

The complexity of urban waterfront redevelopment- case study of Mumbai

Globalization, private sector and community pressures, and therefore the need for capturing new revenues are the major factors directing port cities round the world towards redeveloping their waterfronts.

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Abstract: A waterfront improvement is already a well-established phenomenon internationally. Waterfront redevelopment in Mumbai has taken vicinity over the remaining few years. Many troubles abounded when a town determined to seriously change its vacant or underused waterfront areas. Some waterfront improvement initiatives have correctly protected waterfront enchantment projects, however many others have now not succeeded. The outcomes confirmed that the improvement of waterfront development have various effects, each negative and positive both sides.

I find out about location the Mumbai Eastern Waterfront identity owned via Mumbai Port Trust. The vicinity is about 1,800 acres and consists of wide variety of uses, warehouses, docks, housing, mangrove forest, tank farms etc. There are huge set of troubles which stem from the current prerequisites of the site, ranging from historic context, financial overall performance to environmental challenges.

This research discusses both urban and social impacts of waterfront development, taking Mumbai Easter Waterfront as a case study.

The research aims at pointing out the main impacts of waterfront development on both Mumbai urban development and social development. The methodology of research follows both quantitative and qualitative methods and conducting a community survey that measure the main impact of Eastern Waterfront Development.

Keywords: Development, Waterfront development, Mumbai Eastern Waterfront, Urban and social impacts

• INTRODUCTION

Water is a decisive force, fundamentally shaping the character of every place it touches. The role of water in transportation, industry, sanitation and nutrition makes it the root of human settlements. The characteristic of water is to be respected and praised, not just as a cosmetic or commodity. In the past three decades, profound changes have taken place along abandoned or underutilized waterfronts. This trend is accelerating in cities all over the world and applies to all types of water bodies.

The city's urban waterfront is a standard asset of the public. It is usually managed and maintained by local authorities in the town, regardless of whether there is public support nearby. In recent years, many cities have formalized the waterfront in order to obtain an alternative identity or retain its historical value. The construction of a formal waterfront on the shore of the ocean or river has increased its use as a public space. People from all walks of life, including local residents, have visited these spaces, so tourists are like domestic and foreign tourists. Once formal activities along the waterfront become complicated, user conflicts may arise when sharing designated spaces and facilities.

According to the "New York City Comprehensive Waterfront Plan" formulated by the city government. The planned 2020 vision: The public open space in the waterfront can transform the community, turning previously unusable land into a vibrant community Gathering area, thereby promoting economic growth.

The coastline of Mumbai is 79 kilometers long out of which only 47 kilometers. Available for public access. The coastline includes formal and informal waterfronts. The formal waterfront area includes parks, forts and Waterfront promenade, while the informal waterfront area includes fishing villages, ports and small pockets between the built forms.

Overall it is meaningful to research the relationship between the dynamic changes of the urban waterfront of the city and the dynamic Changes in social activities of its community, which is the core interest of the research.

This article attempts to understand the temporal evolution of land use in the port of Mumbai and its surrounding areas. It also tries to understand how to design, function and manage the content. Generally speaking, it is meaningful to study the relationship between the dynamic changes of urban waterfront and the dynamic changes of community social activities, which is the core interest of this research.

Figure 1. The model for port city development

Stage	Symbol		Period	Characteristics
	○ city	● port		
(I) Primitive cityport			Ancient–medieval to 19th century	Close spatial and functional association between city and port
(II) Expanding cityport			19th–early 20th century	Rapid commercial and industrial growth forces port to develop beyond city confines, with linear quays and break–bulk industries
(III) Modern industrial cityport			mid-20th century	Industrial growth (especially oil refining) and introduction of containers and ro-ro facilities require separation and increased space
(IV) Retreat from the waterfront			1960–1980s	Changes in maritime technology induce growth of separate maritime industrial development areas
(V) Redevelopment of the waterfront			1970–1990s	Large-scale modern port consumes large areas of land- and water-space; urban renewal of original core

Source: adapted from hoyle et al [1983]

• Objectives and Methodology

This article attempts to understand the temporal evolution of land use in the port of Mumbai and its surrounding areas. It also tries to understand how to design, function and manage the content. Generally speaking, it is meaningful to study the relationship between the dynamic changes of urban waterfront and the dynamic changes of community social activities, which is the core interest of this research.

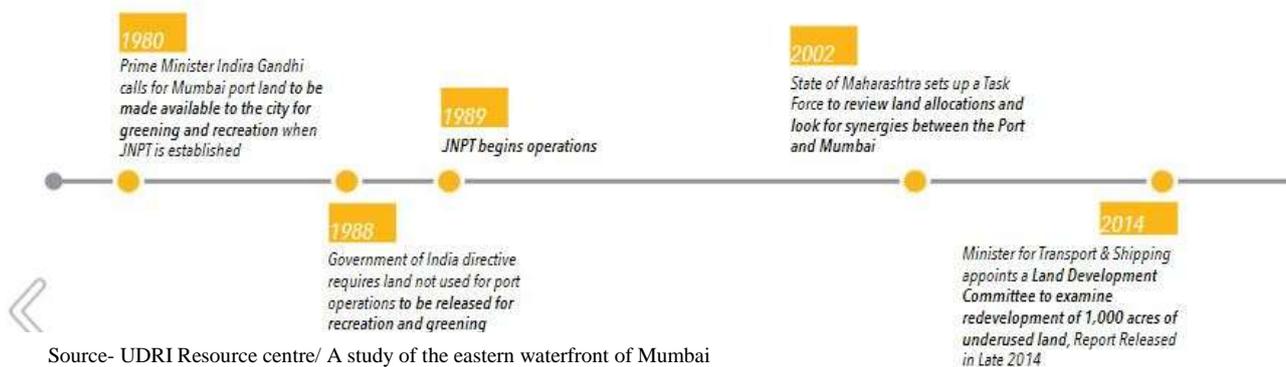
The main purpose of the research is to ensure that all development actions it is economically viable, environmentally sustainable and socially fair. By solving social problems, the economic and environmental impact of various projects, Plans, programs and policies, Impact assessment plays an important role in achieving this goal.

The port land is owned by the Indian government and managed by the Bombay Port Trust Company (MBPT), which is an independent subsidiary of the government. The port itself employs more than 11,000 workers, some of whom live in workers’ houses on site. In addition to workers, the terminal also has 14,000 informal settlements.

1,800 acres owned by MBPT is valued at \$750billion

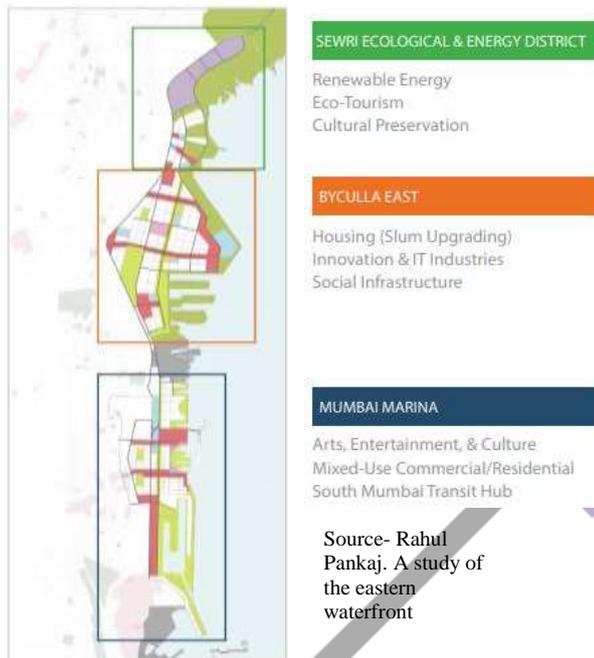
900 acres to become publically available.

27km of new potential Waterfront.



In December 2018, the Mumbai Port Trust—a special planning agency of 966.3 hectares in the city's eastern coastal area—issued a "Draft Development Plan" for public review. The plan aims to transform the waterfront into a "marine transportation and tourism hub."

MAIN ZONES OF WATERFRONT DEVELOPMENT



The Mumbai Marina District, the southernmost proposed district within the Eastern Waterfront area, addresses the global aspirations of Mumbai. Dynamic arts, entertainment, and cultural attractions can create a new global draw for visitors to Mumbai.

In the middle of the Eastern Waterfront, Byculla East presents an opportunity for a substantial growth in the housing stock of Mumbai, including new development, slum upgrading, and a framework for future organic growth.

In the northern part of the Eastern Waterfront area, the Sewri Ecological and Energy District provides an opportunity for renewable energy production, public utilities, eco-tourism, and protection of historic and cultural features.

Vision

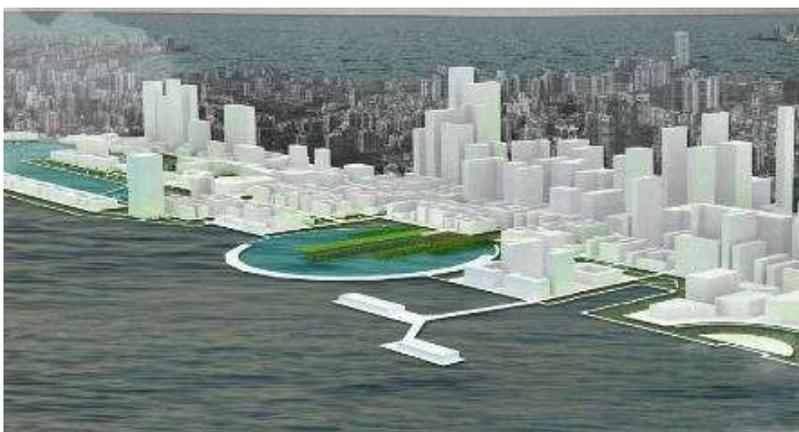
Mumbai's eastern waterfront will demonstrate resilience through INNOVATION, EQUITY, REGENERATION and PROTECTION. It will re-establish Mumbai on a global stage while embracing and promoting the city's unique IDENTITY.

Main goals of Eastern Waterfront Development are:

- Connect the waterfront as one designing unit with different functions along with public and social services.
- Reuse of current cultural assets in future visions.
- Provide entertainment and social spaces for all family members and social classes.
- Assure both safety and enjoyment for visitors and users and provide safe locations for different hobbies.
- Apply approved transportation studies to facilitate traffic in waterfront area.
- Provide a good infrastructure system for electricity, sewage, water supply.
- Redesign the commercial outlets to support the identity of the space.
- Provide services with international standards.

• Development of Mumbai Marine

The fort neighbourhood, the CBD of Mumbai, located to the south gives the proposed Mumbai marina district a strategic location for development. The proposed Mumbai Waterfront will become the most dynamic and attractive area in Mumbai, and it will reflect the goals of the Eastern Waterfront Plan. This is fair, because the Mumbai Marina area will greatly increase the open space available to all Mumbai Kars; the area is innovative because of the proposed multiple economic activities; as the number of ports decreases, Mumbai's growth becomes a new one.



Source- Mumbai-Port-Trust-Committee-Report-on-Mumbai-Ports-Waterfront

• **Development of Byculla East**

Byculla East provides opportunities for mixed housing development, with a focus on improving slums by increasing housing. The area has solved environmental problems, including pollution and flooding, through remediation and development to adapt to rising sea levels.



The main catalyst for Byculla East is the Sewri, Cotton Green and Reay Road suburban railway station and the Transit Oriented Development (TOD) area surrounding the proposed subway station.

This model demonstrates four main elements:

1. Commercial/mixed land use combining major economic activities and major transportation facilities.
2. Social infrastructure, such as schools, hospitals, open spaces and other public facilities, as well as rainwater management parks, green infrastructures and reservoirs.
3. Multiple types of mixed-income housing types, with high-density and market-priced housing near the bus station.
4. Friendly, inviting streetscapes to achieve better walkability and pedestrian safety.

Source- Mumbai port trust. 2015
<http://mumbaiport.gov.in/writereaddata>

• **Sewri Ecological and Energy District**

The Proposed Sewri Ecological and Energy District presents many opportunities and challenges. The area has rich and natural cultural assets while a large portion of the land is polluted.



The Sewri Ecological and Energy District will demonstrate resilience through environmental, culture and historic protection by enhancing the equitable housing, employment opportunities and climate change adaptive development.

1. The first strategy is removal and environmental remediation of hazardous activities.
2. The second strategy is to create a sustainable infrastructure area in the north part of the sewri district. Since neither the sewri district nor the island city have adequate public infrastructure, the redeveloped into a unsustainable infrastructure area.
3. The third strategy is to build residential buildings close to the transit stops and create TOD, together with local public facilities and institutions.
4. The fourth strategy is focused on EWS upgrading for the koli fisher village the intent is to achieve a balance between protecting local culture and integrating them with the new development to its south.
5. Building the waterfront eco-trail is the final strategy. This trail will run north to south along the coast, connecting byculla east to the sustainable infrastructure area.

Generating Alternative Redevelopment Features

In order to obtain a win-win result that most of the many stakeholders believe, the MBPT wharf area needs to be utilized and adjusted so that the services they provide can use the resources of Mumbai City and help revitalize its material, cultural, and social structure.

- Mumbai's first proposal proposes a rich visualization method for cruise-driven, entertainment and leisure-centric development by reusing the wharf area near the cotton green railway station to create an entertainment and recreation area that benefits residents and tourists. It outlines bridges and water connections across the bay to network the entire area
- The second strategy is to create a sustainable infrastructure area in the north part of the Sewri District. Since neither the Sewri District nor the Island City have adequate public infrastructure, the former industrial area will be redeveloped into a sustainable infrastructure area, providing renewable energy, water treatment, and waste management for the city.
- The third strategy is to build residential buildings close to the transit stops and create TOD, together with local public facilities and institutions.
- The fourth strategy is focused on EWS upgrading for the Koli Fisher Village. The intent is to achieve a balance between protecting local culture and integrating them with the new development to its south.
- Building the waterfront eco-trail is the final strategy. This trail will run north to south along the coast, connecting Byculla East to the sustainable infrastructure area in the Sewri District. The trail should provide access to the high-quality waterfront open spaces for the whole city, linking all the recreational spots.

MAJOR CONCLUSIONS

It is observed that the current promenade is more sustainable than it was decades ago. On the beach, it has been completely transformed from a garbage dump into a functional space. Planning, design and management. The waterfront area has been fully promoted by the public. This helps speed up the planning process, the design elements implemented on the promenade aim to user. They enhance the function of the space. The activities on the promenade are based on these physical elements, it is the embodiment of the surrounding land use. The number of people flow varies with land use, the whole space and different time changes. Also observed the flow of people nearby Due to the limited visibility of the large water body of the Arabian Sea, the area of the mangrove reserve has been reduced. The waterfront promenade is also very popular with the citizens of Mumbai and is perfectly integrated with the urban structure of Mumbai. City. This happened because of people's acceptance and only because of the management. The waterfront area was determined through user perception surveys. Some problems based on physical infrastructure are: limited opportunities for biking, vendors and people carrying edible food entering, lack of proper storage and parking spaces Contrary to the promises originally made in the plan, fishermen have limited access to parks and children's play areas. It provides inclusive access to all ages, whether locals or tourists, and restricts business activities.

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