

**Presentation at Delft University
19th June 2012**

Democratic Planning, Design & Architecture in the making of our cities: The case of Mumbai

P K Das, Architect - Activist, Mumbai

Planning & Architecture are effective democratic tools of social change and instruments for mobilizing and facilitating social movements for equality and justice.

Planning & Architecture in its physical manifestations greatly influences life and through them we could contemplate the future of our cities.

Three fundamental steps

Placing planning & architecture in the domain of public knowledge.

Promoting planning & architecture as subjects of public dialogue.

Evolving planning & architecture decisions through public reasoning.

Planning & Architecture must integrate with the development process for enabling social changes and for achieving development justice.

This integration is our challenge.

Public spaces are rapidly shrinking as cities expand.

Exclusivity and exclusion are fast becoming the basis of city development.

An example

THE HOUSING QUESTION

The case of Mumbai



**7 million (60%)
people live in slums**

Slums occupy 42 sq.km. (8.75%) land area

High density, lacking open spaces, social amenities & infrastructure



Approx. 0.4 million live on pavements



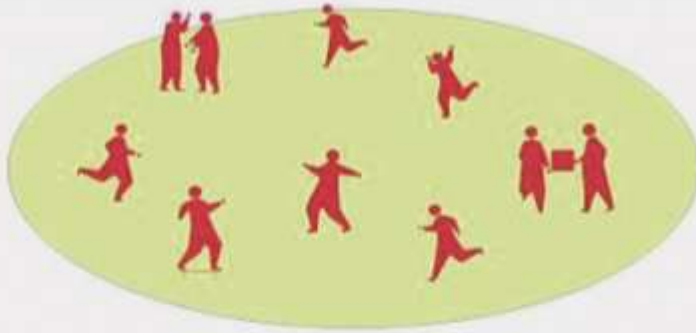
THE STRUGGLE FOR HOUSING: A PEOPLES' MANIFESTO



Second example

THE PUBLIC SPACES QUESTION

The case of Mumbai



LONDON: 7.2 A/1000 PEOPLE



NEW YORK: 6 A/1000 PEOPLE



CHICAGO: 4 A/1000 PEOPLE



TOKYO: 0.9 A/1000 PEOPLE



MUMBAI: 0.25 A/1000 PEOPLE



COMPARISON OF AVAILABILITY OF OPEN SPACES

Neglect & abuse of open spaces



Abuse of coastline



Historic precincts abuse



Indiscriminate land-filling and destruction of natural assets



Degeneration of beaches

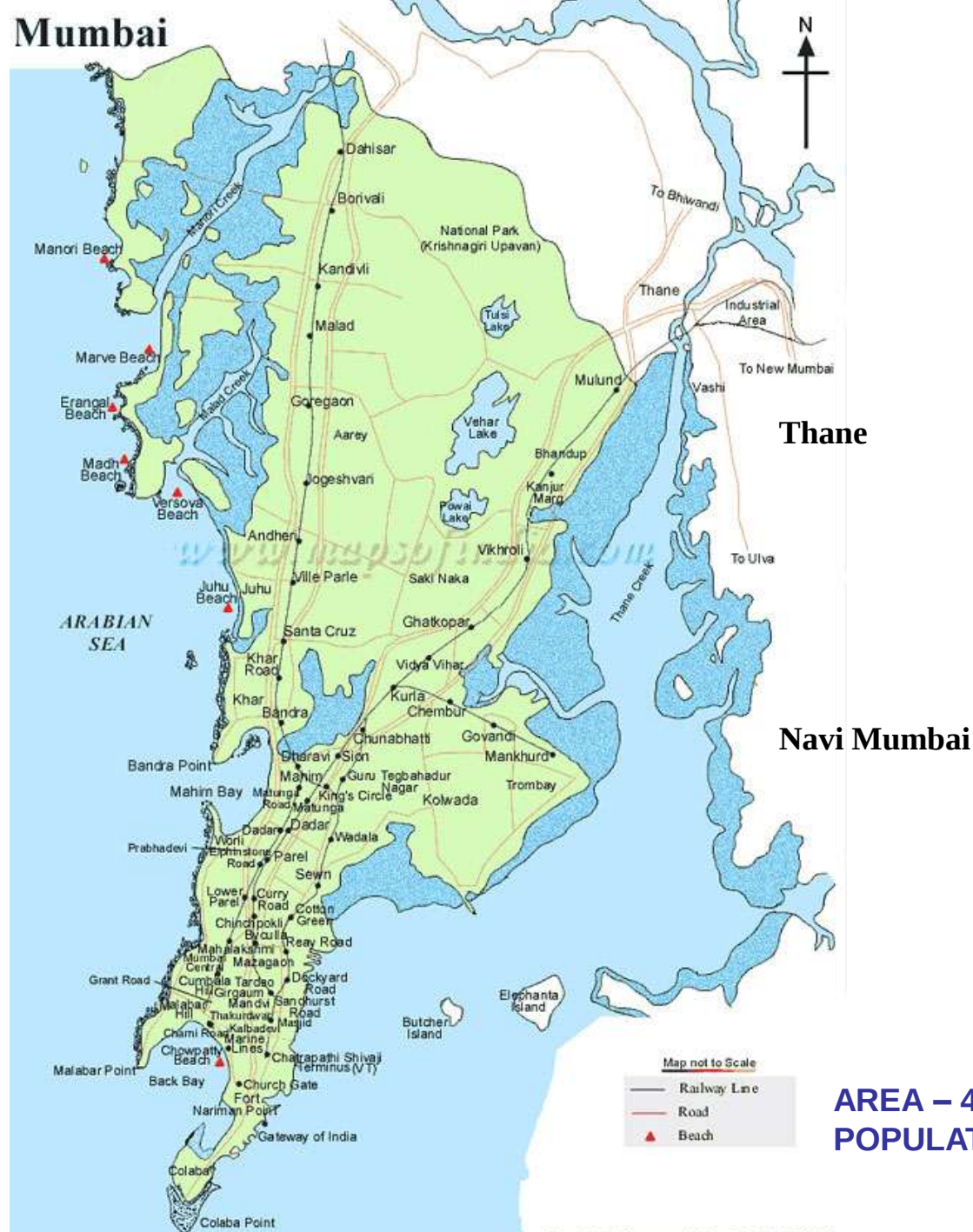


MUMBAI

A brief background



Mumbai



AREA – 483 SQ KM
POPULATION – 12.50 MILLION



Mumbai's natural assets



Gandhi's Quit
India Movement



Ambedkar's Dalit
Movement



Historical working class & slum dwellers movements

A community effort scripts a success story

THE development of the seafront at Carter Road and Bandra Bandstand has won international recognition, with the receipt of this year's award instituted by the Washington-based Waterfront Centre for Waterfront Development Projects. Selected among entries from all over the world, the award recognises the efforts of an entire community to 'retrieve its waterfront for the public'.

A few years ago, the 4.5-km stretch of the Bandra seafront was little more than a dumping ground, sewage disposal area and thickly peopled by encroachers. It was P K Das, an architect by profession and also among the architects of the save-the-waterfront scheme, who took on the cause of the declining



Bandra Bandstand after the redevelopment work

ment in the shape of the MHADA and the private citizens' forums worked in co-ordination to restore the picturesque coastline at Bandstand and Carter Road. The results of the redevelopment efforts are in plain sight — palm trees, amphitheatres, a children's park, an art court.

Having re-designed the facade, there was still the question of maintenance. That's where Harsh Mariwalla of Marico Industries contributed his bit. Marico Industries has so far spent almost Rs 25 lakh towards the beautification drive and planted more than 30 species of palm trees. That's where the name Palm Promenade at Carter Road comes from. Another corporate, US Vitamins, contributes to the maintenance of Bandstand.

Citizens inspire Bandra face-lift

Nasser Laljee
Bandra

ON this waterfront, there is certainly no Marlon Brando, but the people of Bandra Bandstand certainly have their own heroes.

It is to the credit of these heroes who set about saving a coastline that had been endangered by indiscriminate dumping. The movement took off with the Mohalla committee, which was formed in 1993, when a group of people started taking an interest in civic problems. They formed the Bandra Bandstand Residents Association in 1996, which was later converted to a trust in 2000.

The blatant dumping of rubbish along their precious coastline outraged the sensibilities of the local residents who had earlier fought it out in the court and got 1,500 trucks of debris removed from the area facing the Bandstand Fort. Once this was done the group moved ahead to try and reclaim whatever was left of the coastline. The idea was to prevent it from encroachments, particularly those that had come up in the area around the Searock hotel.

The citizens had already con-

invested into the project.

The construction started in May 1996. Exactly one year later May 2000 saw the Naval Police Band inaugurate the promenade at bandstand. Then came the Art fair on November 27, 2000. This was followed by a party for the under-privileged children in December 2000. An interactive play to highlight the problems of the common man was held next on the May 6, 2001.



The variety of events held at the promenade has brought the citizens closer to each other and there is a growing sense of camaraderie among all those who come here. They voluntarily stop people from creating nuisance, throwing rubbish as they have developed a sense of ownership.

The promenade is now almost complete, and a 1.6 km stretch of reclaimed land, from Bandstand to St Andrews Church corner, has been saved from certain disaster. Encroachment and other such nuisances would have certainly destroyed the entire already endangered coastline.

"The people have developed a good trust and funds are slowly trickling in." The association and



Real estate boom



Growth of exclusive health and educational facilities



Malls & entertainment plazas – our new public spaces



Rise of the informal sector



Mhada's Rs 4L hsg scheme gets mega response



FLAT FRENZY: Applicants waited for their turn in serpentine queues

Yogesh Naik | m

Mumbai: The low-cost housing scheme initiated by the Maharashtra Housing and Area Development Authority (Mhada) has received an overwhelming response with the sale of over 48,000 forms in the first two days.

The authority is selling 870 flats of 100 sq ft each at Malvani, Malad, as part of its pilot project. The houses will be sold at Rs 4 lakh each and those earning less than Rs 8,000 are eligible for the scheme.

Mhada registered the sale of over 48,000 forms in the first couple of days

Mhada had realised that there would be a mad rush for the scheme and had given the contract of selling and accepting forms to HDFC Bank.

There were serpentine queues outside HDFC Bank branches on Tuesday and Wednesday. The police had to be called in at some places as there were law and order problems. In Borivli, the applicants pushed each other and also quarrelled with the police, who had been summoned by the branch manager.

L S Panchal (64), who stood

in a queue for a long time, said, "I always dreamt of owning a flat but could not afford one. At present, I live in one room in a chawl with my wife, son and his family. If I get the Malvani flat, then some of us can move out."

Ameena Bi, a 45-year-old domestic help, patiently waited for her turn. She stays in a slum at Kandivli with seven members of her family. "My sons and I can afford to buy a flat. But we do not know about the procedures involved."

Senior IAS officer Swadheen Keshatriya, who promoted the concept of low-cost houses while drafting the housing policy, said, "This illustrates the need for it. We require more such schemes. The government is planning to build 25,000 such houses in Malvani; 16,000 houses will be reserved for mill workers."

The Mumbai board's chief executive officer of Mhada, H K Jawale, said the bank would sell forms, priced at Rs 100 each, till July 18.

"One of the biggest reasons for the rush is the low price of the flats. Besides, Malad is still considered closer to the city. Instead of going to faraway Virar or Kalyan, commuting from Malad is relatively easier," he said.

yogesh.naik@timesgroup.com



The housing debacle



Ongoing slums redevelopment



Typical slums redevelopment example





Forced evictions





Crushed homes, lost lives:

The story of the demolitions in the Sanjay Gandhi National Park



A skewed SRD policy

The slums dwellers are subject to greater abuse and displacement.

An irrelevant Development Plan

There is no land reserved for affordable housing.

Land reserved for housing is open to speculative investment.

Inadequate social amenities.

SLUMS REDEVELOPMENT
and
AFFORDABLE HOUSING

MUMBAI – SLUM MAPS



INDEX

	AREA-SQKM	%	SIGN
GREATER MUMBAI BOUNDARY	482.74	100.00%	—
WARD BOUNDARY			—
LAND AREA RESERVED FOR HOUSING (as per D.P.)	102.17	21.17%	
TOTAL SLUMS LAND AREA	42.28	8.75%	■
MUMBAI'S POPULATION (as per 2011 census)	12.43 mn	100.00%	
SLUM- DWELLERS POPULATION (as per 2011 census)	06.53 mn	52.50%	

Not to scale. Various reservations are as per the Development Plan. Population figures are approximate.

This map to be read together with 'Mumbai's Slums Map -2 D.P. Reservations'



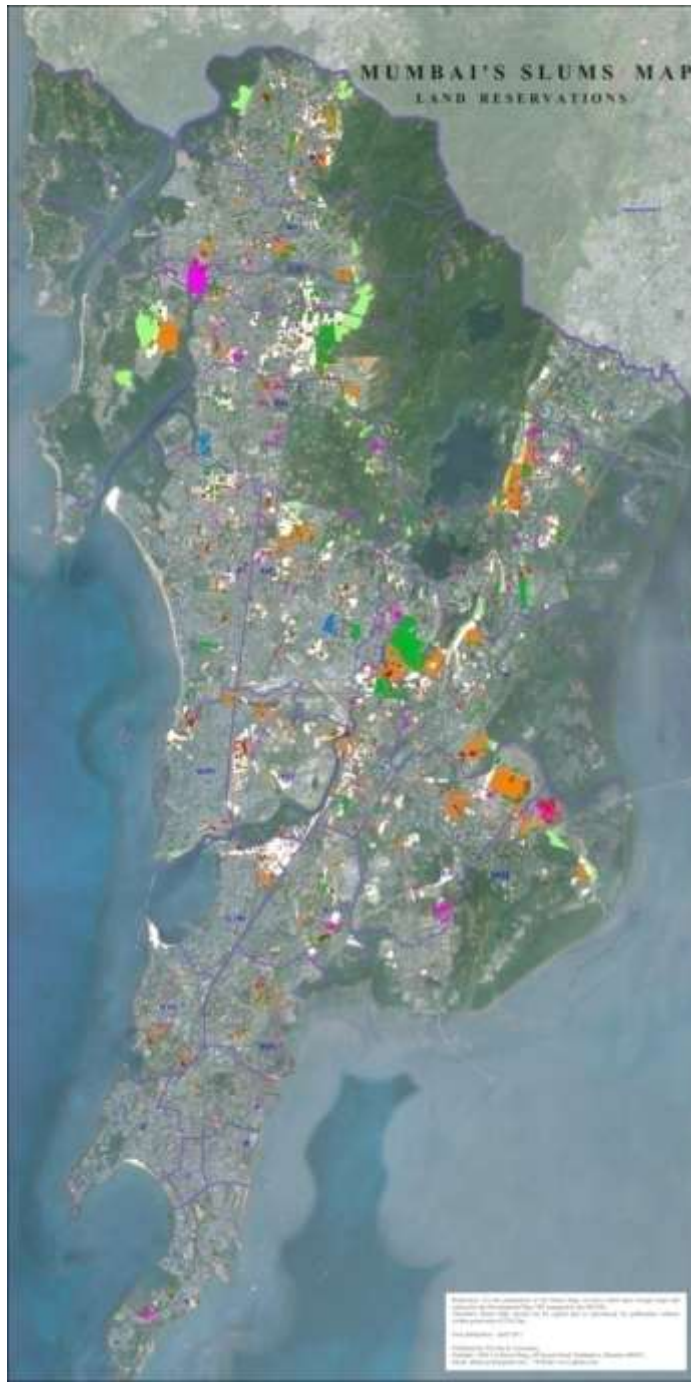
Comprehensive mapping of the slums of Mumbai has been carried out by P.K.Das & Associates, Planners & Architects. Various land use reservations on slums land as per Development Plan of Mumbai has been identified.

Preparation and publication for the first time of such a comprehensive 'Mumbai's Slums Map' is for the purpose of Re-Visioning Mumbai with an integrated Slums redevelopment and affordable housing alternative. Shortage of land for affordable housing can be addressed by reserving all slum occupied land for affordable housing. It is necessary to undertake the preparation of a comprehensive master plan for slum redevelopment and affordable housing, based on town planning principles. Similarly, planning on ward basis should be the way forward for the preparation of the master plan. Increased government role in planning, project management, administration, finance along with price control is inevitable. The 'Mumbai's Slums Map' is a starting point of such an endeavor.

Limitations and Assumptions : This map has been prepared upon a comparative study of the Development Plan and the google maps. Calculation of Slums area and other areas are based on this map. Gaothans and Fishing villages (Koliwad) do not have a separate reservation in the Development plan. The demarcation between Gaothans / Koliwad and their extended slums is not achieved.

References: For the preparation of the Slums Map, we have relied upon Google maps and referred to the Development Plan 1991 prepared by the MCGM.

MUMBAI – SLUM MAPS



INDEX

	AREA-SQKM	%	SIGN
GREATER MUMBAI BOUNDARY	482.74	100.00%	
WARD BOUNDARY			
LAND AREA RESERVED FOR HOUSING	102.17	21.20%	
SLUMS ON HOUSING RESERVATION	6.07	14.36%	
SLUMS ON RESIDENTIAL RESERVATION	14.02	33.16%	
SLUMS ON COMMERCIAL RESERVATION	0.72	1.70%	
SLUMS ON INDUSTRIES RESERVATION	2.55	6.03%	
SLUMS ON AMENITY RESERVATION	2.37	5.61%	
SLUMS ON OPEN SPACE RESERVATION (RG,PG,G,P)	7.47	17.67%	
SLUMS ON NATURAL ASSETS (beaches, mangroves, etc.)	0.32	0.76%	
SLUMS ON NDZ RESERVATION	4.22	9.98%	
SLUMS ON RAILWAYS, AIRPORT AND PORTS	0.44	1.04%	
SLUMS ON SERVICES RESERVATION(Depots, Substations etc.)	1.02	2.41%	
SLUMS ON DP ROAD RESERVATION	3.08	7.28%	
TOTAL SLUMS LAND AREA	42.28	8.75%	
MUMBAI'S POPULATION (as per 2011 census)	12.43 mn	100.00%	
SLUM- DWELLERS POPULATION (as per 2011 census)	6.53mn	52.50%	

Not to scale. Various reservations are as per the Development Plan. Population figures are approximate.

This map to be read together with 'Mumbai's Slums Map - I'

N
I

OBJECTIVE

RESERVE SLUMS LAND FOR AFFORDABLE HOUSING

- Satellite mapping shows nearly 50% of Slum habitations occupy land reserved for housing. These constitute only 9% of the land mass of the city of Mumbai.
- Shortage of land can be solved by reserving all slum occupied land for affordable housing
- All slum layouts usage should be reserved exclusively for affordable housing with 2.5 FSI
- Affordable housing stock is being lost in SRA projects with upper class construction cross- subsidizing slum rehab. Slum lands should be entirely used for low cost housing to maximize affordable housing stock.

OPERATING PRINCIPLES

1. Increased Government role in Administration, Finance and Price Control.
2. Modified / Amended SRD policy – Redefine private / builders' participation.
3. Slum dwellers financial contribution with soft long term loans facility
4. Empanelment for Architects, Project Management Consultants and Construction agencies.
5. Prepare master plan on Town planning principles, on Ward basis for affordable housing to minimize displacement.
6. Restrict FSI to 2.50. L I G housing requires more land and less FSI to balance density.

AFFORDABLE LOW COST HOUSING PRODUCTION

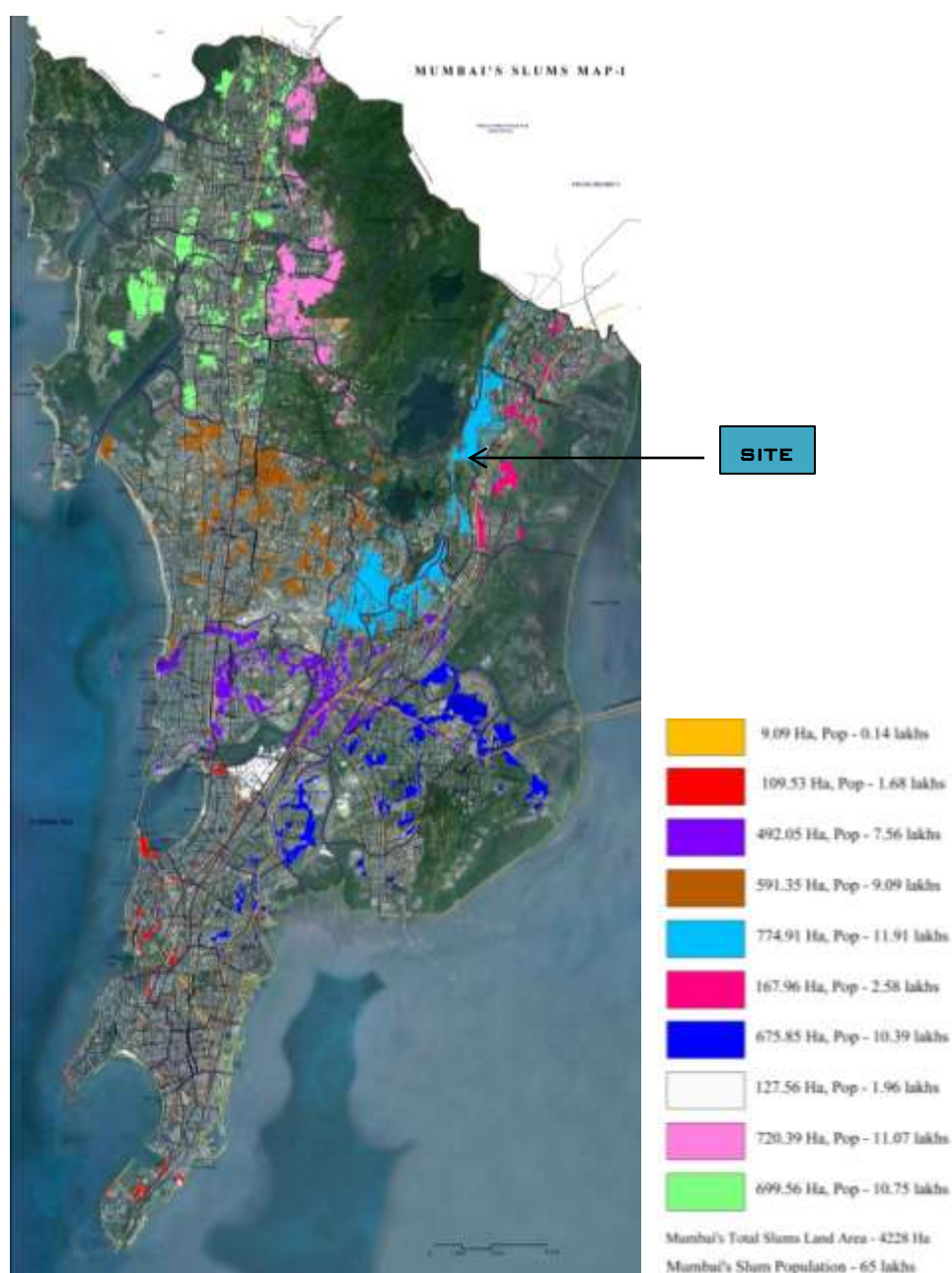
Target = 2.60 million units

- 42.30 sq km slums land area is available for slums rehabilitation and additional low-cost housing.
- With 2.5 FSI we get 105.75 sq kms or 105 million sq meters to build.
- Existing slum dwellers population is approximately 7.5 million or 1.5 million families.
1.5 million families x 30 sq mt. house area = 45 sq mts million FSI area.
- Balance FSI is 105 million sq mts less 45 million sq mts = Say 60 million sq mts (ie 60 sq kms)
- Build additional affordable housing stock with say 55 sq mts average unit area (45,55 and 65 sq mts units)

Therefore $\frac{60 \text{ million sq mts}}{55 \text{ sq mts}} = 1.10$ million additional housing stock logistically possible

Note: Additional housing stock is required for displaced slums from untenable sites, PAPs, population in-growth and new demands.

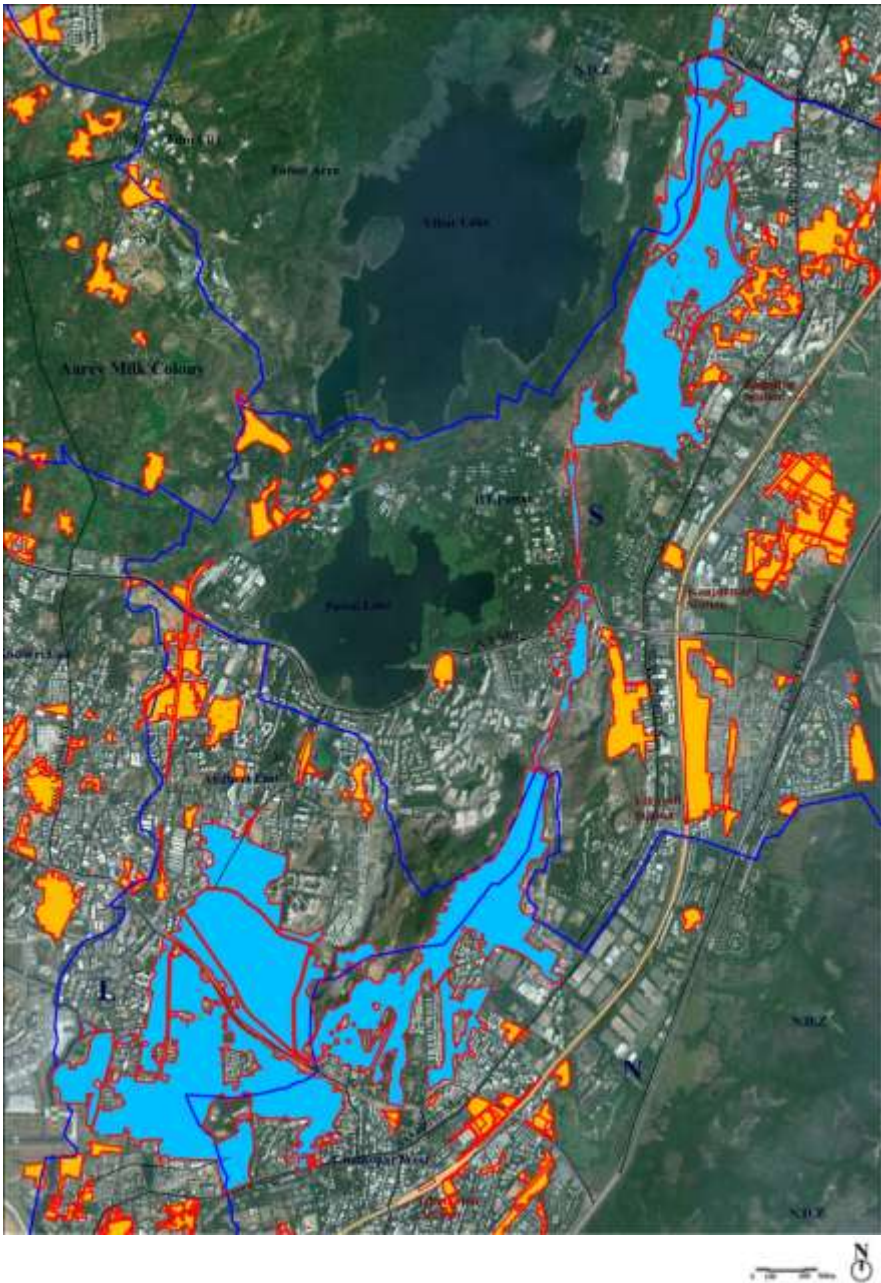
MUMBAI SLUMS – zoning map



ZONING OF THE ENTIRE MUMBAI SLUMS HAS BEEN PROPOSED TO ACHIEVE A SIMULTANEOUS COMPREHENSIVE REDEVELOPMENT

INDEX			
	AREA-SQKM	%	SIGN
GREATER MUMBAI BOUNDARY	482.74	100.00%	
WARD BOUNDARY			
LAND AREA RESERVED FOR HOUSING (as per D.P.)	102.17	21.17%	
TOTAL SLUMS LAND AREA	42.28	8.75%	
MUMBAI'S POPULATION (as per 2011 census)	12.43 mn	100.00%	
SLUM- DWELLERS POPULATION (as per 2011 census)	06.53 mn	52.50%	
Not to scale. Various reservations are as per the Development Plan. Population figures are approximate. This map to be read together with 'Mumbai's Slums Map -2 D.P. Reservations'			N
Comprehensive mapping of the slums of Mumbai has been carried out by P.K.Das & Associates, Planners & Architects. Various land use reservations on slums land as per Development Plan of Mumbai has been identified.			

SITE



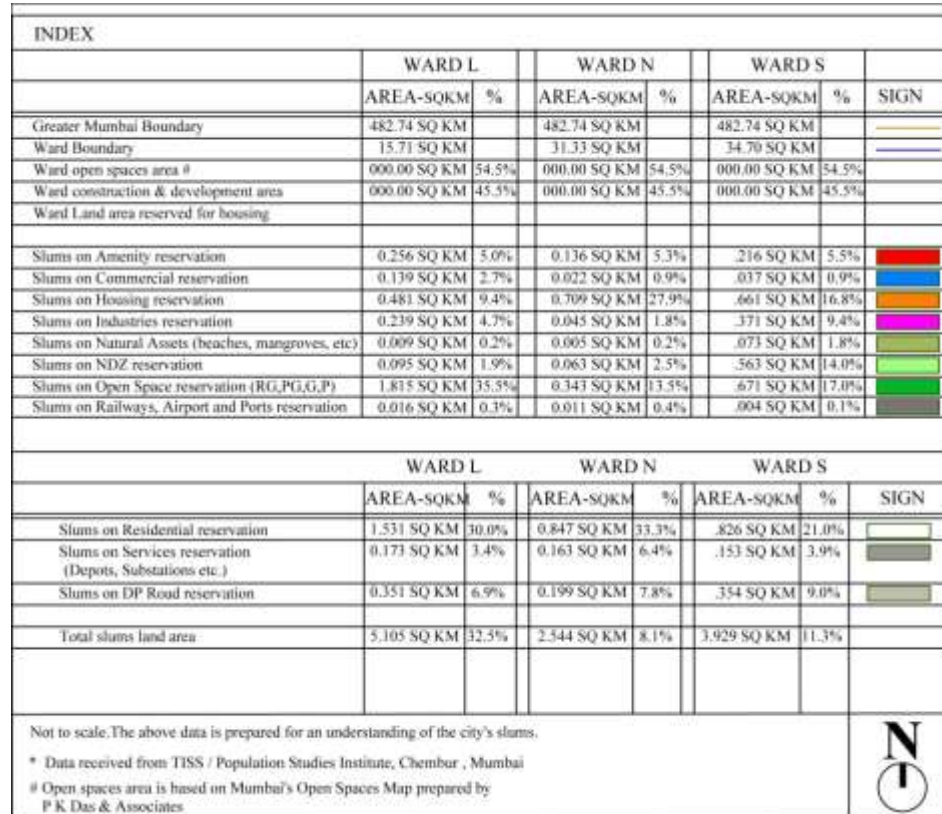
	NOS.	AREA (SQ.M.)	AREA (HA)
TOTAL SLUM LAND AREA OF MUMBAI		42,280,000	4228
TOTAL SLUM POPULATION OF MUMBAI	6,530,000		
EXISTING SLUM AREA OF SELECTED ZONE		7,342,403	734
EXISTING SLUM POPULATION OF SELECTED ZONE	620,000		
NO. OF HOUSING UNITS IN SELECTED ZONE	1 24,000		



 SITE

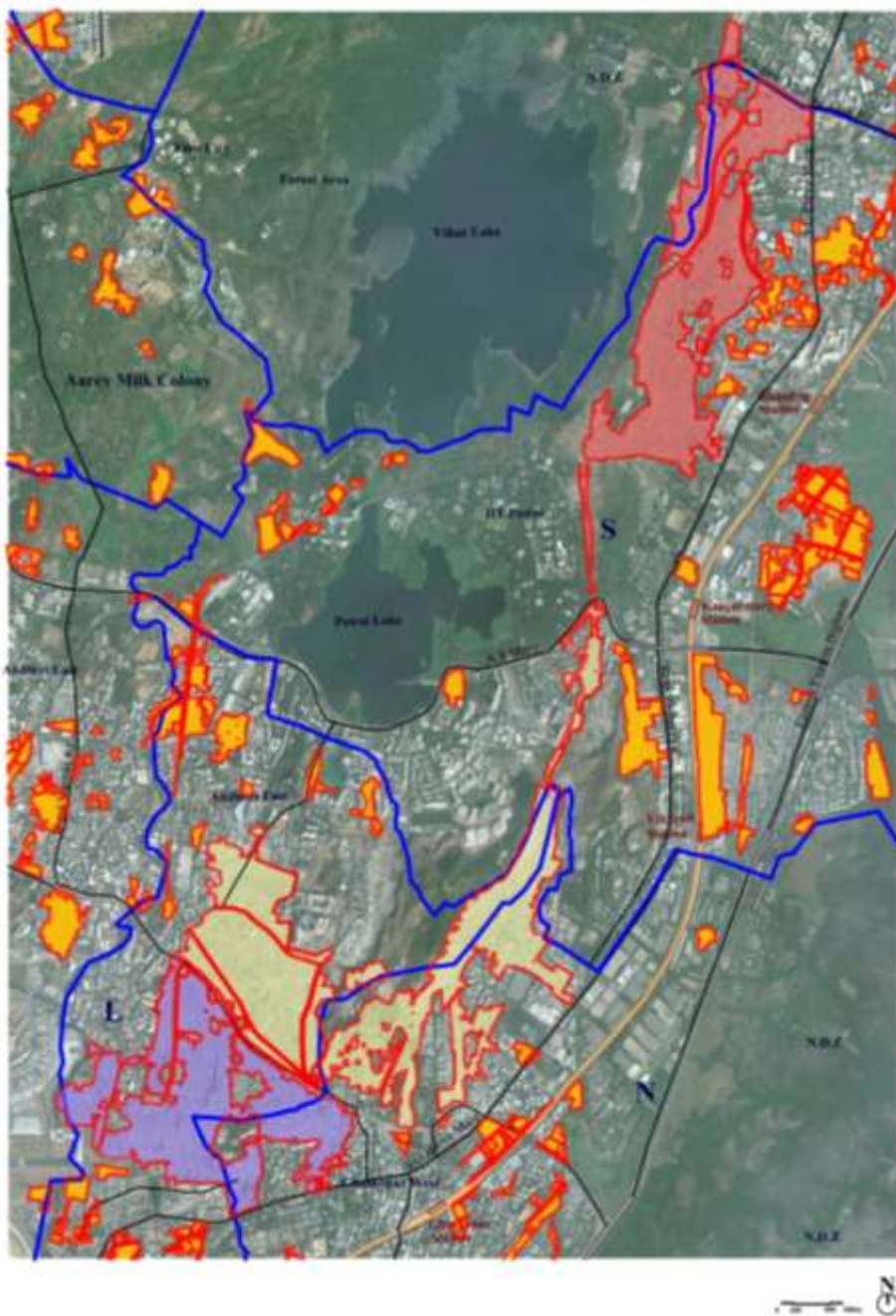
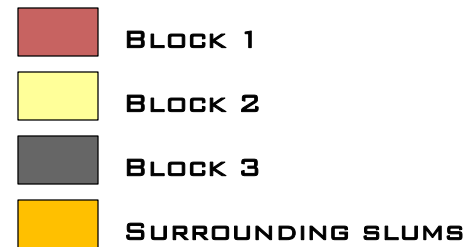
KEY PLAN (NOT TO SCALE)

D.P. reservation on slum land



SLUM LAND AREA

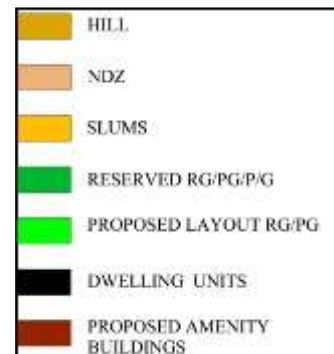
- BLOCK 1 - 223 HECTARES
- BLOCK 2 - 314 HECTARES
- BLOCK 3 - 197 HECTARES



SITE PLAN

PLANNING CONCEPT:

- AT THE HEART OF THE PLANNING CONCEPT IS A NETWORK OF PUBLIC OPEN SPACES.
- A NETWORK OF PEDESTRIAN PATHWAYS AND OPEN SPACES MEANDER THROUGH THE ENTIRE SITE THUS, INTEGRATING AND INTER-CONNECTING THE VARIOUS RESIDENTIAL AREAS.
- SEVERAL COMMON SQUARES AND A RANGE OF SOCIAL AMENITIES, ESSENTIAL SHOPS AND OTHER CONVENIENCES WOULD BE PROPOSED ALONG THESE OPEN SPACES.



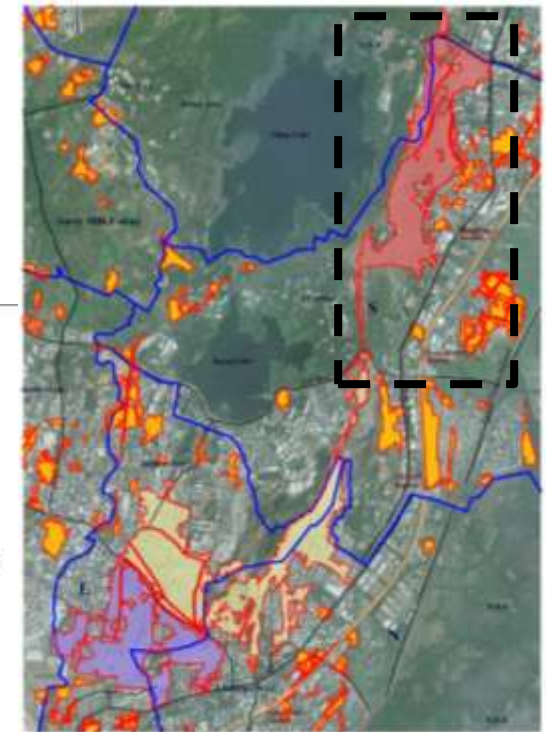
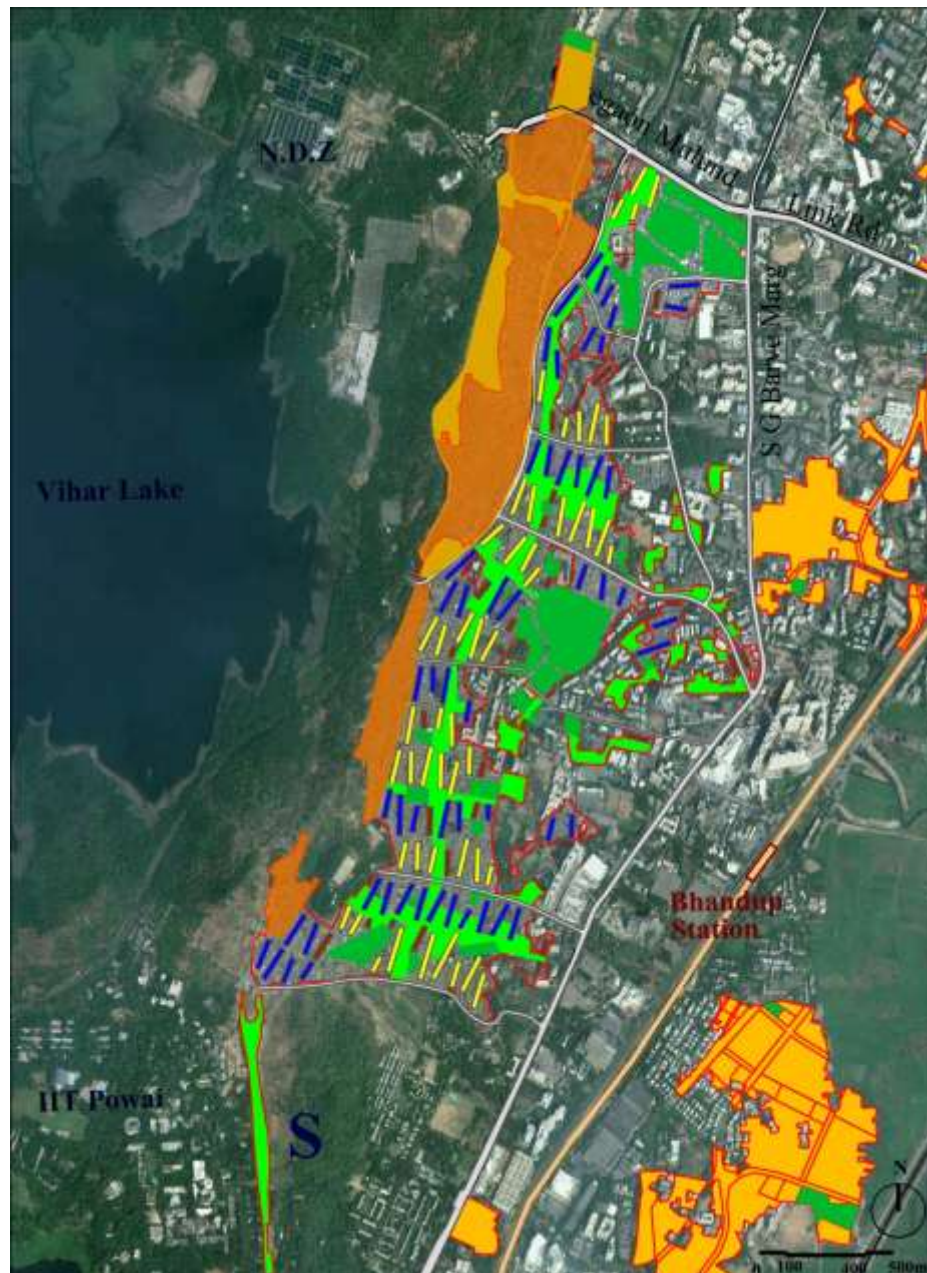
SITE PLAN

Block 1

EXISTING SLUM LAND AREA – 223 HA

RESTORED AREAS AS PER D.P.
RESERVATION –

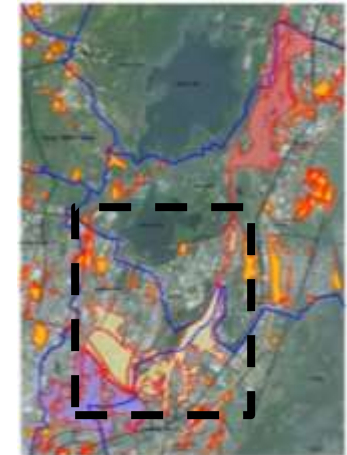
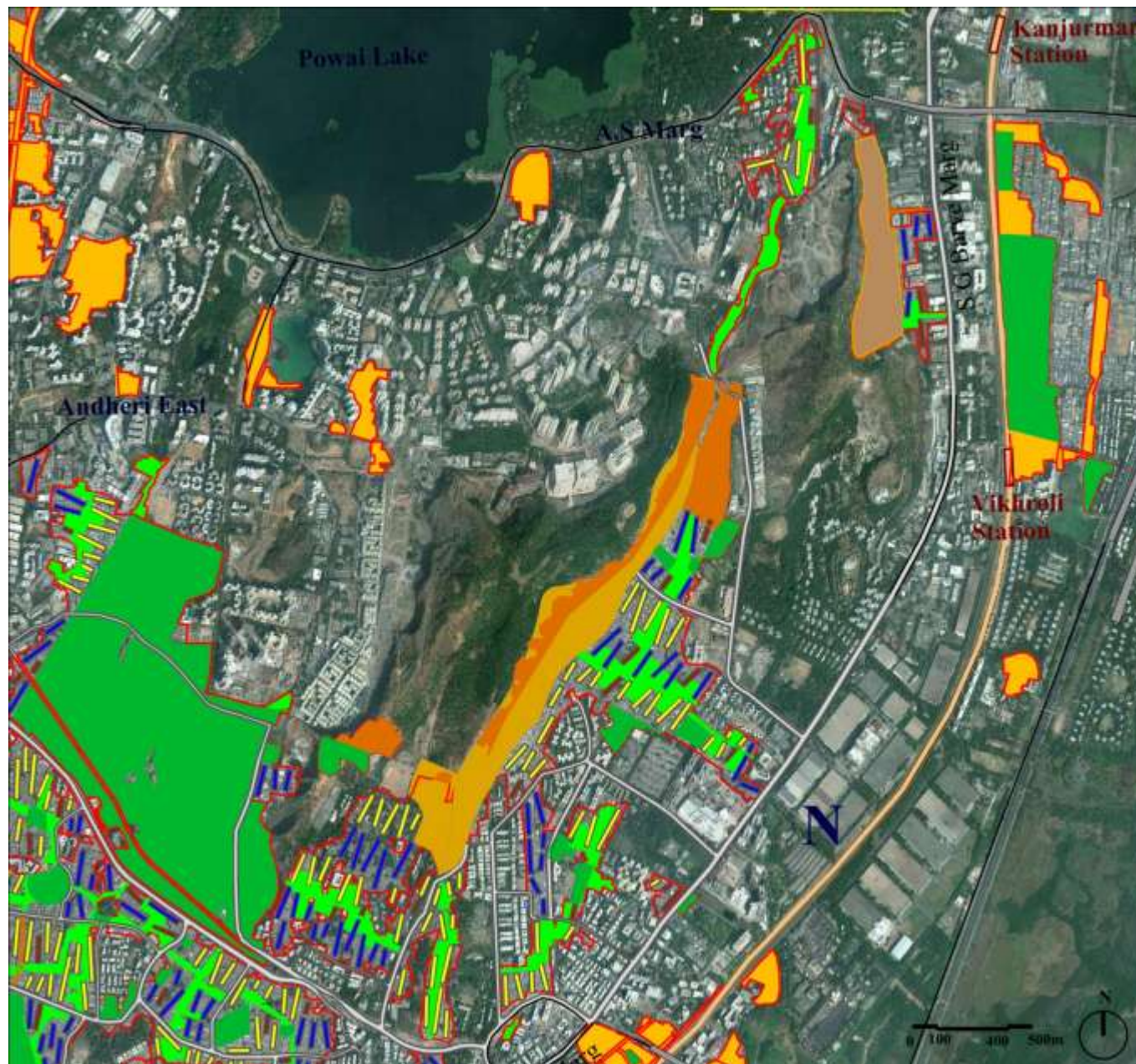
1. OPEN SPACE (PG/RG/P/G) – 28 HA.



KEY PLAN

SITE PLAN

Block 2

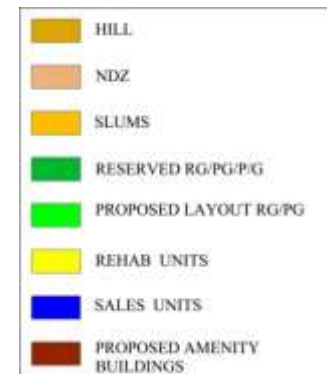


KEY PLAN

EXISTING SLUM LAND AREA –
315 HA

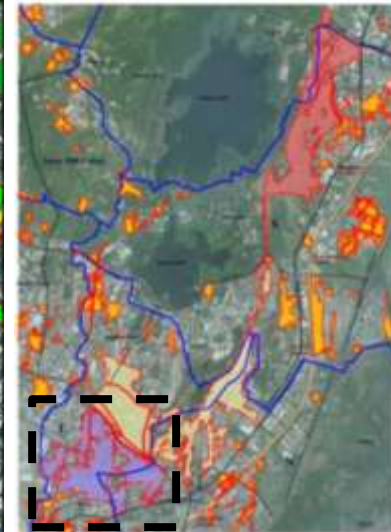
RESTORED AREAS AS PER D.P.
RESERVATION –

1. OPEN SPACE (PG/RG/P/G) –
117 HA.
2. HILLS – 28 HA.

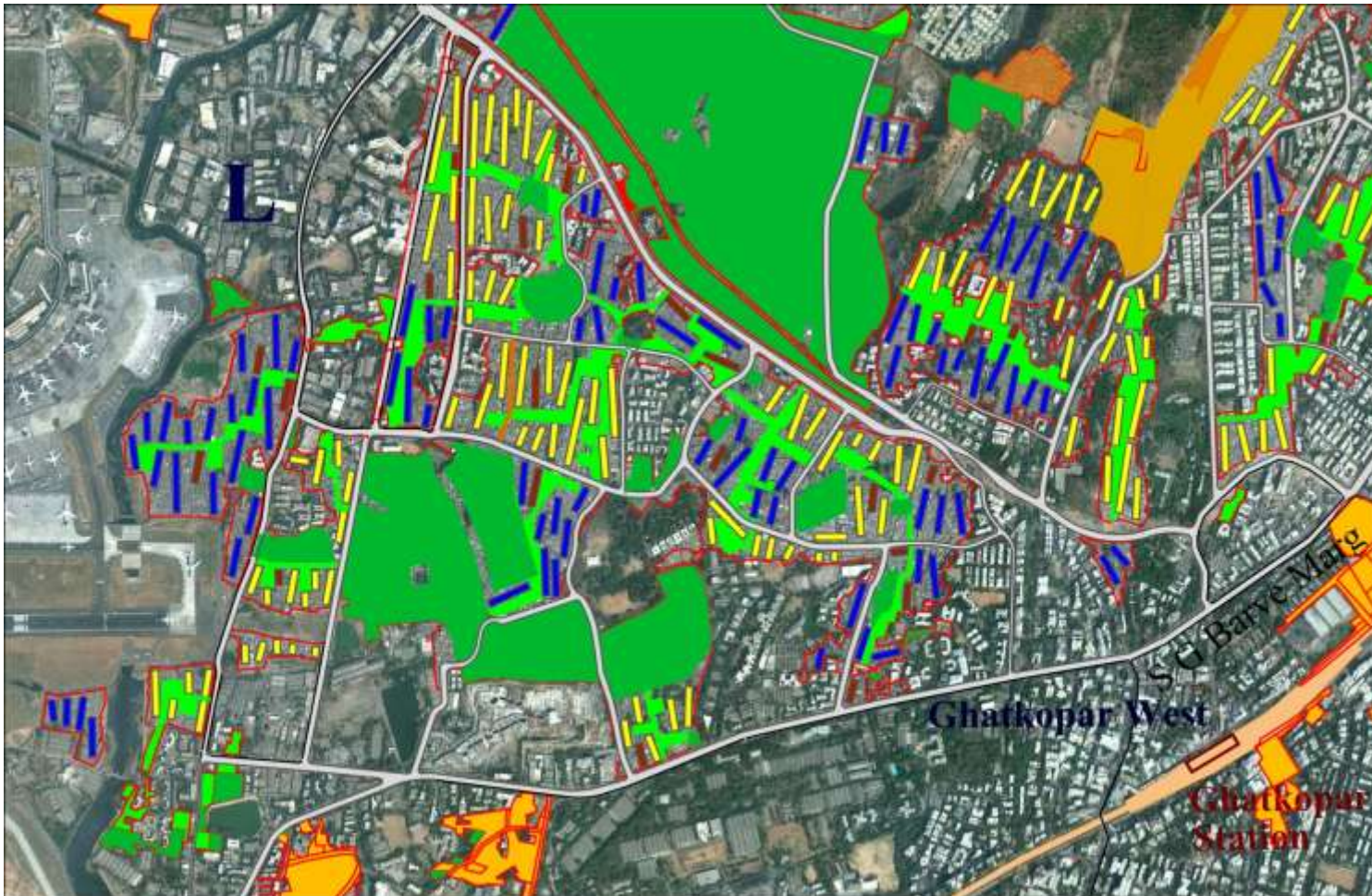


SITE PLAN

Block 3



KEY PLAN



EXISTING SLUM LAND AREA – 197 HA

RESTORED AREAS AS PER D.P. RESERVATION –

1. OPEN SPACE (PG/RG/P/G) – 48 HA.



Area calculation

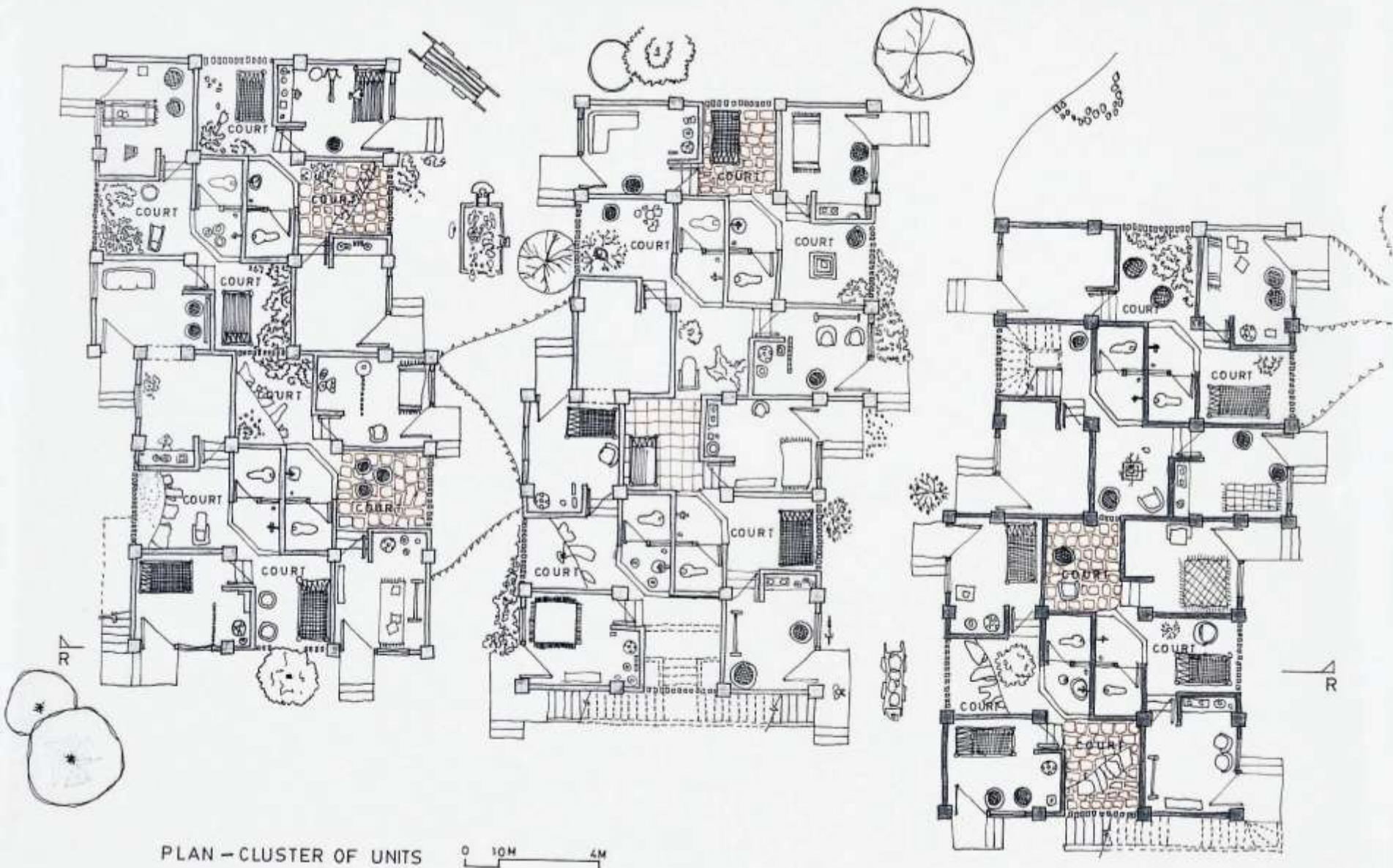
Entire Mumbai slums

CALCULATIONS FOR THE ENTIRE SLUM AREAS OF MUMBAI			
	Nos.	AREA (SQ.KM.)	AREA (HA)
TOTAL SLUM LAND AREA OF MUMBAI		42.28	4228
BALANCE SLUM LAND AREA EXCLUDING DP RESERVATIONS ON OPEN SPACES & NATURAL ASSETS		38.06	3806
LAYOUT RG (15% OF BALANCE LAND AREA)		5.71	570.9
TOTAL DEVELOPABLE LAND AREA		32.35	3235.10
TRANSPORT & INFRA (15% OF DEVELOPABLE LAND AREA)		4.85	485.27
TOTAL BUILDABLE LAND AREA		27.50	2749.84
F.S.I (2.5 * DEVELOPABLE LAND AREA) ON 25.73 SQ. KM.	3.0		
TOTAL BUILT-UP AREA (F.S.I. * DEVELOPABLE LAND AREA)		97.05	9705.30
AMENITY BUILDINGS (5% OF BUILT-UP AREA)		4.85	485.27
BUILT- UP AREA OF HOUSING UNITS (@ 35 SQ.M./ UNIT)		92.20	9220.04
EACH UNIT AREA		0.000035	0.0035
TOTAL NO. OF HOUSING UNITS - REHAB + SALES	2,634,296		
NO. OF REHAB UNITS	1,317,148		
REHAB POPULATION	6,585,739		

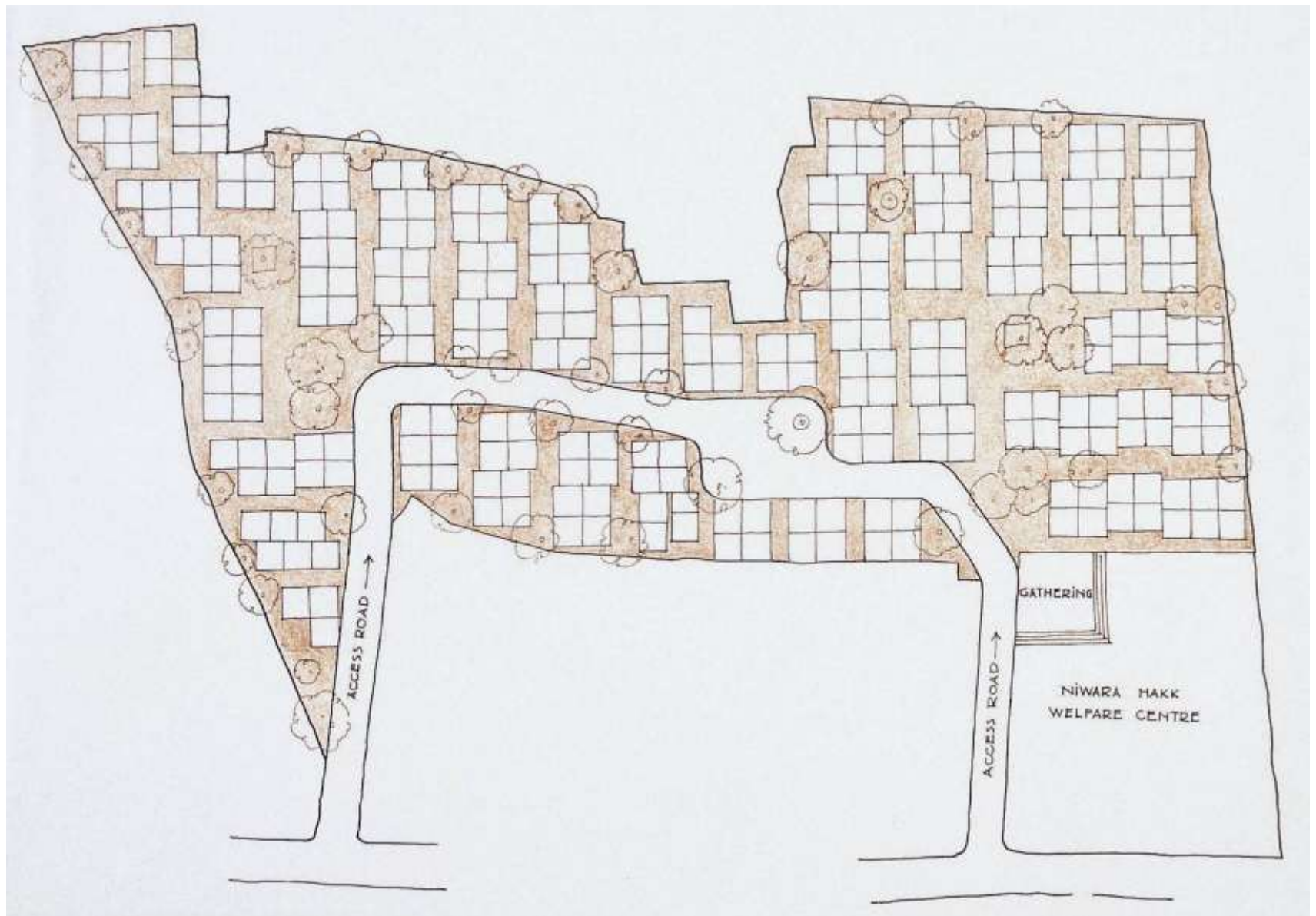
* BALANCE SLUM LAND AREA OBTAINED BY FREEING D.P. RESERVATIONS ON OPEN SPACES AND NATURAL ASSETS.

SLUMS REDEVELOPMENT EXAMPLES

SANJAY GANDHI NAGAR, GOREGAON







AREA – 13 ACRES
NO OF UNITS – 300







CHANDIVALI – A VISION OF HOPE



New township raises the bar for slum rehab

Asia's largest slum re-housing project in Chandivali gets its first occupants

Madhura Nandy
Mumbai, May 1

RAVITA BAO is looking forward to a good night's sleep after three decades of disturbed slumber. She has just moved into a sparkling new studio apartment in Chandivali, 10 km north of her ramshackle tenement bordering Sector Gandhi National Park.

"Every night, we would sleep in fear that a leopard would pounce on our children," says Rao, 45, who lived on the edge of the forest.

On Tuesday, Rao and other families were re-housed as part of a slum regeneration scheme. Some of them turned emotional, their eyes glistening with tears as they composed keys to their flats in a 45-acre township that raises the bar for slum rehabilitation projects.

Instead of derelict tenements and shoddily constructed buildings that are the hallmark of slum rehabilitation projects, the Chandivali township has been designed from the bottom up with the well-planned, zoned, low-density groups in mind (see "The new design"). In the past, poor design has contributed to slum dwellers selling out and moving back to shanty towns.

If the township succeeds, it could become a model for other

projects. The success of slum regeneration is critical for improving the miserable living conditions of half the city's population, and a prerequisite for Mumbai becoming a world-class financial hub.

The Chandivali slum re-housing project is also the largest in Asia. By the end of the year, twelve thousand families will move to equivalent to one-fourth the population of the city's 8 wards, consisting of Colaba, Cuff Parade and Fort. In ten days, one-third of them will have shifted.

The township is unique as it brings together slum dwellers, the government, builder Sagar Corporation, independent architect DK Dhe and NGO Nivara Hakk Samaksha Samiti.

Slum dwellers initiated the project eight years ago after environmental groups took legal action to get the slums removed on the grounds that they were encroaching on the park. The NGO has been closely involved with the project to ensure that the quality of construction is good and that the allocation of flats is fair and transparent. Its activists said, "Other slum-rehousing projects have been riddled with corruption on these two fronts."

madhura.nandy@hindustan-times.com



The new design

- A township spread over 45 acres in Chandivali
- Very close to the up-market Sanjay Gandhi National Park
- 12,000 housing units spread over 15 clusters, with 16 buildings in each cluster
- Each building is a hub-cluster, which opens out into a courtyard to enable community building
- No dormitory-type corridors, but two lifts on each side for good ventilation
- A small foyer in every building, in an effort to create more communal space
- Well lit and ventilated flats
- Neatly tiled bathrooms
- Drying balconies
- Central maidens
- Three parks

A NEW RESIDENCE: Anita Sen Grewal in the lobby of her Chandivali flat.

UNLIKELY PARTNERS



Shantana Azmi
Member of Nivara Hakk Samaksha Samiti

This township is an example where an NGO has helped the government, slum-dwellers and the developer to come together to build a township.



Vikram Gokhale
Chairman of Sagar Corporation

The township shouldn't become an improved slum. Workshops should be held to make sure that residents take appropriate care.



PK Das
Architect and member of Nivara Hakk Samaksha Samiti

We tried to design the township in a way that would preserve the communal life that people are used to in slums.



Ramesh Shah
Partner in Sagar Corporation, a government-owned firm

It's a very important project for me. I spent three-and-a-half years from morning to night on the site. It is a one-of-a-kind project in India.

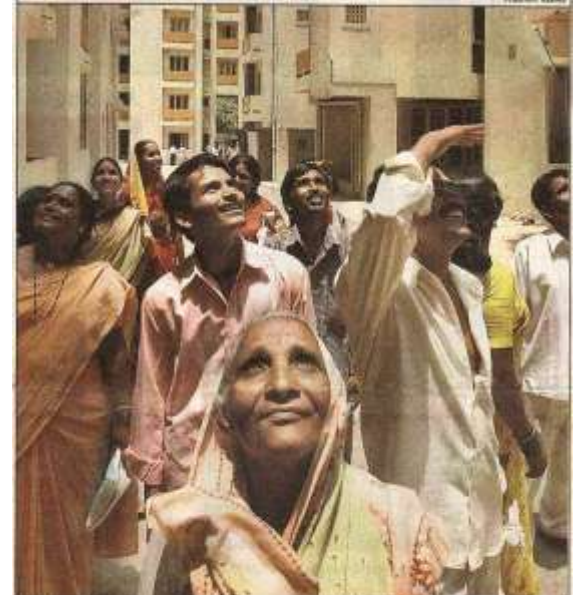
'I'll never give this house up'

Madhura Nandy
Mumbai, May 1

ANITA SEN GREWAL, 46, has never lived in a high-rise building. After 30 years of living precariously in a shanty town on the fringes of Sanjay Gandhi National Park, on Tuesday she finally moved her home.

"This township was a dream for all of us and we have been waiting for it for so long," she said. An added surprise was that she was allotted a top-floor flat. "I have never lived at such a height before," she said, smiling. "I hope the wind doesn't blow in here."

Grewal and her husband came to Mumbai 30 years ago from West Bengal. Her husband worked as a plasterer and she sold bangles and other costume jewellery. She made a lot of money. "But she eventually sold the house," Grewal says, regretting her decision. "We have struggled for years along with Nivara Hakk to get our new place. We would never give it up."



NEW LIFE IN A HIGH-RISE: Slumdwellers who once resided in the Sanjay Gandhi National Park look skywards at their new multi-storied dwellings in Chandivali on Tuesday. The 30 families were the first of a group of 4,142 households which will be shifted in the next ten days. Reports and more pictures on P 5



SANJAY GANDHI NATIONAL PARK

BEFORE & DURING DEMOLITION



80,000 FAMILIES TO BE EVICTED
25,000 FAMILIES ELIGIBLE FOR REHABILITATION
NIVARA HAKK IS THE DESIGNATED NGO

CHANDIVALI REHABILITATION SITE



Location:

Chandivali Village

Surroundings:

- Nahar Amrit Shakti Residential Complex
- Tata Symphony Residential Towers
- Behind Hiranandani Development., Powai.
- Adjacent to Khairani Rd, Ghatkopar (E)
- 15 minutes to Ghatkopar Station.

Land Details:

- Plot CS No.6, part 11, part 12, part16, part 20, part 25, ward-L
- Land area 305466.35mt (approx 75.46Acres)

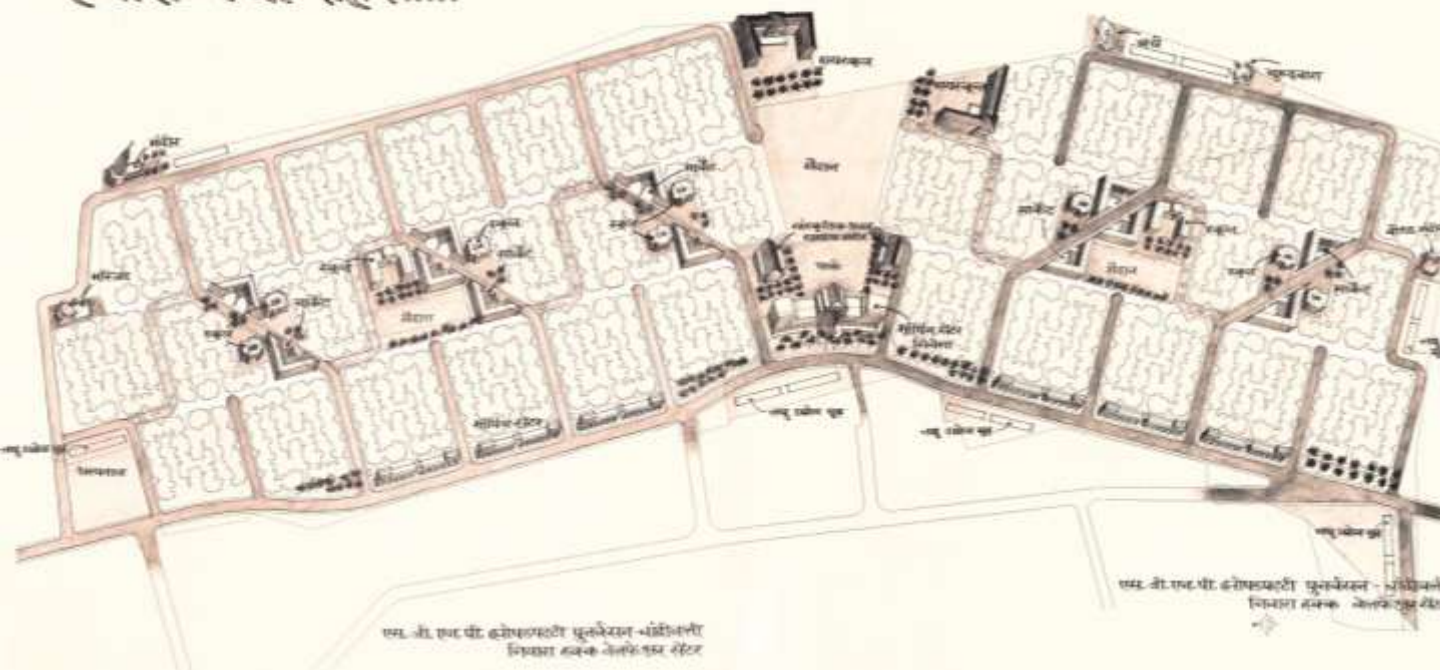


यहाँ हमारे अपने घरों के साथ-साथ खुले मैदान और कई सामाजिक सुविधाएँ होंगी।

- वहाँ की रचना परिचित रसमों और सोसायटियों को कायम रखेगी।
- सार्वजनिक सहभाग और व्यवस्थापन नियंत्रण इस रचना का मुख्य हेतु रहेगा।
- इसमें सिर्फ पाँच मंजिली होंगी।

हमारा नया शहर.....

- एक बड़ा चार एकर क्षेत्र का मैदान शहर का केंद्रबिंदु होगा, इस के व्यतिरिक्त एक एकर के दो और खेल मैदान और हर बाड़ी में दो चैक होंगे।
- कुल सोलह स्कूल होंगे, जिसमें दो हायरस्कूल, चार सेकेंडरी स्कूल और दस प्राथमरी स्कूल होंगे।
- दो अस्पताल और कई छोटे क्लिनिक और नवाधाने आरोग्य विषयक हर जरूरतों को पूरा करेंगे।
- दो बड़े सांस्कृतिक भवन और कई धार्मिक स्थल सामाजिक और सांस्कृतिक गतिविधियों को बढ़ावा देंगे।
- राजमार्ग उपकरणों के लिए हमारे शहर में 250 लघु उद्योग बूँद बनाये जायेंगे।



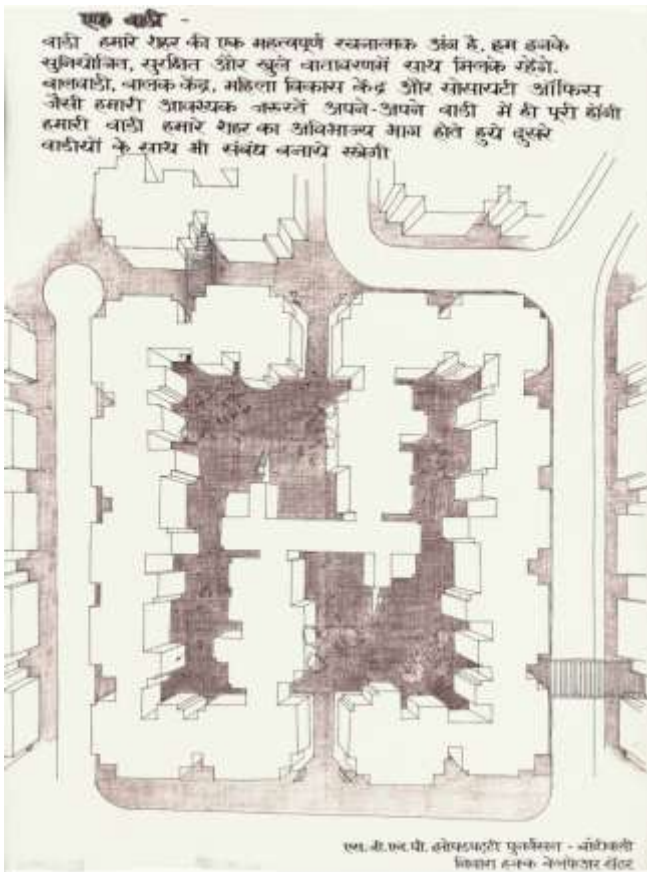
Total land area - 3,13,621 sq mt (77.47 acres)

Total built-up area - 6,58,604 sq mt

Density achieved - 550 units/ha

1. Houses -	18,362 (26.62 %)
2. Social infracture -	13.5 %
Primary schools	8
Secondary schools	2
High schools	2
Community halls	2
Women's welfare centres/creches	180
Balwadis	80
Society offices	60
Religious institutions	4
3. Facilities	8.6%
Markets	13 (800 shops)
Hospital	1
Consulting rooms	12
Clinics and polyclinics	6
Day care centre/nursing homes	6
4. Commercial development	6.1%
Shops, banks, post offices, communication centres, restaurants,Cinemas, Industrial estates etc.	19432.83 sqmt
5. Open spaces	15.03%
Central maidan	1 10,250 sqmts
Neighbourhood parks	3 2550x3 sqmts
Courtyards	60 450x60sqmts

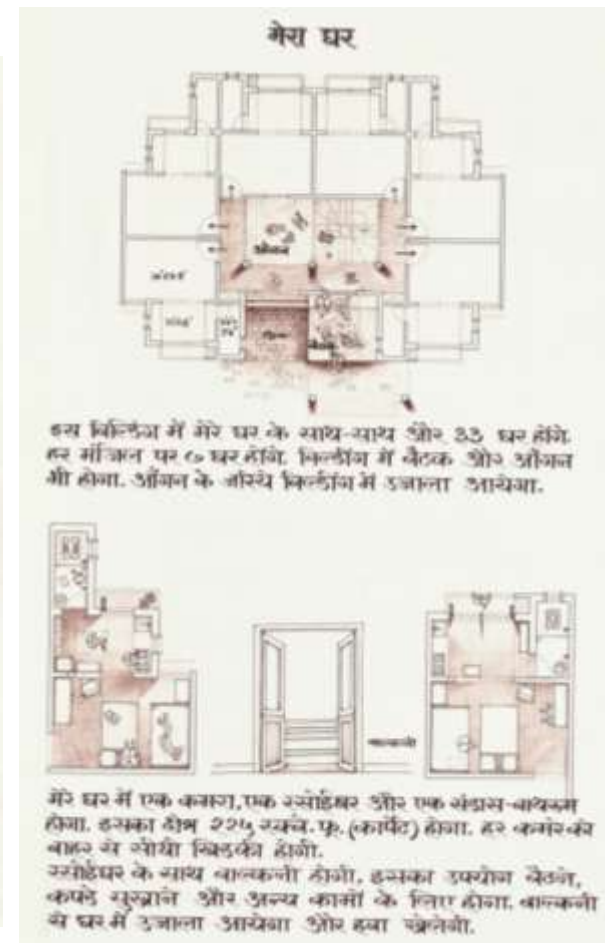
POSTERS FOR PUBLIC PARTICIPATION & DISCUSSION



Poster 1- Typical Cluster



Poster 2- Amenities



Poster 3- Typical House

POSTERS FOR PUBLIC PARTICIPATION & DISCUSSION















▪ OPEN SPACES STANDARDS

SPACE BETWEEN BUILDINGS, SET-BACKS, PG & RG



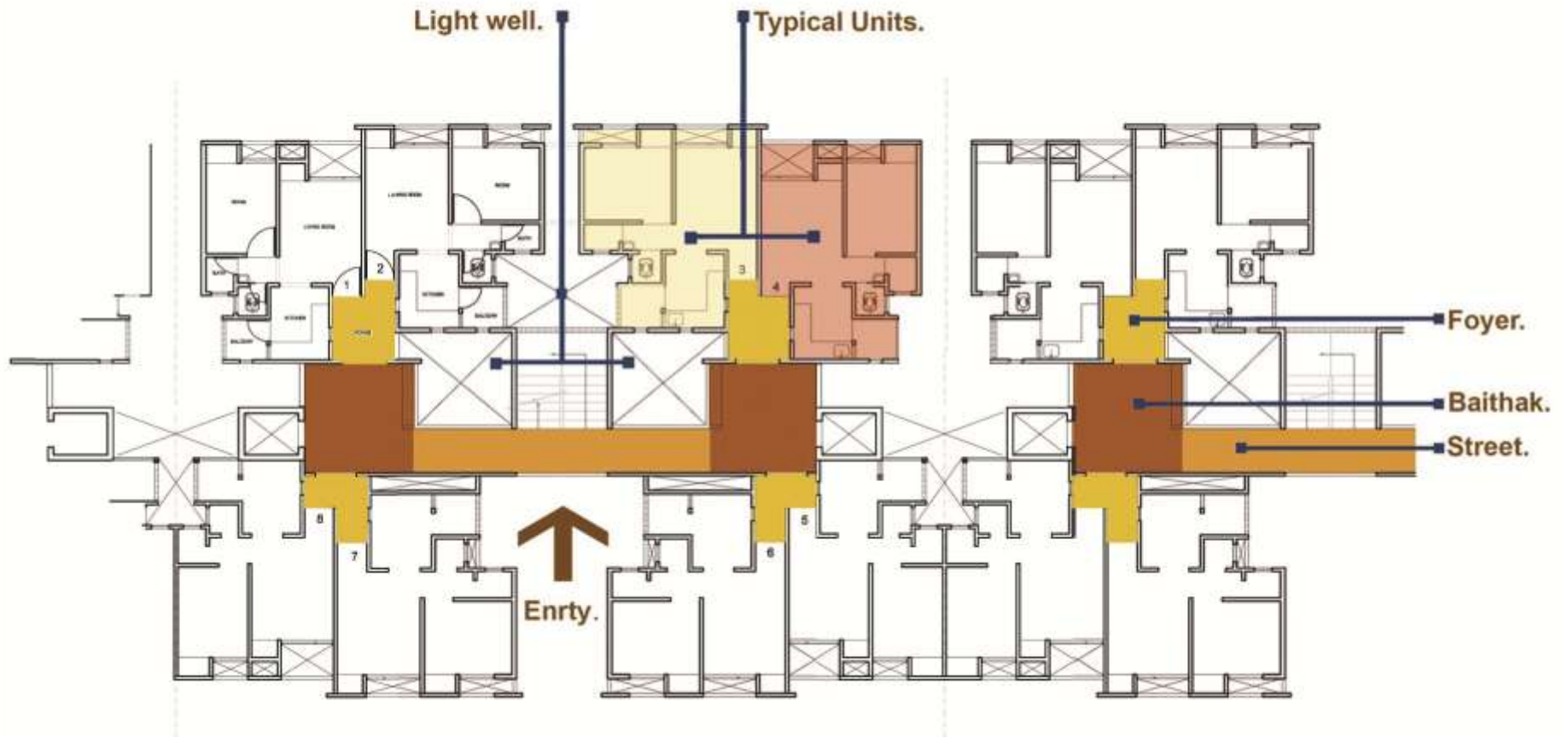
TYPICAL DEVELOPMENT

CHANDIVILI EXAMPLE

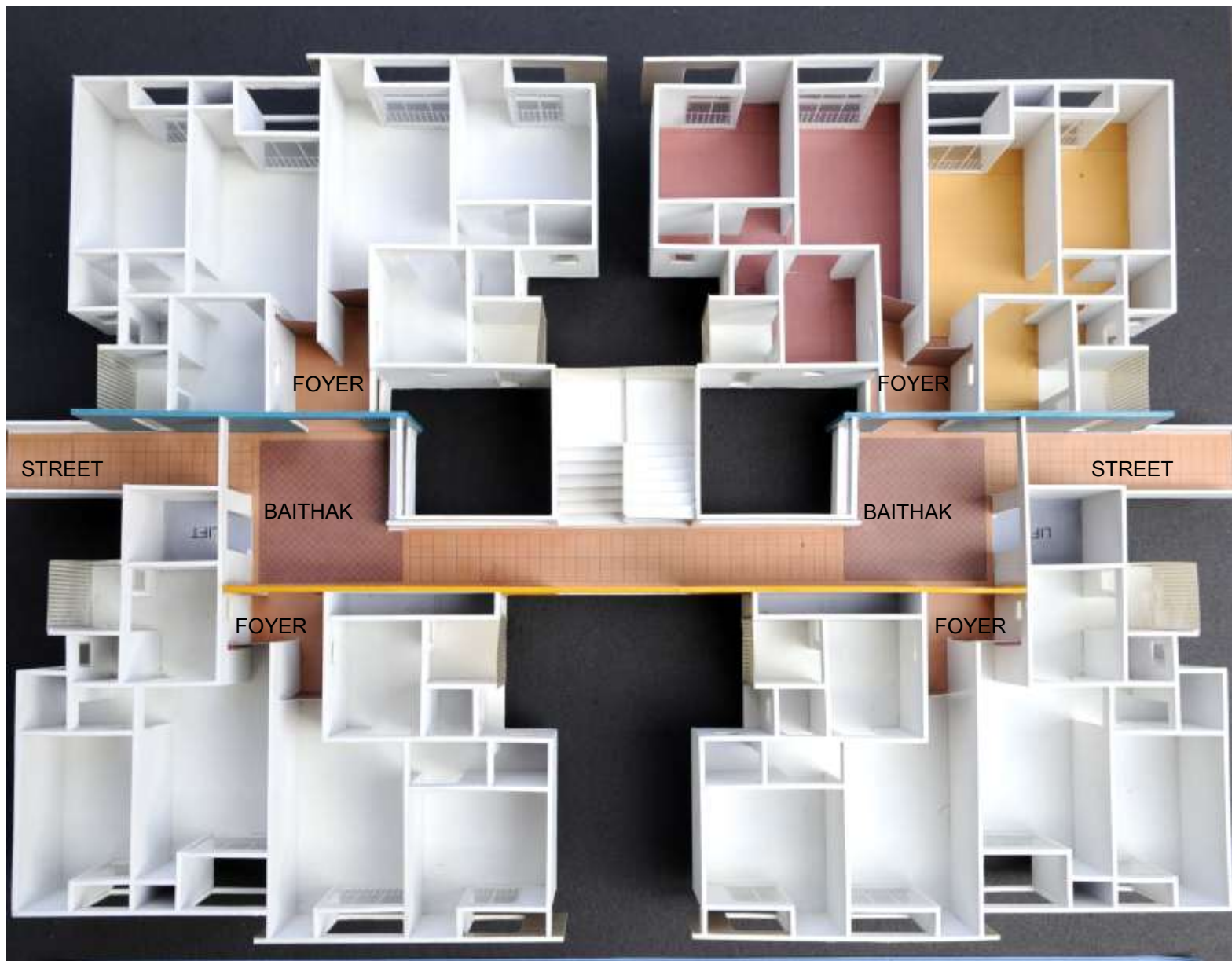
‘ASHRAY’ - CONSERVANCY STAFF QUARTERS

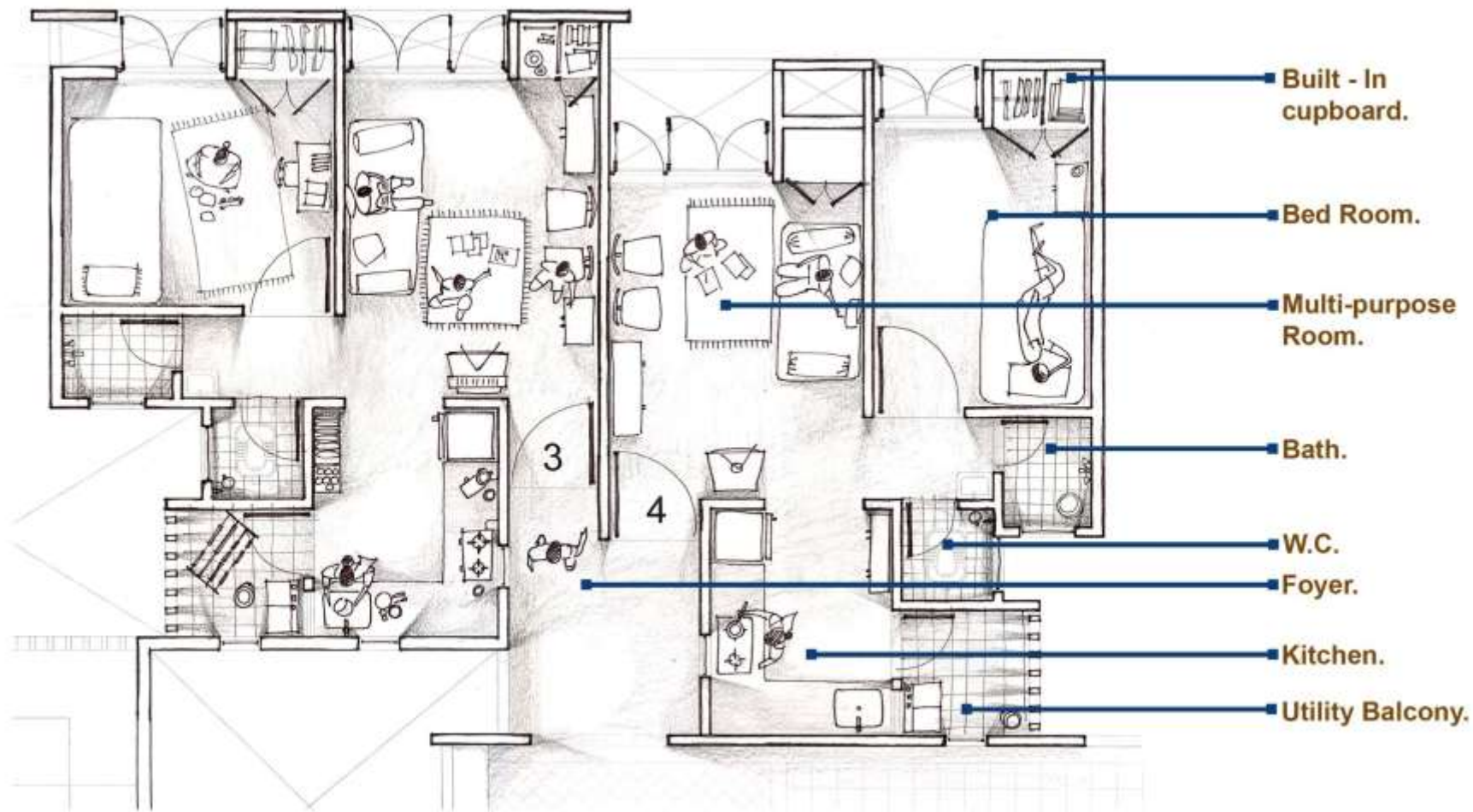


A Typical Re-Development
Example At **Tank Pakhadi Road**



Typical Building Plan





Typical Units Plan



EXPANDING PUBLIC SPACES

‘OPEN MUMBAI’

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.

Instead, over the years, open spaces have become 'leftovers' or residual spaces after construction potential has been exploited.

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, creeks, lakes, ponds, mangroves, wetlands, beaches & the incredible seafronts.

A plan that aims to create non-barricaded, non-exclusive, non-elitist spaces that provides access to all our citizens.

A plan that ensures open spaces 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.



OBJECTIVES & ELEMENTS

Objectives:

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

‘Open Mumbai’ Plan Elements:

- Vast Seafronts
- Beaches
- From Rivers To Nullah’s To Rivers Again
- Creeks and Mangroves
- Wetlands Conservation
- Lakes Ponds and Tanks
- Integration Of Nullah’s
- Parks and Gardens
- Plots and layout RG’s
- Historic forts and Precincts
- Hills and forests
- City Forests
- ‘Open’ people-friendly Railway Stations
- Area Networking





MUMBAI'S OPEN SPACES MAP

INDEX

	Nos.	AREA-SQKM	%	SIGN
GREATER MUMBAI BOUNDARY	(A)	482.74		
WARD BOUNDARY				
RAILWAY STATIONS & PROPERTY		9.41	1.94%	
AIRPORTS, DEFENCE, PORTS		14.55	3.01%	
MAJOR ROADS & HIGHWAYS		30.00	6.21%	
GARDENS [G] & PARKS [P]	318	2.49	0.52%	
PLAYGROUNDS [P.G.]	631	4.01	0.83%	
RECREATION GROUNDS [R.G.]	403	7.18	1.47%	
ENCROACHED OPEN SPACE [10 G, P.G., R.G.]	501	5.30	1.09%	
ENCROACHED SPACE ON N.D.Z.		4.80	1.00%	
FISH DRYING YARDS	5	0.16	0.03%	
LAKES, PONDS & TANKS	23	7.06	1.46%	
CREEKS, RIVERS AND NALAS		13.14	2.72%	
WET LANDS [includes salt pans]		8.01	1.66%	
MANGROVES		61.42	12.70%	
BEACHES	10	1.44	0.29%	
PROMENADES	6	0.12	0.02%	
HILLS, FORESTS & NATIONAL PARK		53.60	11.10%	
N.D.Z. [excluding hills, mangroves, wetlands]		39.50	8.18%	
TOTAL AREA	(B)	262.20	54.40%	
Balance land area for development of Housing (5 categories as per D.P.)				
Industrial (6 categories as per D.P.)				
Commercial (2 categories as per D.P.)				
Amenities (34 categories as per D.P.)				
Services (15 categories as per D.P.)				
-(A) less (B) =		220.54	45.60%	

Not to scale

Vacant reservations are as per the Development Plan.

Names & listing of the R.G.s, P.G.s, G.s & P are not fully available.

N
I

Comprehensive mapping of the open spaces of Mumbai has been carried out by P.K.Das & Associates, Planners & Architects. Open spaces include the various Development Plan reservations - Recreation Grounds (R.G.), Play Grounds (P.G.) and Gardens (G). It also includes the diversity of natural assets like hills, forests, lakes, rivers, water bodies, creeks, mangroves, wet-lands, salt pans, beaches and rock formations, which together provide a distinct geographic character to the city, considered here as a part of the open spaces structure. Also promenades and coastal gardens have been included. Encroachments on all the above categories of open spaces have been marked too. Layout R.G.s and public spaces at railway stations, markets and public amenity buildings are considered by us as significant open spaces but have not been documented here.

Preparation and publication for the first time of such a comprehensive Open Spaces Map of Mumbai is drawn for the purpose of Re-Visioning Mumbai with open spaces as the basis for the city's planning and development. A Vision Plan draft with this objective is presently under way, along with detailed ward maps and listing of 1552 available open spaces. This process will culminate in exhibitions to facilitate public participation and dialogue. The idea is to ensure that the open spaces are conserved and protected from all forms of building construction activity. This map includes a ward based listing document of open spaces.

Limitations and Assumptions : This map has been prepared from a comparative study of the Development Plan and the google maps which are not to date. Road areas are approximate too, considering the total length as 2050 kms. This map does not distinguish between the different encroachments on various land use reservations. Reservations for swimming pools as in the D.P. have not been included in this map. Certain R.G.s, P.G.s and G.s have been developed in parts with clubs & other related buildings. These have not been distinguished in our mapping.

References: For the preparation of the Open Spaces Map, we have relied upon Google maps and referred to the Development Plan 1991 and 'know your ward' documents, prepared by the MCGM, various A-Z maps, the listing of reserved open spaces - R.G., P.G., P. and G, by the MCGM Garden Department (listing 700 nos.) and 'Breathing Space' a survey document by 'Citispac' (listing 600 nos.)

First publication - August 2011.

Prepared & Published by

P. K. Das & Associates, Planners, Architects and Designers.

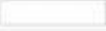
'Sankalp', 5th floor, Plot No 1040, Off Sayani Road, Prabhadevi, Mumbai 400025.

Email - pkdas.anchi@gmail.com / Website - www.pkdas.com



MUMBAI'S OPEN SPACES MAP

INDEX

	Nos.	AREA-SQKM	%	SIGN
GREATER MUMBAI BOUNDARY (A)		482.74		
WARD BOUNDARY				
RAILWAY STATIONS & PROPERTY		9.41	1.94%	
AIRPORTS, DEFENCE, PORTS		14.55	3.01%	
MAJOR ROADS & HIGHWAYS		30.00	6.21%	
GARDENS [G] & PARKS [P]	318	2.49	0.52%	
PLAYGROUNDS [P.G]	631	4.01	0.83%	
RECREATION GROUNDS [R.G]	603	7.18	1.62%	
ENCROACHED OPEN SPACE [on G, P.G.,R.G]	501	5.30	1.09%	
ENCROACHED SPACE ON N.D.Z.		4.80	1.00%	
FISH DRYING YARDS	5	0.16	0.03%	
LAKES, PONDS & TANKS	23	7.06	1.46%	
CREEKS, RIVERS AND NALAS		13.14	2.72%	
WET LANDS [Includes salt pans]		8.01	1.66%	
MANGROVES		61.42	12.70%	
BEACHES	10	1.44	0.29%	
PROMENADES	6	0.12	0.02%	
HILLS , FORESTS & NATIONAL PARK		53.60	11.10%	
N.D.Z [excluding hills, mangroves,wetlands]		39.50	8.18%	
TOTAL AREA (B)		262.20	54.40%	
Balance land area for development of Housing (5 categories as per DP), Industrial (6 categories as per DP), Commercial (2 categories as per DP), Amenities (34 categories as per DP), Services (15 categories as per DP) - (A) less (B) =		220.54	45.60%	

INCREDIBLE SEAFRONTS: PROMENADES AND PLAZAS





Seafront Promenades			
Sr No.	Name	Location	Area (sqm)
1	Gateway	Gateway	3428.08
2	Marine Drive	Marine Drive	83217.90
3	Haji-Ali	Haji-Ali	10227.03
4	Worli	Worli	43579.37
5	Band-Stand	Bandra	14197.41
6	Carter Rd.	Bandra	16044.79
Total area of existing promenades Sqkm			0.17
Total area of proposed promenades Sqkm			0.75
Total area of promenades Sqkm			0.92

BANDRA BANDSTAND

AFTER



BEFORE



BANDRA BANDSTAND



CARTER ROAD

BEFORE



AFTER



CARTER ROAD



GATEWAY OF INDIA PLAZA

AFTER



BEFORE



GATEWAY OF INDIA PLAZA



Waterfront Plazas

Sr No.	Name	Location	Area (sqm)
1	Gateway	Gateway Of India	18091.85
2	Land's End	Bandra Fort	18651.59
Total area of waterfront plaza			0.03 sq.km



BEACH CONSERVATION AND NOURISHMENT





Beaches			
Sr No.	Name	Location	Area (sqm)
1	Girgaon	Girgaon	161985.33
2	Prabhadevi	Prabhadevi (including nourishment)	35373.94
3	Dadar	Dadar	18788.57
4	Mahim	Mahim	14376.31
5	Juhu	Juhu	314930.06
6	Versova	Versova	338484.43
7	Madh	Madh	164248.24
8	Erangal	Erangal	19388.28
9	Aksa	Aksa	296997.71
10	Manori	Manori	31764.76
11	Gorai	Manori	31764.76
Total area of beaches			1.42 sqkm

JUHU BEACH

AFTER



BEFORE



JUHU BEACH



FROM RIVERS TO 'NULLAHS' TO RIVERS AGAIN





Avenues And Promenades Along Rivers					
Sr No.	Name	Location	Area (sqm) Of the river	Area(sqm) Of the proposed development	Total Area(sqm) Of river alongwith development.
1	Mithi River	Originates from the overflow of Vihar Lake, flows through Arey Milk Colony, Powai, Saki Naka, Kurla, Kalina, Vakola, Bandra-Kurla complex, Dharavi and Mahim and meets the Arabian sea.	998164.2	1217897	2078164.2
2	Oshiwar a River	Starts from Sanjay Gandhi National Park and meets in Arabian Sea at Versova Creek	284280.5	48545.26	716280.5
3	Dahisar River	Originates from Tulsi lake in Sanjay Gandhi National Park and meets the manori Creek	161248.4	88277.71	821248.4
4	Poisar	Borival West	57067.75	78996.69	327067.75
Total area of avenues and promenades along rivers			1500761	1433717	3942760.85
			1.5 sqkm	1.43 sqkm	3.94 sqkm

MITHI RIVER



AFTER

BEFORE





CREEKS AND MANGROVES



Avenues And Promenades Along Creeks					
Sr No.	Name	Location	Area (sqm) Of the creeks	Area(sqm) Of the proposed development	Total Area(sqm) Of creeks alongwith development
1	Malad Creek	Located at the west of Malad west and continues till Malad Marve Rd.	2990463.00	117000	3107463
2	Creek Near Mankhurd	Located at Mankhurd	1013750.32	207000	1220750
3	Creek Near Mulund East	Mulund East	113050.41		113050.41
4	Creek at sewri		70857.89		70857.89
5	Manori Creek		4415577.90		4415577.90
6	Creeks near Ghatkopar	Ghatkopar East	370069.56		370069.56
7	Creeks near Vikhroli		202920.72		202920.72
8	Creeks near mulund		70392.71		70392.71
Total area of avenues and promenades Summary Areas of Mangroves			9247083	324000	9571082
			9.25 sqkm	3.24 sqkm	9.57sqkm

Total Area Of Mangroves61.72 Sqkm

Total Area of boardwalks along mangroves..... 0.197 Sqkm

Total Area of mangroves along with boardwalks.....61.917 Sqkm

MALAD CREEK

AFTER



BEFORE





WETLANDS CONSERVATION



Avenues Along Wetlands		
Sr No.	Name	Area (sqm)
1	Wetlands	8.01 sqkm
2	Avenues	0.66 sqkm
Total development area		8.67 sqkm

SEWRI WETLANDS

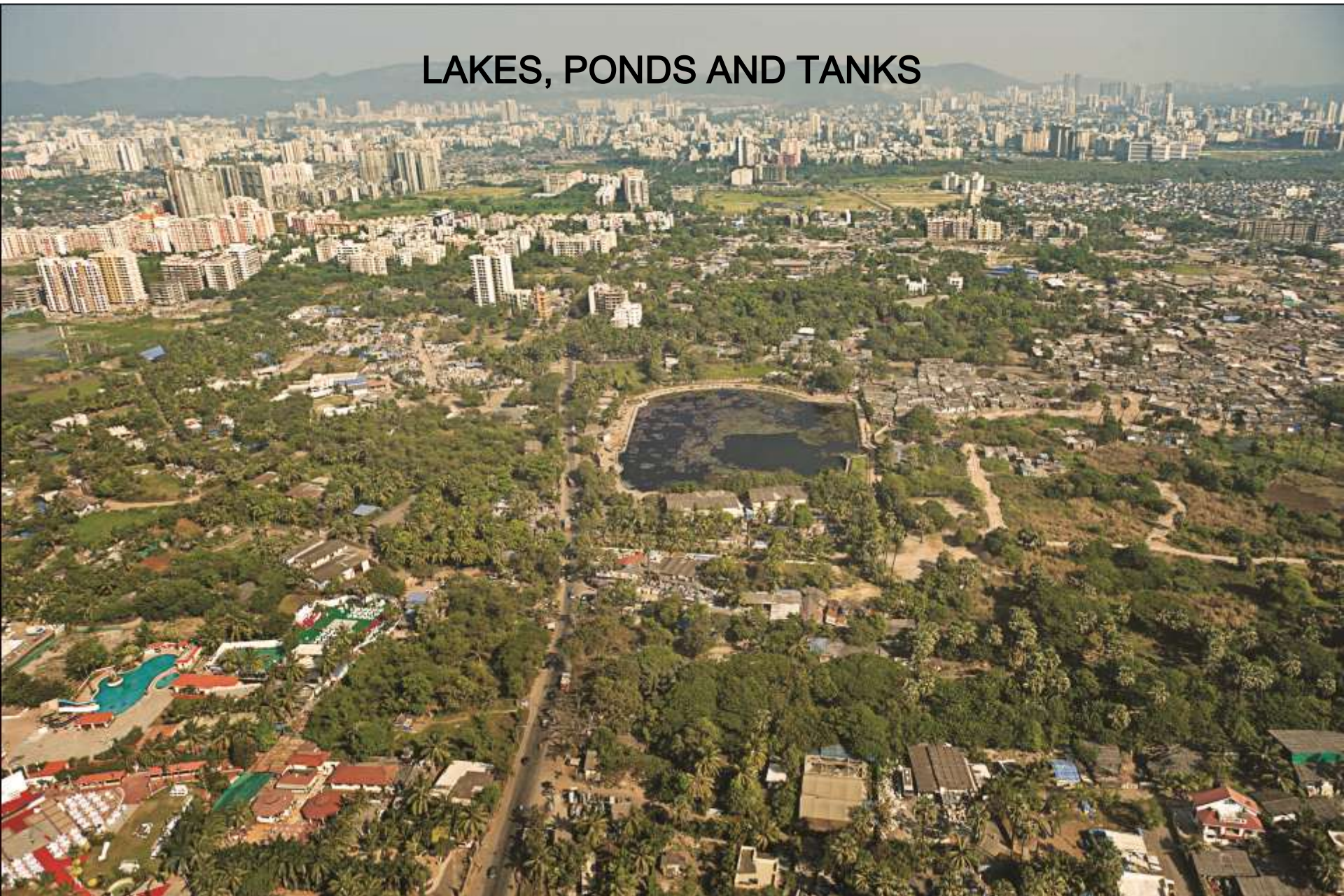
AFTER



BEFORE



LAKES, PONDS AND TANKS



Lakes, Ponds And Tanks					
Sr No.	Name	Location	Area (sqm) Of the water body	Area(sqm) Of the proposed development	Total Area(sqm) Of water body alongwith development
1	Banganga Tank	Malabar Hill	2073	1950.67	4023.67
2	Bandra Talao	S.V.Rd, Near Bandra Station W	24401.50	3155.58	27557.08
3		Water body at BKC	61196.19		61196.19
4	Bhavans Lake	Andheri W	10469.74		10469.74
5	Deval Talao	Near Seepz Rd A, Andheri E	15610.83	4108.15	19718.98
6	Chandivali Lake	Near Chandivali Farm Rd, Chandivali	38324.17	11550.22	49874.39
7	Nitie Pond	powai	15342.04		15342.04
8	Aarey Tank	Aarey colony, Goregaon E	21966.21		21966.21
9	Kharodi Lake	Malad West	20639.37		20639.37
10	Charkop Village Lake	Charkop	7321.94		7321.94
11	Bhujavale Talao	Nr link Rd, Malad W	2744.24		2744.24
12	Jhasi Ki Rani Laxmibai Udyan	Link Rd, Borivali W	7875.74		7875.74
13	Eksar Talao	Borivali W	2017.26		2017.26
14	Lokmanya Tilak Visarjan Talao	Jogeshwari –Vikhroli Link Rd, Jogeshwari E	4371.22		4371.22
15	SCI pond	Chandivali	7563.41		7563.41
16	Sheetal Lake	LBS Rd, Sakinaka	11364.27		11364.27
17	Teen Talao	Hemu Kalani Marg, Chembur	5267.40		5267.40
18	Ishwar Kund	Bhandup W	20350.65		20350.65
19		Bhandup W	8222.85		8222.85
20	Powai Lake		1510165.39		1510165.39
21	Vihar Lake		4214866.94		4214866.94
22	Tulsi Lake		1187856.86		1187856.86
Total area of lakes, ponds and tanks along with development.			7200011 7.2 sqkm	20764.62 0.02 sqkm	7220776 7.22 sqkm



BANDRA LAKE

AFTER



BEFORE



INTERGRATION OF 'NULLAHS'



Avenues Along Nullahs

Sr No.	Name	Location	Area (sqm) of nala	Area (sqm) Of proposed development	Area (sqm) including development
1	Irla Nullah	Juhu	149254.7	175600.6	324855.3
2	Kurla Nullah	Originates in Tilak Nagar and meets in Arabian sea along Chembur Sewri Rd.	248061.46	163135.2	411196.7
3	Mahalaxmi Nullah	Originates from Dr E Moses Marg and continues till Arabian Sea	33761.6	35956.18	69717.78
4	Bandra Kurla Complex Nullah	Originates from mithi river and continues till Sahar Airport	102790.16	121671.9	224462.1
5	Govandi Nullah		105438.2	92661.84	198100
6	Chembur Nullah		25597.39	39735.04	65332.43
7	Ghatkopar Nullah		70691.58	14376.45	85068.03
8	Jogeshwari W Nullah	Originates from Malad creek and flows through Jogeshwari W	82085.64	60264.36	142350

Sr No.	Name	Location	Area (sqm) of nala	Area (sqm) Of proposed development	Area (sqm) including development
9	Oshiwara Nullah	Originates at Oshiwara River and flows through Jogeshwari	38025.52	67578.29	105603.8
10	Vikhroli Nullah		62509.85	30027.21	92537.06
11	Mulund Nullah		26231.80	102594.2	128826
12	Kandivali Nullah	Kandivali	169722.20	211072.00	380794.2
13	Bhandup Nullah	Bhandup East	429189.76	109222.45	538412.2
14	Aarey Milk Colony Nullah		147557.8	159755.5	307313.3
15	Prabhadevi Nullah	Near Kalanagar, Prabhadevi	11398.52	36480.67	47879.19
16	Dahisar Nullah		33995.08	61429.97	95425.05
Total area of nullahs along with development.			1736311	1481562	3217873
			1.73 sqkm	1.48 sqkm	3.21 sqkm

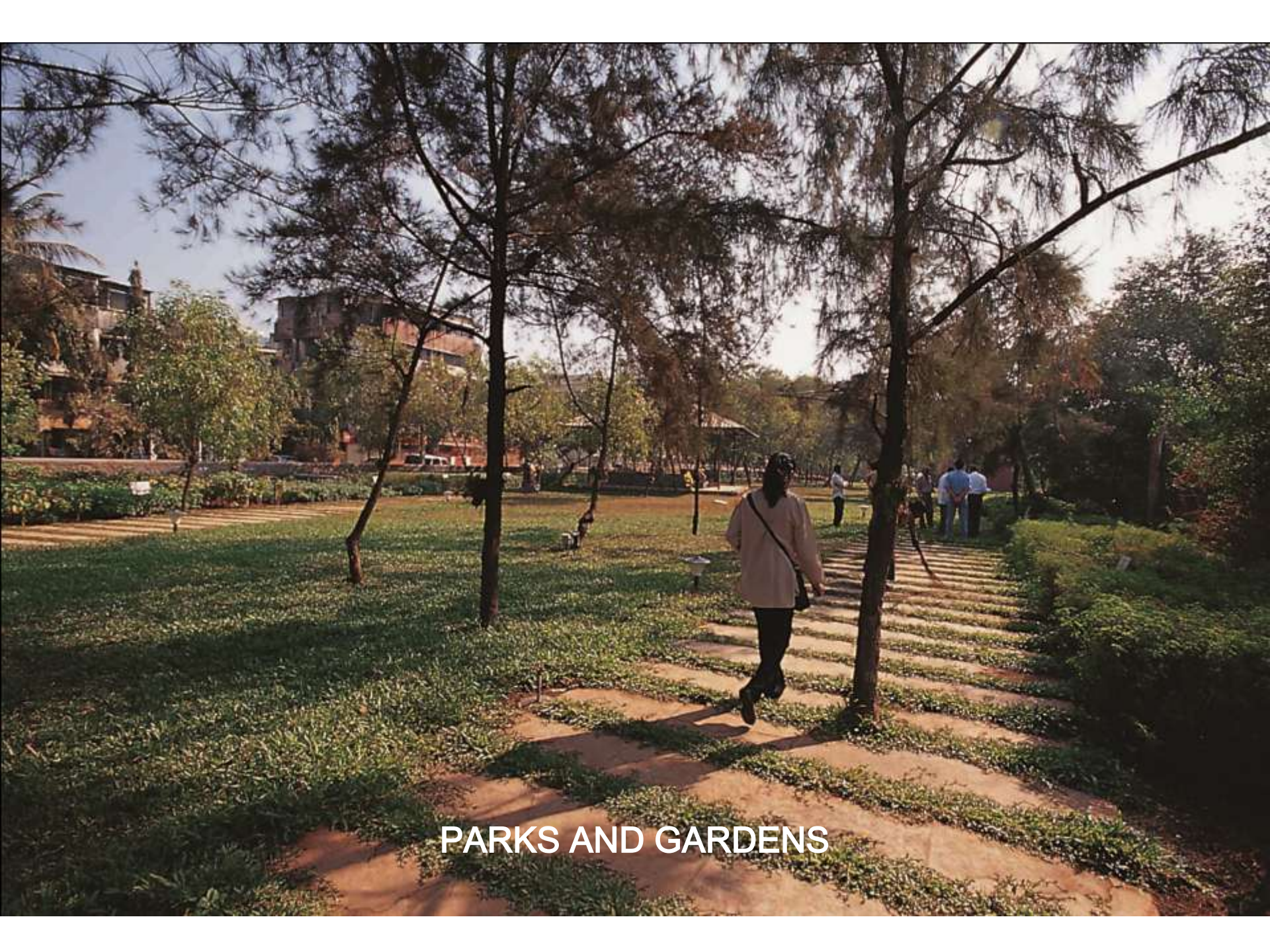
IRLA NULLAH

AFTER



BEFORE





PARKS AND GARDENS



Playgrounds, Parks and Gardens		
Type of open space	Total nos. all over Mumbai	Total Area (sqkm)
Gardens (G)	318	2.49
Playgrounds (PG)	631	4.01
Recreational Ground (RG)	603	7.18
Total	1552	13.68 sqkm
Encroached G, PG, RG	501	5.30 sqkm
Grand Total	2053	18.98 sqkm



▲ BAJI PRABHU UDYAN



▼ KAIFEE AZMI UDYAN

PRESENT

PRESENT





HISTORIC FORT PRECINCTS

BANDRA FORT



Historic Forts And Precincts			
Sr. No	Name of the fort	Location	Area(sqkm)
1	Sewri Fort	Sewri	9569.95
2	Bandra Fort	Bandra	8950.19
3	Sion Fort	Sion	53810.02
4	Kala Killa	Sion	1292.85
5	Worli Fort	Koliwada	4969.15
6	Mahim Fort	Mahim	4328.07
Total area			82920.23
			0.083 sqkm

BANDRA FORT



AFTER

BEFORE



BANDRA FORT

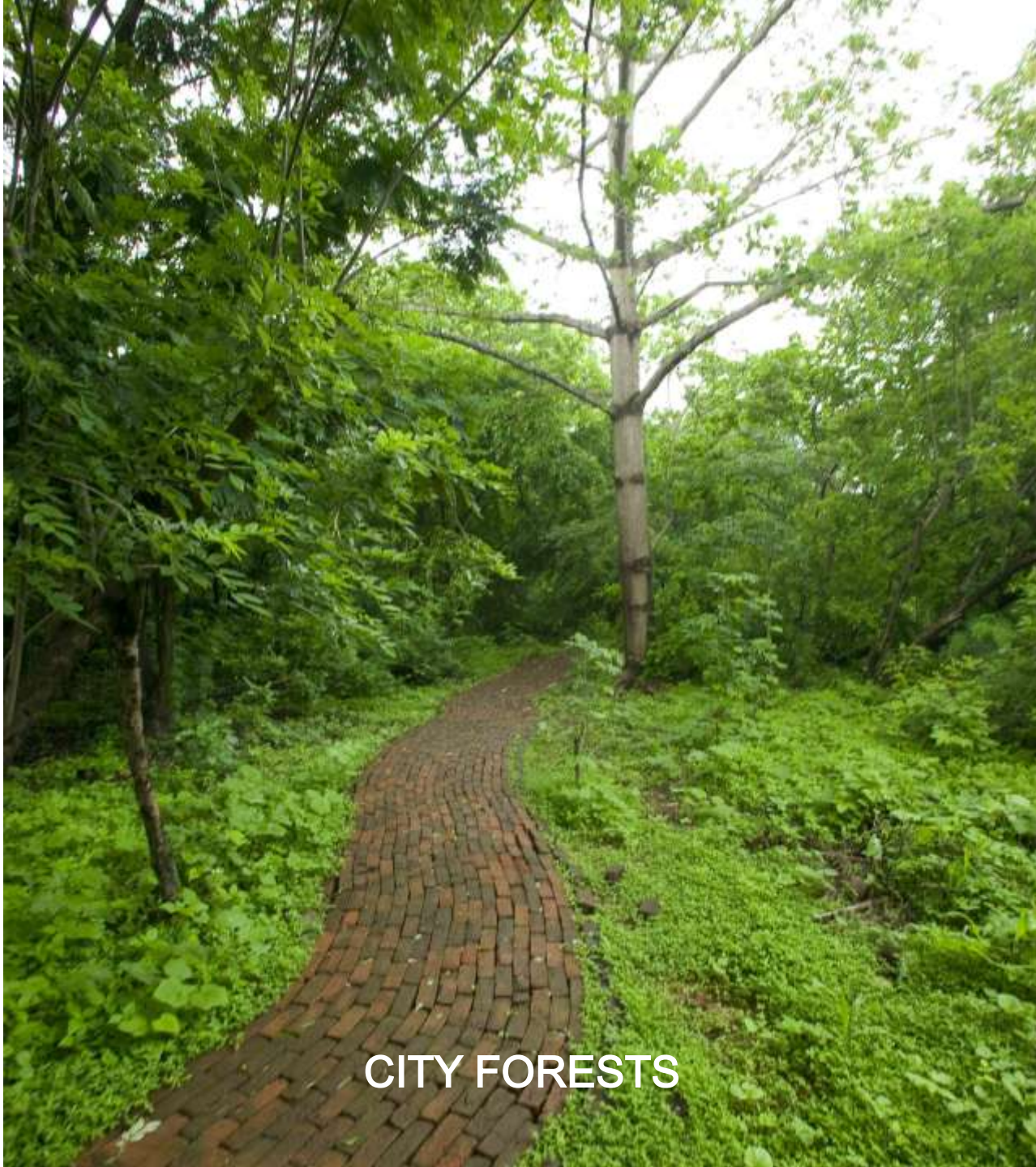


HILLS & FORESTS





Hills And Forests			
Sr No.	Name	Location	Area (sq m)
1	Madala Hill	Chembur	6333524.54
2	Gilbert Hill	Andheri	6195.11
3	Sanjay Gandhi National Park	Borivali	46685597.10
4	Aarey Milk Colony	Goregaon	11230000.00
Total area of Hills and forests			64.31 sqkm



CITY FORESTS



City Forests			
Sr No.	Name	Location	Area (sqm)
1	Juhu Forest	Juhu, Beside Irla Nala	29687.60
2	Mahim Nature Park	Mahim	18826.32
3	Mumbai Port trust Garden	Near Colaba Causeway Rd	49398.43
4	Veer Jijabai Bhosale Udyan	Dr. Bhasaheb Ambedkar Rd, Byculla E, Mumbai-27	216936
Total area of existing city forest			0.31sqkm
5	Proposed city forest at Goregaon West	Goregaon West	1300000
6	Proposed city forest at Chembur West	Chembur West	200000
Total area of proposed city forest			1.5 sqkm
Total area of city forest.			1.8 sqkm

'OPEN' PEOPLE FRIENDLY RAILWAY STATIONS



Space around railway stations are probably the most chaotic city space, making entrances and exits very difficult.

Lack of open space and poor planning have led to this degeneration thus, making lives of millions of people who depend on rail transport, painful.

In Mumbai, over 6.9 million people travel by local train every day . The city and its suburbs have 51 stations. The total roof area of these stations would add up to approx. 627300 sq.mtrs. (155 acres).

Creating additional space at the railway stations would be a significant urban development endeavor.

Question is, how do we create more open space at railway stations, clear the present congestion and provide dignity to commuters?



RAILWAY STATIONS

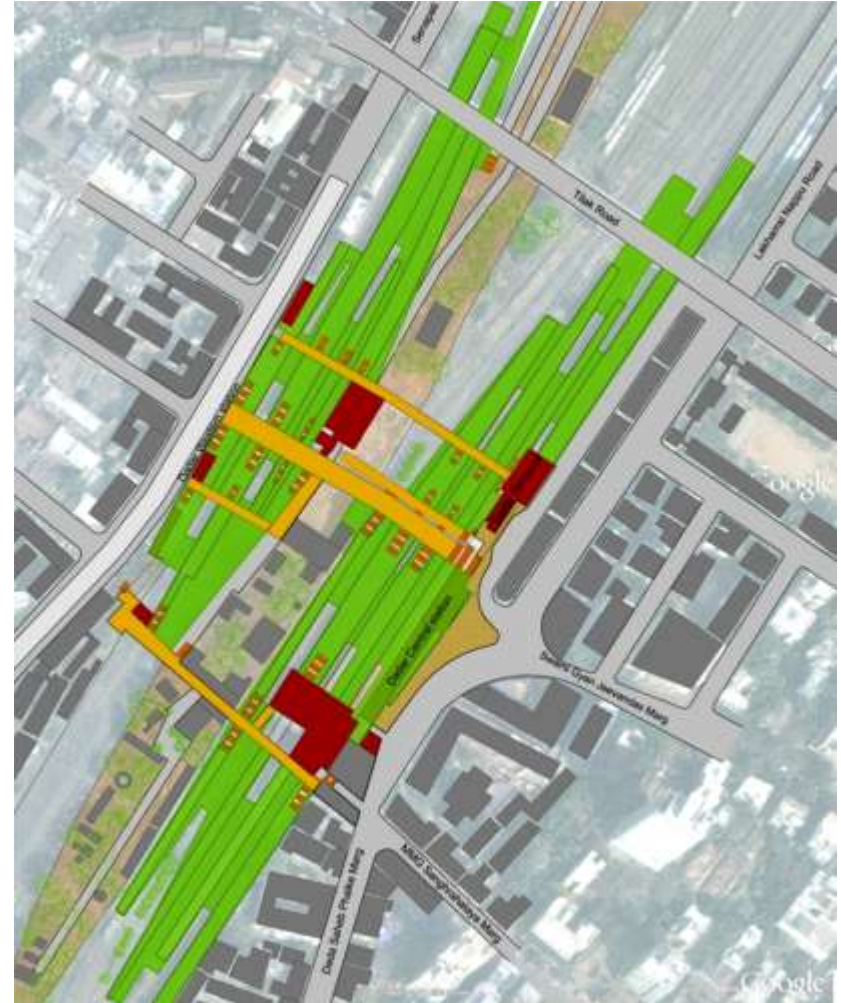
We propose building 'Roof Plazas' at railway stations, having multiple connectivity with neighborhood and surrounding streets.

These 'Roof Plazas' with extensive landscaping and public facilities would not only provide substantial open space, but also enable easy access to and from platforms, help commuter dispersal and contribute substantially to the idea of expanding public open spaces in our city.

Needless to say that the 'Open' People-friendly Railway Station project would also include up-gradation and face-lift of station buildings and the redevelopment of their surrounding areas with pedestrian and traffic segregation.



DADAR STATION



DADAR STATION



KHAR STATION



KHAR STATION



AREA NETWORKING

Juhugiri.
Pyar se.

- Double open space: add about 3.0m standard
- Create 30 km free-flow, flood-free walkway along life links
- Interconnect open spaces with institutions & amenities
- Re-align & integrate Metro rail network with public space
- Protect beach, improve access, enhance facilities
- Provide civic amenities for gardens, re-develop them
- Form a model for neighbourhood planning, participation & governance

Vision Johns

Expanding public space

© 2000 Blackwell Publishers Ltd. *Journal of Internal Medicine* 247: 395–401

[illegible]

PROPOSED NETWORK PLAN FOR JUHU

VISION JUHU



'OPEN MUMBAI PLAN'



CONCLUSION

These plans and proposals are essentially rooted in ideas of conservation, restoration, recycling, re-planning and re-structuring existing realities and their spatial transformation.

Rather than mega projects with large-scale displacements and enormous revenue burdens, this approach is based on more pragmatic and people-oriented alternatives.

Firstly, we believe that all re-developments should recognise and respect existing realities as part of the planning and urban development process.

Public open spaces as the basis of planning are an effective means to achieve these objectives. Such an approach engages citizens, leads to better quality life and ensures a more 'democratic', more equitable city.

By achieving intensive levels of citizens' participation we wish to engage and influence governments to devise comprehensive plans for public spaces.







© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 105–112

Today are the United of Russia, United of Russia Movement and their party help to build to assist, the 100-100-100 Initiative, creating 100 million jobs, thousands of companies and others are the most that come to work that are about the idea that feel are better - the railway business.

A simple act of building trust through business, both within communities and between nations, could be one of the ingredients, and greatly improve the quality of trust.

While continuous monitoring and positive feedback, those that I have used and fully embrace contributed again again, but one factor was needed to get them started, help someone through and contribute substantially to the state of knowledge and the next person to see it.





TOO CLOSED FOR COMFORT

City neighbourhoods barely have open spaces for relaxation and enjoyment of the outdoors. The result has taken a toll on our quality of life

Despite the fact that Mumbai is one of the most densely populated cities in the world, it is also one of the least green. The city's open spaces are not only scarce but also of poor quality. The result is a city that is too closed for comfort. The lack of open spaces has taken a toll on our quality of life. The city's open spaces are not only scarce but also of poor quality. The result is a city that is too closed for comfort. The lack of open spaces has taken a toll on our quality of life.

NOT GREEN ENOUGH IN NEIGHBOURHOODS: OUR OPEN SPACE MAP



CITIZENS TO THE RESCUE

Here are 5 examples of people initiatives to reclaim city spaces

Girgaum Chowpatty, bhel plaza and a sandy beach



Sea Change
 The Girgaum Chowpatty beach area has been reclaimed by the citizens. The beach is now a popular spot for relaxation and recreation. The surrounding buildings have been renovated and the area is now a beautiful sight.



A handful of us started saving the garden. We got the planter boxes and the water tank. Now, the garden is a beautiful sight.



A look at Marol garden, ground up



Greening & Quarry
 The Marol garden is a beautiful sight. The planter boxes and the water tank are a beautiful sight. The garden is a beautiful sight.



'OPEN SPACES HELP SOCIAL NETWORKING'



Cross-Maidan gets a clean, mean look
 The Cross-Maidan area has been cleaned up and is now a beautiful sight. The area is now a beautiful sight.

Roadblocks cleared for Juhu 'city forest'
 The Juhu 'city forest' area has been cleared of roadblocks and is now a beautiful sight. The area is now a beautiful sight.

Get the Plot
 The 'Get the Plot' initiative has been successful in reclaiming city spaces. The area is now a beautiful sight.

First Pasta Lane walks up the garden path
 The First Pasta Lane area has been reclaimed by the citizens. The area is now a beautiful sight.

Pasta Perfect
 The Pasta Perfect initiative has been successful in reclaiming city spaces. The area is now a beautiful sight.

Greening & Quarry
 The Greening & Quarry initiative has been successful in reclaiming city spaces. The area is now a beautiful sight.



Construction - Completed Best worth ₹1700/-
 Now for ₹750/- only

Dr. Batra's
 20% off on treatment

Call: 1800-209-6767
 1800-209-6767

Construction - Completed Best worth ₹1700/-
 Now for ₹750/- only

Dr. Batra's
 20% off on treatment

Call: 1800-209-6767
 1800-209-6767

Construction - Completed Best worth ₹1700/-
 Now for ₹750/- only

Dr. Batra's
 20% off on treatment

Call: 1800-209-6767
 1800-209-6767

Construction - Completed Best worth ₹1700/-
 Now for ₹750/- only

Dr. Batra's
 20% off on treatment

Call: 1800-209-6767
 1800-209-6767

THE JOURNAL OF THE

Mumbai's natural assets include four rivers that, among other functions, serve as natural drains for rainwater. Years of neglect and misuse have narrowed them into stinking nullahs. Is another disaster, like 26/7, waiting to happen?

We need to rescue our rivers now



POINT OF ORIGIN Rivers and garbage problems on the banks of the Mithi River, after the 2005 flood, have been exacerbated. This night's view from the top of the Mithi river confluence and night view of the Mithi river and garbage on the bank today at Worli.

THE Mithi River is one of the most polluted rivers in Mumbai. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

Rs 790 cr later, Mithi's bitter tale persists



TRACKING THE MITHI

Colaba Creek is 1.2 km long. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

IT IS A DISASTER IN WAITING

The Mithi and Worli rivers were once connected. They joined the Colaba Creek. The Mithi and Worli rivers were once connected. They joined the Colaba Creek.

WE MUST CLEARLY DEMARK BOUNDARIES OF OUR BEACHEY

The Mithi and Worli rivers were once connected. They joined the Colaba Creek. The Mithi and Worli rivers were once connected. They joined the Colaba Creek.

THE MITHI RIVER IS ONE OF THE MOST POLLUTED RIVERS IN MUMBAI

The Mithi River is one of the most polluted rivers in Mumbai. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

Call for Mumbaiers to join fight to restore the city's rivers and nullahs and for the BMC to reserve space for public use on either side of the channels

WE CAN HELP FLOAT HOPE FOR RIVERS



THE MITHI RIVER is one of the most polluted rivers in Mumbai. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

Mumbai's natural assets include four rivers that, among other functions, serve as natural drains for rainwater. Years of neglect and misuse have narrowed them into stinking nullahs. Is another disaster, like 26/7, waiting to happen?

WE CAN HELP FLOAT HOPE FOR RIVERS

The Mithi River is one of the most polluted rivers in Mumbai. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

THE MITHI RIVER IS ONE OF THE MOST POLLUTED RIVERS IN MUMBAI

The Mithi River is one of the most polluted rivers in Mumbai. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

THE MITHI RIVER IS ONE OF THE MOST POLLUTED RIVERS IN MUMBAI

The Mithi River is one of the most polluted rivers in Mumbai. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

THE MITHI RIVER IS ONE OF THE MOST POLLUTED RIVERS IN MUMBAI

The Mithi River is one of the most polluted rivers in Mumbai. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

THE MITHI RIVER IS ONE OF THE MOST POLLUTED RIVERS IN MUMBAI

The Mithi River is one of the most polluted rivers in Mumbai. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

THE MITHI RIVER IS ONE OF THE MOST POLLUTED RIVERS IN MUMBAI

The Mithi River is one of the most polluted rivers in Mumbai. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

THE MITHI RIVER IS ONE OF THE MOST POLLUTED RIVERS IN MUMBAI

The Mithi River is one of the most polluted rivers in Mumbai. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

THE MITHI RIVER IS ONE OF THE MOST POLLUTED RIVERS IN MUMBAI

The Mithi River is one of the most polluted rivers in Mumbai. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

THE MITHI RIVER IS ONE OF THE MOST POLLUTED RIVERS IN MUMBAI

The Mithi River is one of the most polluted rivers in Mumbai. It is a 1.5 km long river that flows through the city and empties into the Arabian Sea. The river is a major source of water for the city and is also a major source of pollution. The river is a major source of water for the city and is also a major source of pollution.

Filthy Irla nullah to be turned into green zone

The Rs 20-crore, four-year beautification project beginning this month, will provide jogging and cycle tracks on either side and a three-layer system to keep the water clean

P K DAS & ASSOCIATES

Sudeshna.Chatterjee
@timesgroup.com

Since the July 26, 2005 deluge, the Irla nullah in Juhu has been called many things, including 'a disaster waiting to happen'. Surrounded by hundreds of shanties, and often choked because of the rubbish thrown in by the slum dwellers, the nullah – one of city's major storm water drains – often floods the societies in JVPD Scheme during monsoon.

The nullah is now set for a makeover, with jogging and cycle tracks on either side, the entire area turned into a green zone; and clean water in the nullah courtesy a three-layered auto cleaning system. The beautification of the nullah will begin this month, based on the recommendations by the Chitale Committee, which the state government had set up post the 2005 deluge.

RANA CHAKRABORTY



The nullah as is today

Rajya Sabha MP Javed Akhtar has pledged to extend financial assistance to the 4-year project – costing about Rs 20 crore. "I support the idea to better the landscape along the drain. I've decided to dedicate my MP Local Area Development Fund for the project."

Speaking to *Mumbai Mirror*, architect P K Das from P K Das & Associates, which has designed the project, said,

"Of the total length of 7.5 km, in the first phase, a 2.5-km will be developed. This is not just about creating tracks. There will be contiguous network of open spaces, including amphitheatres, to enrich community spirit."

With wider roads on both sides, civic workers will also have better access to the nullah for its cleaning. While Mumbai has a total length of 381 kilometers of rivers and drains in the city, in many cases, there is little or no space along them – though it is a must for the civic body to build six-metre roads on either side.

BMC Additional Commissioner Aseem Gupta said, "We will look into the success of this project. If this clicks, we will beautify service roads along other major drains and rivers across the city. We have started building service roads along nullahs and rivers, and plan to cover 204 kms by 2014. We too have plans to do sewage treatment on these outlets."



A computer image depicting how the area will look after completion of the project



PK Das,
chairperson,
Mumbai
Waterfronts
Centre, at his
Prabhadvi
office with a
vision plan for
Juhu that
will be part
of the
exhibition.
RC/ SANTOSH
NAGREKAR

PROPOSED NETWORK PLAN FOR JUHU



'A CITY IS A COLLABORATIVE ENDEAVOUR'

Open Mumbai: Let's Expand Public Spaces, is a series of vision plans for a cleaner, greener, better planned Mumbai, mounted by architecture firm P. K. Das & Associates and the Mumbai Waterfronts Centre, currently on display at a city gallery. Das, Chairperson of the MWC, tells us what it will mean to you if the plans are ever sanctioned to be translated into reality.

SANJIV NAIR
sanjivnair@mid-day.com

What inspired the vision plan for Open Mumbai: Let's expand public spaces? How long have you been toying with the idea?

The inspiration comes from the condition of Mumbai. The quality of life is deteriorating, and as the city expands, public space is shrinking. Therefore it is important to have a positive change. We have been working on it for 15 years. Whether it is Bandra Bandstand, Carter Road or any of the numerous other projects which we have been working on, it has been a transformation in the making. During the last one year, these individual efforts have come together. Lessons learnt from various citizen's movements have been a part of what we have culminated into this exhibition.

How can the project be executed?
The project has 2 principle parts — Part 1 is about the areas in which the changes have already been

implemented — Juhu Beach, Carter Road, Bandra Bandstand and Gateway of India — and our learnings from these projects. Nearly 50 per cent of the envisioned plan therefore has already been completed. Part 2 of the projects is built on the strength of these learnings. The second phase proposes similar simple ideas that can be executed in other areas. These incorporate projects which are grounded in reality.

What is the fundamental guiding principle for the project?

The basis of the project is conservation, renovation, recycling and replanning. It is important to understand that we are speaking of integrating the project within the existing realities of the city. It is not a mega project, but a combination of small and doable projects. The attempt is to double our open public spaces. We are attempting to create nearly 500 kilometres of green open spaces, which will be utilised as walking and cycling tracks. These spaces will be dotted with gardens and water parks. These spaces will not operate in a silo; they will all be connected to each other, creating a vast network of green open space that extends from Andheri to Chembur, from Mahim to Colaba. It will connect all parts of the city and will facilitate social networking in the real world. The rationale is to have people enjoy and truly identify with the city. It is important to deconcentrate Mumbai's open spaces.

How has the Government responded to your vision?

They have been extremely supportive. Chief Minister Prithvi Raj Chavan was the first to see the vision. Since this was the first time he saw Mumbai the way we see it. Some important bureaucrats were present during the inauguration and he had an immediate discussion with them on how they can take it forward. Uddhav Thackeray has already brought together corporators to take this up with proper plans chalked out, reglets with deadlines. So the ball has already started rolling. I am hoping that the support continues.

How long would a project of this magnitude take to get executed? How much will it cost?

The complete budget is Rs 2,500 crore, which for a project of this magnitude is actually quite less. The maximum period for its execution is

about 10 years. A lot of work which you have done exemplifies a successful marriage of social development and architecture. If this project were sanctioned would it be your greatest challenge and achievement? (Laughs) I am sure that if we achieve this it would be a great achievement for everybody in Mumbai. But it is important to understand that a city is a collaborative endeavour. No one person can consider anything in its own personal accomplishment. Amartya Sen once said that 'it is public action that influences governments'. And this is an ideology we have worked with for all these years. Bandra Bandstand's redevelopment was a public initiative. It was started without the government's support. Over the last couple of years, the city's population has dropped from 12.5 crore to 11.8. I hope it is a flash in the pan as I don't want population to drop in Mumbai. I wish for it to maintain. I would never want to have people leave the city thinking they would be better off elsewhere.

AT: NGMA, Mahatma Gandhi Road, Near Regal Cinema, Fort

TILL: Saturdays, April 7, Tuesday to Sunday, from 11am to 6pm

TICKETS: Indians — Rs30; Foreign Nationals — Rs150;

Students/Children — Rs1

CALL: 22881969

LOG ON TO:

www.ngmaindia.gov.in

implemented — Juhu Beach, Carter Road, Bandra Bandstand and Gateway of India — and our learnings from these projects. Nearly 50 per cent of the envisioned plan therefore has already been completed. Part 2 of the projects is built on the strength of these learnings. The second phase proposes similar simple ideas that can be executed in other areas. These incorporate projects which are grounded in reality.

implemented — Juhu Beach, Carter Road, Bandra Bandstand and Gateway of India — and our learnings from these projects. Nearly 50 per cent of the envisioned plan therefore has already been completed. Part 2 of the projects is built on the strength of these learnings. The second phase proposes similar simple ideas that can be executed in other areas. These incorporate projects which are grounded in reality.

10 **MAD DAY** **METRO** > 26.03.2012 > MUMBAI www.mid-day.com

CORPORATORS TO TAKE TIPS FROM EXHIBITION ON OPEN SPACES

Urban planner PK Das's designs to add 10 sq km to the existing 13.37 sq km of open grounds find favour with Sena; corporators to see if they can enforce ideas at ward-level

RINKITA GURAV
rinkitagurav@mid-day.com

IN a packed metropolis where breathing space is hard to come by, a city architect's plan to enhance Mumbai's open spaces by almost 10 sq km has got the attention of the Shiv Sena-led BMC. So much so that party executive president Uddhav Thackeray instructed his corporators to attend an exhibition by urban planner PK Das at the National Gallery of Modern Art (NGMA), Fort to view his array of plans to increase the open spaces without affecting any citizen.

On Tuesday, Sena's 75 newly elected corporators will go for an exhibition, with a view to incorporating the ideas at ward level.

According to Das's plans, there would be 9.85 sq km more open space in the city against the existing 13.37 sq km — or 1.1 sq m per person, the least in the country. The idea is to ruck up spaces beside sidewalks and rivers, and beautify them with walkways and cycling tracks; have boardwalks and prome-

rades along the coastline, major tree plantations and recreation grounds or playgrounds (PG/PGI).

Well-received

Said chairman of the BMC standing committee Rakesh Shewale, "Uddhavji liked the exhibition and has asked the corporators to have a look at it. Das's planning would increase the open spaces in the city as per international standards. If we start working on the projects, they would be better than the coastal road project. I went for the exhibition and the night include some of the things in the BMC's revised budget this year. We could incorporate a separate category in the budget: every year funds would be allocated under Open Spaces in Mumbai."

"We have certain beach nourishment projects going on at Matin-Dadar-Prabhadvi



SMART DESIGN BMC standing committee chairman Rakesh Shewale looks at architect PK Das's (inset) array of plans for the city at the NGMA, Fort, the architect with his plan (RINKITA GURAV)

and we could use Das's designs for other beaches and coastline," Shewale said, adding, "He has made an interesting suggestion of including the mangrove area, one of the most untouched in the city, in the development plan."

The BMC budget is set for revision in the standing committee when members can propose projects and revise provisions.

"We currently only have a head wherein Rs 492 crore has been set aside for PG/PGI, while Rs 300 crore for the develop-

ment," he said. Said Das, "Open space is shrinking in the city, reflecting the quality of life due to the exploitation of land with construction potential. I have planned a comprehensive network system of developing and maintaining open spaces, thus enhancing the social networking in the city. If corporators are showing interest in the exhibition, it can be done at ward level also."

By Das's calculations, the spaces around 16 km of beaches, 37 km of planned sidewalks, four rivers 28.5 km in length, and 70.97 sq km of creeks and wetlands — a total of 155.1 sq km — can be put to advantage to create extra space.

MY CITY!

LET'S BUILD OPEN CITIES

THANK YOU