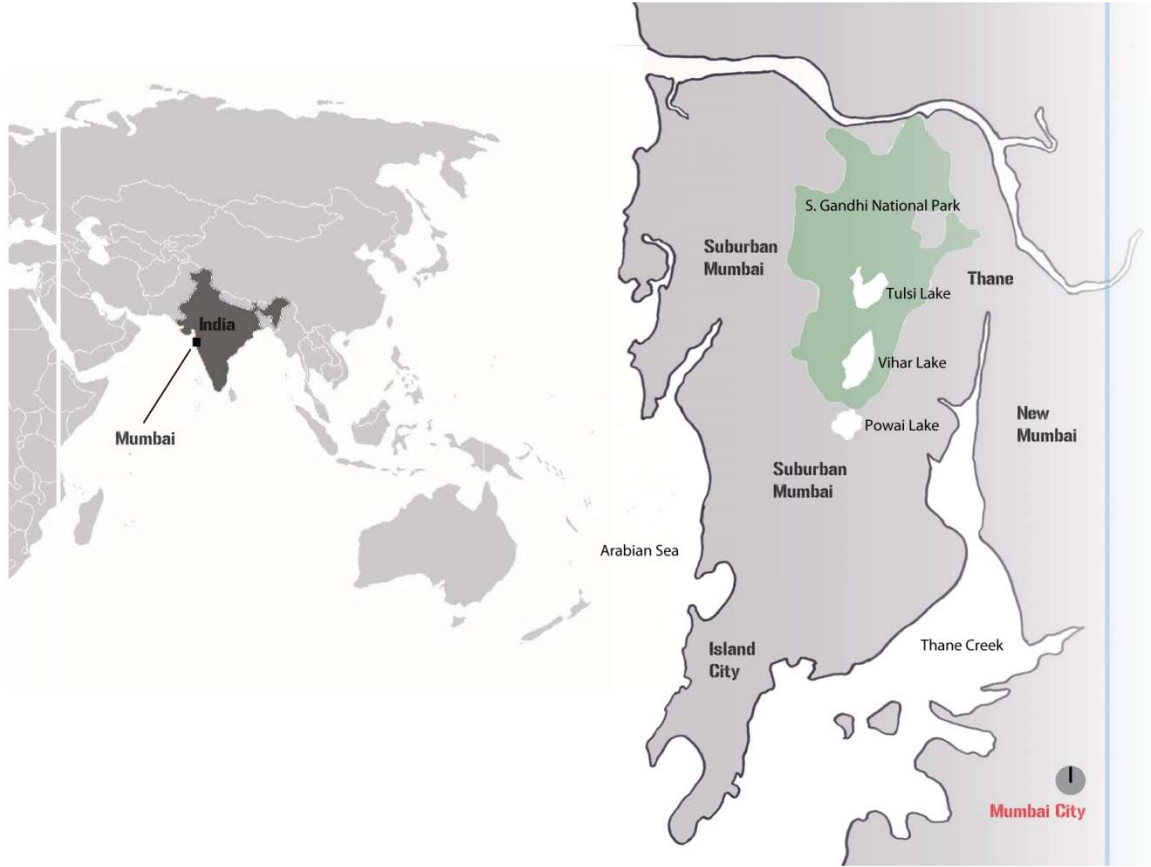


Figure: 3 City Map (Author)

Northern region of the city consists a National park (S. Gandhi National park) that extends over 40 square miles, making it 1/6th the size of the city. . Mumbai's three major lakes (Tulsi, Vihar & Powai) are located within this forested area. The coastline of the city is indented with numerous creeks and bays. The eastern waterfront is covered with large mangrove swamps whereas the west coast is sandy and rocky. The city lies in the

tropical climate zone resulting in harsh monsoons & hot summers. With an average annual temperature of about 80F, Mumbai receives a lash of rainfall equaling to an average of 96 inches per year.

City's downtown is located to the south & it is popularly known as South Mumbai or the Island City. Because of its tapering peninsular form, urbanization of the city continued towards the north. This region today is considered as Suburban Mumbai. Whereas towns like Thane, New Mumbai & Panvel serve as Mumbai's satellite towns. Both the districts (south & suburban) are administered by city's municipal council known as BMC - Brinhanmumbai Municipal Corporation. Mumbai is divided into 17 wards for the purpose of civic administration.

Notes

¹http://www.worldnavigator.info/data/gallery/00000018/Aerial_photo_of_Mumbai_city.jpg

CHAPTER 3

MUMBAI - COLONIAL

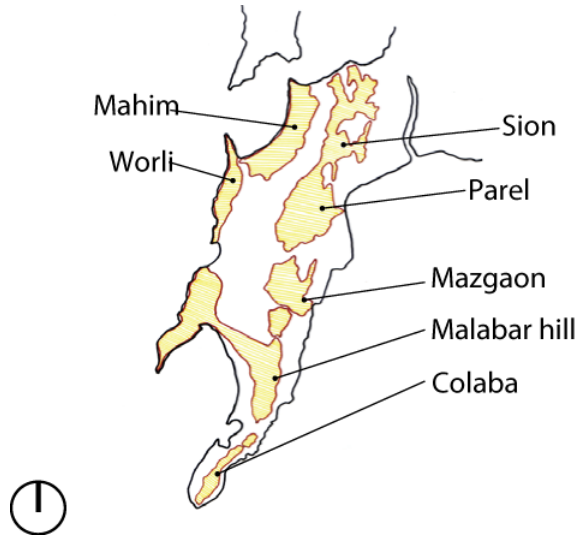


Figure: 4 - Early map of Mumbai showing seven separate islands. (Author)

Mumbai initially known as ‘Bombay’ was originally an archipelago of seven islands – Colaba, Malabar Hill, Worli, Mazgaon, Parel, Mahim & Sion. These islands were inhabited by farmers and fisherman and the land was extensively covered with forests. By late 15th century, after quite a few invasions and rulers, the Portuguese took over the islands and ruled without opposition for over a century.

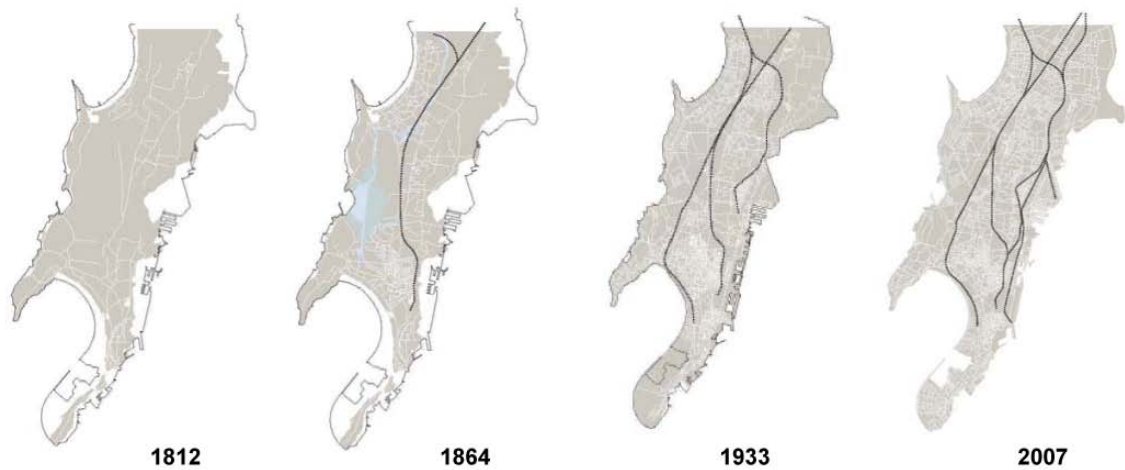


Figure: 5 - Land reclamation & urban development of the city over the years. (Author)

In 1661, the islands were handed over to England as part of a dowry arrangement. In 1838, under the British rule, Bombay islands were amalgamated into a singular mass. Since then the city has been constantly transformed by land reclamation projects. The city is built on a foundation of continuously altered and reclaimed natural and urban landscapes.

Colonial Mumbai was developed as a planned segregation promoted by English ideology. The southern tip of the island city was fortified to create an insulated territory for the colonial rulers. The northern part within the fortification included the elite Indians, Parsis, Bohras and Hindu industrialists or traders. Small native traders, white-collar workers and the working class lived outside the Fort walls in largely congested areas further segregated on class and regional identities. At first the urbanization of the island only occurred within the Fort area until a massive fire in 1803 provided an impetus for urban improvements and land dispersal that led to expansion of the fortified town.

By 1850 Bombay had become the major colonial mercantile and industrial city and cotton textile mills as foundation of its economy. Subsequently many of the great monuments and public buildings in the island city were built with the wealth generated by the textile industry. Land reclamation continued, closing the creeks & creating newer destinations towards the north. With new developments in place and increased employment opportunities, Bombay attracted millions of migrants around the state and country. Soon Mumbai became the fastest growing metropolis with maximum capital accumulation and the most unequal distribution of land. A trading town in its past, Mumbai, today is an aspiring global city where space is a rare commodity created & recreated by land reclamation & rehabilitation.

CHAPTER 4

MUMBAI - TIMELINE



1500's

Figure 6¹: Bombay islands in 1500
Portuguese ruled Bombay islands



1661

Figure 7²: Bombay islands in 1661
Islands were given to England
as part of dowry arrangement.



1684

Figure 8³: South Bombay
Bombay became new head quarters of
British East India Company



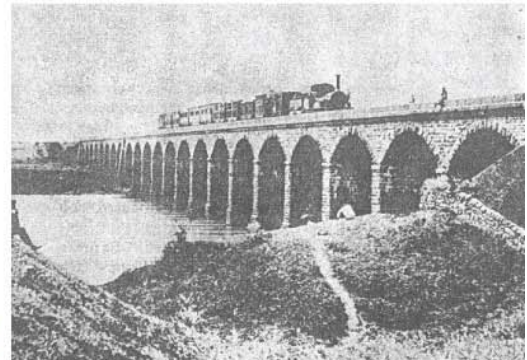
1803

Figure 9⁴: Bombay fire 1803
The great fire triggered development
projects on the island.



1838

Figure 10⁵: Amalgamation of seven
islands



1853

Figure 11⁶: First Railway line 1853

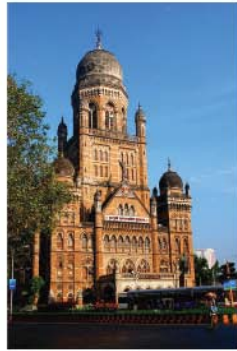


1858

Figure 12⁷: First textile mill owner
Cowasji Jehangir

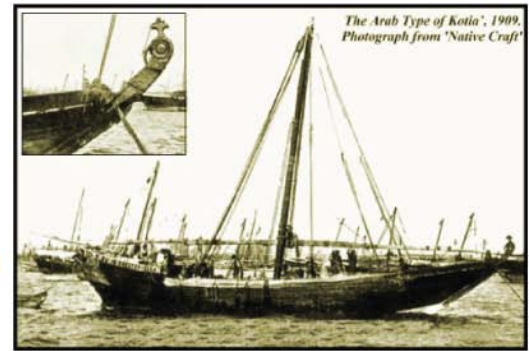
1860

Land mass of the island underwent radical physical and geological changes.



1872

Figure 13⁸: City's Municipal corporation



*The Arab Type of Kotia', 1909.
Photograph from 'Naive Craft'*

1873

Figure 14⁹: Bombay Port Trust

1889

Construction of Vihar and Powai lake.

1896 Plague epidemic

1898

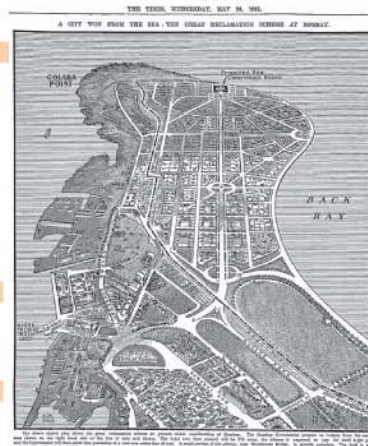
City improvement trust was found in response to the recent epidemic.

1900

TO

1925

Figure 15¹⁰: City Major Land Reclamation



THE BOMBAY IMPROVEMENT TRUST ACT, 1898.
A CITY WHO SPITS THE SEA THE GREAT BOMBAYERS BEHIND AT BOMBAY



1960

Figure 16¹¹: New Mumbai Plans for New Mumbai proposed by Architect Charles Correa.



1970

Figure 17¹²: Marine Drive Marine Drive was finished



1982

Figure 18¹³: India United Mill No.1 Mill Workers strike, decline of Mills

1996

Name of Bombay was changed to Mumbai

2000



Figure 19¹⁴: Aerial view Parel, Mumbai Mill land redevelopment, Reclamation salt pan lands and Mangrove forests.



Figure 20 : Aerial view Girangaon (Author) Today's Trend of Development

Notes

¹[http://upload.wikimedia.org/wikipedia/commons/a/a6/Colaba Causeway construction%2C view from Colaba island%2C 1826.jpg](http://upload.wikimedia.org/wikipedia/commons/a/a6/Colaba_Causeway_construction%2C_view_from_Colaba_island%2C_1826.jpg)

²[http://upload.wikimedia.org/wikipedia/commons/4/43/Ships in Bombay Harbour%2C 1731.jpg](http://upload.wikimedia.org/wikipedia/commons/4/43/Ships_in_Bombay_Harbour%2C_1731.jpg)

³http://upload.wikimedia.org/wikipedia/commons/0/05/Malabarpoint_governmenthouse_bombay.jpg

⁴[http://upload.wikimedia.org/wikipedia/commons/4/48/A View of Bombay from Malabar Point during the Fire of 1803.jpg](http://upload.wikimedia.org/wikipedia/commons/4/48/A_View_of_Bombay_from_Malabar_Point_during_the_Fire_of_1803.jpg)

⁵<http://upload.wikimedia.org/wikipedia/commons/6/69/IslandsofBombay1893.jpg>

⁶http://commons.wikimedia.org/wiki/File:Bombay_Thane_train_1853.jpg

⁷[http://commons.wikimedia.org/wiki/File:Sir Cowasji Jehangir Readymoney \(1812-1878\).jpg](http://commons.wikimedia.org/wiki/File:Sir_Cowasji_Jehangir_Readymoney_(1812-1878).jpg)

⁸[http://commons.wikimedia.org/wiki/File:Bombay Municipal Corporation.JPG](http://commons.wikimedia.org/wiki/File:Bombay_Municipal_Corporation.JPG)

⁹<http://upload.wikimedia.org/wikipedia/commons/f/fa/Kotia-1909.jpg>

¹⁰http://commons.wikimedia.org/wiki/File:BombayReclamation_1911.jpg

¹¹[http://commons.wikimedia.org/wiki/File:Navi Mumbai.jpg](http://commons.wikimedia.org/wiki/File:Navi_Mumbai.jpg)

¹²[http://commons.wikimedia.org/wiki/File:Marine Drive.JPG](http://commons.wikimedia.org/wiki/File:Marine_Drive.JPG)

¹³[http://commons.wikimedia.org/wiki/File:India United Mill 1.jpg](http://commons.wikimedia.org/wiki/File:India_United_Mill_1.jpg)

¹⁴[http://commons.wikimedia.org/wiki/File:Mill lands_parel_ground.jpg](http://commons.wikimedia.org/wiki/File:Mill_lands_parel_ground.jpg)

CHAPTER 5

MUMBAI – THEN AND TODAY



Figure 21¹: Cuffe Parade, Figure 22² : Gateway of India, Figure 23³: Bombay Streets



Figure: 24⁴: Mumbai Downtown, Figure 25⁵: Gateway of India (Today),
26⁶ –Market Street (Today)



Figure 27⁷: Regal Theatre (Old), Figure 28⁸: Churchgate station (Old), Figure 29⁹: Victoria Terminus Railway Station

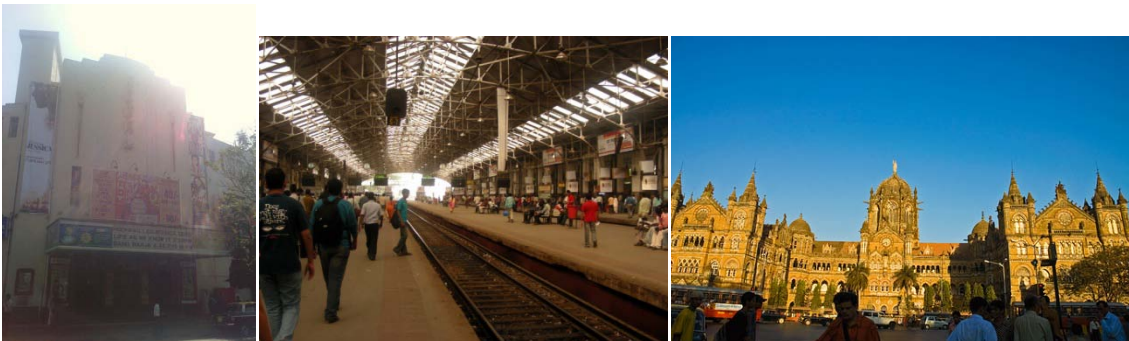


Figure 30¹⁰: Regal Theatre (Today), Figure 31¹¹: Churchgate station (Today),
Figure 32¹² : Victoria Terminus Railway Station (Today)

Notes

- ¹ http://upload.wikimedia.org/wikipedia/commons/c/ce/Cuffe_Parade_old_.jpg
- ² http://commons.wikimedia.org/wiki/File:Gateway_of_India,_Bombay,_1911.JPG
- ³ <http://commons.wikimedia.org/wiki/File:BombayKalbadevieRoad1890.jpg>
- ⁴ http://commons.wikimedia.org/wiki/File:Mumbai_Downtown.jpg
- ⁵ [http://commons.wikimedia.org/wiki/File:Mumbai_\(Bombay\)_Gateway_of_India.JPG](http://commons.wikimedia.org/wiki/File:Mumbai_(Bombay)_Gateway_of_India.JPG)
- ⁶ <http://commons.wikimedia.org/wiki/File:Mumbai-centre-street-market.jpg>
- ⁷ <http://upload.wikimedia.org/wikipedia/commons/a/a9/Regal-Cinema-1935.jpg>
- ⁸ http://commons.wikimedia.org/wiki/File:Churchgate_station.jpg
- ⁹ http://commons.wikimedia.org/wiki/File:V.M._Doroshevich-East_and_War-British_India._Railroad_Station_in_Bombay_enhaced.jpg
- ¹⁰ http://commons.wikimedia.org/wiki/File:Regal_Cinema,_Colaba,_Mumbai.jpg
- ¹¹ http://upload.wikimedia.org/wikipedia/en/b/b1/Mumbai_Churchgate.jpg
- ¹² [http://commons.wikimedia.org/wiki/File:Chhatrapati_Shivaji_Terminus_\(The_Victoria_Terminus\),_Mumbai_-_India.jpg](http://commons.wikimedia.org/wiki/File:Chhatrapati_Shivaji_Terminus_(The_Victoria_Terminus),_Mumbai_-_India.jpg)

CHAPTER 6

MUMBAI – URBAN

When it comes to urban development, Mumbai is considered as an organic city that was built, transformed and developed by a number of reclamation projects and temporary policies. The city is entirely a mixed use settlement where place of residence, place of work, public places, transportation, retail shops, industries, commercial, educational districts etc. exist together. This is perhaps the most important reason for its vibrant character.

Incepted in 1853, Mumbai's local train system consists of three transit lines running south-north and effectively connecting almost all the corners of the city. Mumbai as compared to any city in India has the maximum proportion of people who use public transport or walk to work which are fundamental components of any good city. With its mass transit system running almost 20 hours a day & 7 days a week, Mumbai city never really sleeps. It celebrates festivals of all the religions, almost monthly, with same enthusiasm and energy. Mumbai's hot & humid climate is one of the reasons for its constant active nature. Corner side plazas, public places and beaches are always occupied by citizens of all kinds all year around.



Figure 33¹: Ganesh Idol, Figure 34²: Chowpatty beach, Figure 35³: Street side food

Hawkers, vendors, street side food stalls and most importantly, people are never rare in this city. It works well and inspires its citizens to work productively because of the

way it is built. A true metropolis and the city of the migrants, Mumbai is one of the most livable cities in the country. The growing population of this metropolis proves the same.

Mumbai's built environment does not lack variety either. From the southern tip of the city to its northern border, it encompasses array of spaces, buildings and destinations representing its growth from colonial era to present day metropolis. Most of the monumental buildings in the city were built during the British regime. These structures still serve as important public, infrastructure and administrative buildings of the city. The built environment throughout Mumbai is composed of various architectural styles – from Indo-Saracenic to Hindu, from Greek revival to modern.

The urban characteristic of Mumbai could be studied by looking at the different spatial elements that are woven into its urban fabric. Locations ranging from important public places to historic districts or a lively street to a popular market place, fuel the city for its everyday hustle-bustle and its very existence. Following pages describe some of the places that define this city.



Figure 36⁴: Siddhivinayak temple, Figure 37⁵: Prince of Wales Museum, Figure 38⁶: Shoe Market

Notes

¹http://upload.wikimedia.org/wikipedia/commons/e/e9/Ganesh_Idol_in_Mumbai.jpg

²http://commons.wikimedia.org/wiki/File:Vendors_on_Chowpatty_Beach.jpg

³http://commons.wikimedia.org/wiki/File:Bademiya_restaurant,_Mumbai.jpg

⁴http://commons.wikimedia.org/wiki/File:Siddhivinayak_temple.jpg

⁵http://commons.wikimedia.org/wiki/File:Prince_of_Wales_Museum,_Mumbai.jpg

⁶http://commons.wikimedia.org/wiki/File:Bandra_Shoe_Market.jpg

CHAPTER 7

MUMBAI – URBAN ENVIRONMENTAL ISSUES

Mangrove Destruction: Mangroves are an integral part of the landscape of Mumbai. The city was originally surrounded by 5000 acres of mangrove swamps. Among these, the city has lost almost 40% to reclamation of land for construction and development projects. As a result, Mumbai became more vulnerable to natural disasters.

Land Use Changes: Salt Pan Lands: Similar to its mangrove cover, the city has a chunk of land dedicated to salt production. However, the lack of land for

residential accommodation has pushed the developers to convert the salt pan lands into residential and commercial zones. Salt pan lands are an important barrier between land & sea. And with their land use change, the danger of flooding has increased.

Land Use Changes: Mill Lands: Central district of Mumbai consists of 600 acres of defunct mill lands that represent the textile era of the city. These mill lands are a boon for Mumbai if developed in the right way. However city developers are using these

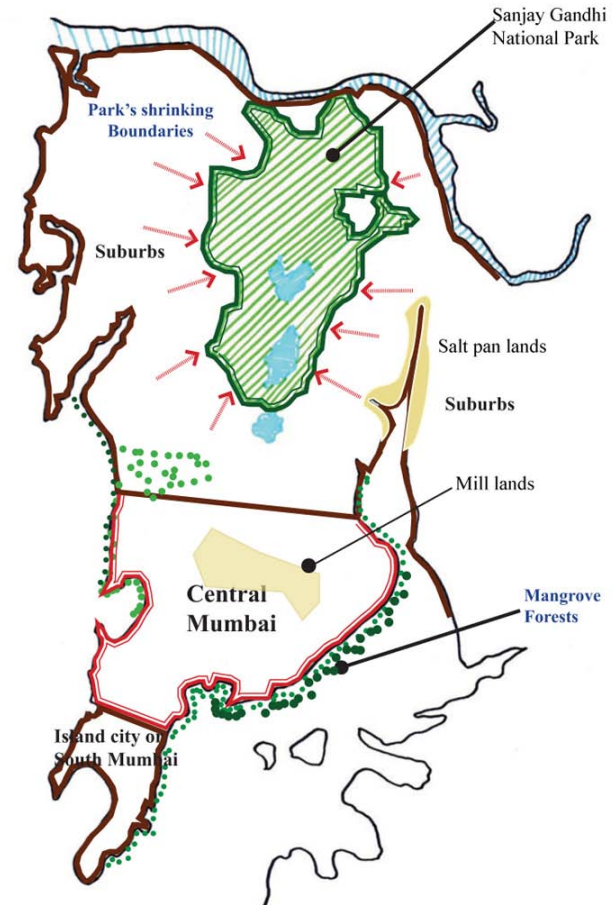


Figure: 39 Urban Environmental issues (Author)

residential accommodation has pushed the developers to convert the salt pan lands into residential and commercial zones. Salt pan lands are an important barrier between land & sea. And with their land use change, the danger of flooding has increased.

Land Use Changes: Mill Lands: Central district of Mumbai consists of 600 acres of defunct mill lands that represent the textile era of the city. These mill lands are a boon for Mumbai if developed in the right way. However city developers are using these

lands for residential and commercial unsustainable constructions. This is further adding to the already inflated problems of the city.

Forest Depletion: Urban development didn't spare Mumbai's only breathing lung too. Illegal construction continues to develop on National Park periphery. Consequently this rich and unique forest which acts as an essential green cover and carbon sink is shrinking day by day.

Rapid land reclamation: Mumbai once had numerous creeks flowing into the island. But as urbanization of the city continued, these water bodies got filled up. Such excessive coastal land reclamation is unhealthy for an island city like Mumbai.

Pollution, population and lack of space are traditionally described as the ultimate problems of Mumbai. These issues consequently lead to environmental degradation of this global city. Leopard attacks in a bustling city, landslides, abnormally high temperatures in summers, erratic rainfall have long since warned the city of the impending doom. It is believed that the environmental problems of Mumbai have emerged due to the creation of the city itself.

With change in climate and global temperature rise, Mumbai now receives extravagant monsoon showers making city's drainage system inadequate. On 26th November 2005, Mumbai was lashed with 39 inches of rainfall within 24 hours. This day was an eye opener when the city came to a standstill. Disasters like 26/7 not only cause a distress among the citizens but they also drain the city economically. Mumbai's urban environmental issues might not have a water tight solution at the moment. But it's important that they are studied, analyzed & addressed in the best possible way.

Over the last few years Mumbai has witnessed several signs of 'sanity' in terms of environmental protection. Some of the leading organizations in the city along with active environmentalists are persistently fighting for city's sustainability. Their efforts are essential & could turn out to be one of the most crucial steps towards Mumbai's environmentally healthy future.

Mumbai is still in the need of similar efforts. Considerable damage has already been done to the 600 acres of land belonging to the textile era of the city. Yet there exists a small ray of hope for Mumbai since some of the major chunks of derelict mills indicate a strong potential for a sustainable development.

CHAPTER 8

GIRANGAON – THE MILL PRECINCT

Location

“Girangaon” is a Marathi word for “Mill village” or the mill precinct, which is characterized by industrial architecture of more than 50 mills. Over 600 acres of land in this region was dedicated to textile industry in early 19th century.

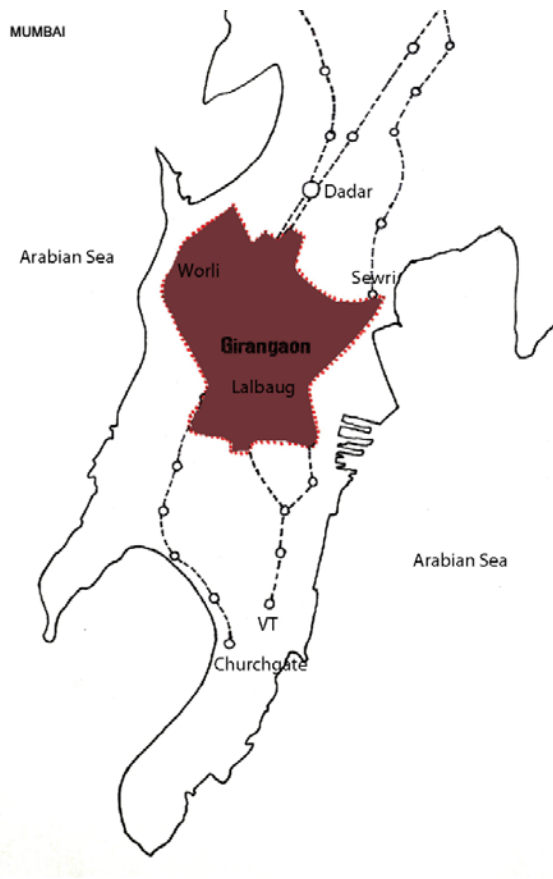


Figure 40: Girangaon map (Author)

Girangaon was home to thousands of mill workers and their families. The unique housing settlements by workers, their social networks and communities dominated Mumbai’s mill precinct for decades.

Diagram to the left highlights Girangaon on the map of Mumbai. The precinct stretches from Lalbaug to Parel and Worli to Sewri and spreads across an area of 25sq.km. The entire mill precinct is efficiently integrated into Mumbai’s mass transit system and well connected to major streets in the city.

Origin

The inception of textile industry in Mumbai goes back to late 19th century when the first mill was established by Cowasji Davar in the year of 1856 with the help of 50

leading businessmen in the city. By 1862, four mills were added and this number grew to 21 by 1885.

By early 20th century there were more than 50 textile mills in Mumbai which transformed it from a trading town to a manufacturing center. Increased employment opportunities in mills drew thousands of migrants from towns and villages all over the state. By 1931 half of the city's population was economically dependent on textile industry.

Development

Residential, institutional and infrastructure development had already commenced in the south region of the city and development plans were now being modified and extended towards the north. To encourage the development of textile industry and promote industrial production, acres of lands in Central Mumbai were given to the mill owners at concessional rates by the colonial Bombay Government. Mumbai's development as an economic hub was greatly enhanced by these very mills.¹

Areas where mills were located grew to become the heart of the city. Eventually central Mumbai witnessed a distinctive skyline of tall chimneys and gigantic mill structures.

Characteristics

Over 50 mills in less than a 3 mile radius converted this portion of the city into an incredibly crowded, lively and dynamic hub. Almost all of the workers employed by mills lived in close proximity of their place of work. Such an aggregation of workers within a smaller region of the city increased the social and cultural involvement of the

workers in the community. This led to stronger community ties and a rich network of physical and social infrastructure.²

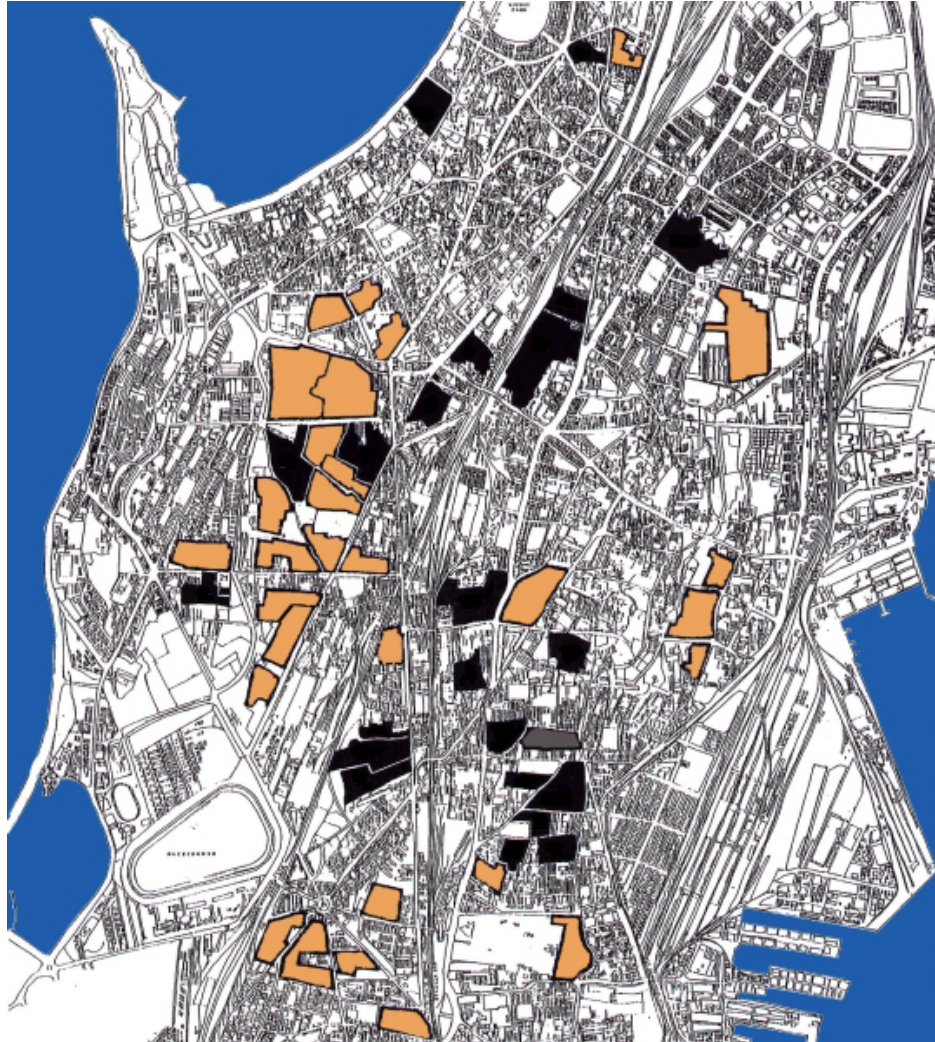


Figure 41: Map showing location of textile mills in the city³

The map above shows the locations of 58 mills in Girangaon that establish a unique urban fabric of this region. Mill workers housing, recreational grounds (for worker colonies), places of worship and entertainment are some of the dominant elements in the urban characteristics of Girangaon.

Social Structure

In the period of 1891 to 1921 the population of Parel & Byculla doubled where as the population of Worli & Sewri increased by five times. Mumbai now received migrants from not just east and coastal Maharashtra, but it was also populated by crowds from Uttar Pradesh and Gujarat (some of the other states of India) all employed in textile industry. Mill workers included people from all castes and religion. Soon they established their distinctive places of worship such as temples and mosques and started side businesses in meat and vegetable markets.

Initially in the migrant population, the men arrived alone in order to find employment. Later as they settled they brought their families along. In 1875 when the textile industry was at its peak the housewives of workers too, started working in the mills for additional income. However the male population among the workers community always dominated the female population.

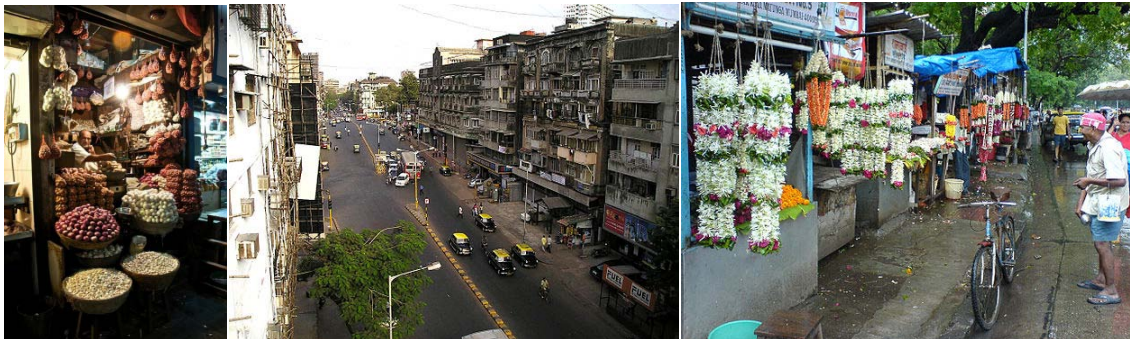


Figure 42⁴: Roadside grocery shop, Figure 43⁵ : Shops/Commercial at street level, Figure 44⁶ : Road-side flower shop

Most of the single men lived in groups. As a result a number of housewives started buffet services and canteens for lunch and dinner. In 1970's, the mill precinct had over 500 canteens predominantly serviced by the female group. Along with these, most of the residential buildings incorporated side businesses of workers such as retail,

grocery, newspaper, flower, sweets shops, snack centers, ice-cream parlors, pharmacy, service shops like laundry shop, domestic flour mills etc. on street level.

Housing

Due to housing demands from the mill workers, the Bombay Development District (BDD) and Bombay Improvement Trust (BIT) built rows of low cost houses in Girangaon. These 1-2 stories high, single to double room tenements with a common narrow corridor, and a block of shared toilets situated at the end of the corridor came to be known as “Chawls”.



Figure 45: Mill workers housing (Author)

A group of 3 to 4 Chawls were built around a central courtyard that became the venue for family celebrations, weddings, sports, festivals, community fairs and meetings. This congested tenement living created a “Chawls Culture” based upon a unique, shared lifestyle and collective identity. Since the dwelling units in Chawls were very small in area, (Hardly 200sq.ft) most of the residents spent their days in the common corridors and staircases. Small grounds, sidewalks, spaces between the two Chawls, benches under trees, boundary edges, shop fronts and street corners also known as “Chowk” or “Naka” became the social gathering spaces. Mill lands were designed in such a way that they will have sufficient amount of open space around them, so that the nuisance to surrounding community is limited. Hence these lands efficiently merged into the surrounding urban fabric as opposed to standing exclusive. In addition to ‘workplace’, mills became a second hometown for mill workers. They included a place of worship, family clinics and canteens.

Culture

Many of the social groups in a single Chawl shared a common hometown. Sometimes they belonged to the same extended family, had common interests and cultural outlooks. Girangaon was dense, poor & illiterate. Yet it was filled with talent in theatre, music and arts. The mill precinct gave many talented and versatile artists to city. People here enthusiastically celebrated different Indian festivals throughout the year. During the festive season the streets and Chawls of Girangaon looked no less majestic than a wealthy south Mumbai neighborhood⁷. In fact the hard work, simplicity, honesty and benevolence of people added to the attractiveness of this precinct. Even today, the

festivals are enjoyed with same exuberance and honor; however the workers' society is poorer, hurt and unhappy.

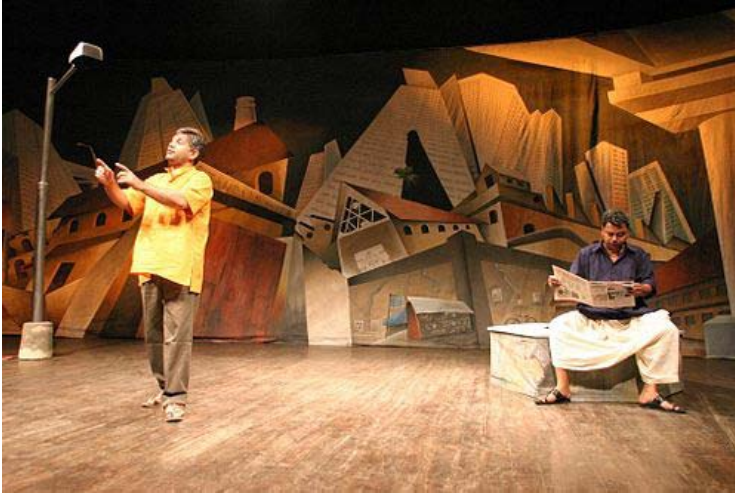


Figure 46: Marathi theatre⁸

The mill workers also staged brilliant theater and sustained folk arts like Lawani, Tamasha, Bhajan, Namaan, and Shahiri Powadas. All these art forms narrated the stories of their life style, their social and political upheavals, the freedom struggle of the country and Samyukt Maharashtra Andolan.

Girangaon or the mill precinct of Mumbai has experienced a great amount of upheaval over the past two decades. Textile industry in Girangaon - the backbone of city's economy gradually set out to disintegrate under pressures from various other sectors. Hence the decline of Mumbai mill lands is rooted in several economic, social and political issues⁹.

Even after their decline in Mumbai, the textile industry remains India's second largest employer after agriculture. It accounts for a fifth of industrial production and employs 18 million directly. If one adds all those engaged in related industries, like textile machinery, dyes and chemicals, marketing, transport - not counting the millions of farmers growing cotton - the number dependent on it goes up substantially. Moreover, it

contributes over 30 per cent of all export earnings. Export of Indian textiles comprise of 2.4% of the world trade.¹⁰

Mumbai Mills contributed significantly towards the creation of country's finest cloth. After led by the textile mills, several other large and medium scale industries were established in the post-independence era and the development plans made provision for the same through earmarking industrial zones for manufacturing, trade and logistics operations. Mumbai has shown how to build the enormous potential in industrial production and almost became one of the country's backbones of industries and economy¹¹.

Notes

¹ (Nallathiga 2010)

² (Mhatre, Downtown revitalization: Lessons for Mumbai Mill lands 2006)

³ <http://img464.imageshack.us/img464/800/mumbaimilllandsresized2cq.jpg>

⁴ http://commons.wikimedia.org/wiki/File:Dried_produce_shop,_Crawford_market,_Mumbai.jpg

⁵ <http://commons.wikimedia.org/wiki/File:P1010628-EEEEEE.jpg>

⁶ http://commons.wikimedia.org/wiki/File:Flowers_at_Matunga.jpg

⁷ (Adarkar, Mumbai's Industrial landscape 2006, 84, 85)

⁸ http://commons.wikimedia.org/wiki/File:Kaka_tells_story.jpg

⁹ (Mhatre 2005)

¹⁰ (Ripping the fabric 2002)

¹¹ (Nallathiga 2010)

CHAPTER 9

DECLINE OF THE TEXTILE MILLS

In mid-nineteenth century, textile industry experienced several technological changes all over the world. The conventional handloom technology faced a severe competition from the advanced power loom techniques. The mill owners did not update the machinery in the Mumbai Mills to keep up with the changing trends and the low-skilled workers were also comfortable with this policy. During the same period the fuel prices and costs of raw material increased. Reservation policies and adverse taxation discouraged the mill owners from investing more in the industry. By 1980's it became uneconomical to maintain large scale industrial units within the city limits on account of high power and tax costs.¹ Also, the economic and technological change struck major mill towns like Manchester in UK and Lowell in Boston and eventually there was an overall slump in the world textile market. By 1990's the employment rates of service industries increased by large numbers.

Another reason for the ultimate shut down of mills is the 18 month long strike by mill workers' union in 1982. Nearly 250,000 workers & more than 50 textile mills went on strike. Rashtriya Mill Majdoor Sangh (RMMS) the largest workers union in the city led by Congress (political party) fought the government and mill owners for their rights. The Bombay Industrial Relations Act, 1946 (BIR Act) sought to establish a single union, the Congress-led RMMS as the only approved union. This move was taken primarily to renounce the option of strikes and focus on other means of resolution. The strike of 1982 was called for primarily to strike down the BIR Act along with increase in wages.

The strike did no good for the workers instead it opened a new strategy for mill owners. During the strike, mill owners outsourced the work to workers in Bhiwandi, a distant suburb who were paid almost 50 percent of the wages in spite of longer working hours and no legal compensation.²

All this led to huge losses and the running of the Cotton Textile Mills became unviable. Several mills were declared sick and a few even shut down their operations. Only a few managed to survive. There were 58 cotton textile mills in Mumbai. Of these, 26 were deemed 'sick' and, therefore, taken over by the Government of India. The remaining 32 mills continued in the private sector.

Declining status of Manufacturing in Mumbai (1980 - 1998)

Mill locations	No of Workers		
	1980	1990	1998
Mazgaon	16456	6925	4968
Tarawadi	28114	18933	12800
Byculla	27257	30332	13134
Parel	34879	15073	10561
Sewri	15960	18163	8425
Naigaon	21591	12485	13595
Prabhadevi	29721	21032	20225
Worli	61691	30895	21494
Chinchpokhli	50787	22083	18220

Table 1: Declining status of Manufacturing in Mumbai (1980 – 1998)

Employment sectors	% of workers in major activity groups			Variation in absolute no of workers		
	1980	1990	1998	1980	1990	1998
Agriculture and allied	1.04	0.43	0.26	23081	1049	6077
Mining and Quarrying	0.04	0.01	0.01	920	348	182
Manufacturing	36.73	28.47	17.73	817718	633826	394772
Construction	0.63	0.83	0.61	14028	20082	18002
Trade, Restaurants & Hotel	24.51	28.03	29.07	545591	705127	747723
Transport & Communication	9.43	5.42	9.97	209883	131472	263504
Finance, Insurance, Real Estate & Business services	6.24	10.25	13.69	138849	248541	361888
Community, social and Personnel services	13.64	23.87	28.52	303557	578945	753648
Other	7.10	1.21	0.37	157996	29257	9833
Total	100.0	100.0	100.0	2226011	2425881	2642577

Table 2: Declining status of Manufacturing compared with other employment sectors in Mumbai (1980 – 1998)

Notes

¹ (Nallathiga 2010)

² (D. D. Monte 2002, 78 - 85)

CHAPTER 10

REDEVELOPMENT OF TEXTILE MILL LANDS

Redevelopment of mill lands in Girangaon is one of the few options left for a sustainable revival of the city. Mumbai's ecological, social & cultural aspects are the fundamental drivers in this process of urban revitalization.

When textile mills were fully operational, they were excluded from reservations for public amenities. According to an ex-government planner, there was no reason to believe they would shut down and hence these lands were regarded as industrial zones alone. But a few years later, with technological changes and economic restrictions many of the mills were declared 'sick' and it was hard for mill owners to pay thousands of workers unless they were allowed to sell their assets. As a result, in 1990, DCR 58 (Development Control Regulation) came into existence. DCR 58 allowed the mill owners to sell part of their land. For the first time Mill owners were allowed "change of user" from Industrial to Residential / commercial on the condition that they use the resultant funds for the revival of the mills. They were allowed to sell only 15 percent of the mill land and use the resources to modernize the mills.

In 1991, five to six mills were developed on the basis of DCR 58, but not a single mill undertook any kind of modernization. The skyline of Girangaon began to change steadily with the arrival of high rise luxury towers. When Phoenix converted one of its structures into Bowling alley (the permission for this was obtained on the pretext of building a recreation center for the workers), Girangaon was really shaken. The issue of mill lands no longer was limited to mill workers alone: it concerned the issue of urban development.

Please note that the objective of DCR 58 was not supposed to be real estate development, it was meant to protect the jobs of the workers, by allowing only a partial sale. If the development of mill lands was the main objective, then the government should have worked on comprehensive development plan to include all mill lands, in fact the entire Girangaon. It should have been addressed as an urban planning issue instead. The actual outcome as can be seen by all is a piecemeal, ad hoc and often surreptitious exploitation of real estate for immediate gains.

Under the banner of GKSS (Girni kamgar sangarsh samiti) Mill Workers Action Committee, a protest march was organized by the workers along with artists, activists and local residences against government. All of them spoke against the new real estate developments in which, needs of the neighborhood were totally neglected.¹

Notes

¹ (D. D. Monte 2006, 94 - 107)

CHAPTER 11

CHARLES CORREA STUDY GROUP REPORT (1996)

Holistic approach¹

The current piecemeal and individual development of mill lands is one of the major problems when it comes to retaining the character of Girangaon. This approach initiated by the intransigent mill owners denies the integrated development the city needs. It also points out the lack of any overall planning and development strategy seeking to create coherent urban form and address other issues like housing for low income groups, civic amenities and new employment opportunities for ex-mill workers.

Girangaon needs a comprehensive urban renewal plan that will take care of mill sites as well as the surrounding communities. Since these lands are in close vicinity to each other, each could be developed differently in accordance with its location, size and neighboring uses and yet is a part of an integrated master plan for the entire mill district. A complete system of urban network could be established by introducing new destinations for entertainment, public, retail & commercial activities, transit and recreational purposes. Consequently the Government of Maharashtra set up a study group to prepare an integrated development plan for textile mills in Girangaon.

The study group chaired by architect & urban planner Mr. Charles Correa created a design solution for a comprehensive redevelopment of textile mills in Girangaon. It appointed teams of architects, engineers & conservationists to visit the 58 mills and appraise & document the various structures and other prominent features in each of them. However the group was denied access to 32 mills in private sector. 3 of those mills were already keen to sell some of their land right away. Hence the report deals with remaining

25 mills that are with NTC and were accessible. NTC too retained some of its mill units which they felt were viable and declared to dispose of the rest. This report principally addresses the mill land that is to be disposed of by NTC.

The report identifies a triangular area between Matulya, Paragon and Mumbai mills and develops an integrated master plan for the same. The strategy for land-use division adopted by the study group supports the DC rule of 1992. It recommends that the division between the City, MHADA and the owner should be fixed at one third each, regardless of the size of the site. The report proposes one third (7 mill sites) for public housing to be developed by MHADA, one third (4 mill sites & portions of other 4 sites) for open spaces and public amenities and the last third (3 mill sites & portions of other 3 sites) for development by NTC. Study group believes that with this methodology, instead of a meaningless hodge-podge of development, large and viable parcels of land can be made available for each of the 3 land uses specified, in a pattern which makes overall urban sense for the city.

Redevelopment plans proposed by the study group are based on the following factors –

Transport

- Establish important connector roads.
- Widen capacity of the existing road and rail network.
- Improved pedestrian movement.
- Exclusive roads for buses to support heavy traffic of passengers travelling between buses and trains.

Urban Form

- Identify heritage structures on mill sites.

- Preserve and recycle them as studios for artists, workplaces for fashion designers, computer software engineers etc.
- Creation of a new center in the heart of the city, with its own distinctive character, vitality and ambience.
- Establish key design guidelines regarding the urban Form.
- Development of larger footprints for economical & energy-efficient construction.
- Use of building facades to help define streetscapes.

Open Spaces

- Open spaces of different sizes to allow variety of uses.
- Principal roads widened and lined with trees to create leafy boulevards.
- Pedestrian plazas in front of railway stations.
- Covered shopping arcades alongside major roads.
- Land for public open spaces could be used for other social facilities like schools, clinics or community centers depending upon the needs of the neighborhood.

Employment generation

- Generation of semi-skilled employment similar to that provided by existing mills.
- Development of new high-tech, non-polluting industries like computers and garment industry.
- Large number of household jobs would be created with the development of high-end residential zones in place of former mills in private sector.

Housing

- Land taken over by MHADA could be used to develop low income housing, reconstruction of dilapidated buildings or redevelopment of slums.

- MHADA could hand over some of the construction to other contractors.

Private Mill development

- Prepare an Outline Development Proposal (ODP) for mill sites.
- Include surrounding area with road network.
- Identify and document heritage structures that need to be preserved.
- Provide land allocation for three types of uses & an outline of the built form.

Pooling of land

- Pooling the land for increased FSI of 2.0 (compared to FSI of 1.33 in island city)
- Beneficial in creating large new public spaces.
- The cluster of taller buildings generated by the additional FSI would create a visible landmark, recognizable across the city's skyline as a symbol of the generation of Parel and with it, the city of Mumbai.
- In conclusion, the study group recommends further research and analysis of the existing conditions in Girangaon. This report is limited just to the mill plots themselves, yet some attention has been paid to the surrounding areas.
- The report also says "to bring about more comprehensive & decisive urban renewal, detailed planning would have to be undertaken to address many problems of the area such as chawl reconstruction, housing for the pavement dwellers, parking for intercity buses etc. This would also involve resolution of legal considerations related to repairs and reconstruction of old buildings."²

Notes

¹ (Correa 2006, 16-23)

² (D'Monte 2002, 126 - 148)

CHAPTER 12

TODAY'S TREND OF DEVELOPMENT OF MILL LANDS

City developers and builders have already redeveloped a number of defunct mill lands. The land in most cases is used for residential high rises and in some cases for commercial, retail and entertainment sectors. Almost all the existing structures on these mill lands were demolished completely (except a few factory features like Chimney) for redevelopment.



Figure 47: High Street Phoenix¹
mall² and Residential tower³

The first textile mill to redevelop is central Mumbai's entertainment and shopping hub. A hotel and a multiplex added later in the development. The new development replaced mill buildings with very little green open space. Some of the developers did

create some public spaces like shopping complexes, multiplexes and other retail outlets, however the benefit of these areas and buildings for the ecological sustainability of the city is questionable.



Figure 48: Ashok Towers⁴

Phoenix Mill: The first to redevelop the textile mill is today's Central Mumbai's entertainment and shopping hub. A multiplex and hotel are currently being added here though the Bombay Municipal Corporation lease deed in 2005 gives the mill over 20,000 square yards of land at the annual rent of a rupee for 'residences of labor staff, and welfare services like a school'.

Morarjee Mill 1: Construction of the residential complex 'Ashok Towers', with three 30-storeyed and a 50-storeyed tower, underway for the past six months. Part of the mill's land is on a 956-year lease for annual rent of Re 1.

Morarjee Mill 2: Peninsula Corporate Park houses new economy offices like TATA-AIG and Orange, as well as a posh health centre, Wellsprings; part of the land is on a 999-year lease.

Simplex Mill: This mill, co-founded by Mohammed Ali Jinnah in 1913, is bowing out to Planet Godrej, five residential towers of 46 storeys each. Part of the land was given on a 99-year lease for an annual rent of Rs 43. The lease expired in 1983.

Shrinivas Mill: South Mumbai's Millionaire Member of Legislative Assembly Mangal Prabhat Lodha won the redevelopment rights, plans a residential complex.

Standard Mill: A giant apartment complex

of Beau Monde, with apartments priced at over Rs. 1 crore each. Residential towers have also been cleared by the Bombay Municipal Corporation.



Figure 49: Godrej heights³

Development control regulations 1991 -war of words

1991 - DCR 58, born as a rule for redevelopment-towards-rehabilitation (of a sick mill), two-thirds of the plot should be handed over to the Bombay Municipal Corporation (BMC) for civic amenities and MHADA for public housing, giving the mill-owner compensatory FSI and TDR on the remainder land to be used in suburbs.

Effect - A few mills redevelop within existing structures on DCR 58 stipulations to develop only 15% of the land to clear workers dues and renew mill machinery. But the

owners violate DCR 58 by neglecting the up gradation of mill machinery. The owners act enforces stay on further development.

1996: To solve the issue, state appoints a study group headed by planner Charles Correa to suggest a comprehensive usage plan for defunct mill lands. Refer Chapter: 11

Effect: Denied visits by private mill-owners, group only studies NTC mills and submits a holistic redevelopment proposal. The government puts report in cold storage.

2001: The ban on redevelopment is lifted and amends the three-way land sharing clause to only 'open land' in a mill complex.

Figure: Conceptual diagram showing division of land.

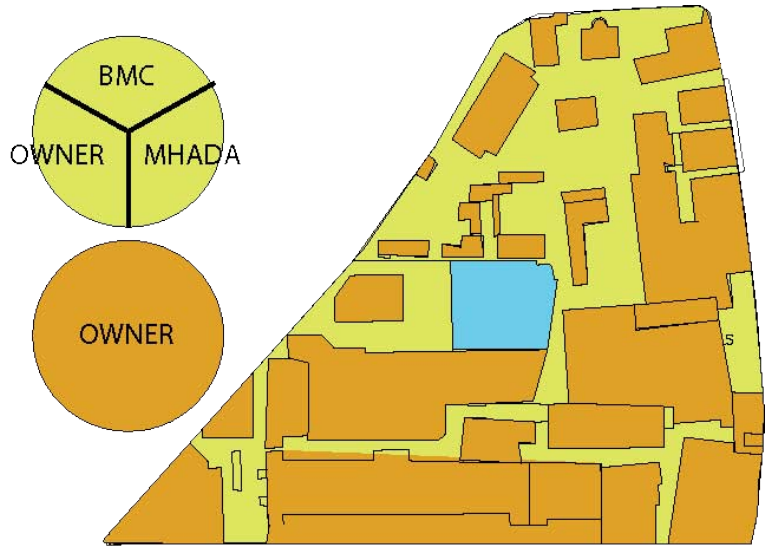


Figure 50: Division of land between three stake holders (Author) and Google Earth

Effect: Mill-owners get to keep most or even all of the land. Private mills wind down and a flurry of redevelopment plans follow. NTC proposes a revival plan for 10 of its mills by selling the remaining 15.

Conclusion: Privately owned properties sprouting on mill lands with private clubs, office complex, shopping complex, hotels, and arcades with access to limited population of the city.

Notes

¹<http://img526.imageshack.us/i/s1qr3.jpg/>

²http://upload.wikimedia.org/wikipedia/commons/3/36/Phoenix_Mills_2.jpg

³<http://img522.imageshack.us/i/phoenixtowerhumis3.jpg/>

⁴ <http://imageshack.us/photo/my-images/187/ash33da354au8tw1.jpg/>

⁵ http://upload.wikimedia.org/wikipedia/commons/6/68/Planet_Godrej.jpg

CHAPTER 13
SITE ANALYSIS

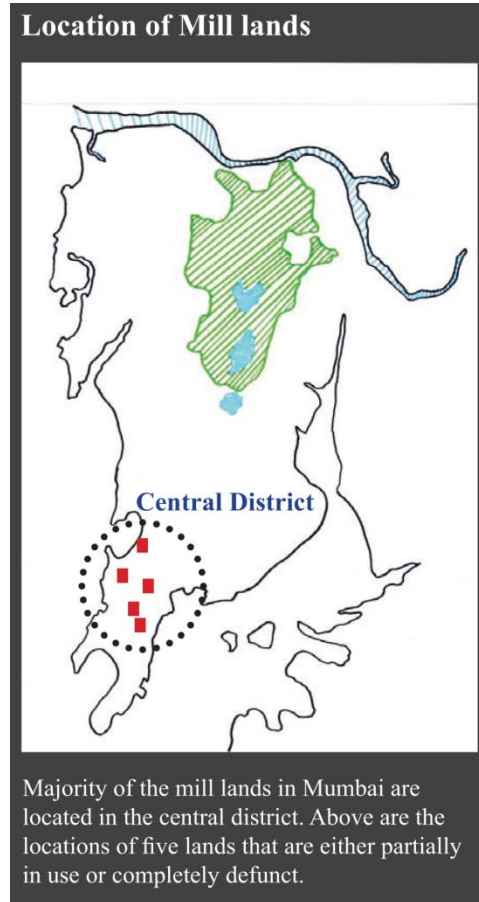


Figure 51: Location of Mill lands in Mumbai

SWOT analysis

In the following map, five potential mill lands are identified for redevelopment and a SWOT (Strength -Weakness - Opportunity - Threat) analysis is carried out for each. Depending on this and the physical site analysis, the site for this redesigning project will be decided.

Name of Mill land	STRENGTH	WEAKNESS	THREAT	OPPORTUNITY
India United Mill Land No.1	<p>1. Located along the most important road in central district.</p> <p>2. More than 75% of the mill buildings on site are in a good condition.</p> <p>3. Close to a railway station and several bus stops.</p> <p>4. Land use around it is mostly residential.</p>	<p>1. Located along a very busy street.</p> <p>2. Lesser site area compared to other mill lands.</p>	<p>1. Opportunity for a mid-size public park or garden.</p> <p>2. Existing mill buildings can be converted into a small public school or community center.</p> <p>3. Helpful in revitalization of the street front.</p>	<p>1. Site contamination is possible in some areas.</p> <p>2. Unstable structures on site will have to either demolished or repaired.</p> <p>3. Part of site area might be reserved for road widening in the future.</p>
Madhusudan Mills	<p>1. Part of a bigger mill district.</p> <p>2. Considerably large site area</p>	<p>1. No easy access from any of the</p>	<p>1. Opportunity for a mid-size public park or garden.</p>	<p>1. Isolated position may encourage crime.</p>

	<p>for redevelopment.</p> <p>3. Thick existing vegetation.</p>	<p>railway station or bus routes.</p> <p>2. Isolated position</p>	<p>2. Existing mill buildings can be converted into a museum or theater.</p>	
<p>India United Mill Lands # 2 & 3</p>	<p>1. Large site area.</p> <p>2. Strategic central position in a dense residential zone.</p> <p>3. Close to 3 railway stations and several bus stops.</p>	<p>1. Away from the main street.</p> <p>2. Central yet isolated position.</p>	<p>1. Good opportunity for adaptive reuse of mill buildings.</p> <p>2. Ideal for a public park or plaza.</p> <p>3. Opportunity to revitalize central district.</p>	<p>1. Number of unstable structures on site.</p> <p>2. Isolated position may encourage crime.</p>
<p>Digvijay Mills</p>	<p>1. Located along the most important road in central district.</p> <p>2. Close to a railway station and several bus stops.</p>	<p>1. Located along a busy street as well as near a fly-over.</p> <p>2. Limited site area</p>	<p>1. Opportunity to convert the existing mill building into a market place or bazaar.</p>	<p>- Part of site area might be reserved for road widening in the future.</p>

	3. Land use around it is mostly residential.	compared to other mill lands. 3. Single huge mill building might be a challenge to reuse.	- Helpful in revitalization of the street front.	
India United Dye Works	1. Located along a sea front to the west and an important road to the east. 2. Considerably large site area for redevelopment. 3. Several bus routes and stops along the adjacent road.	1. No easy access from any of the railway station. 2. Transportation to the site or site access will be car-driven.	1. Opportunity for a mid-size public park or garden. 2. Existing mill buildings can be converted into a small public school or community center. 3. Helpful in revitalization of the sea front.	1. Part of site area might be reserved for road widening in the future. 2. Proximity to the sea makes it prone to floods.

Table 3: SWOT analysis of five different Mill sites in Mumbai

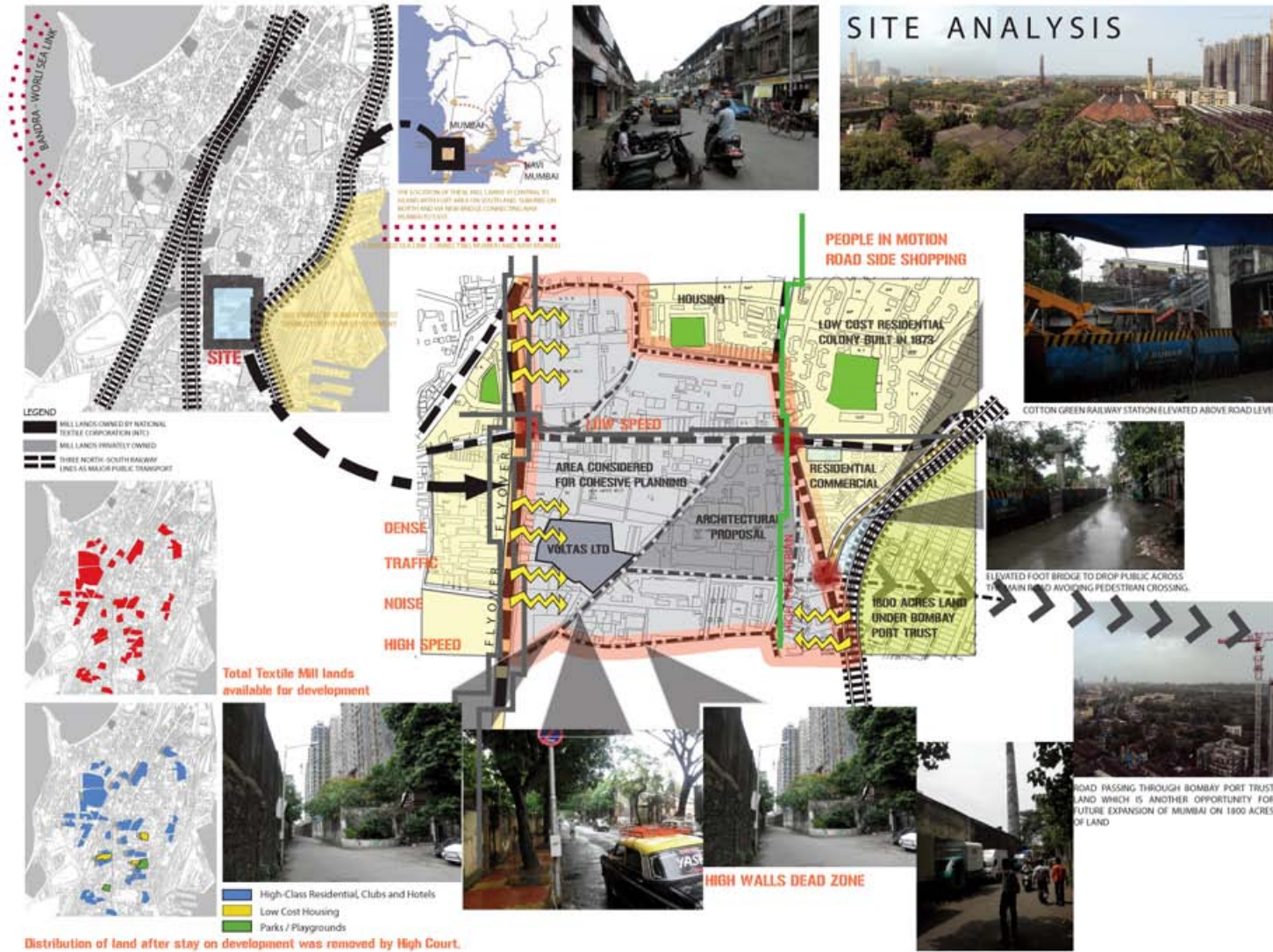


Figure 52: Site Analysis (Author)

ARCHITECTURAL / STRUCTURAL WALKTHROUGH

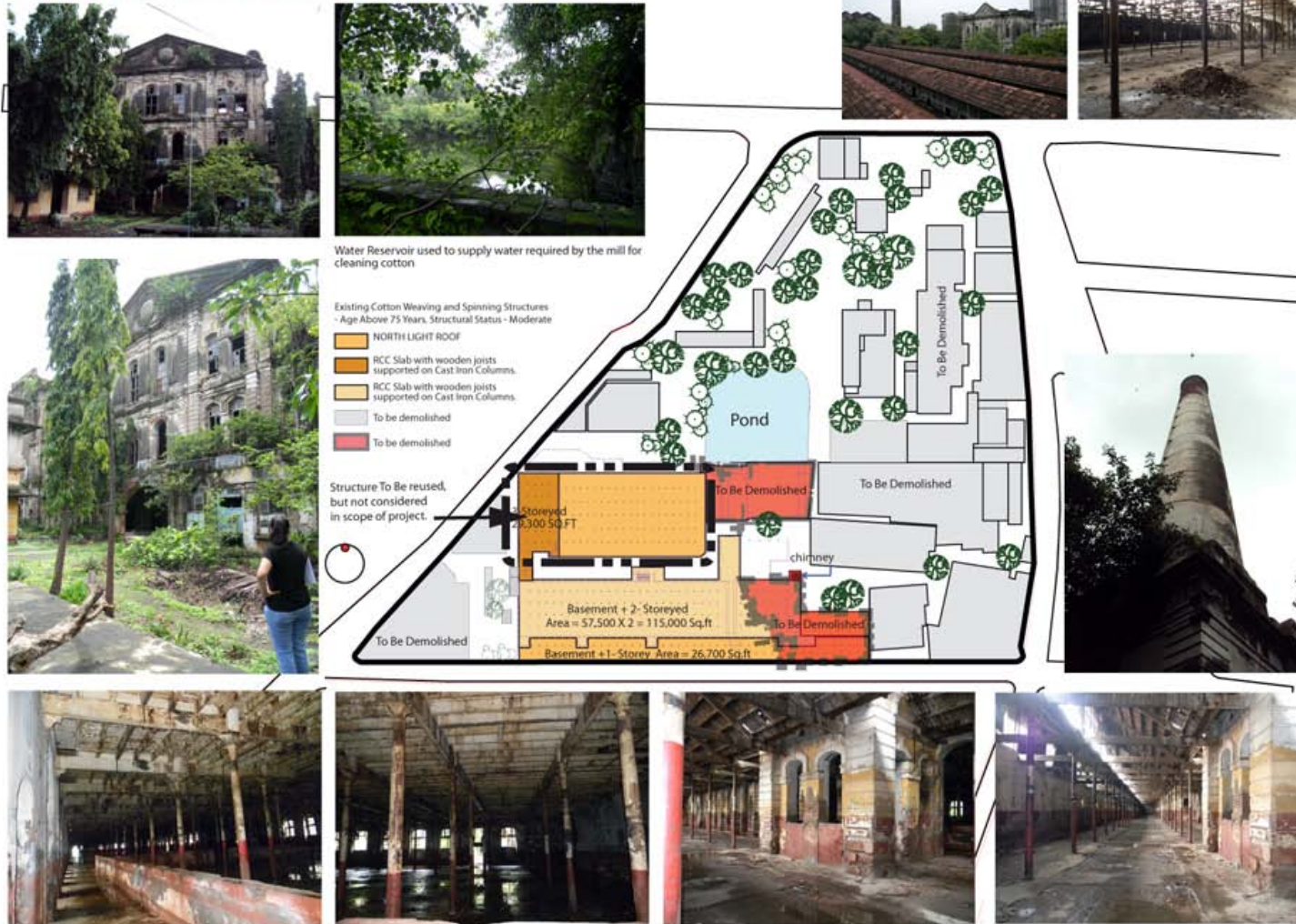


Figure 53: Architectural / Structural walkthrough (Author)

SITE WALKTHROUGH



GREEN VEGETATION ALONG NORTH WALL



NORTH WEST SIDE SITE CORNER



Road side shopping



Low to Medium cost housing provided by MHADA, Maharashtra Housing Area Development Authority



Staff Quarters



View looking at the North-west corner of site



Mill Workers Housing



Major Public Transport Bus Station Connecting Different Parts Of The City.



15-0' High wall surrounding the site



View looking from the Terrace of existing building to the new development in the form of Tower.



View of Tanaji Malusare Marg (Street)



View showing the South - West corner of site



Temporary Street Side Market Local Fishermen Selling Fish

Figure 54: Site surroundings (Author)

CHAPTER 14

PRECEDENTS

REDEVELOPMENT OF HIGHLINE PARK, NEW YORK

Before it was turned into a park, the highline was in disrepair, although the riveted steel elevated structure was basically sound. Wild grasses, plants, shrubs, and rugged trees such as sumac grew along most of the route. It was slated for demolition under the administration of New York Mayor.



Figure 55: Elevated Highline Park¹

The park's attractions include naturalized plantings that are inspired by the self-seeded landscape that grew on the disused tracks and new, often unexpected views of the city and the Hudson River. Pebble-dash concrete walkways unify the trail, which swells and constricts, swinging from side to side, and divides into concrete tines that meld the hardscape with the planting embedded in railroad gravel mulch. Stretches of track and ties recall the High Line's former use. Portions of track are adaptively re-used for rolling lounges positioned for river views.



Figure 56² : Highline rail bridge, Figure 57³: Highline Park features

The recycling of the railway into an urban park has spurred real estate development in the neighborhoods that lie along the line. Mayor Bloomberg noted that the High Line project has helped usher in something of a renaissance in the neighborhood: by 2009, more than 30 projects were planned or under construction nearby. It costs substantially less to redevelop an abandoned urban rail line into a linear park, rather than to demolish it. James Corner, one of its designers, said, "The High Line is not easily replicable in other cities," observing that building a "cool park" requires a "framework" of neighborhoods around it in order to succeed.

Notes

¹http://upload.wikimedia.org/wikipedia/commons/1/1d/High_Line_20th_Street_looking_downtown.jpg

²http://upload.wikimedia.org/wikipedia/commons/f/f1/Highline_NYC_454619979_8_2fb244ec8b.jpg

³http://commons.wikimedia.org/wiki/File:Highline_NYC_4546170998_af632df6c1.jpg

MASSACHUSETTS MUSEUM OF CONTEMPORARY ART

The Massachusetts Museum of Contemporary Art, commonly referred to as MASS MoCA, is a museum in a converted factory building located in North Adams, Massachusetts, USA. It is one of the largest centers for contemporary visual art and performing arts in the country.



Figure 58: MASS MoCA¹

The development of MASS MoCA began a year after Sprague vacated the buildings. In 1986 a group of staff from the nearby Williams College Museum of Art were looking for large factory or mill buildings where they could display and exhibit large works of modern and contemporary art that they weren't able to display in their more traditional museum/gallery setting. They were directed to the Marshall Street complex by the mayor of North Adams. When they spent time with the space, they

quickly realized the buildings had much more potential than an off-shoot gallery. The process for MASS MoCA began. It took a number of years of fund-raising and organization to develop MASS MoCA. During this process the project evolved to create not only new museum/gallery space but also a performing arts venue. In 1999, MASS MoCA opened its doors.



Figure 59: Light well at MASS MoCA, Figure 59: Gallery space (Author)

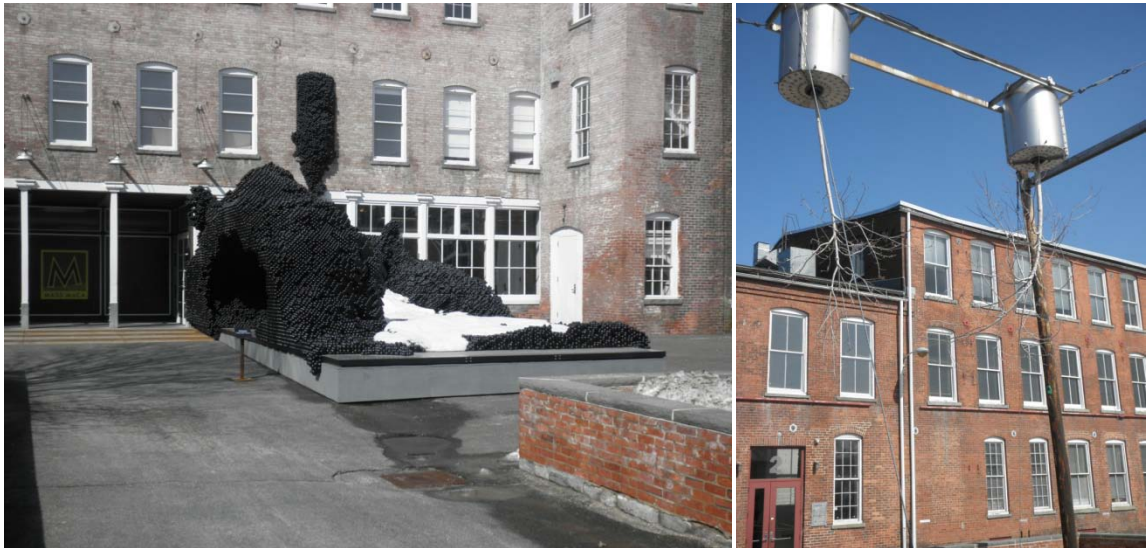


Figure 61: Museum Entrance, Figure 62: Industrial building refurbished (Author)

Notes

¹ <http://en.wikipedia.org/wiki/File:MassMoCa.jpg>

CHAPTER 15
DESIGN DEVELOPMENT



Figure 63: Mill Chimney (Author)

Fascinated by the textile mill structures and the mill premise, felt like the stories about the mills richness is unknown and untold. The site appeared to be deserted from rest of the city, though physically it is located in Central core of Mumbai. Huge fifteen feet high stone walls appeared to be like a fortress trying to embed the mills rich architecture, its culture and the stories of its existence in shaping the city. Features like the 135 feet tall

chimney, North light roofs, large colonial windows, arches, light wells, and internal alleys were very much introducing the layer within the architectural fabric of the city.



Figure 64 : Mill premise, Figure 65: Mill premise (Author)

The fifteen feet high walls were acting as a barrier for the people to experience this rich fabric of the city. Functionally, these high walls acted as a sound barrier for the noise created by machines and also secured the mill premise from the residential premise which abruptly grew adjacent to the mills due to need for housing for mill workers. This aroused a kind of mixed settlement of residential, commercial, industrial and educational around

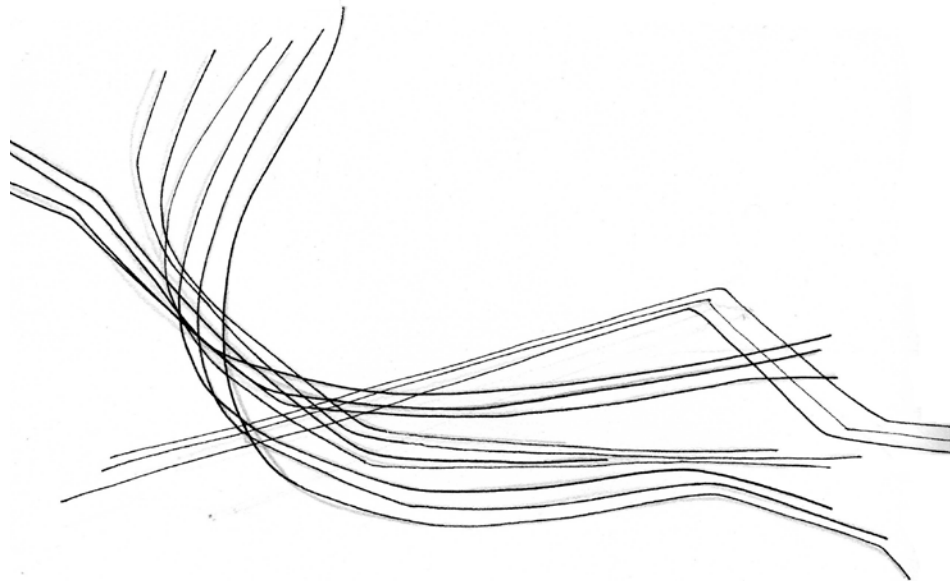


Figure 66: Vibrant character of the city (Author)

the premise making it more vibrant. I experienced the characteristics like connectivity, growth, people, street life, buildings and vegetation present within the mill premise. And these characteristics were felt like willing to interact with today's city to tell its untold stories. The below figure, is my experience of restlessness among the elements that composes the site. All these characteristics combine to form a random and radiant form of energy that has got mobilized to merge with the current city's fabric.

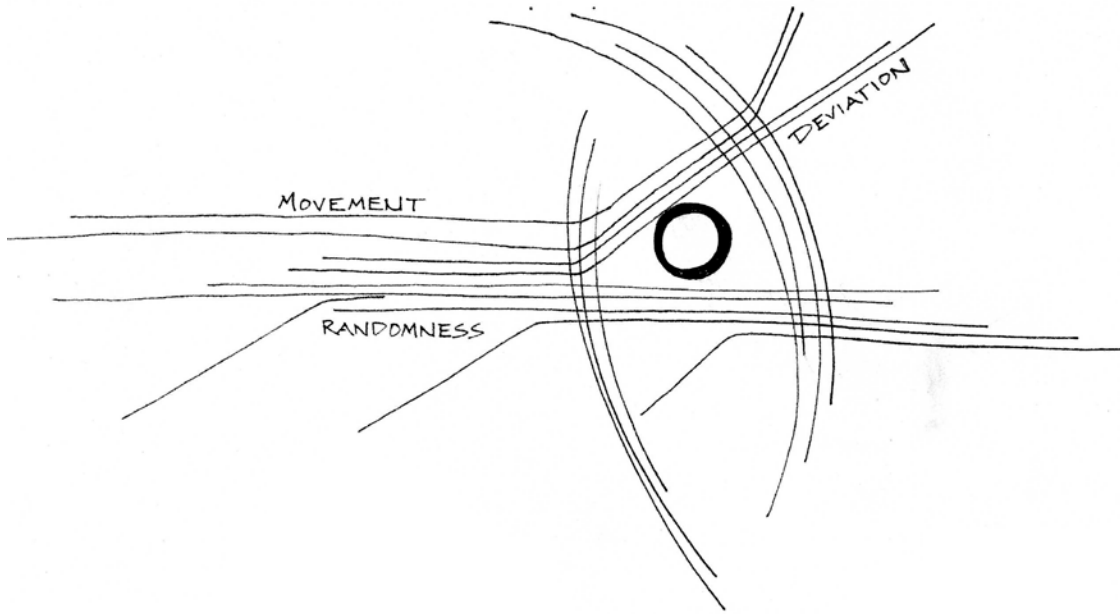


Figure 67: Site response to context (Author)

The 135 feet high chimney is a symbol of energy which travels vertically in the form of smoke generated from the machines. The horizontal energy is the urban mill fabric combined with the source of energy used by the machinery which has become radiant. As of today, there is a need of this energy to be used in every possible fruitful manner for the benefit of the city. So, this energy is deviated, diverted and merged with the city's current rapidly moving fabric to accelerate the mill premise, which was deserted in the past.



Figure 68: Existing Mill structure (Author)

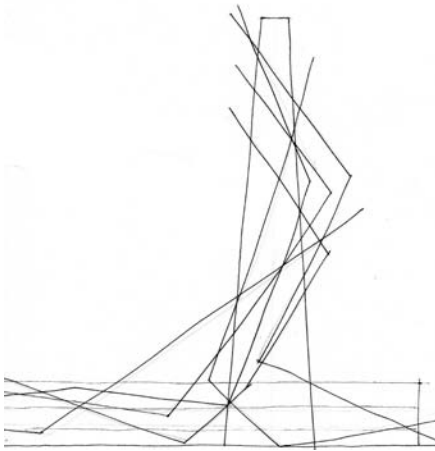


Figure 69: New fabric

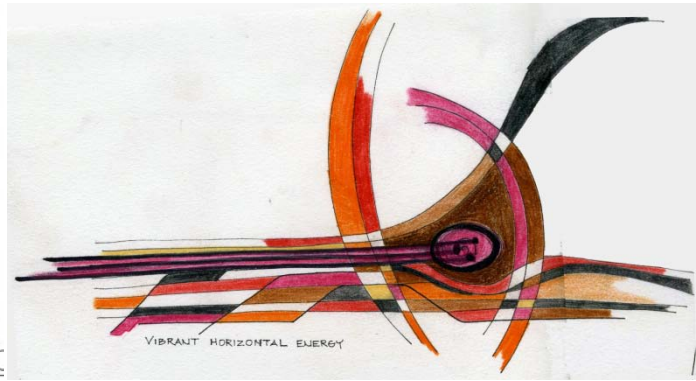


Figure 70: Restless nature of site (Author)

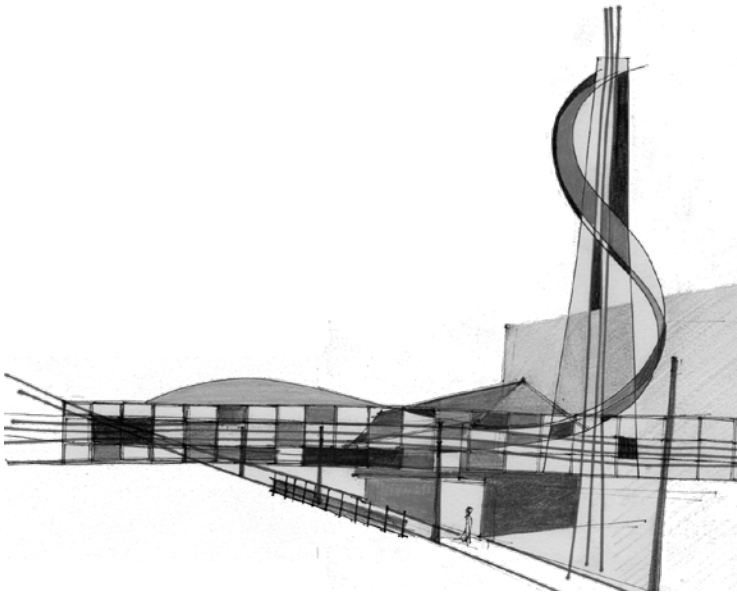


Figure 71: Sketch showing city's fabric merged with the mill fabric (Author)

The brick chimney, which was a symbol of energy for the mills, now drives the new form of Architecture vertically and horizontally. The new architecture is derived from the land forms that are defined from this path of energy. The path of its movement



Figure 72: Diagram showing forces within site, (Author)

Figure 73: Fifteen feet high Mill boundary wall (Author)

creates distractions in the Architectural forms in the existing building dividing the spaces into shop fronts, galleries, offices, restaurants and public plaza. The forces created by the energy brings down punctures in the 15 feet high walls creating passages for accessibility, visual linkages and connections with the existing streets to define an urban streetscape.

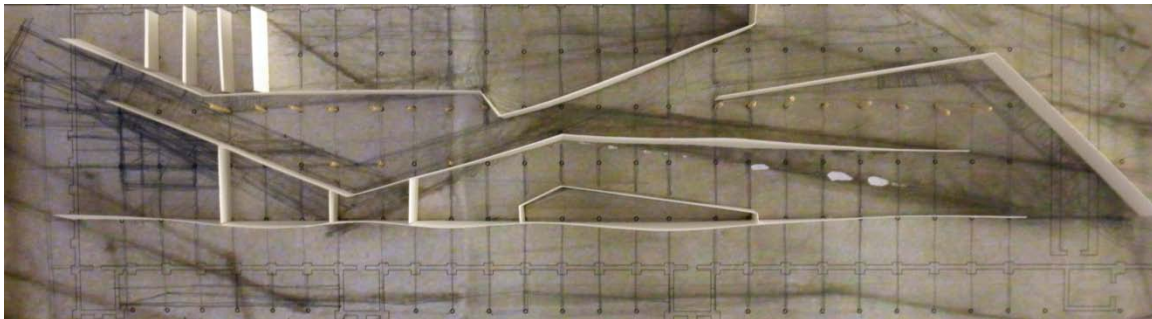


Figure 74: Mill interiors spaces reacting to site forces (Author)

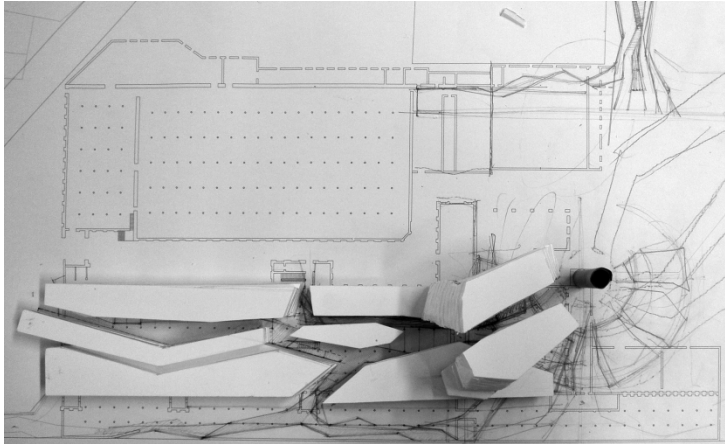


Figure 75: Chimney as focal center (Author)



Figure 76: Site responsive development

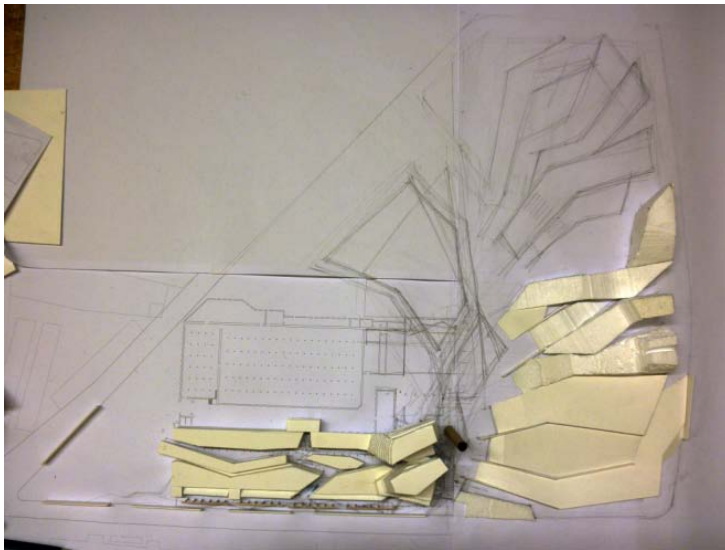


Figure 77: Design development (Author)



Figure 78: Study of light within existing Mill structure (Author)

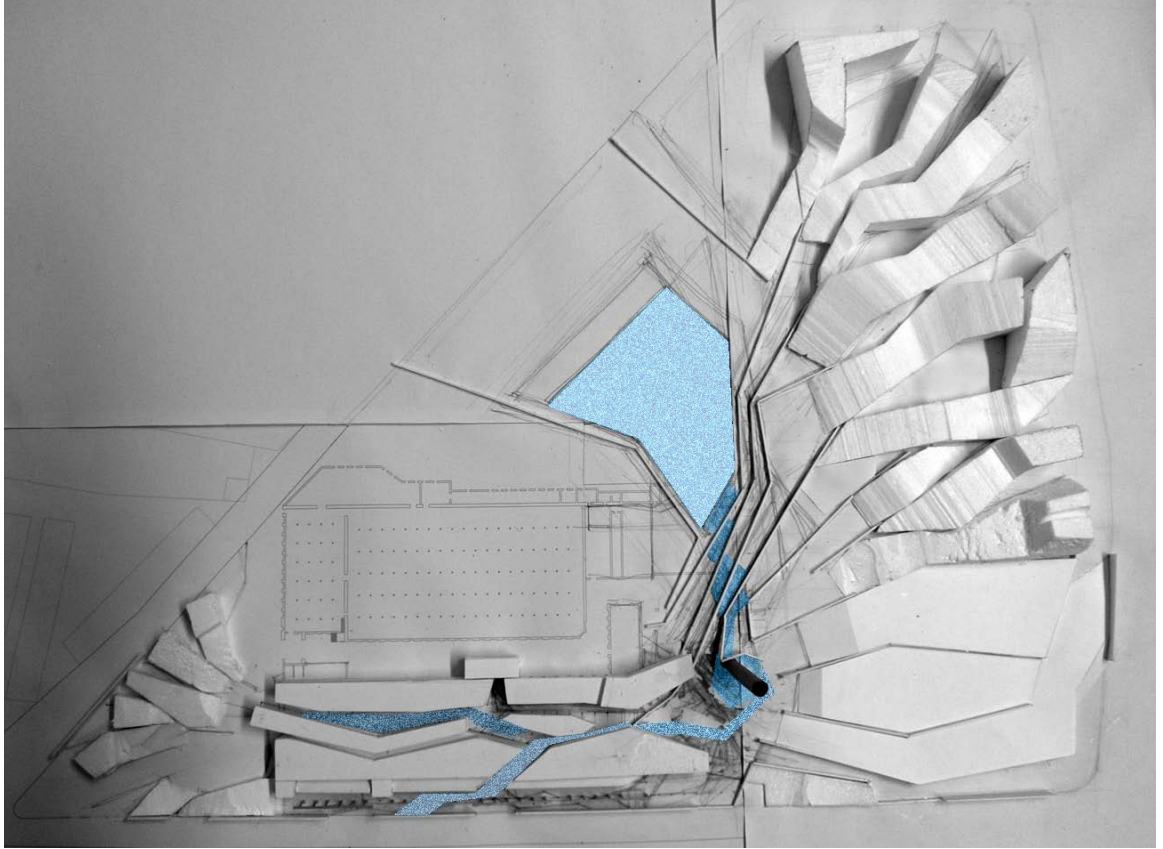


Figure 79: Site model (Author)



Figure 80: Fragmented Mill structure (Author)

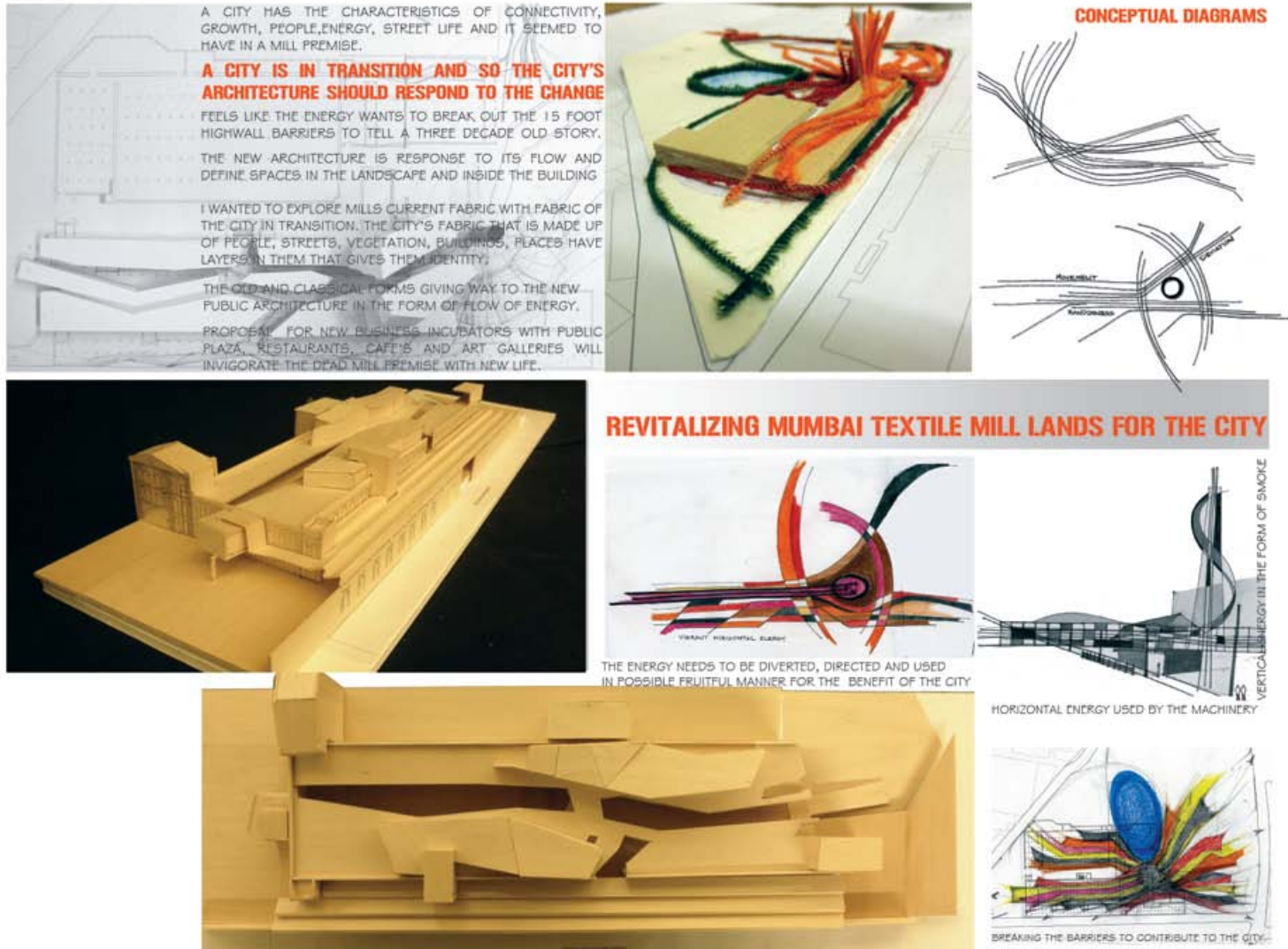


Figure 81: Composition – 1 (Author)

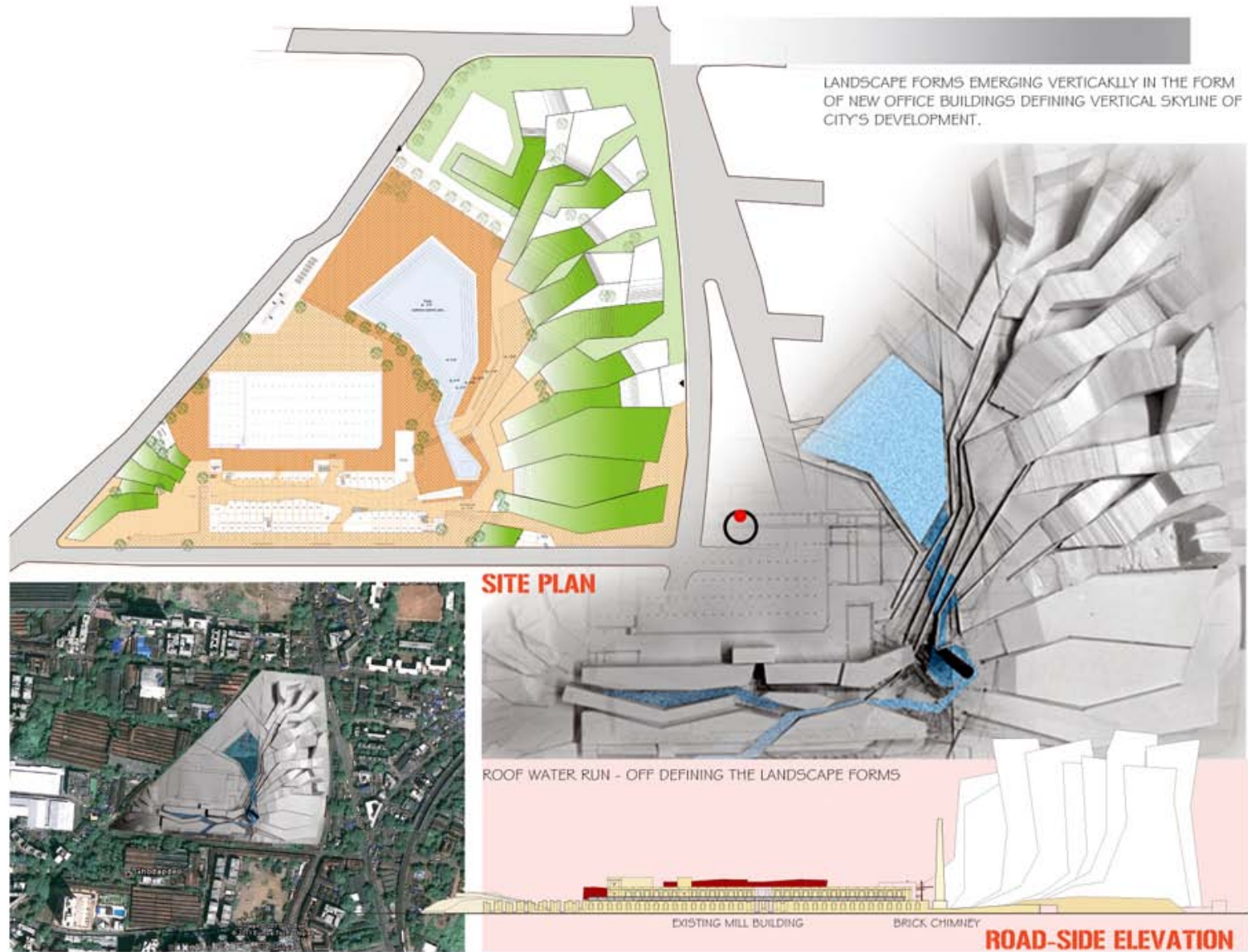


Figure 82: Composition – 2 (Author)



PUBLIC PLAZA

SECTIONAL ELEVATION



Figure 83: Composition – 3

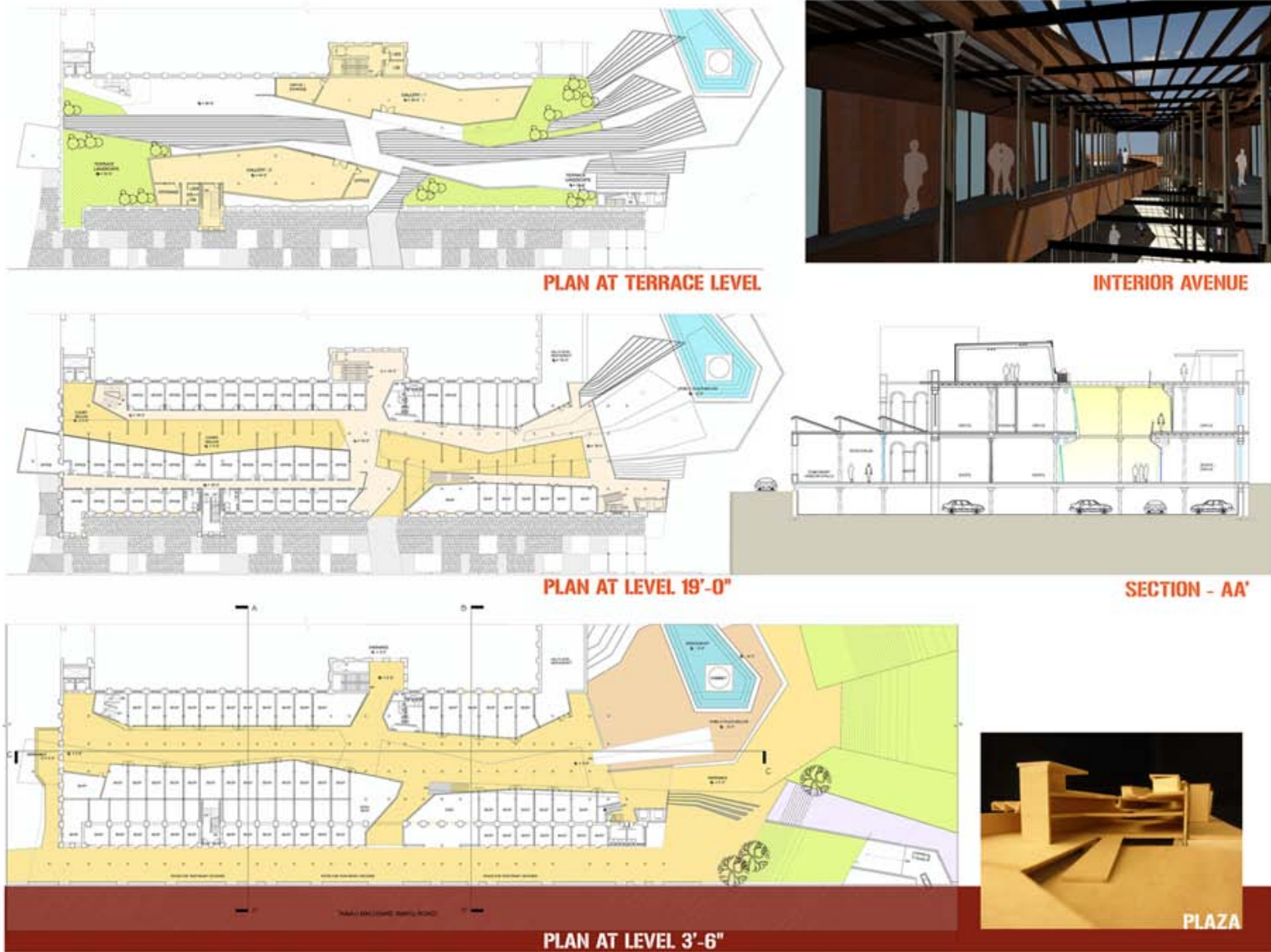


Figure 84: Composition – 4 (Author)

APPENDIX

DEVELOPMENT CONTROL REGULATIONS (DCR) FOR MILL LANDS

(I) **Lands of sick and / or closed cotton textile mills.**-With the previous approval of the Commissioner to a layout prepared for development or redevelopment of the entire open land and built-up area of a sick and/or closed cotton textile mill and on such conditions deemed appropriate and specified by him and as a part of a package of measures recommended by the Board of Industrial and Financial Reconstruction (BIFR) for the revival/rehabilitation of a potentially viable sick and/or closed mill, the Commissioner may allow:-

(a) The existing built-up areas to be utilized-

(i) For the same cotton textile or related user subject to observance of all other Regulations;

(ii) For diversified industrial user in accordance with the industrial location policy, with office space only ancillary to and required for such users, subject to and observance of all other Regulations;

(iii) For commercial purposes, as permitted under these Regulations;

(b) Open lands and balance FSI shall be used as in the Table below:-

No	Plot Area Extent	Percentage to be earmarked for Recreation Ground/Garden/ Playground or any other open user as specified by the Commissioner	Percentage to be earmarked and handed over for development by MHADA for Public Housing / for mill workers Housing as per guidelines approved by the Government, to be shared equally.	Percentage to be earmarked and to be developed for residential or commercial user (including users permissible in residential or commercial zone as per these Regulations) or diversified Industrial users as per Industrial Location Policy, to be developed by the owner.
(1)	(2)	(3)	(4)	(5)
	Up to and inclusive of 5 Ha.	33	27	40
	Between 5Ha and up to 10 Ha.	33	34	33
	Over 10 Ha.	33	37	30

Table 4: Distribution of land use of Mill land redevelopment as per size of plot

Notes-

(i) In addition to the land to be earmarked for recreation ground/garden/playground or any other open user as in column (3) of the above Table, open spaces, public amenities and utilities for the lands shown in columns (4) and (5) of the above Table as otherwise required under these Regulations shall also be provided.

(ii) Segregating distance as required under these Regulations shall be provided within the lands intended to be used for residential/commercial users.

(iii) The owner of the land will be entitled to Development Rights in accordance with the Regulations for grant of Transferable Development Rights as in Appendix VII in respect of lands earmarked and handed over as per column (4) of the above Table. Notwithstanding anything contained in these Regulations, Development Rights in respect of the lands earmarked and handed over as per column (3) shall be available to the owner of the land for utilization in the land as per Column (5) or as Transferable Development Rights as aforesaid.

(iv) Where FSI is in balance but open land is not available, for the purposes of column (3) and (4) of the above Table, land will be made open by demolishing the existing structures to the extent necessary and made available accordingly.

(v) Where the lands accruing as per Columns (3) & (4) are, in the opinion of the Commissioner, of such small sizes that they do not admit of separate specific uses provided for in the said columns, he may, with the prior approval of Government, earmark the said lands for use as provided in Column (3).

(vi) It shall be permissible for the owners of the land to submit a composite scheme for the development or redevelopment of lands of different Cotton textile mills, whether

under common ownership or otherwise, upon which the lands comprised in the scheme shall be considered by the Commissioner in an integrated manner.

(II) **Lands of cotton textile mills for purpose of modernization.**- With previous approval of the Commissioner to a layout prepared for development or redevelopment of the entire open land and/or built-up area of the premises of a cotton textile mill which is not sick or closed, but requiring modernization on the same land as approved by the competent authorities, such development or redevelopment shall be permitted by the commissioner, subject to the condition that it shall also be in accordance with scheme approved by Government, provided that, with regards to the utilization of built up area, the provisions of clause (a) of sub-Regulations (i) of this Regulation shall apply and, if the development of open lands and balance FSI exceeds 30 per cent of the open land and balance FSI, the provisions of clause (b) of Sub-Regulations shall apply as per

(i) The exemption of 30 per cent as specified above may be availed of in phases, provided that, taking into account all phases, it is not exceeded in aggregate.

(ii) In the case of more than one cotton textile mill owned by the same company, the exemption of 30% as specified above may be permitted to be consolidated and implemented on any of the said cotton textile mill lands within Mumbai provided, and to the extent, FSI is in balance in the receiving mill land.

(III) **Lands of cotton textile mills after shifting.**- If a cotton textile mill is to be shifted outside Greater Mumbai but within the state, with due permission of the competent authorities, and in accordance with a scheme approved by Government, the provisions of sub-clauses (a) and (b) of Sub-Regulation (1) of this Regulation shall also apply in regard to the development or redevelopment of its land after shifting.

(IV) The condition of recommendation by the Board of Industrial and Financial Reconstruction (BIFR) shall not be mandatory in the case of the type referred to in sub-Regulations (II) and (III) above.

(V) Notwithstanding anything contained above, the Commissioner may allow additional development to the extent of the balance FSI on open lands or otherwise by the cotton textile mill itself for the same cotton textile or related user.

(VI) With the previous approval of the Commissioner to a layout prepared for development or redevelopment of the entire open land and / or built up area of the premises of a cotton textile mill which is either sick and / or closed or requiring modernization on the same land, the Commissioner may allow:-

(a) Reconstruction after demolition of existing structures limited to the extent of the built up area of the demolished structures, including by aggregating in one or more structures the built up areas of the demolished structures;

(b) Multi-mills aggregation of the built up areas of existing structures where an integrated scheme for demolition and reconstruction of the existing structures of more than one mill, whether under common ownership or otherwise, is duly submitted, provided that FSI is in balance in the receiving mill land.

(VII) Notwithstanding anything contained above--

(a) if and when the built up areas of a cotton textile mill occupied for residential purposes as on the 1st of January, 2000 developed or redeveloped, it shall be obligatory on the part of the land owner to provide to the occupants in lieu of each tenement covered by the development or redevelopment scheme, free of cost, an alternative tenement of the size of 225 sq. ft. carpet area; [Provided that no such occupants shall be evicted till such

time, he/she is provided with alternative accommodation of the size 225 sq. ft. carpet area in such development or redevelopment scheme.](3)

(b) if and when a cotton textile mill is shifted or the mill owner establishes a diversified industry, he shall offer on priority in the relocated mill or the diversified industry, as the case may be, employment to the worker or at least one member of the family of the worker in the employ of the mill on the 1st January 2000 who possesses the requisite qualifications or skills for the job;

(c) For purposes of clause (b) above, the cotton textile mill owner shall undertake and complete training of candidates for employment before the recruitment of personnel and starting of the relocated mill or diversified industry takes place.

(VIII)(a) Funds accruing to a sick and/or closed cotton textile mill or a cotton textile mill requiring modernization or a cotton textile mill to be shifted, from the utilization of built up areas as per clause (a) of Sub-Regulations (1) and as per clauses (a) and (b) of Sub-Regulations (6) or from the sale of Transferable Development Rights in respect of the land as per columns (3) & (4) of the Table contained in clause (b) of Sub-Regulations (1) or from the development by the owner of the land as per column (5), together with FSI on account of the land as per column(3), shall be credited to an escrow account to be operated as hereinafter provided.

(b) The funds credited to the escrow account shall be utilized only for the revival / rehabilitation or modernization or shifting of the cotton textile mill, as the case may be, provided that the said funds may also be utilized for payment of workers dues, payments under Voluntary Retirement Schemes (VRS), repayment of loans of banks and financial

institutions taken for the revival / rehabilitation or modernization of the cotton textile mill or for its shifting outside Greater Mumbai but within the State.

(9)(a) In order to oversee the due implementation of the package of measures recommended by the Board of Industrial and Financial Reconstruction (BIFR) for the revival / rehabilitation of a potentially sick and / or closed textile mill, or schemes approved by Government for the modernization or shifting of cotton textile mills, and the permissions for development or redevelopment of lands of cotton textile mills granted by the Commissioner under this Regulations, the Government shall appoint a Monitoring Committee under the chairmanship of a retired High Court judge with one representative each of the cotton textile mill owners, recognized trade union of cotton textile mill workers, the Commissioner and the Government as members.

(b) The Commissioner shall provide to the Monitoring Committee the services of a Secretary and other required staff and also the necessary facilities for its functioning.

(c) Without prejudice to the generality of the functions provided for in clause (a) of this Sub-Regulation, the Monitoring Committee shall:-

(i) Lay down guidelines for the transparent disposal by sale or otherwise of built up space, open lands and balance FSI by the cotton textile mills;

(ii) lay down guidelines for the opening, operation and closure of escrow accounts;

(iii) Approve proposals for the withdrawal and application of funds from the escrow accounts;

(iv) Monitor the implementation of the provisions of this Regulations as regards housing, alternative employment and related training of cotton textile mill workers.

(d) The Monitoring Committee shall have the powers of issuing and enforcing notices and attendance in the manner of a Civil Court.

(e) Every direction or decision of the Monitoring Committee shall be final and conclusive and binding on all concerned.

(f) The Monitoring Committee shall determine for itself the procedures and modalities of its functioning. (2)

(10) [Notwithstanding anything stated or omitted to be stated in these Regulations, the development or redevelopment of all lands in Gr. Mumbai owned or held by all cotton textile mills, irrespective of the operational or other status of the said mills or of the land use zoning relating to the said lands or of the actual use for the time being of the said lands or of any other factor, circumstance or consideration whatsoever shall be regulated by the provisions of this regulation and not under any other Regulation.](4)

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