

The Irla nullah Re-invigoration Project

Reclaiming and integrating the backyards

A project by

PK Das & Associates, Javed Akhtar, Gulmohar

Area Societies Welfare Group and PUDDI



Aerial Image of the Irla Nullah taken in 2006

Mumbai is a city on the water with a vast extent of 140 sq. km. natural assets-- the creeks, rivers, wetlands, beaches, mangroves, hills, forests, that define its geography. Sadly, the city has turned its back to it and considered them as a dumping ground-- both physically and metaphorically- leading to their rampant destruction and degradation.

On the other hand, as Mumbai expands, its open spaces are shrinking, with one of the lowest ratios of open spaces to people-- merely 1.0 sq.mt per person. The democratic 'space' that ensures accountability and enables dissent is also shrinking-- very subtly but surely. The city's shrinking open spaces are of course the most visible manifestation as they directly and adversely affect our very quality of life.

Also, daily issues like pollution, congestion and regular flooding incidents leading to human and economic loss have been alarming.

Our objectives include the conservation of these vital natural assets; their integration with neighborhoods and the city; expanding public spaces-- both in physical and democratic terms; expanding tree cover; popularising and de-mystifying the planning process for effective participation; and promoting the idea of neighborhood based city planning.

The Irla Nullah Re-invigoration project will model a paradigm shift in understanding Mumbai's ecology and build in a sustainable manner with nature and its benefits to the improve with equity the quality of life of all Mumbaikars.

NEIGHBOURHOOD PROJECTS TO A CITY-WIDE MOVEMENT

22 years and continuing



THE MOVEMENT TO RECLAIM PUBLIC SPACES IN MUMBAI

22 years and continuing

AWARDS AND RECOGNITION



Clearwater Citizens Award
to PK Das & Assc. by Waterfronts Center, Washington, 2002



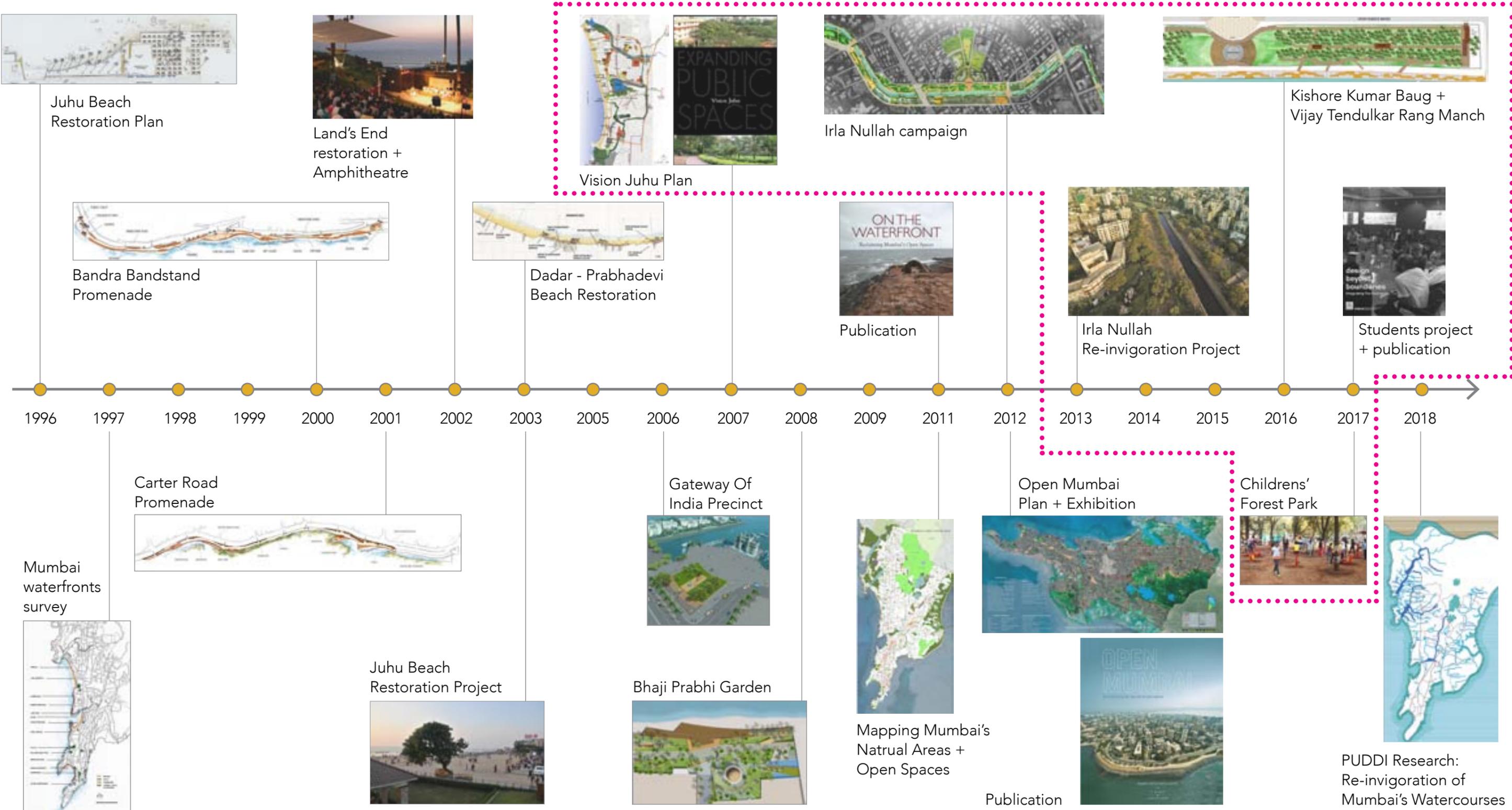
The Urban Age Award
by The Deutsche Bank, 2007



Changemakers of Mumbai Award
to PK Das by Hindustan Times, 2013



The International Jane Jacobs Medal
to PK Das by Rockefeller Center, 2016



The timeline illustrates the progression of public space reclamation in Mumbai from 1996 to 2018. A central horizontal axis marks the years, with vertical lines connecting to various projects and publications. A pink dotted line highlights a specific period from 2005 to 2018, encompassing several key initiatives.

- 1996:** Juhu Beach Restoration Plan
- 1997:** Carter Road Promenade
- 1998:** Bandra Bandstand Promenade
- 2000:** Land's End restoration + Amphitheatre
- 2001:** Juhu Beach Restoration Project
- 2002:** Dadar - Prabhadevi Beach Restoration
- 2003:** Gateway Of India Precinct
- 2005:** Vision Juhu Plan
- 2006:** Bhaji Prabhi Garden
- 2007:** Expanding Public Spaces
- 2009:** Publication: ON THE WATERFRONT
- 2011:** Mapping Mumbai's Natural Areas + Open Spaces
- 2012:** Irla Nullah campaign
- 2012:** Open Mumbai Plan + Exhibition
- 2013:** Irla Nullah Re-invigoration Project
- 2013:** Publication: OPEN MUMBAI
- 2014:** Childrens' Forest Park
- 2016:** Kishore Kumar Baug + Vijay Tendulkar Rang Manch
- 2017:** Students project + publication
- 2018:** PUDDI Research: Re-invigoration of Mumbai's Watercourses



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RECLAIMING WATERFRONTS AND EXPANDING PUBLIC SPACES

A Movement for Protection of Mumbai's Seafront

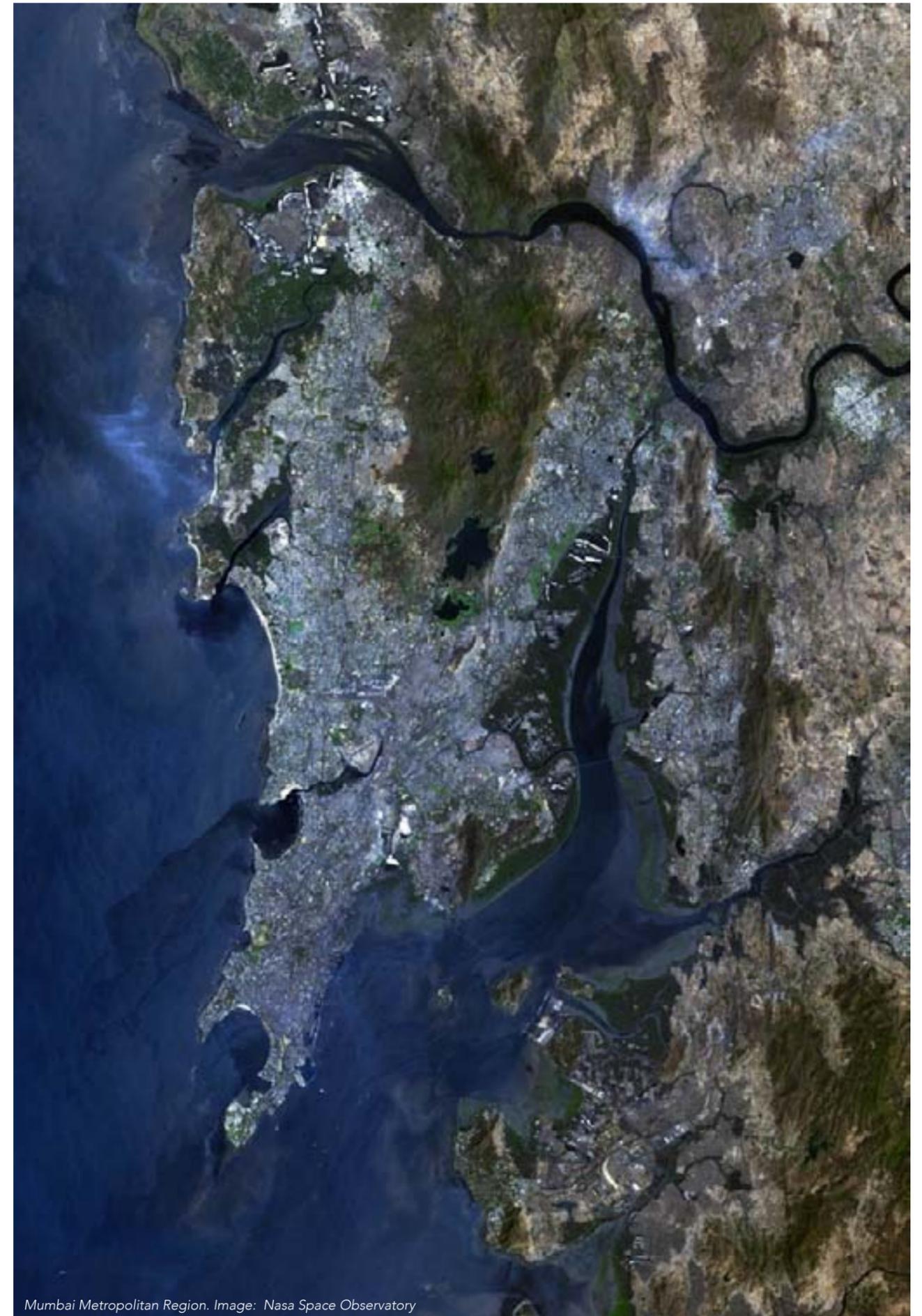
One of Mumbai's greatest assets is its coastline which forms a series of unique and picturesque waterfronts. Unfortunately, these have become the backyard of the city and degenerated into its biggest dumping ground.

Reclamation, sewage disposal and encroachment have ravaged the waterfronts.

While the eastern coast has been put to use for defence and docks, thus restricting public access, the city's 34-km, western coast has never been considered in the planning and development process.

But, for the millions who live in the crowded city, the waterfronts are the only major open spaces, whether it is Marine Drive, Chowpatty, Haji Ali, Worli Sea Face, Dadar Beach, Bandra Bandstand, Carter Road, Juhu Beach or Versova. The waterfronts are Mumbai's most significant and popular public spaces.

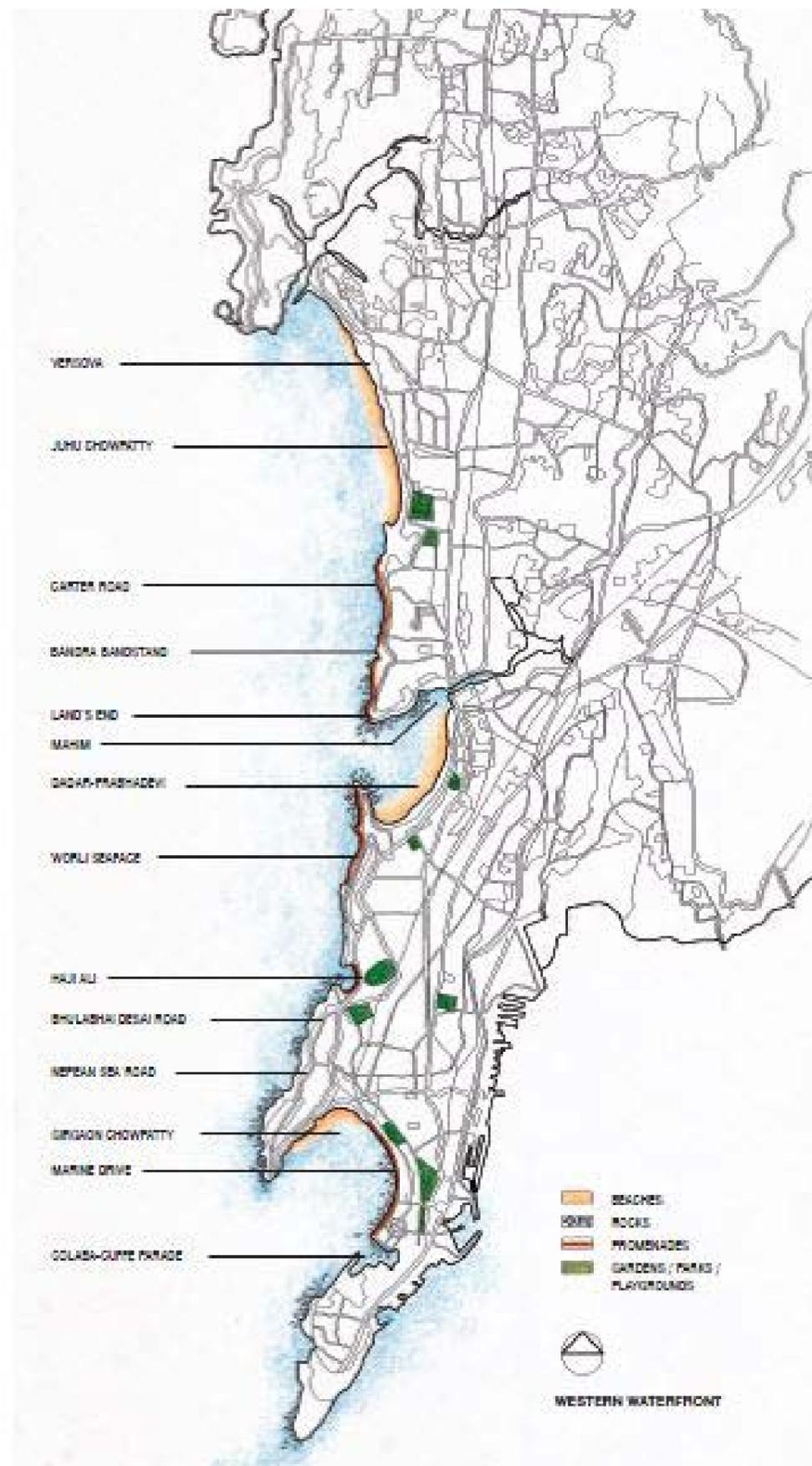
People from all sections of society, from the city and its suburbs, and tourists flock to these places to relax. Unplanned commercialization has destroyed the natural environment considerably. The absence of a master plan for development of the waterfronts has encouraged the rich and the powerful to manipulate and grab land along the coast, thus gradually depleting the city of its most vital open spaces.



Mumbai Metropolitan Region. Image: Nasa Space Observatory

RECLAIMING WATERFRONTS AND EXPANDING PUBLIC SPACES

A Movement for Protection of Mumbai's Seafont



Our objective is to restore and preserve their natural beauty. We had to offer simple, modest and pragmatic design solutions that work within the existing realities to solve key problems. This, we expect, will generate a momentum for positive change. There can be no grandiose ideas here. In fact, no major construction should be allowed on these waterfronts. Secondly, we propose a selective reallocation of spaces and activities, and thirdly, very minimal restructuring. Most importantly, these waterfronts must remain the collective asset of the city and all its citizens, and a vibrant element in its environmental and social fabric. In the redeveloped sections, a new relationship between people and public space is emerging. What was, for many years, a filthy backyard to the city and neighbourhood, has now been transformed into a forecourt for social and cultural activity. Neighbourhood citizens' associations, zealous maintenance activities and social events are all signs of a positive and socially participatory attitude that is emerging slowly. A sense of pride and belonging can be seen in the people who live around these waterfronts and in those who visit.

The idea is to renew social activities at the water's edge, like the Bandstand in the western suburb of Bandra, where once a band used to play music as people gathered round. New relationships and new ways of addressing public issues may emerge from such gatherings.

We see this movement as not merely a beautification programme, but as part of a larger democratic struggle for reclaiming public space, and to create spaces where people meet, share their experiences and begin to care about each other and garner social relationships.

A BACKGROUND TO THE IRLA NULLAH PROJECT

The nullah is 'owned' by the Municipal Corporation of Greater Mumbai (MCGM), which is tasked with ensuring its upkeep and safeguard against encroachments and illegal dumping of waste into the water body. Post the major floods of 2005 that had brought the city to a complete standstill for several days and caused enormous losses to human lives as well as property, a committee was set up to suggest measures to the MCGM in order to prevent such incidents in future.

The committee established that one of the primary reasons was the lack of space for efficient dispersion of water from the land to the sea coupled with high tide, which pushed seawater into the nullahs, accompanied by unprecedented rainfall. The neglect of nullahs had caused major blockages due to which they could not efficiently carry the quantity of water that they were expected to. One of the measures the committee suggested be implemented was to clear and keep 6 meters on either side of every nullah open – in order to allow maintenance vehicles to access these water bodies and ensure their de-silting before monsoons.

The MCGM has since begun the process of severing all illegal sewage lines and connections into the nullahs, creeks and rivers across the city. This is an encouraging step towards cleaning these water bodies and changing the perception common Mumbaikars have towards them.

This buffer area all along the 300 km nullahs of Mumbai, including the Irla nullah, was treated by the city as a dumping ground for disposal of solid and liquid waste and debris. Also, there were large numbers of illegal connections from various properties, including industries, letting their effluent into the nullahs, many of which continue till date. In many locations, including Irla, homeless people built shanties all along the nullah edges, disposing their wastes directly into the water. MCGM under a scheme of providing housing to the Project Affected Persons (PAP) has rehabilitated the slum dwellers along the Irla nullah by giving them 269 sft. apartment units in various redevelopment projects in the city.

The disastrous floods of July 2005 in Mumbai



Apathy towards natural assets in Mumbai

This buffer zone is precisely the site of intervention in Irla project: the argument presented to city officials by the citizens was that these areas will be accessed by maintenance vehicles maybe 3-4 times a year, for the remaining 350+ days could these spaces be developed into public spaces to be accessed by the public.

We do not see this buffer zone as being independent from its surroundings. Therefore the Vision Juhu plan proposes a comprehensive view of the plethora of public spaces, natural areas and their networking.

An aerial architectural rendering of a city plan for Juhu, India. The image shows a dense grid of grey rectangular buildings, interspersed with green spaces and trees. A prominent feature is a large, irregularly shaped green area in the center, possibly a park or sports field. To the right, the city meets a coastline with a sandy beach and the ocean. A network of roads and paths is overlaid on the city, with some paths highlighted in blue and green. The overall scene is a detailed urban planning visualization.

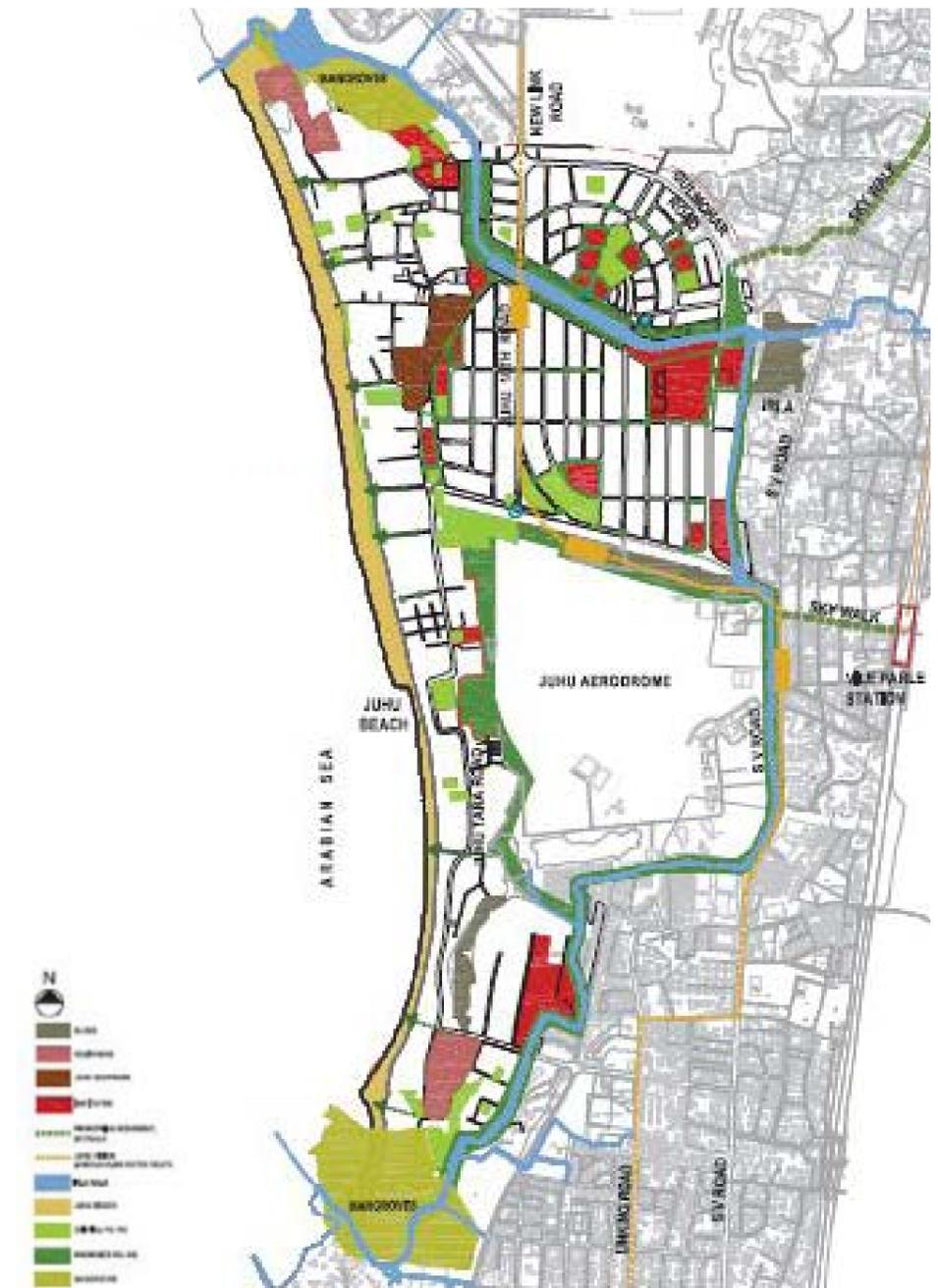
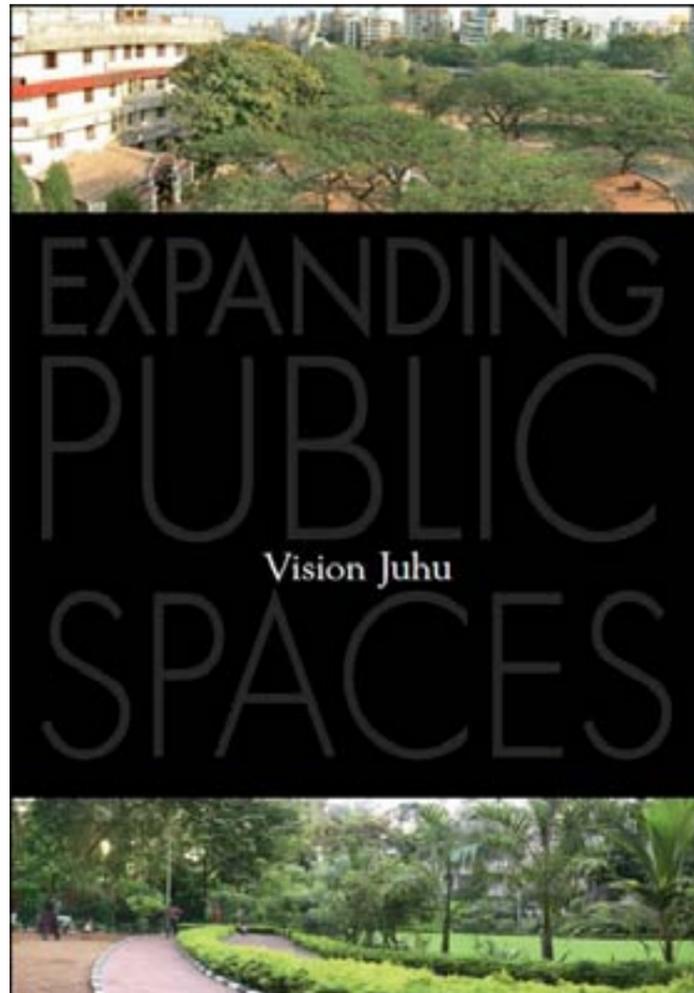
the
vision juhu
plan

VISION JUHU - EXPANDING PUBLIC SPACES

Juhu is a residential suburb in the western part of Mumbai, synonymous with glamorous bungalows of movie stars and one that houses one of the most popular public spaces in the city - the iconic Juhu beach.

Vision Juhu has evolved keeping the larger issues of the city in mind. It includes conserving reserved open spaces and creating new ones, pedestrianisation, significant solutions to flooding in Juhu, development of the Irla nullah, improvement in transport infrastructure by skillfully integrating the proposed Metro rail and re-planning traffic flow, opening up of several accesses to the beach, appraisal of social amenities like educational and health facilities and making them accessible to all, improvement in the standard of living in slums and gaothans (urban villages), provision of space and security to hawkers and most importantly- networking this public realm.

The Vision Juhu document is a collaboration between architects PK Das & Associates and the design cell of reputed architecture school KRVA in Mumbai. This plan and vision therefore is rooted in the ideals of collaboration and participation from its very inception, and takes those ideas forward in implementation with active support and interaction of the citizens of the neighbourhood.



It aims to protect the natural environment and the best features of the built environment, increase commercial viability, encourage tourist and leisure facilities, protect and support communities, create social inclusion, provide people with a voice in landscapes of rapid change and design urban places and spaces for people.

* Juhu-giri: Taken from a colloquial slang 'dada-giri' which means 'by coercive force'. Here it is re-interpreted as the collective power of the people of Juhu.

*Pyar se: means 'With love'

Juhugiri. Pyar se.

- Free open space: add almost 3 Oval maidans
- Create 10-km tree-lined, flood-free walkway along Irla nala
- Inter-connect open spaces with institutions & amenities
- Re-align & integrate Metro rail network with public spaces
- Protect beach, improve access, enhance facilities
- Provide civic amenities for gothans, redevelop slums
- Form a model for neighbourhood planning, participation & governance

Vision Juhu Expanding public space

Kamala Raheja Vidyanidhi Institute for Architecture • PK Das & Associates, Architects • Mumbai Waterfronts Centre

Research Sponsor: ICICI Prudential
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This was a project campaign poster made for response and reaction in public meetings from citizens and local stakeholders. The idea was to popularize the movement and thereby the planning process of such public interest projects in cities.

The Vision Juhu Movement has been rooted in public participation and democratic planning ideals.

These clearly manifested themselves when citizens would turn up regularly in large numbers to oppose wrong doings and malpractices when it came to open spaces in their neighbourhood.

Juhu residents fight for access to playground

Alleged that Ronson Foundation, which was granted BMC permission for development and maintenance was later allowed to build a club; the trust has taken charge of the entire plot shutting them out



Gunning For Green Neighbourhood

An open space opposite Vidyanidhi school reserved as a recreation ground was taken over by the builder to build a club in the garb of maintenance. The Gulmohar Area Societies' Welfare Group opposed it when the builder started hacking trees. Schoolchildren and residents took to the streets, and approached one authority after another. With the help of then mayor Shubha Raul and now MP Gurudas Kamat, the residents managed to obtain a stay from civic chief Swadheen Kashatriya four months ago. Residents are confident that the problem will soon be sorted as they have finally managed to convince all the authorities concerned about the genuineness of the issue.

Juhu's green lung back after 8-yr fight

BMC has taken over a 3.5-acre plot in Gulmohar locality that was given to Ronson Foundation for construction of a club



Residents win fight over entry to open ground

After a March 18 meeting, the BMC asked Ronson Foundation to give public access to the ground near Kaifi Azmi Park



6

Residents have also won access to ground behind school

After a year ago, the Gulmohar Residents Association teamed up with Vidyanidhi school (remembering that the disputed playground behind Vidyanidhi school is reserved for public) and BMC, members of the club, had headed the ground.



the case for nullahs and
the irala precinct



EVOLVING A PLAN FOR TRANSFORMATIVE, CITY-WIDE CHANGE

Mumbai has a large network of water channels and water courses that aid the natural storm water drainage in the city. The city authorities are apathetic towards their protection, conservation and integration with the city's Development Plan. Instead, these assets are merely looked upon to maximize construction and to accommodate real estate interests.

This initiative addresses the abuse and exclusion of over 300 kms of watercourses, that includes four rivers within the city that have been turned into 'nullahs' or drains. It brings to light the continuing degradation of the vital 140 sq. km of natural areas of the city -- its mangroves, wetlands, creeks, salt pans, rivers, lakes, beaches, hills and forests.

The Irla Nullah Re-invigoration Plan -- part of a larger citizens' movement advocating the Juhu Vision Plan that covers an area of 4 sq. km -- focuses on cleaning and turning the waters of a polluted and much-abused natural watercourse backyard and its immediate precinct in the western suburb of Juhu into a vibrant public space and neighborhood fore-court generating rich social, political and environmental dividends since these are the natural storm water drains of the city.

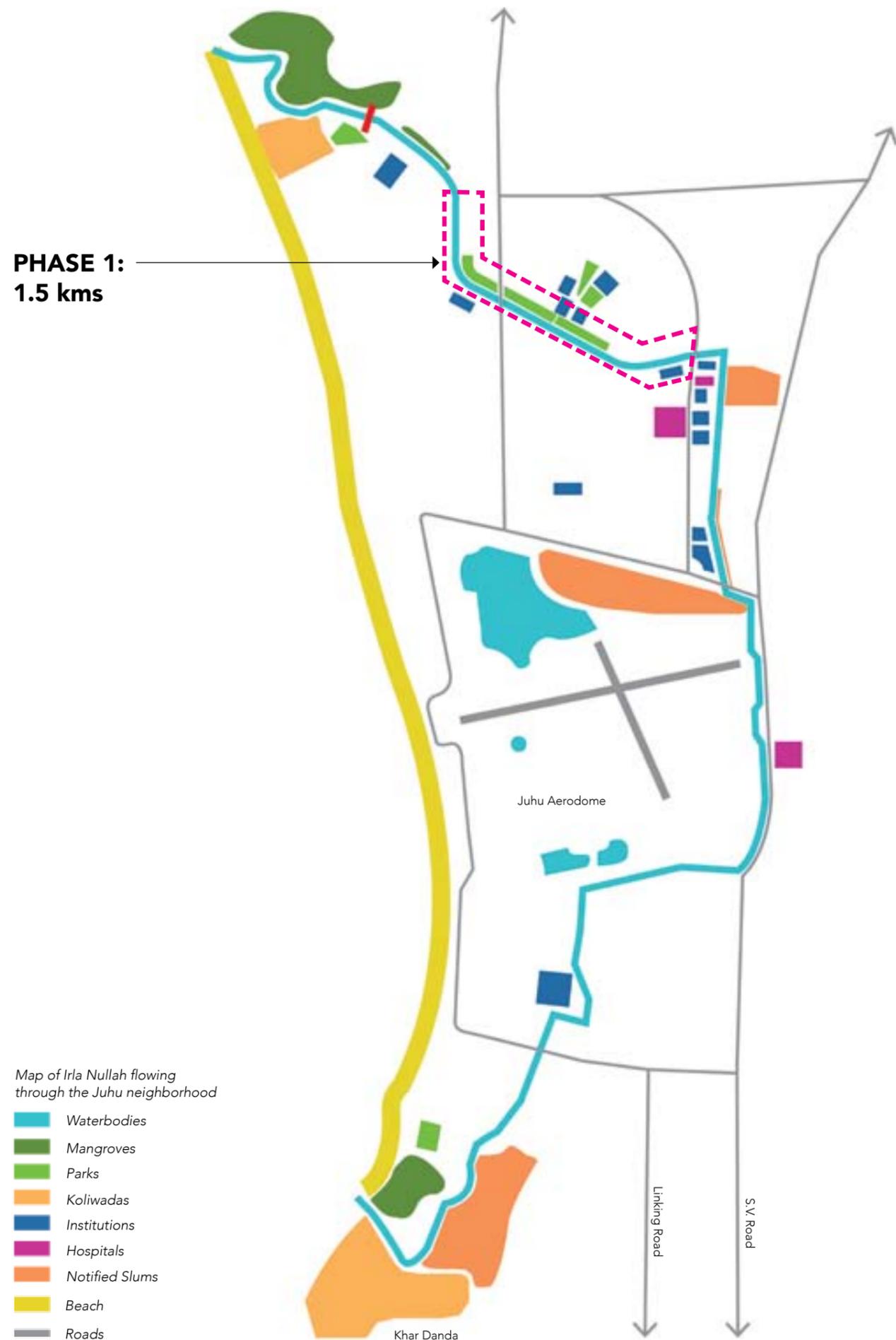
Imagine a scenario where Mumbaikars have easy access to over 600 kilometers of landscaped walking and cycling tracks and open spaces along the watercourses that intermingle and interweave through various parts of the city's urban fabric?

This is the over-arching vision that has manifested itself in a tangible pilot effort –
the Irla Nullah Re-invigoration Project.



Mumbai' watercourses map. Image courtesy MCGM

**PHASE 1:
1.5 kms**



The Irla Nullah runs through the western suburb of Juhu with a total length of 7.5 kms. Owing to its geographical footprint, most areas of the neighbourhood have direct access or are in close proximity to this water body.

A host of public institutions and amenities are found adjacent to this nullah. The re-invigoration proposal looks to interconnect these amenities and open spaces to the nullah in order to increase participation and thereby improve vigilance of these public spaces.

THE IRLA NULLAH RE-INVIGORATION PLAN

Importantly, this movement and the project are a unique example of the need for waging citizens' struggles for exercising their Right to the City and in scripting its current and future growth and take on several challenges.

These include the conservation of a vital natural asset; its integration with the neighborhood and the city; expanding public spaces -- both in physical and democratic terms; popularising and demystifying the planning process for effective participation in conceptualisation and implementation process, primarily effecting a paradigm shift in understanding of sustainable ecology and building with nature and its benefits to the quality of life and environment.

Phase 1 of the project includes the development of three citizens' parks namely the Kishore Kumar baug, Kaifi Azmi Park and the Childrens' Forest Park; a public, open air amphitheatre - the Vijay Tendulkar Rang Manch; walking and cycling tracks along the nullah complete with lighting and landscaping, and most importantly the cleaning of the waters in the nullah itself.



PROPOSAL



BEFORE



AFTER



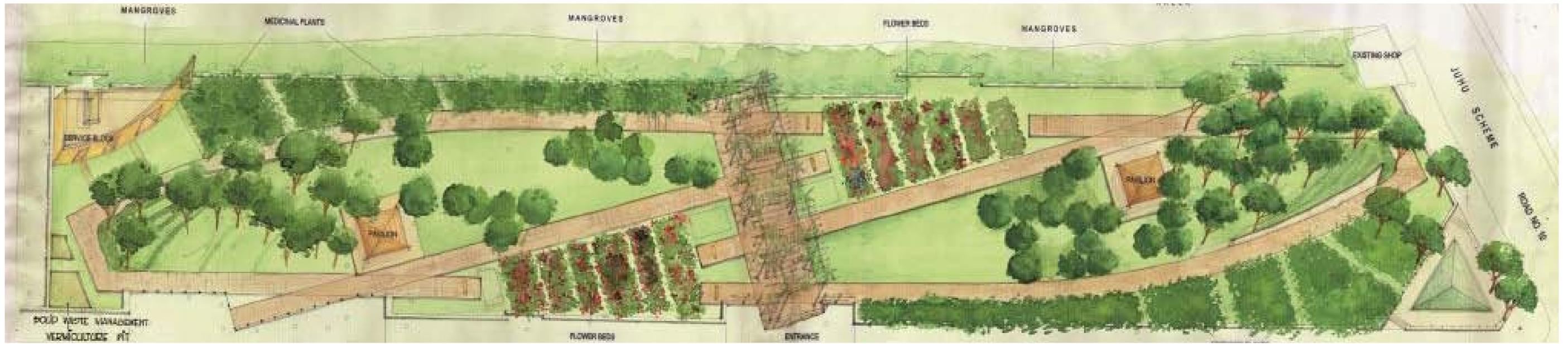
AFTER



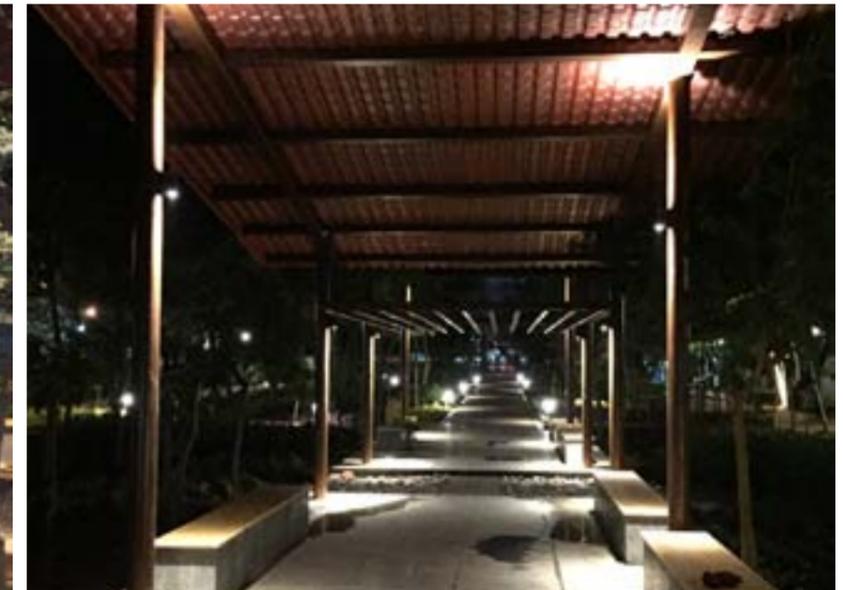


The chain of public parks along Irla Nullah in the form of the **Kaifi Azmi Park, Kishore Kumar Baug** and the **Childrens' Forest Park** form an immaculate 'city forest' within a dense urban setting.

KAIFI AZMI UDYAN



KISHORE KUMAR BAUG + VIJAY TENDULKAR RANG MANCH





CHILDRENS' FOREST PARK



Phase 1 : Irla Nullah Precinct Plan 1.5 kms of nullah

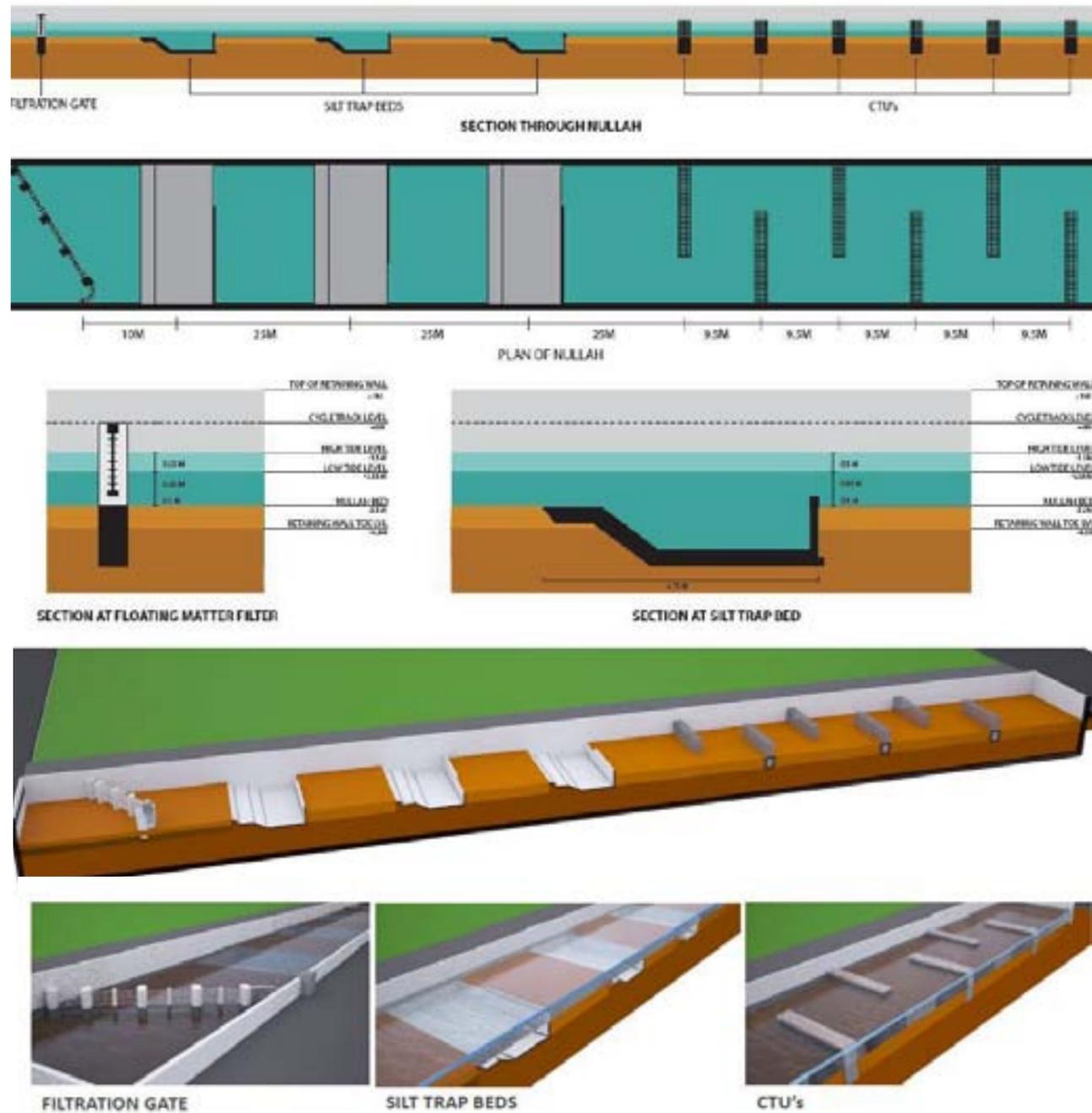
A plan that networks and integrates the nullah into the neighbourhood as well as with the multiple amenities and institutions in the precinct through green streets and roads that promote a walking culture along the nullah as well as within the Irla precinct.



CLEANING THE IRLA NULLAH

One of the focal points of the project and one that was key to the success of the re-appropriation and re-invigoration of the nullah itself was the challenge of cleaning the water. It has been mentioned earlier, that these water bodies were originally built as natural and open storm water channels that would take water from inland into the sea. Unfortunately over the years, most of the flow in these water bodies is contributed by illegal sewage and waste water connections from adjacent areas.

There is a tremendous amount of silt that has accumulated over the years on the nullah bed, and the effective cleaning of the water would also entail reducing this bio-waste silt from the bed itself in order to reduce the foul smell and odour of the water too.



The design team has worked closely with the National Environmental Engineering Research Institute (NEERI) to develop a system for cleaning the water. This system comprises of several elements that include 1) a floating matter filtration gate, 2) silt trap beds, 3) compact treatment units and 4) floating beds of phytoid plants.



Floating bed treatment unit



Canna Indica variant used as plants on the floating bed

the movement in
other neighbourhoods





With over 149 kms of coastline, Mumbai is a city on the sea.

Yet how much of this coastline is repected, preserved and used as planned public space?

The promenades at Bandstand and Carter Road in Bandra demonstrate how neighbourhood initiatives, inclusive 'non-elitist- planning and government and private support can transform our seafronts meaningfully

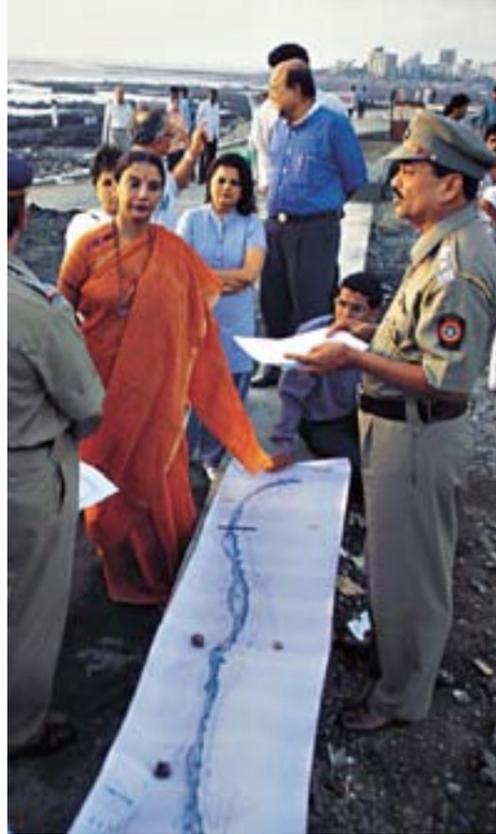
BANDRA BANDSTAND PROMENADE

A product of a strong citizen's movement in the area, this promenade meanders along the water's edge of Bandra creating a contiguous open space where people can walk, relax and experience the vast beauty of the seascape.

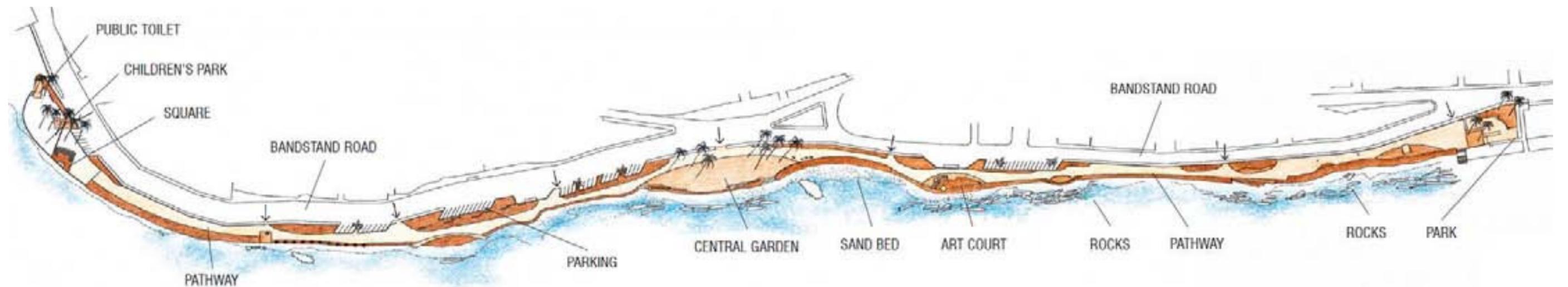
Project undertaken by Bandra Bandstand Residents' Trust in association with social activist and actor Shabana Azmi, and architect P.K.Das.

Funding: Shabana Azmi (MPLAD Fund)
 Water front length: 1.2 km
 Cost: Rs.140 lacs.
 Period of construction: 2001-02.
 Structures and restoration: Arup Sarbadhikary

BEFORE



AFTER



CARTER ROAD PROMENADE, BANDRA

This project too was part of the larger movement in the city to reclaim public spaces and to protect Mumbai's coastline. The development at the Carter Road seafront regenerated the mangroves, hitherto abused as a dumping ground, and their lush greenery has greatly added to the beauty of the waterfront. The mangroves formed the central point of interest at the Carter Road seafront. Our development meanders around it. Patches of grass, planned adjacent to the mangroves, extend the lush green expanse.

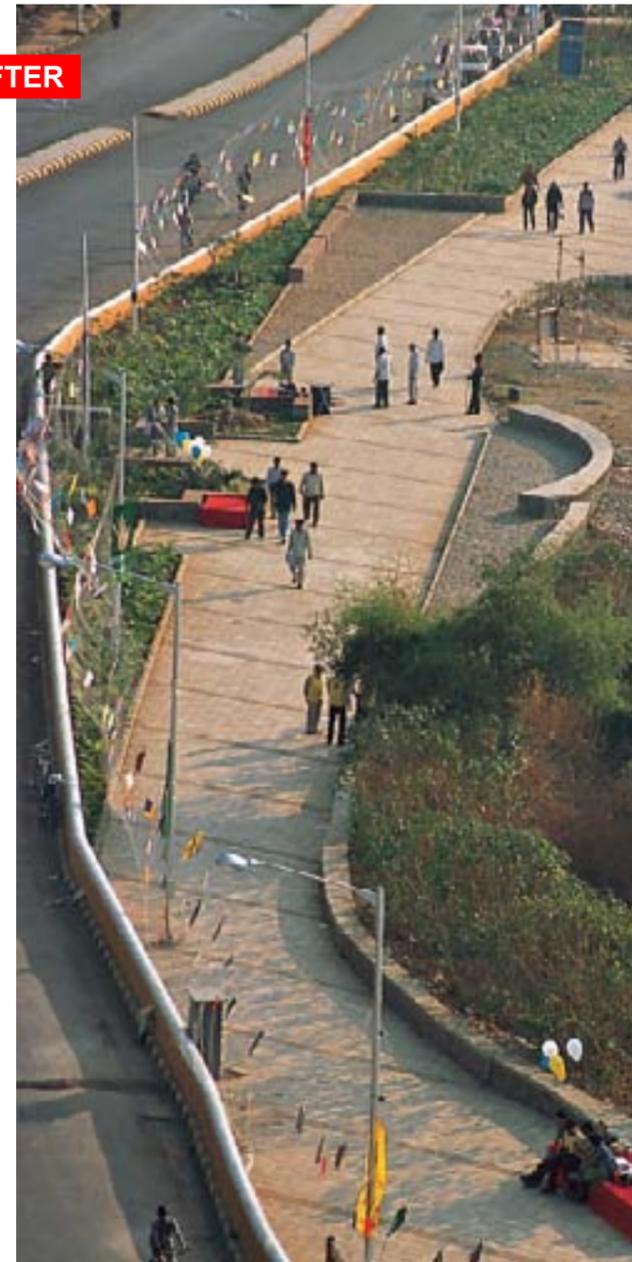
Project under taken by Bandra West Residents' Association with social activist and actor Shabana Azmi, and architect P.K.Das.

Funding: Shabana Azmi (MPLAD Fund)
 Water front length: 1.25 km
 Cost: Rs.150 lacs.
 Period of construction: 2001-02.

BEFORE



AFTER



LAND'S END AMPHITHEATRE, BANDRA

The project includes restoration of the hill slope and its contours, which had been dug up mindlessly by a hotel to create a garden that has no relevance to the immediate natural and historical environment. The project includes plans to conserve, restore and develop appropriately the existing ruins and to regenerate the palm forest that once stretched over its slopes.

Project undertaken by Bandra Bandra Bandstand Residents' Trust with social activist and actor Shabana Azmi, and architect P.K.Das.

Funding: Shabana Azmi (MPLAD Fund)

Area: 18,000 sq.ft.

Cost: Rs.90 lacs.

Period of construction: 2002-03



BEFORE



AFTER



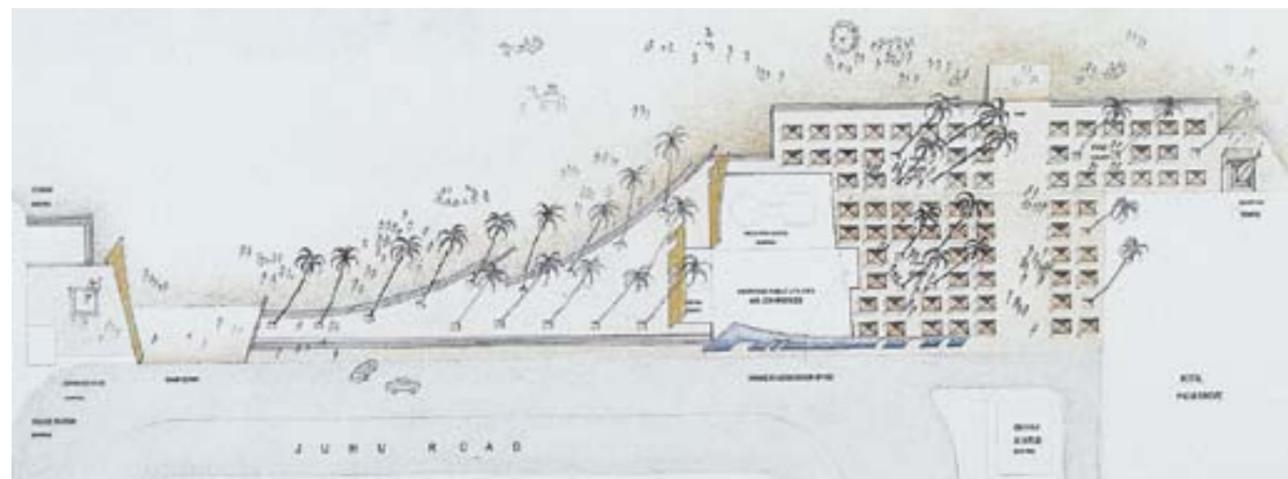
JUHU BEACH RESTORATION AND TOURISM PLAN

Restoration of Juhu Beach is the third project in this movement to restore Mumbai's waterfronts. It is one of Mumbai's most largely visited public spaces. It is a place to unwind, relax and take in the sea air. Unfortunately, ad hoc, unplanned commercialization, without a cohesive and comprehensive vision, had destroyed its natural environment considerably.

Our proposal covered the entire length of the main beach and promenade from the koliwada (fishing village) of Khar at the southern tip to Moragaon at the northern end - a length of nearly three kilometres.

As the plan shows, it covers the whole spectrum of activities along the stretch, both on and off the beach and its immediate surroundings. The already existing stalls and podia have been incorporated into the plan. Its salient features include proposals to reduce traffic congestion, generate substantial new parking spaces, pedestrian crossings and islands.

The plan also addresses the access points to the beach and focusses on integration of this natural asset with the communities living along the beach. After a long struggle over 10 years, which included several court cases against owners of the stalls on the beach, the plan was approved by the High Court and the plan was implemented with tremendous support of the local area citizens



GATEWAY OF INDIA PRECINCT REFURBISHMENT

The Gateway of India, located in south Mumbai is a historic monument looming majestically against the backdrop of the Arabian Sea. A must-see on every tourist's itinerary and a favourite waterfront of the locals, this public space is visited daily by thousands of people. But sadly this plaza, one of the largest of all the waterfronts in the city, was a clutter of disparate structures and unplanned activities with no cohesive design holding them together.

Our redesigned precinct both extends the plaza and relocates the activities at the farther end, re-organized to skirt the rear end of the central garden. This gives the historic monument a breathing space in front and provides the visitors a panoramic view of the monument, the sea and the other landmark structures and statues around. The plan also organizes the commercial and other activities at one location and ensures that they do not encroach on the plaza and clutter it.

Project under taken by Municipal Corporation of Greater Mumbai along with support from architect PK Das & Associates and INTACH: Greater Mumbai Chapter.

Area: 1,20,000 sq.ft.

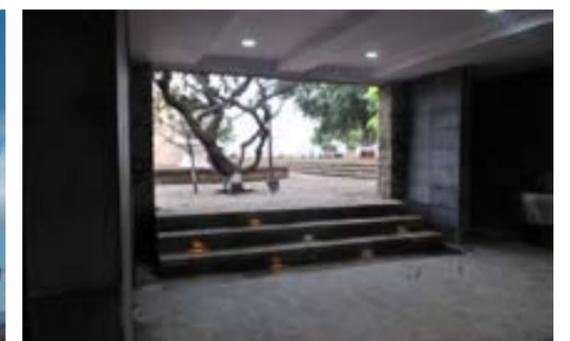
Cost: Rs. 450 lacs.

Period of construction: 2007-09

BEFORE



AFTER





the open mumbai exhibition

Re-envisioning the city and its open spaces

Mapping of Mumbai's Natural Assets and Open spaces

As Mumbai expands, its open spaces are shrinking. The democratic 'space' that ensures accountability and enables dissent is also shrinking, very subtly but surely. The city's shrinking physical open spaces are of course the most visible manifestation as they adversely affect our quality of life. Open spaces must clearly be the foundation of city planning. An 'Open Mumbai' ensures our physical and democratic well-being. Unfortunately, over the years, open spaces have become 'leftovers' or residual spaces after construction potential has been exploited.

Key Objectives of the Open Mumbai Plan:

1. Expand and network public open spaces.
2. Conserve natural assets & protect eco-sensitive borders.
3. Prepare a comprehensive waterfronts plan.
4. Establish walking and cycling tracks.
5. Promote social, cultural and recreational opportunities.
6. Evolve and facilitate participatory governance practices.
7. Democratise public spaces.
8. Undertake necessary amendments in the DP and DCR.

Through this plan, we hope to generate dialogue between people, government, professionals ... and within movements working for social, cultural and environmental change. It is a plan that redefines land use and development, placing people and community life at the centre of planning — not real estate and construction potential.

A plan that redefines the 'notion' of open spaces to go beyond gardens and recreational grounds — to include the vast, diverse natural assets of the city, including rivers, nullahs, creeks, lakes, ponds, mangroves, wetlands, beaches & the incredible seafronts.



The Open Mumbai Plan



A plan that aims to create non-barricaded, non-exclusive, non-elitist spaces that provides access to all our citizens for leisure. A plan that ensures open space is not only available but is geographically and culturally integral to neighbourhoods and a participatory community life.

A plan that we hope will be the beginning of a dialogue to create a truly representative 'Peoples' Plan' for the city.







Top: Image of the Mithi River flowing through BKC- a financial hub of the city
Bottom left: Image of the Malad Creek in northern Mumbai;



Initiatives such as the Irla Nullah Re-invigoration project amongst many others address these larger issues of city planning and people's active participation in key decisions concerning their daily quality of life along with the protection, restoration and improvement of the natural assets that keep the important ecological balance of our cities in tact, so we can move forward in a more responsible and sustainable mode of development.

VARIOUS PUBLICATIONS RELATED TO THE MOVEMENT FOR RECLAIMING PUBLIC SPACES IN MUMBAI

These publications have been outcomes of the effort to popularise and publicise the on going struggle and movement for the right to public spaces within the city of Mumbai and the re-invigoration and integration with the city of the 140 sq. km. natural areas.

1. Vision Juhu - Expanding Public Spaces,

Published by PK Das & Associates, 2007

In collaboration with the design cell of Kamla Raheja Vidyanidhi College of Architecture and Environmental Studies, KRVI.

This book is based on an extensive survey and documentation of Juhu the coastal suburb of Mumbai. It includes mapping of the open spaces, the iconic Juhu beach, the Irla nullah, mangroves, along with a survey of the various activities and settlements, proposing a comprehensive and all compassing Vision Juhu Plan with neighborhood based city planning as its main argument.

2. On the Waterfront - Reclaiming Mumbai's Open Spaces,

Published by PK Das & Associates and Mumbai Waterfronts Center, 2011

Through two actual case studies, the book demonstrates how the two waterfronts in Bandra-- another coastal suburban neighborhood in Mumbai, have been reclaimed for its citizens and by design have been turned into democratic spaces.

3. Mumbai's Open Spaces - Maps & a Preliminary Listing Document,

Published by Mumbai Waterfronts Center and PK Das & Associates, 2011

This is a comprehensive listing with the locations and areas of all the reserved open spaces as per the Development Plan of Mumbai, ward-wise has been published. This listing also records the actual available open space on the ground and their user status.

4. Open Mumbai - Re-envisioning the city and its open spaces,

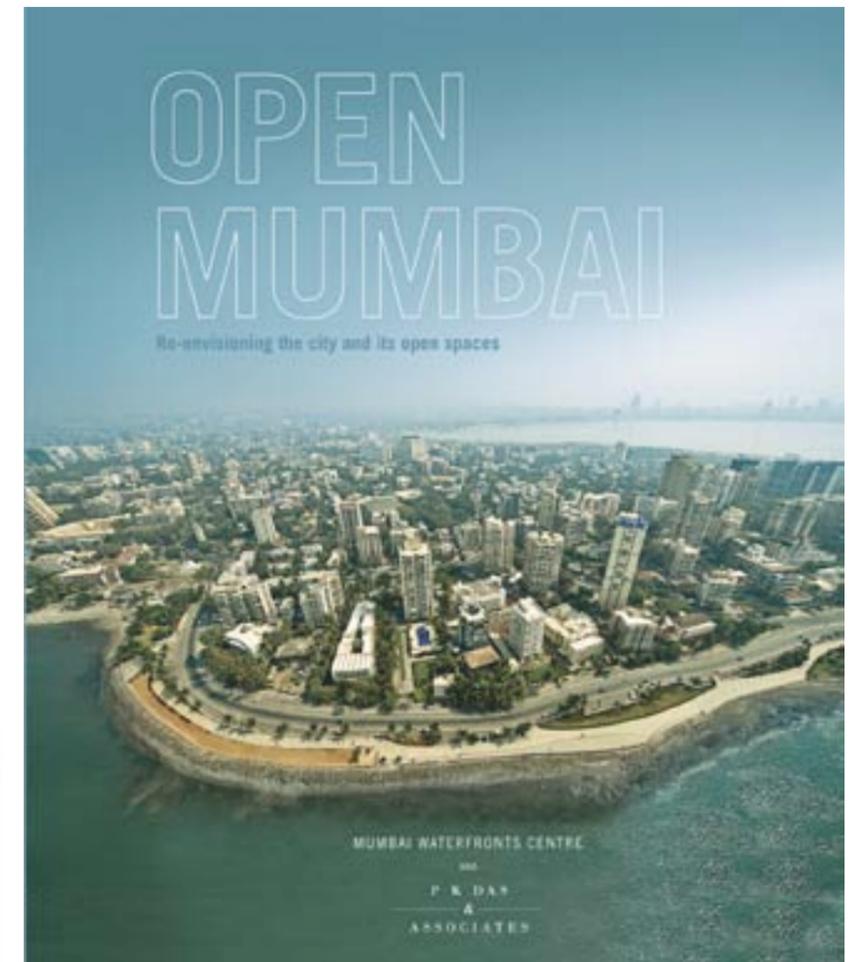
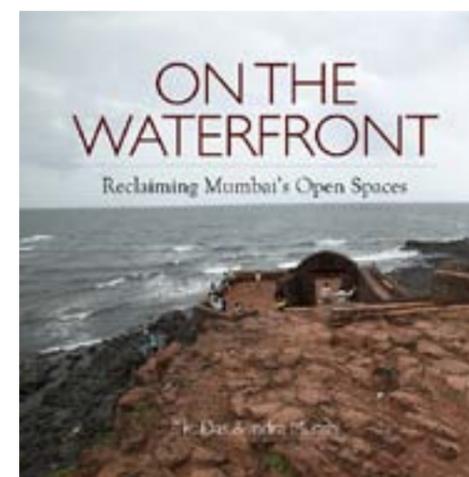
Published by Mumbai Waterfronts Center and PK Das & Associates, 2012

This is the first time ever a mapping of the open spaces in Mumbai and the vast extent of the natural areas-- creeks, wetlands, rivers, watercourses, hills, forests, beaches, have been undertaken. The book also provides examples of the various projects undertaken through citizens effort in reclaiming the waterfronts and open spaces in the city. Also, an Open Mumbai plan has been presented illustrating the idea of the networking and integration of all the open spaces and the natural areas with an objective of achieving a sustainable future.

5. Design Beyond Boundaries- Integrating the backyards,

Published by PUDDI, 2018

A four month design studio with final year students at KRVI focussed on backyards of development that the city produces with its growth, and how these spaces needed integration and improvement. The Irla Nullah was the protagonist of the studio with students exploring various avenues through which its improvement can be envisioned at a larger neighbourhood scale.



* These publications can be found online on PK Das & Associates' website: www.pkdas.com



**a continuing
movement..**