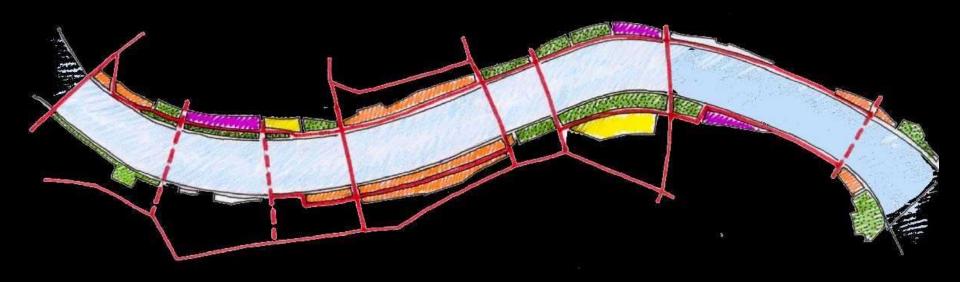
Sabarmati Riverfront Development

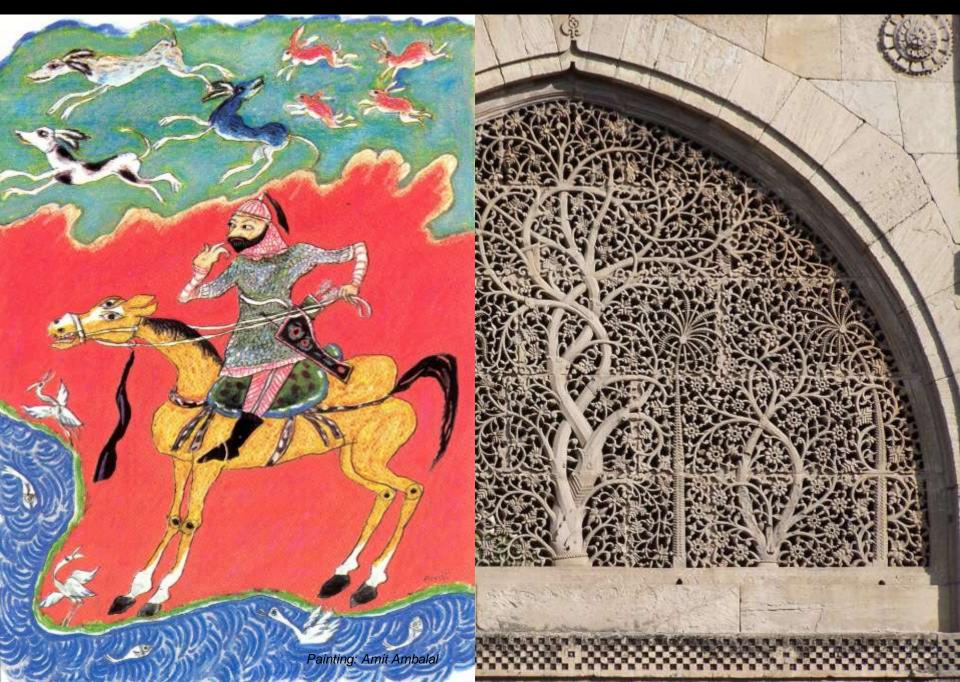
Integrated Environmental Improvement and Urban Revitalization



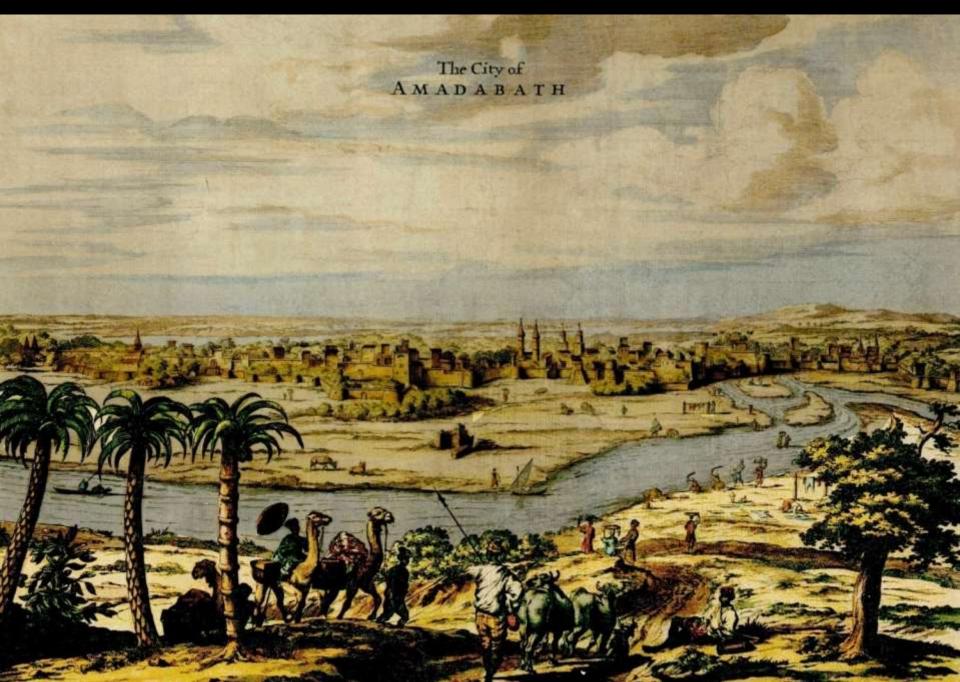
Sabarmati River Front Development Corporation Ltd., Ahmedabad HCP Design, Planning & Management Pvt. Ltd., Ahmedabad

Ahmedabad and the Sabarmati

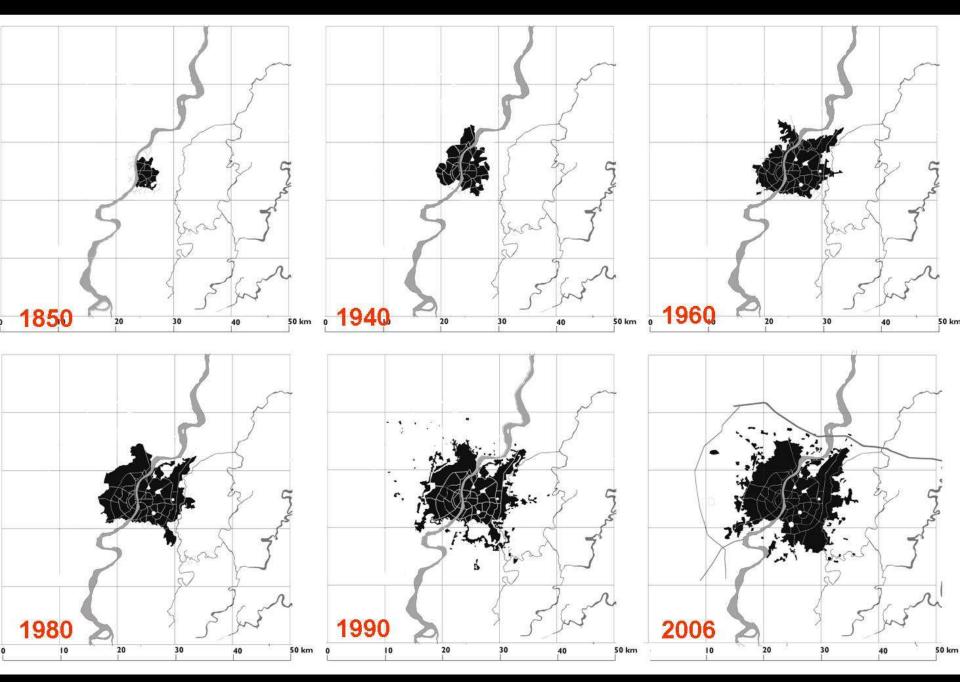
Ahmedabad was established on Sabarmati in 1411

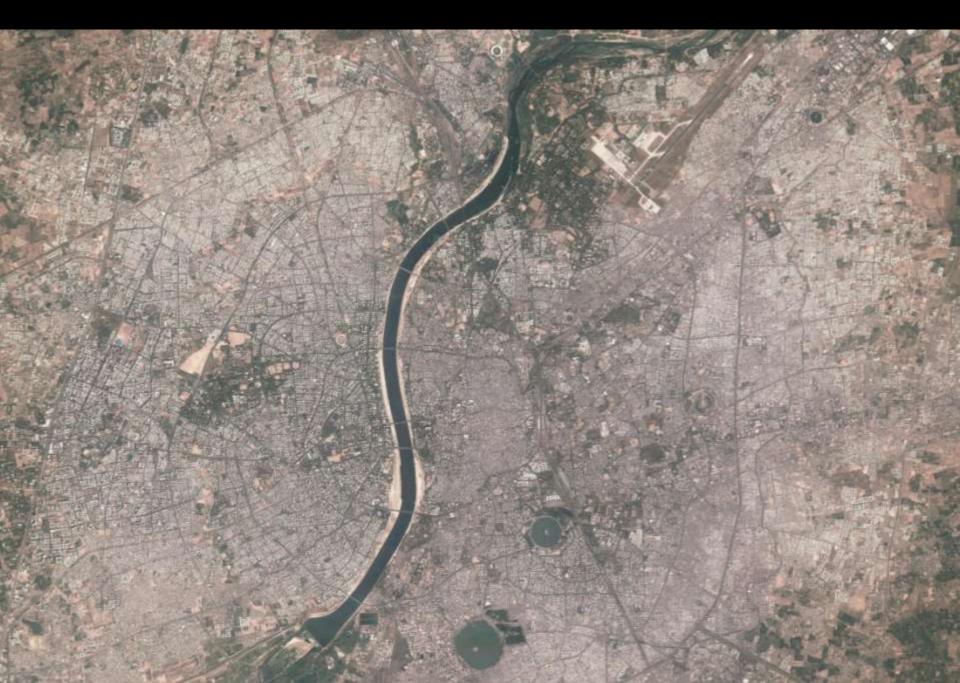


Ahmedabad and the Sabarmati - 1672



Sabarmati and the Growth of Ahmedabad





Sabarmati has always been important to Ahmedabad

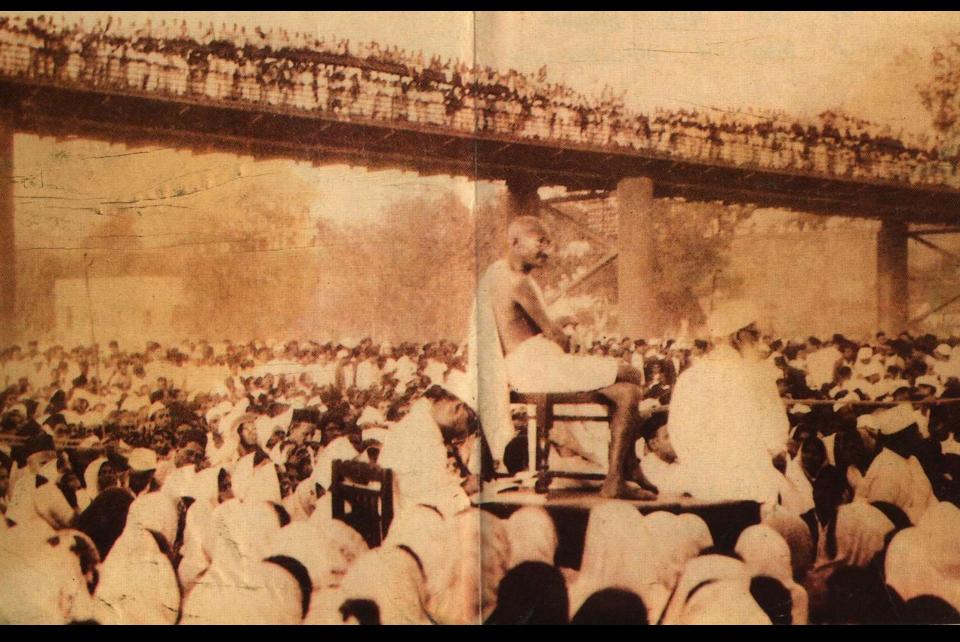
As a source for drinking water



As a place for recreation



As a place to gather



As a place for the poor to build their hutments



As a place for washing and drying clothes



As a place for holding the traditional 'Sunday Market'



As a place for farming

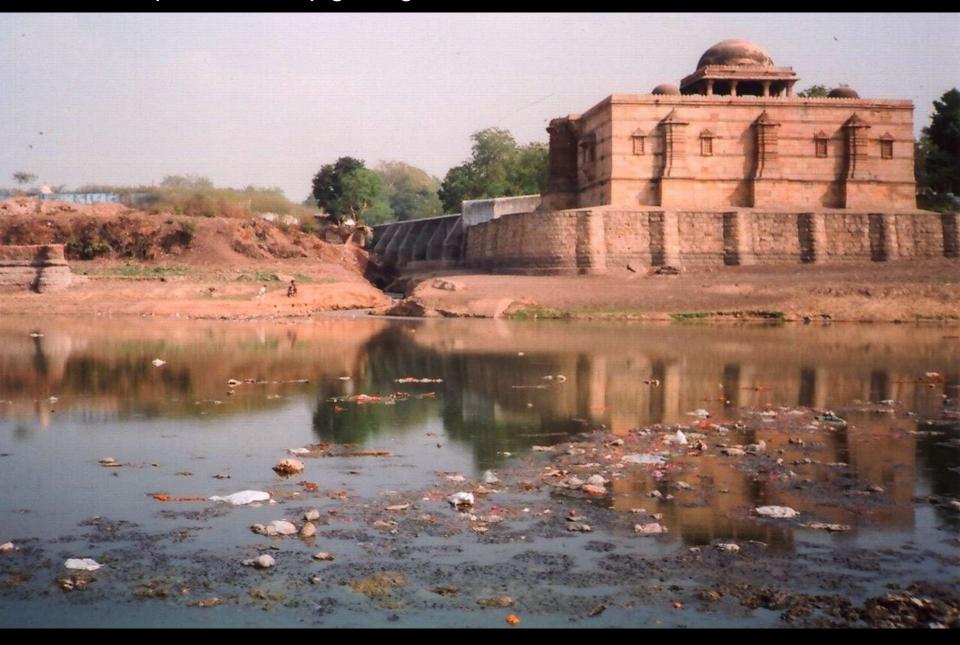


Gandhiji built his ashram on the bank of Sabarmati in Ahmedabad



And yet, Sabarmati was abused and neglected

It became a place to dump garbage



Stormwater drains spewed untreated sewage into the river



A few nalas brought sewage into the river



Sewage from the slums flowed directly into the river



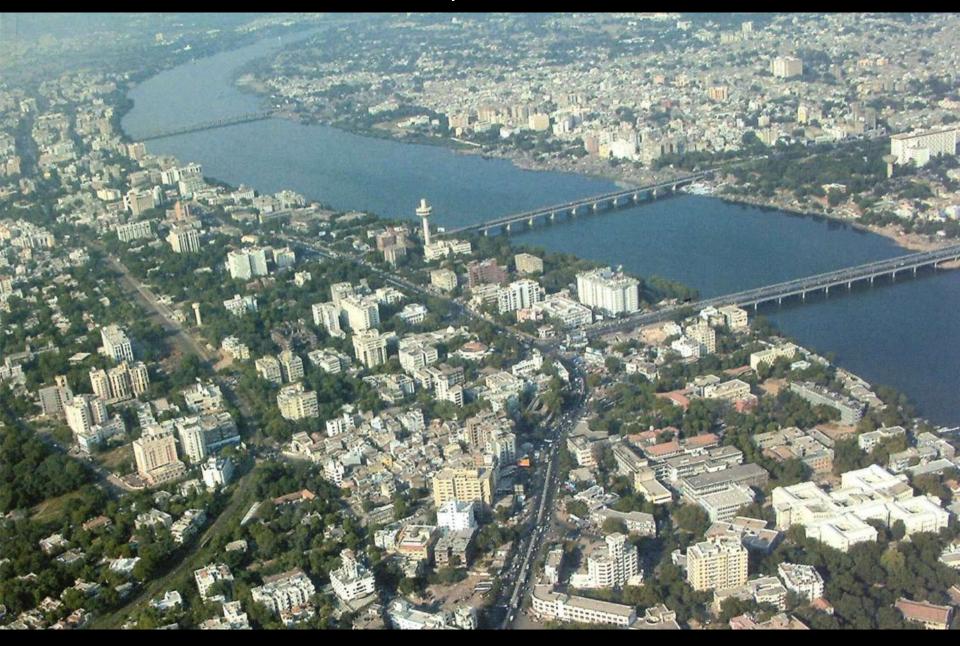
Encroachments reduced the river's flood carrying capacity



Haphazard and dull development came up along the riverfront



The river became inaccessible to the public



The bridges were the only places from which the river could be enjoyed



The river became insignificant in the life of the city



The city turned its back to the river





Other Cities and their Waterfronts



Paris



London



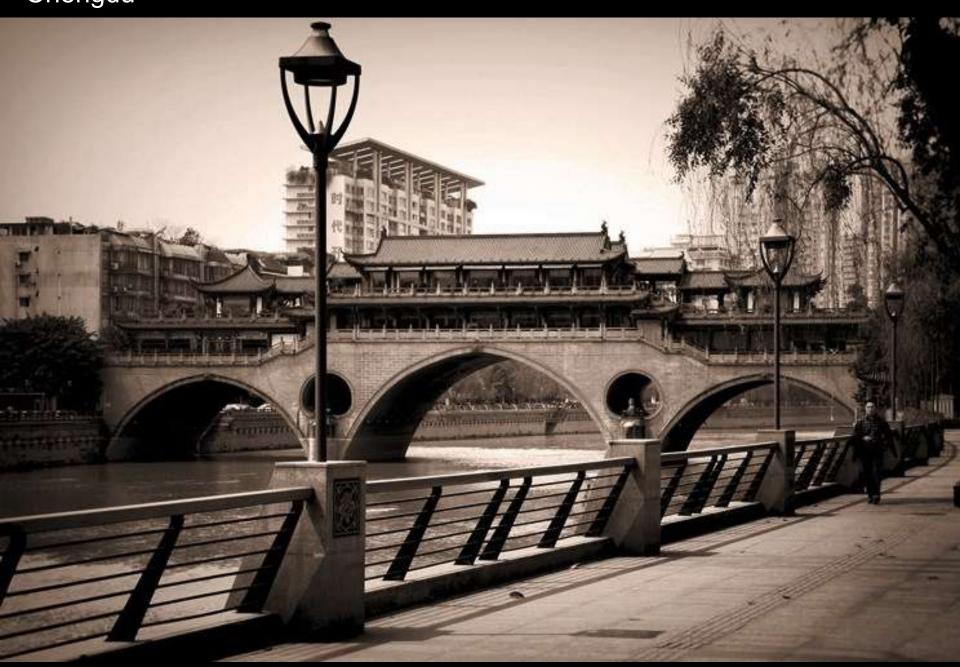
New York



New York



Chengdu



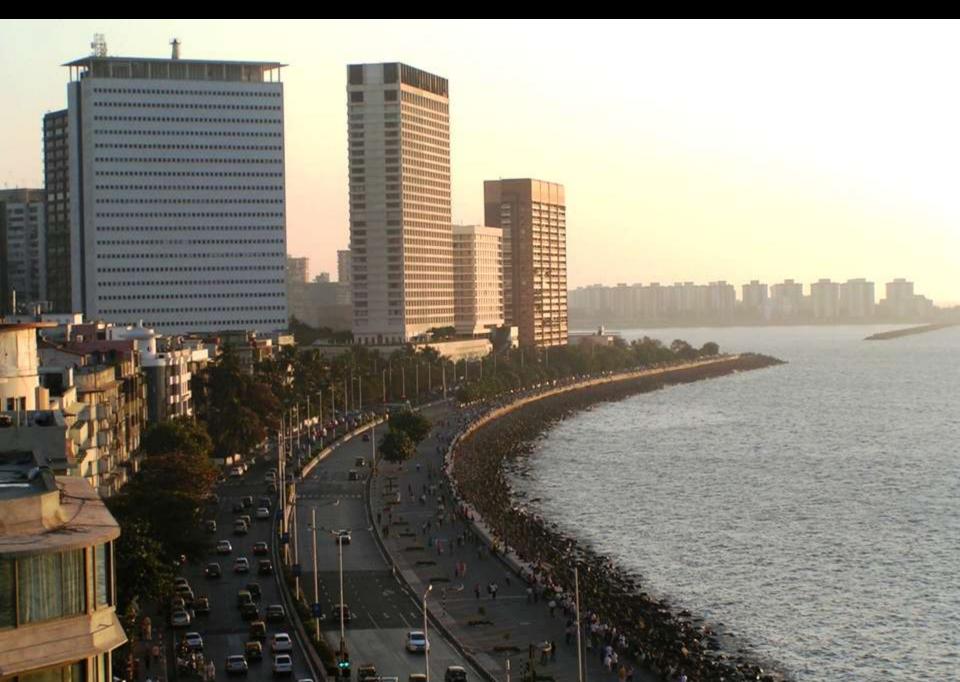
Singapore



Shanghai



Mumbai

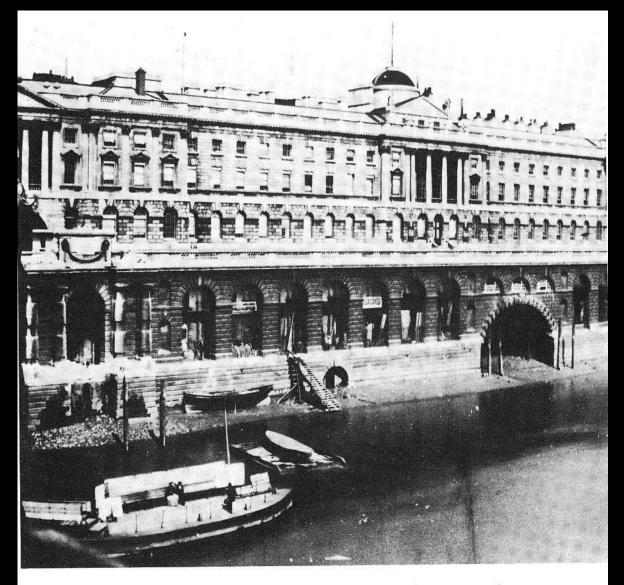


These waterfronts were designed and developed as meaningful public spaces for enhancing life in the city

London - 1817...

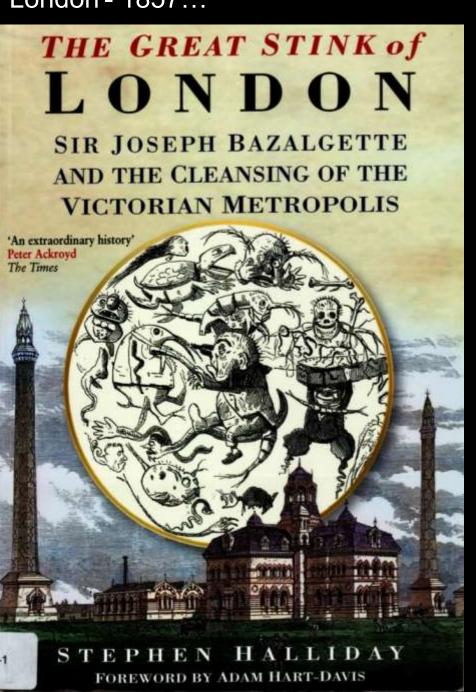


London - 1857...



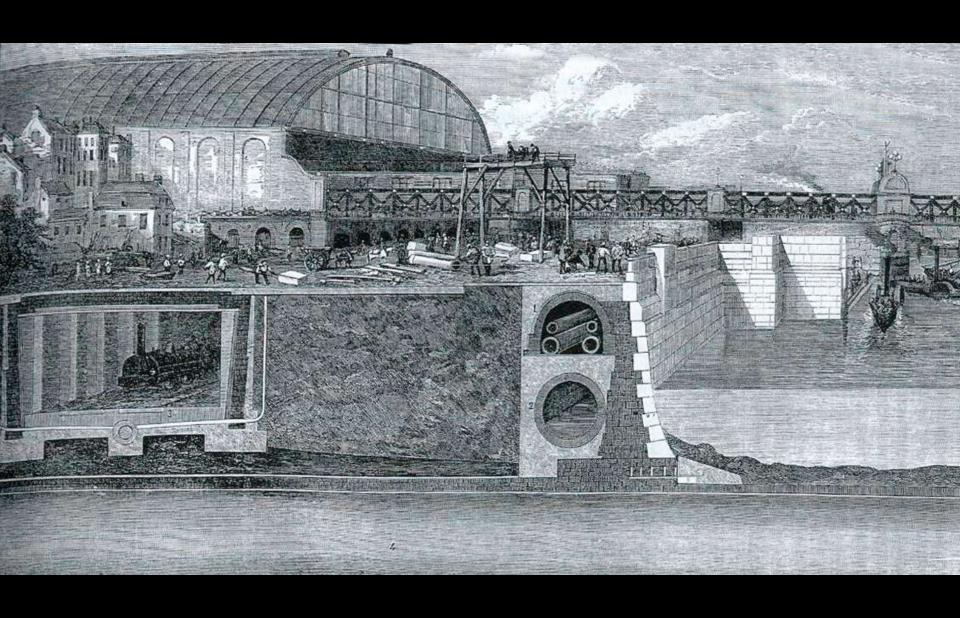
Somerset House from Waterloo Bridge, 1857
Anon.

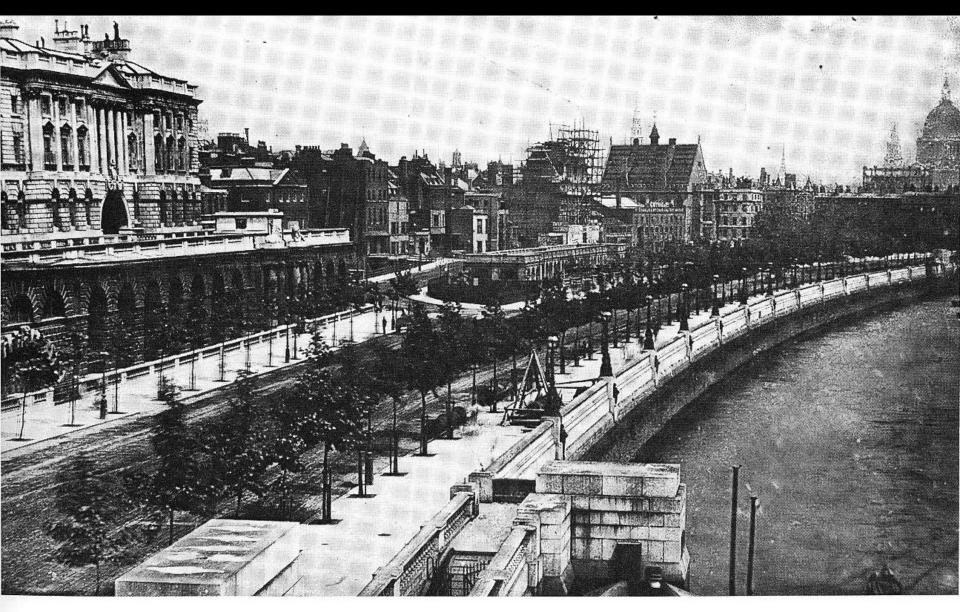
London - 1857...





London - 1857...





The Victoria Embankment looking towards St Paul's, c. 1875

London - 1875...



London - 2010



New York - 1930...



New York - 1995...



Singapore - 1960...



Singapore - 2011...



Chengdu - 1993...



Chengdu - 2011...



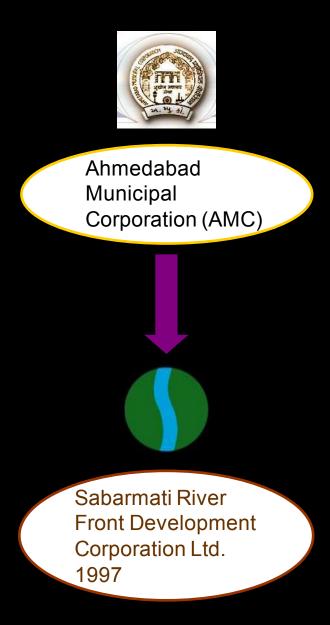
Back to Sabarmati and Ahmedabad

The abused and neglected Sabarmati

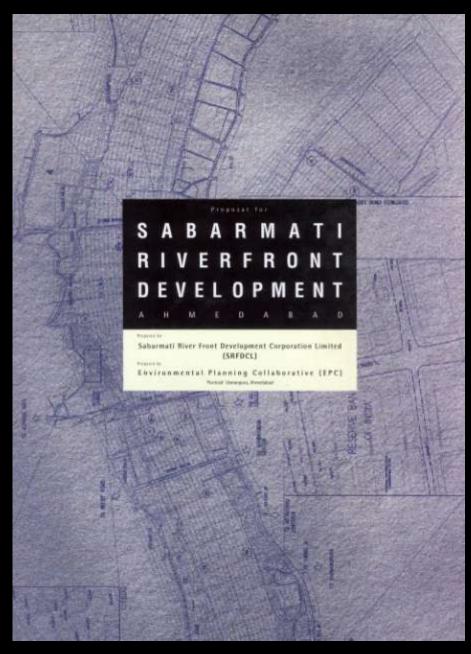




The AMC created a "wholly owned" company to develop the Sabarmati riverfront



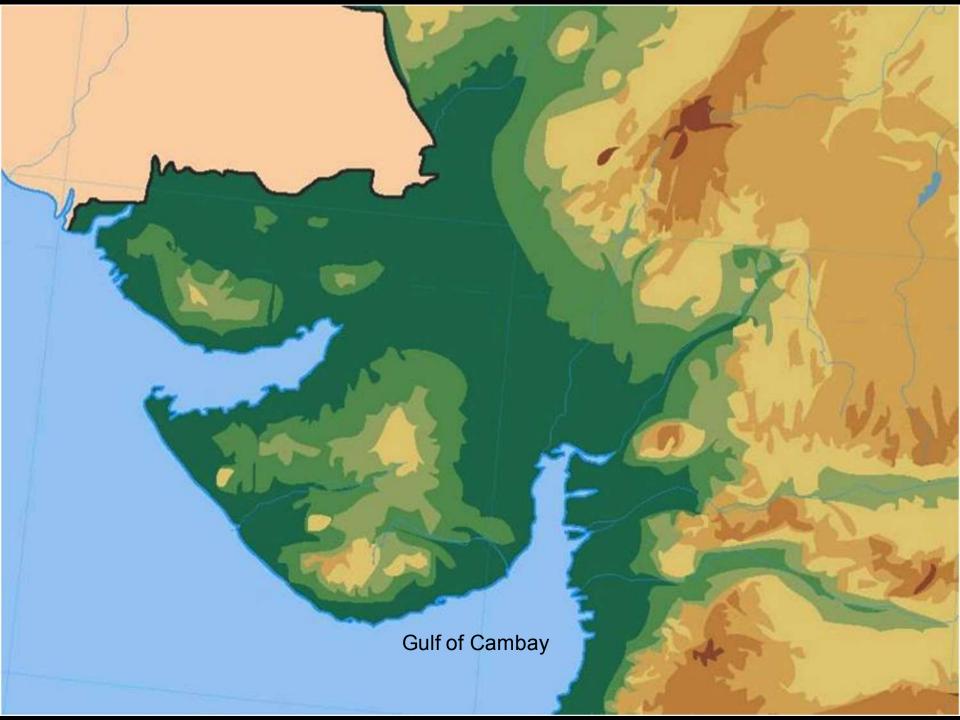
Proposal for Sabarmati Riverfront Development 1998



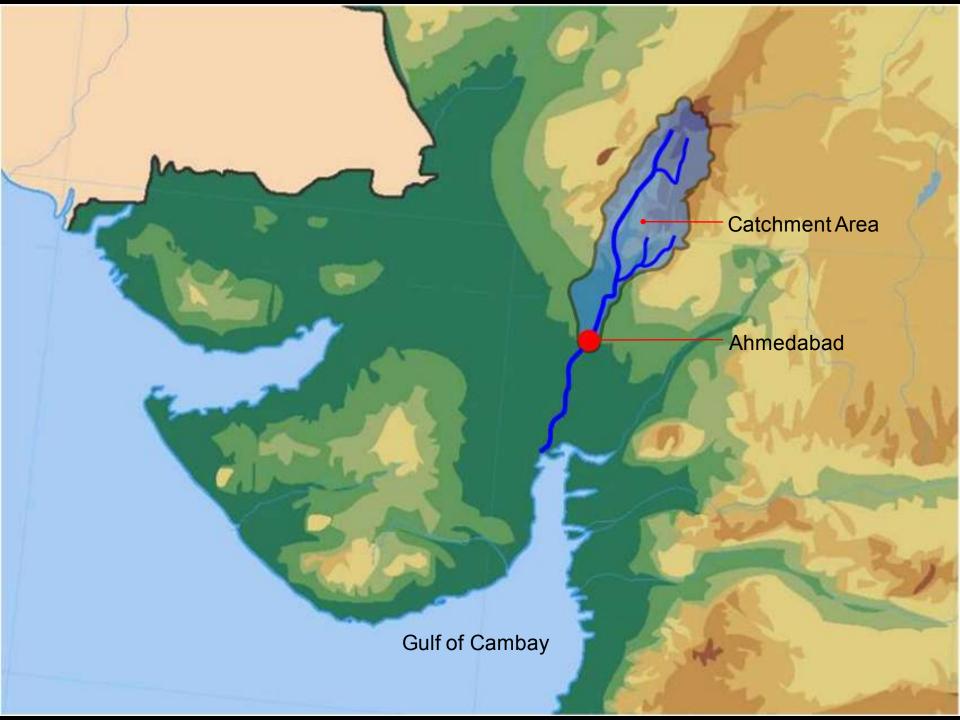
- Physical Features of the River
- River Hydraulics
- Land Reclamation and Embankments
- Land Ownerships
- Water Retention
- Ground Water Recharge
- Land Use and Road Network
- Infrastructure Services
- Resettlement and Rehabilitation
- Implementation Strategy
- Project Costs and Revenue Potential
- Financing, Structure of the SRFDCL and
- Development Management

Multidimensional Environmental Improvement, Social Upliftment and Urban Rejuvenation Project

Gujarat, Sabarmati, Ahmedabad and the Narmada

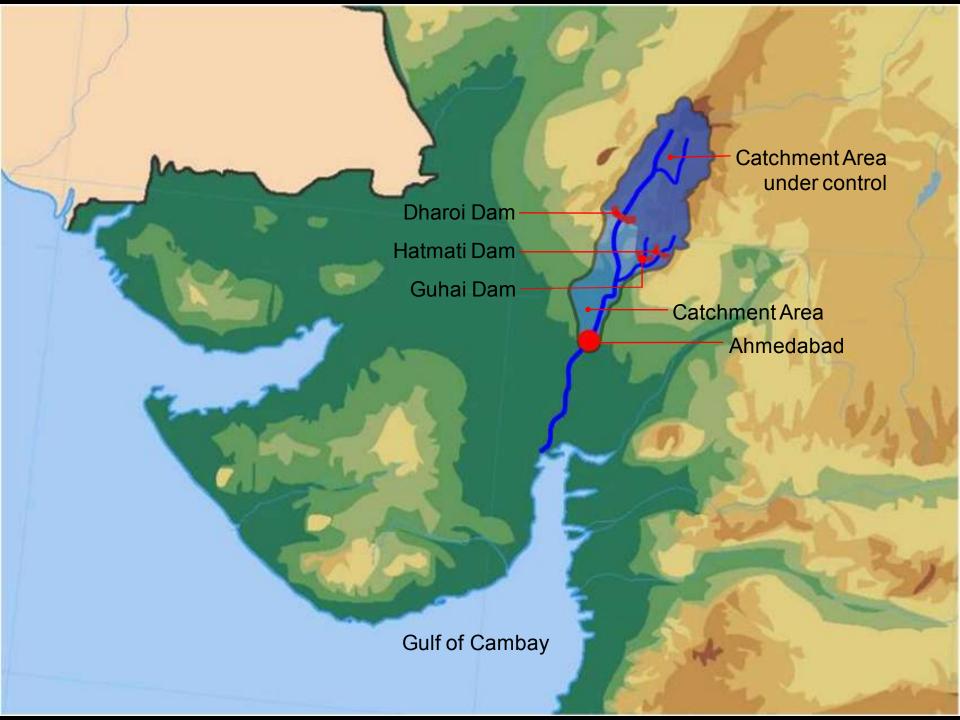


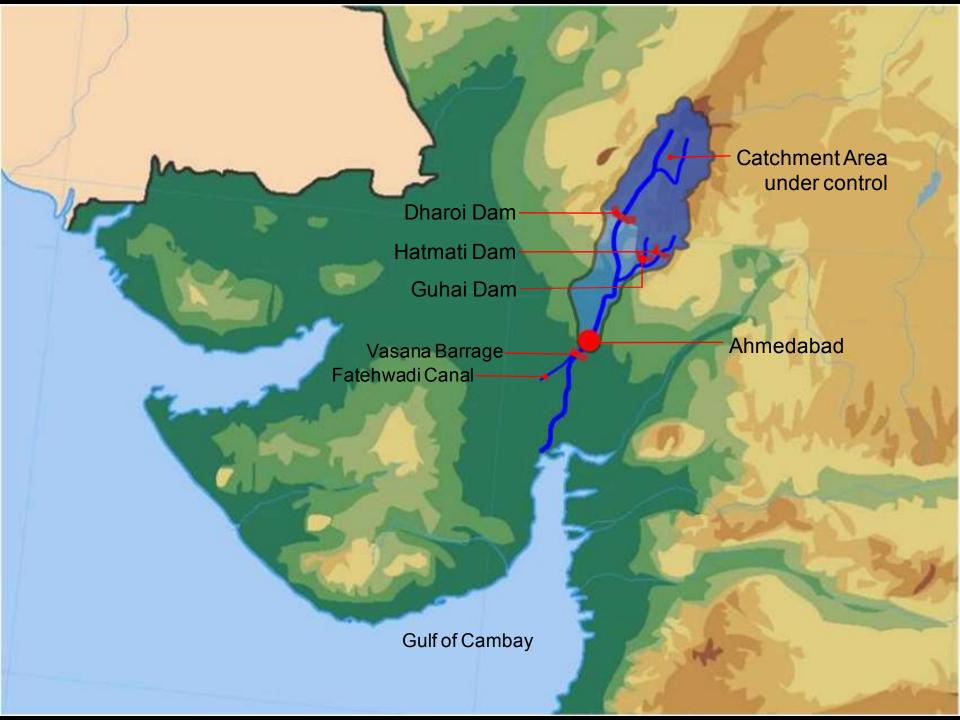




Sabarmati River







Vasana Barrage

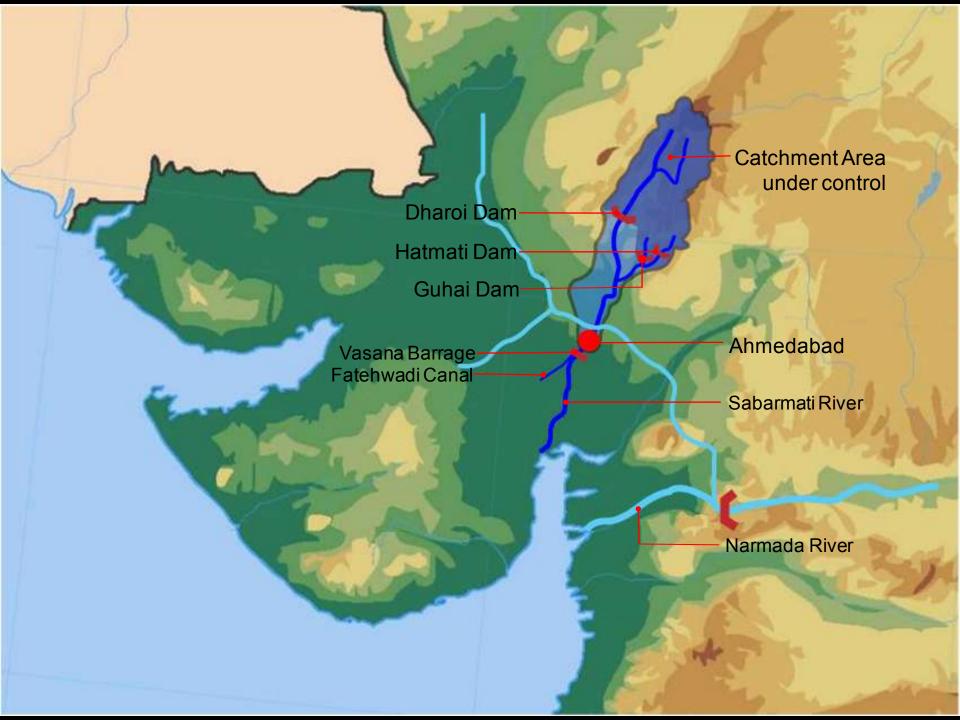


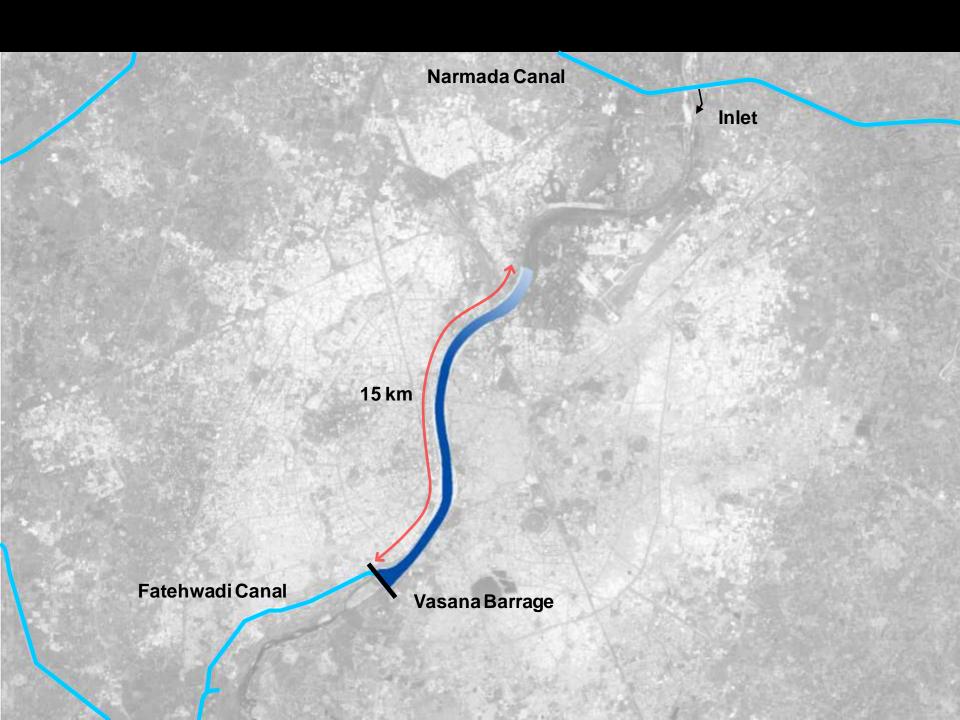
Water retained by the Vasna Barrage



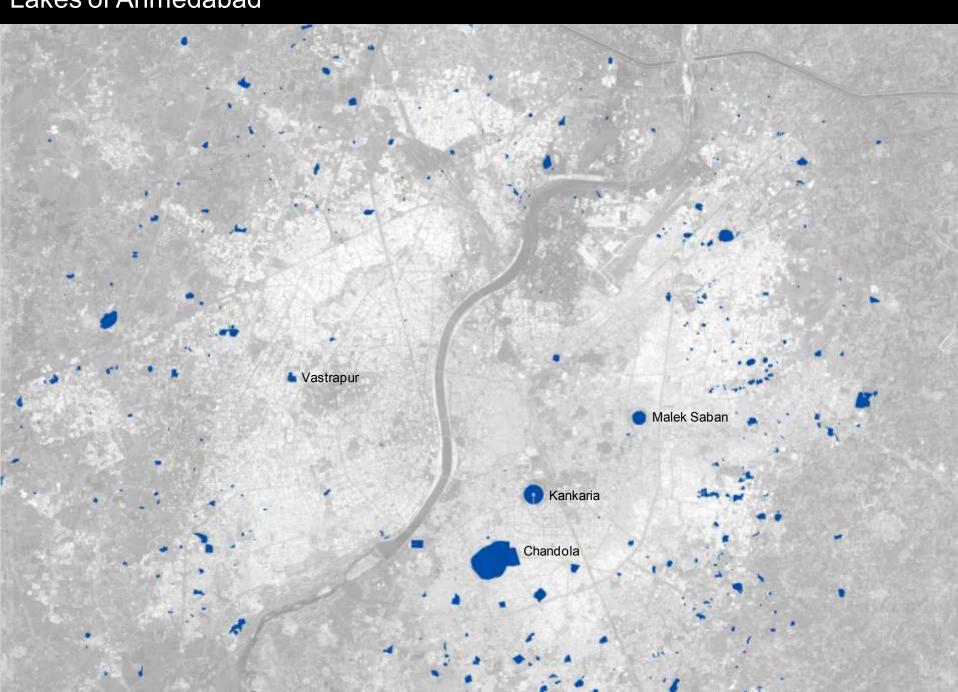
Water used up for irrigation



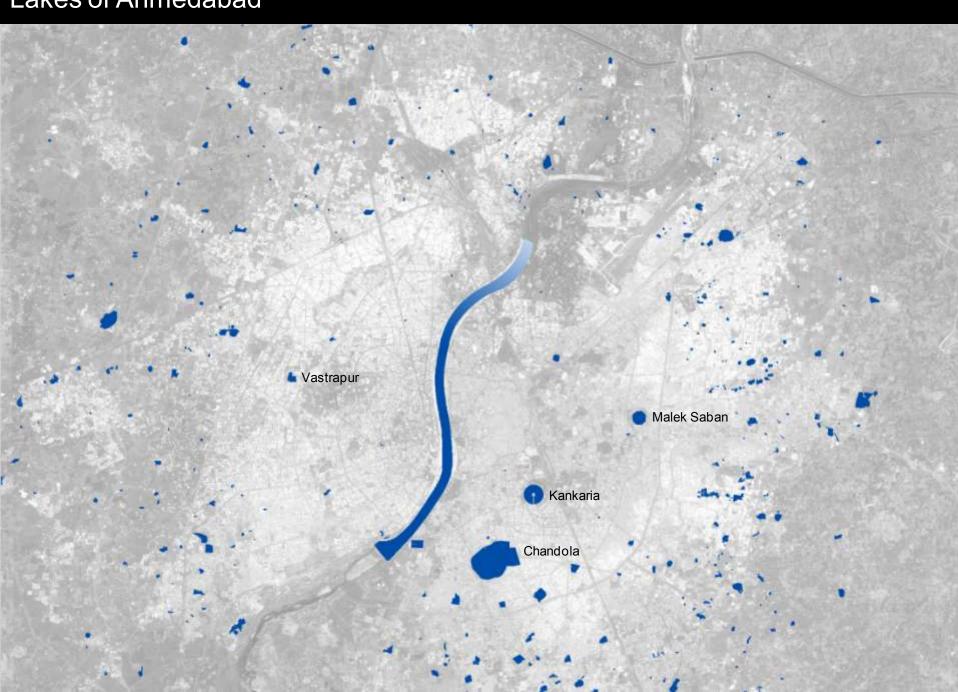




Lakes of Ahmedabad



Lakes of Ahmedabad



Ambitions of the Sabarmati Riverfront Development Project

Multidimensional Environmental Improvement, Social Upliftment and Urban Rejuvenation Project



OBJECTIVES

- 1. Make the riverfront accessible to the public
- 2. Stop the flow of sewage, keep the river clean and pollution-free
- 3. Provide permanent housing for riverbed slum dwellers
- 4. Reduce risk of erosion and flooding in flood prone neighborhoods
- 5. Create riverfront parks, promenades and ghats to enjoy the water
- 6. Provide Ahmedabad with new cultural, trade and social amenities
- 7. Revitalize riverfront neighborhoods, rejuvenate Ahmedabad
- 8. Generate resources to pay for all of the foregoing
- 9. Create a memorable identity for Ahmedabad

Make the riverfront accessible to the public



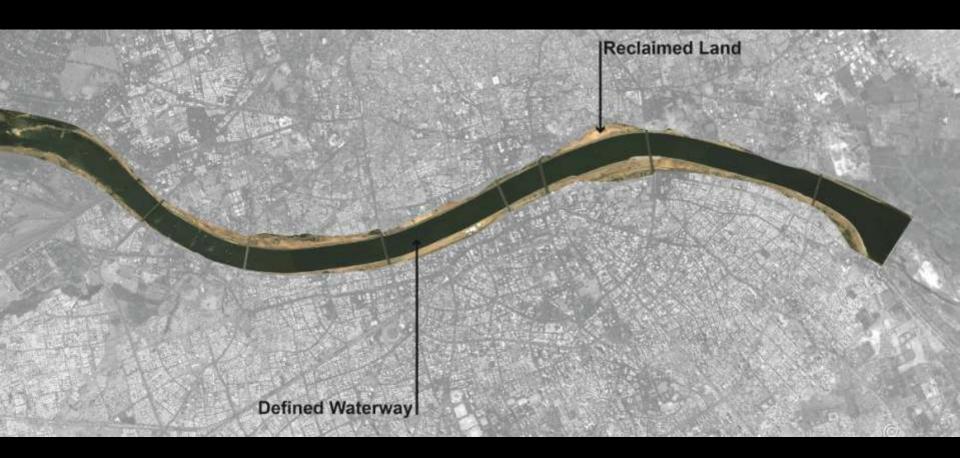


River Training and Land Reclamation – The Original Context

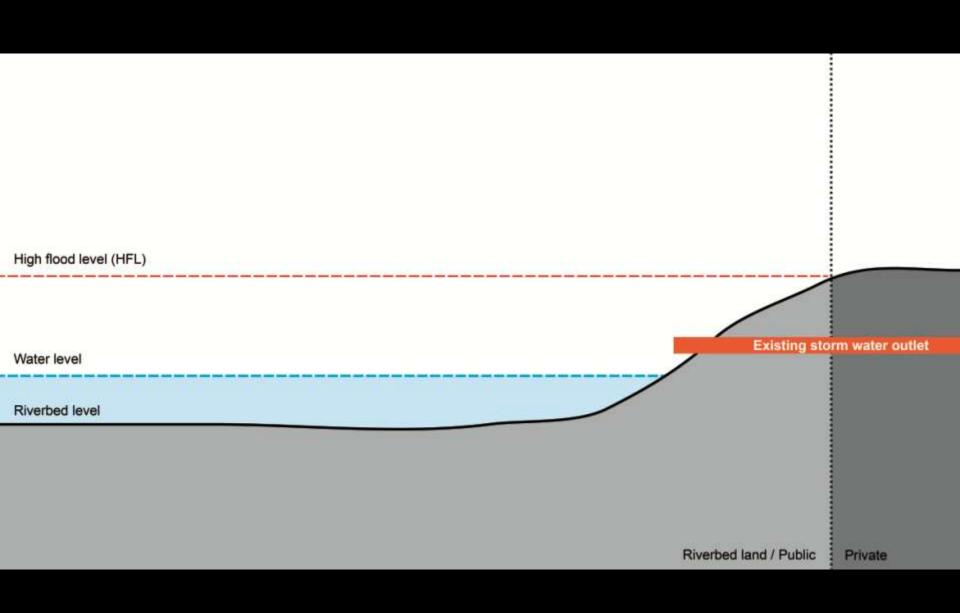


River Training and Land Reclamation

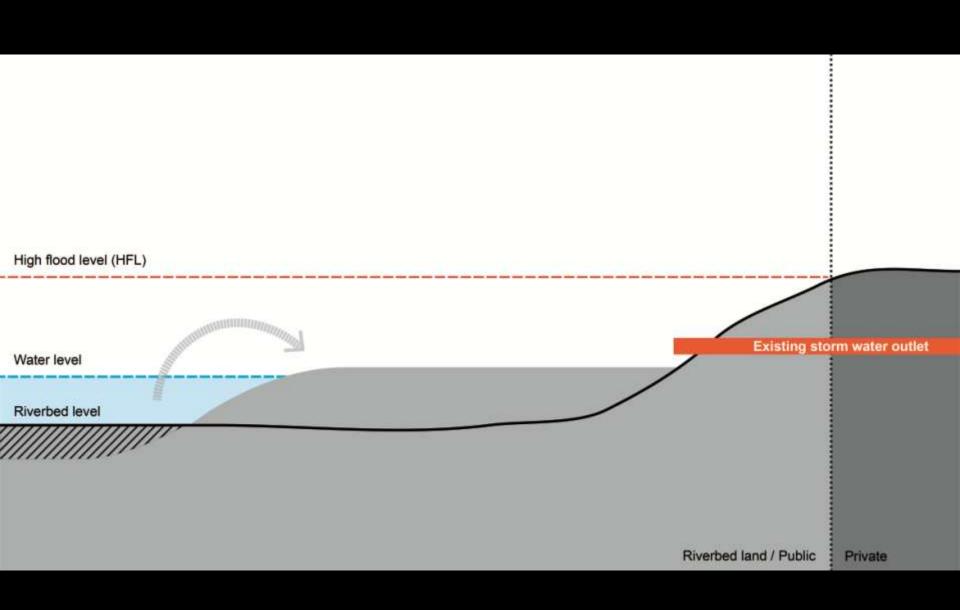
- Defined Waterway 275 m wide
- Total Reclamation area 202 Hectares



The Construction Process – Original Context



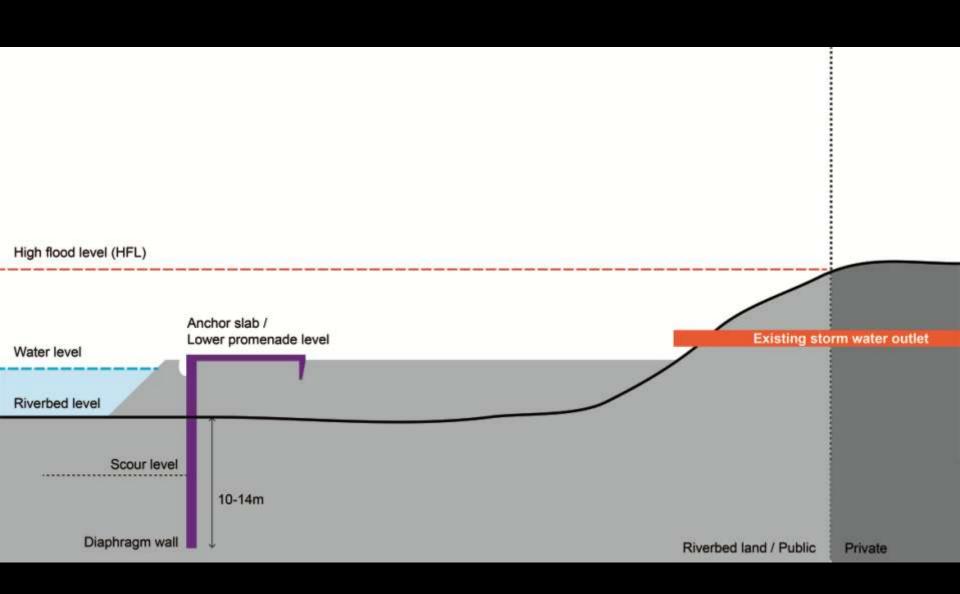
The Construction Process – Working Platform



The Construction Process – Working Platform



The Construction Process – Diaphragm Wall and Anchor Slab



Diaphragm Wall and Anchor Slab

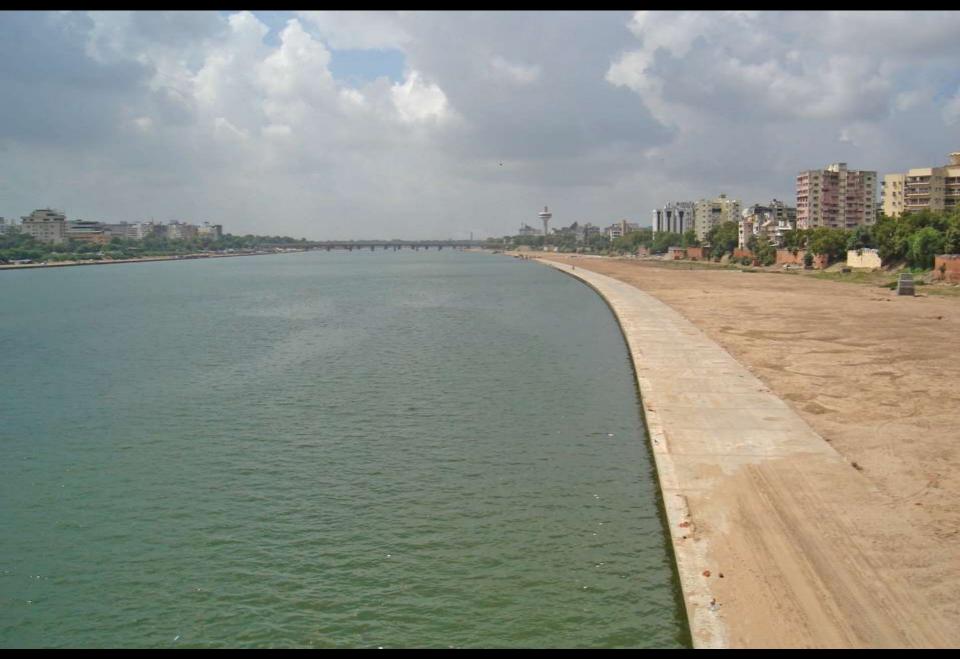


Diaphragm Wall and Anchor Slab

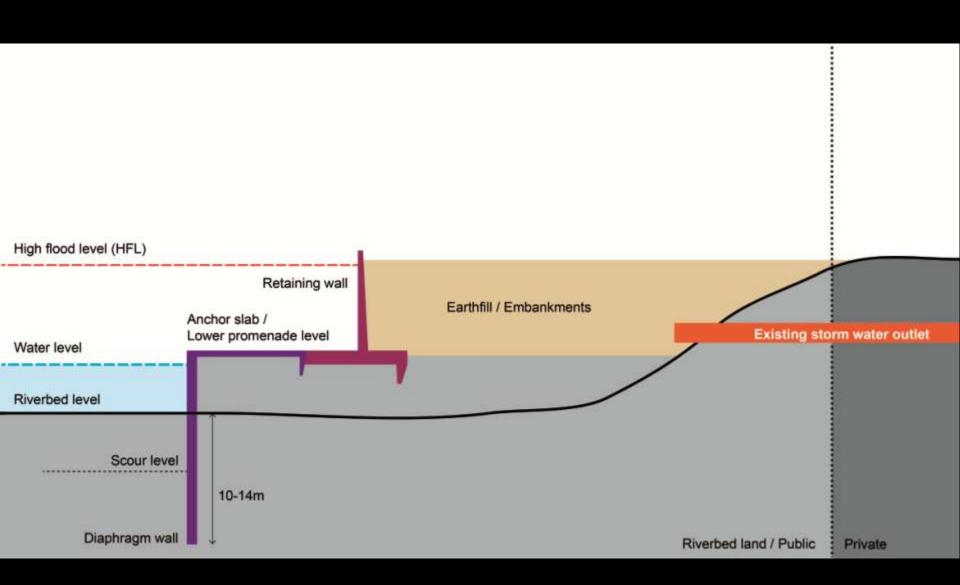




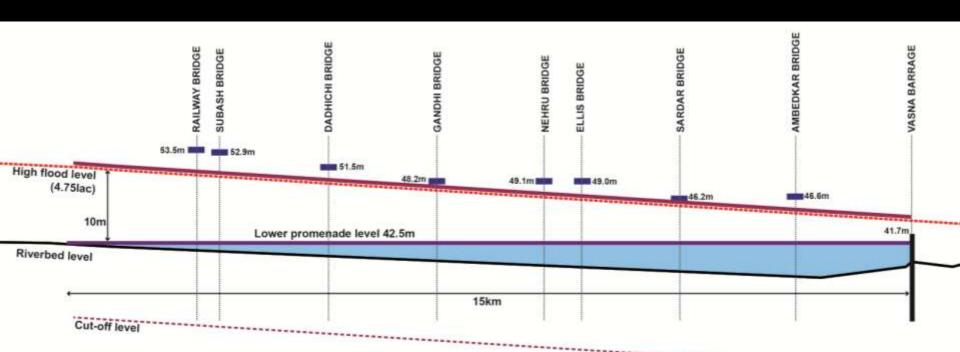
Diaphragm Wall and Anchor Slab



The Construction Process–Retaining Wall and Earth Fill



Retaining Wall



Retaining Wall and General Earth Fill



Retaining Wall and General Earth Fill



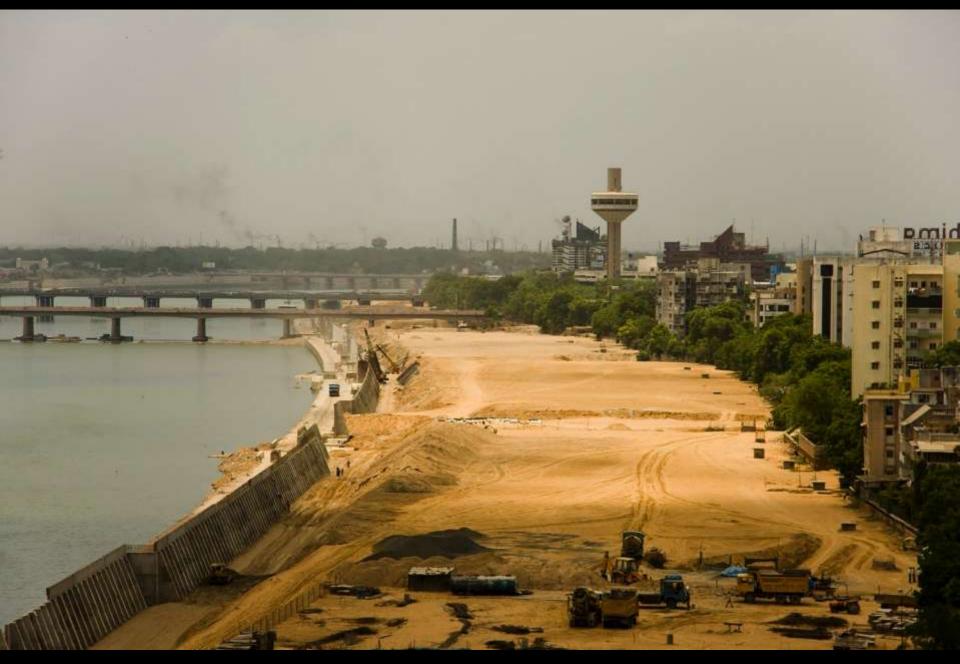
Retaining Wall and General Earth Fill



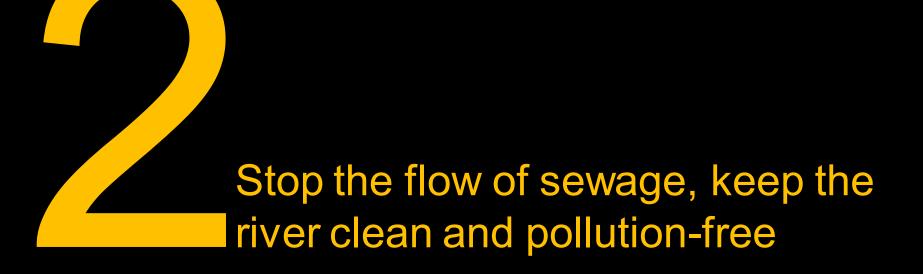
Retaining Wall and General Earth Fill



Retaining Wall and General Earth Fill





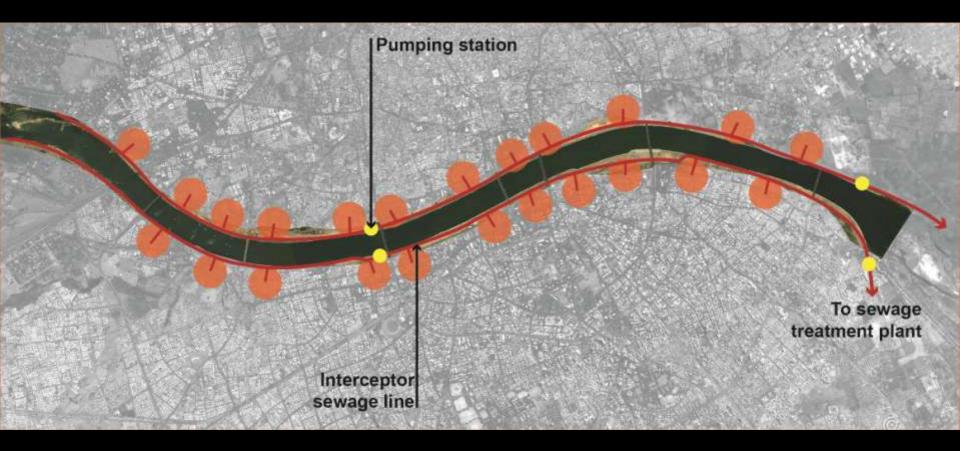


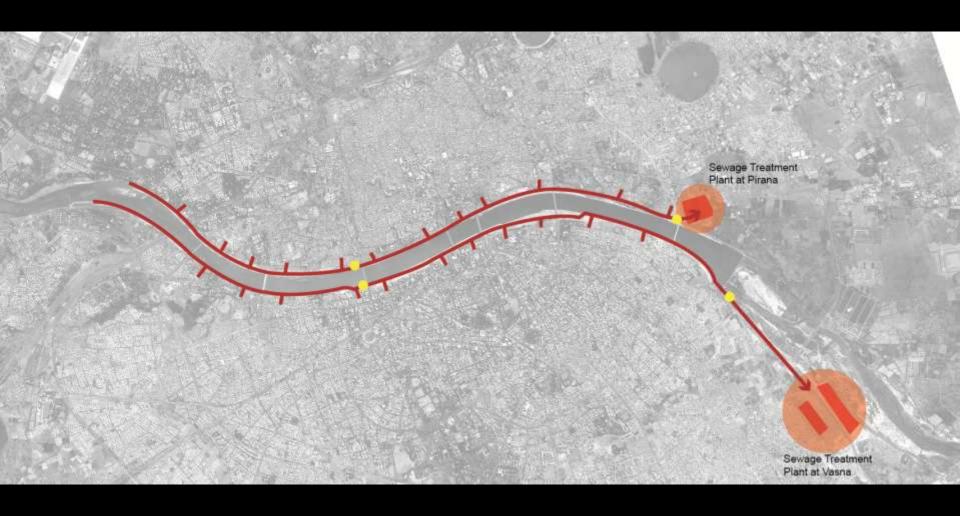


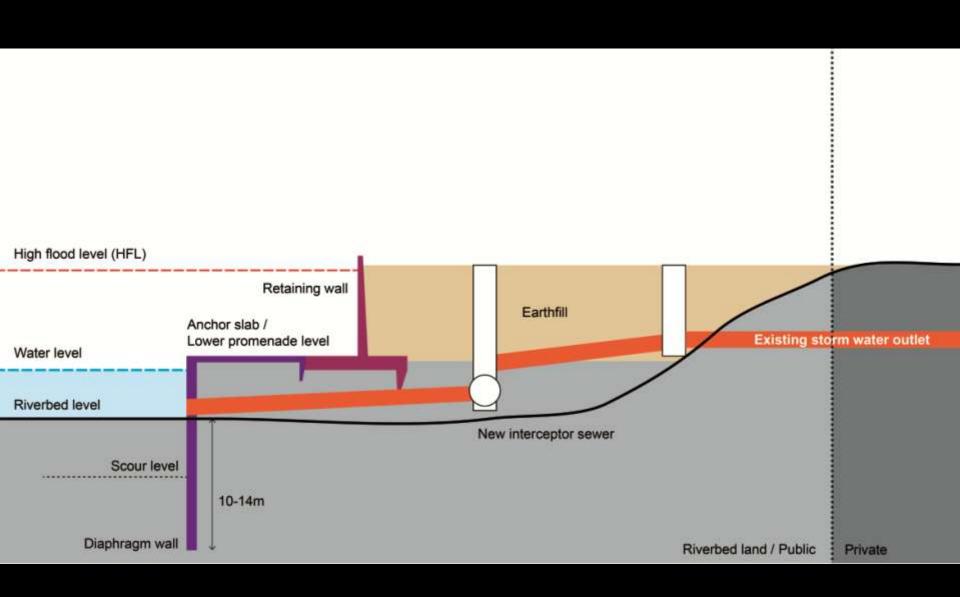












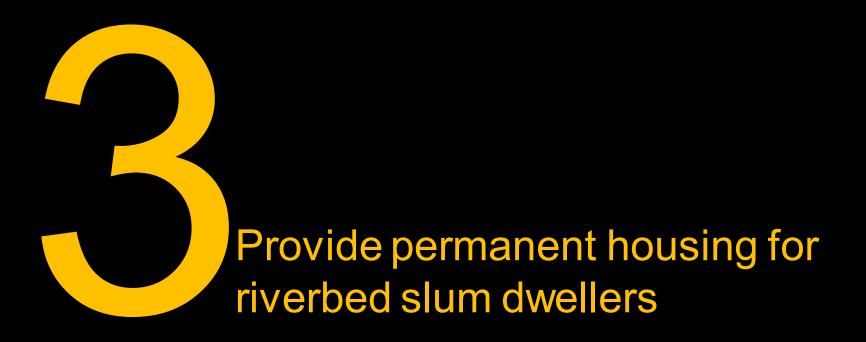
Interceptor sewage line being built



Interceptor sewage line being built





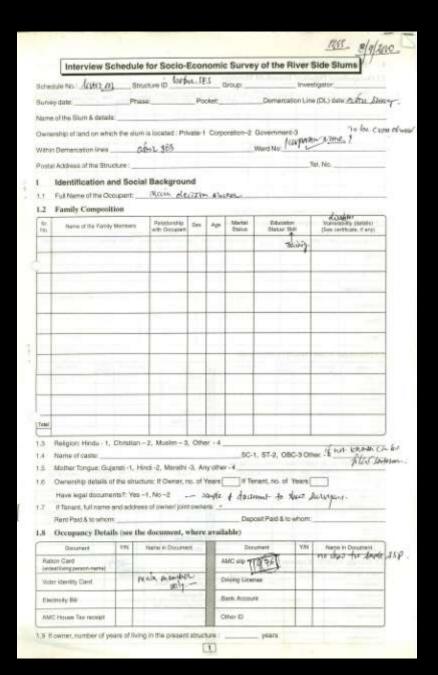








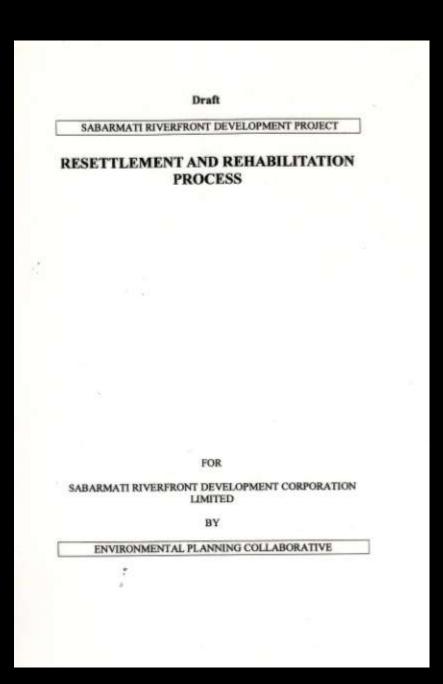
Relocation of Riverbed Slum Dwellers - Socio Economic Survey of Riverbed Slums

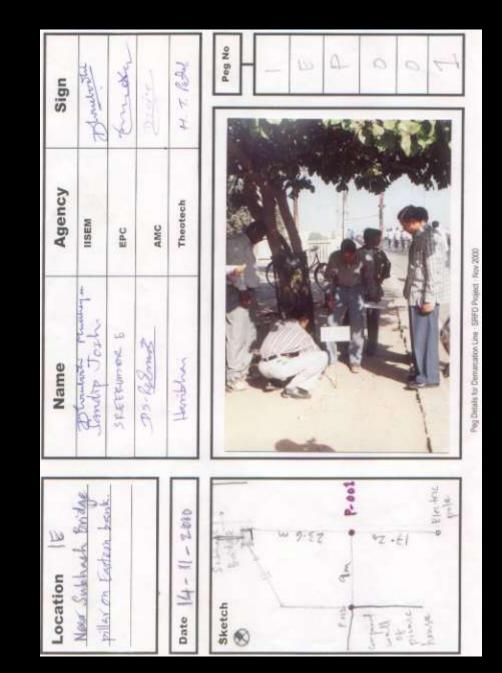




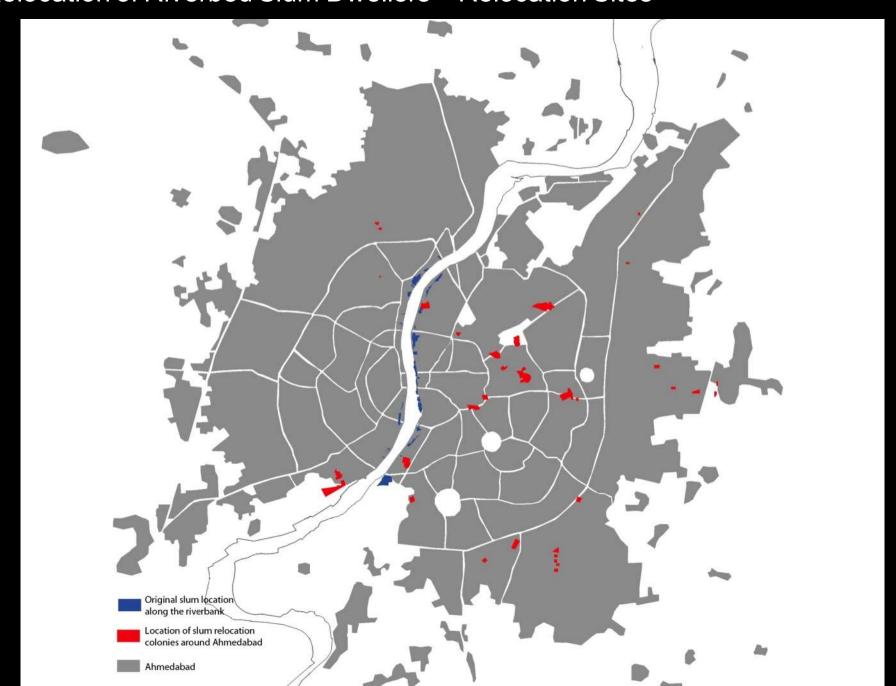


Relocation of Riverbed Slum Dwellers - Socio Economic Survey of Riverbed Slums





Relocation of Riverbed Slum Dwellers – Relocation Sites



Rehabilitate riverfront displaced: HC to AMC

TIMES NEWS NETWORK

Ahmedabad: The Gujarat High Court on Monday directed the Ahmedabad Municipal Corporation (AMC) to rehabilitate 4,000 families who have lost their homes on the riverbed due to the Sabarmati River Front Development project.

During a hearing on a PIL filed by three organisations against eviction of people living on the riverbed for the riverfront project, a division Bench of Chief Justice SJ Mukhopadhaya and Justice MS Shah asked the civic authorities to rehabilitate 4,000 families residing on the stretch between the Subhash Bridge and Ellisbridge to a rehabilitation site identified in Balol Nagar in Wadaj area. This



rehabilitation process of these people within two months and come up with a status report on March 8

The court has asked

AMC to complete

rehabilitation is the first phase of the shifting of affected people.

The court has asked AMC to complete rehabilitation process of these people within two months and come up with a status report on March 8. In the meantime, the issue of variation in figures of project affected people was also discussed during the hearing. While the

civic body claims that the project affected people are nearly 8,000 families, a study conducted by IIM-A and a people's forum — Nagrik Aadhikar Manch place the figure at around 20,000 families.

After hearing the dispute, the division bench directed the authorities to place complete scheme of rehabilitation for the River Front Development affected people. Giving the monitoring rights to the petitioners, the court also asked the authorities to include representatives of people's forum to coordinate rehabilitation process. In case of any dissatisfaction in rehabilitation work, the judges have asked the affected people to approach the court immediately.

In the scheme of rehabilitation, constitution of a committee under chairmanship of a retired high court judge to look after the shifting process was proposed in the plan. However, this is yet to take place. The dispute is also regarding the Sunday market that takes place on riverbed for centuries. The petitioners contend that they will also be affected by the project.

Relocation of Riverbed Slum Dwellers – Housing Allotment



Riverfront slum dwellers will soon all have permanent housing!



Households within project area: 5984 (as per 2002 survey)
Additional households approved by the Gujarat High Court: 5752

Total households entitled to a house: 11736

Cost of house: Rs. 12 lacs

Contribution of beneficiary: Rs. 66,900

Sites allotted for relocation: 29

Total number of households who have been allotted a house: 11196 Total number of relocated households: 8396 (30th August 2012)





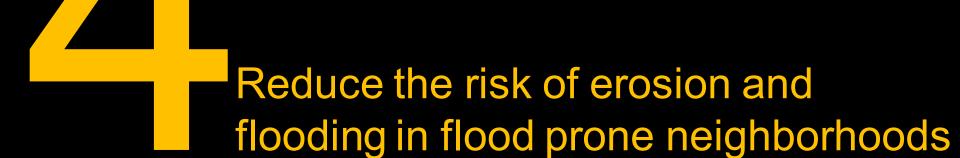




Relocation of Riverbed Slum Dwellers - Housing







The Sabarmati in Flood, 2006



Private Flood Protection Walls



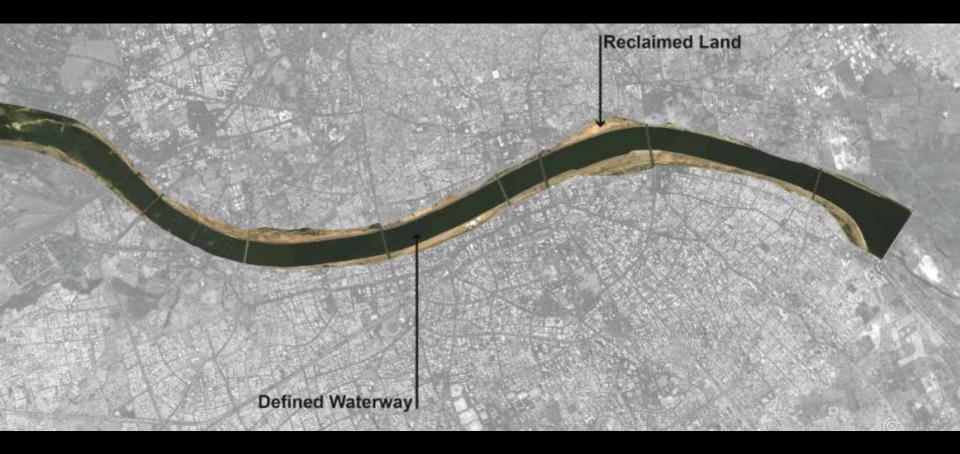


Private Flood Protection Walls



Contour Map of Ahmedabad

The Defined Waterway and Reclaimed Land



Risk of erosion has been eliminated and that of flooding in low lying neighborhoods has been significantly reduced!







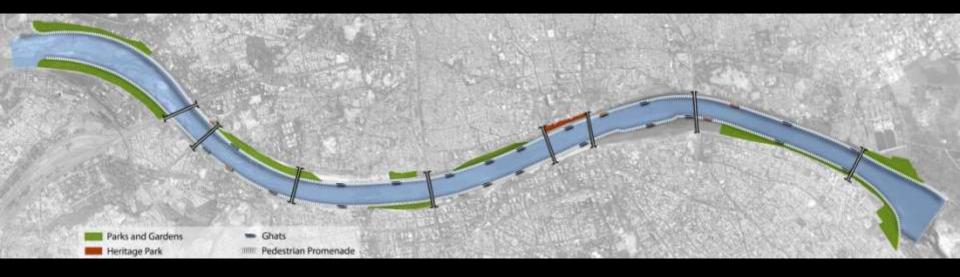








Parks, Promenades and Ghats



Park – Khanpur



Park – Khanpur



The Heritage Park – Lal Darwaza



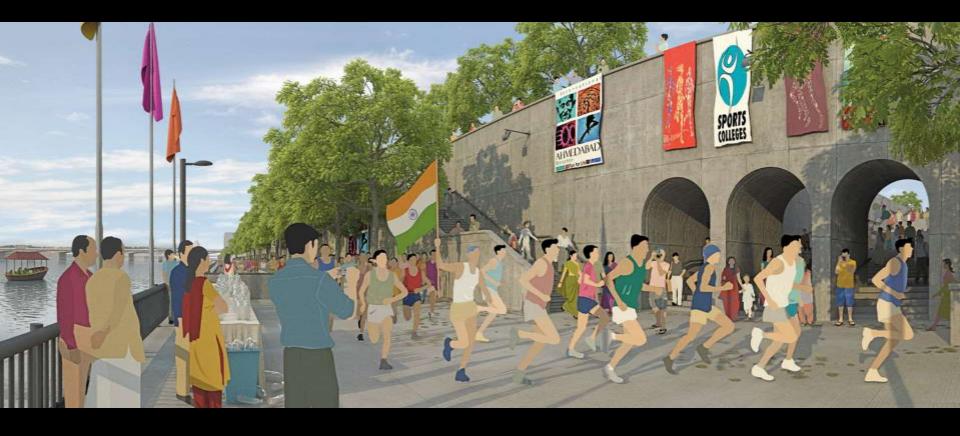
The Heritage Park – Lal Darwaza



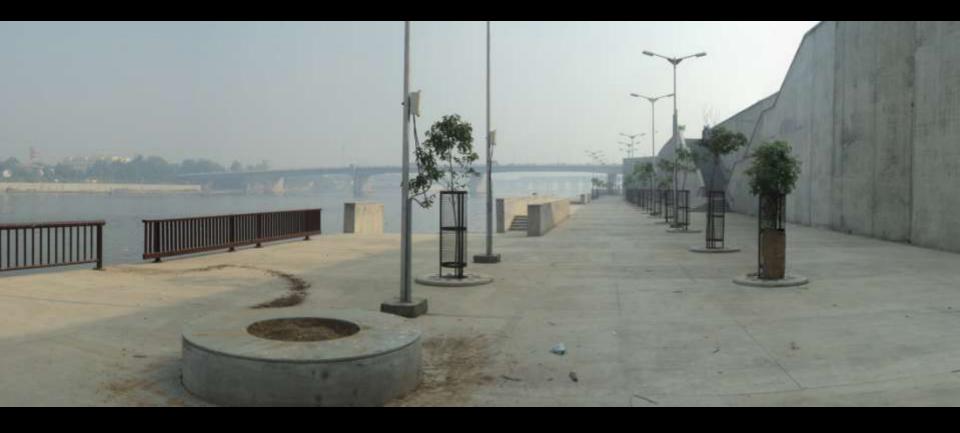
Lower Promenade – Ashram Road



Lower Promenade – Ashram Road



Lower Promenade - Shahibaug



Lower Promenade - Shahibaug











Gandhi Ashram



Gandhi Ashram



Pirana Sports Ground and Paldi Urban Forest



The Sabarmati Riverfront Project will add almost 10,00,000 sq. mts. of parks, promenades and plazas to Ahmedabad!



Lower Promenade – Shahibaug



Lower Promenade – Shahibaug





Lower Promenade – Kite Festival, 2012



Lower Promenade – Kite Festival, 2012



Lower Promenade – Kite Festival, 2012









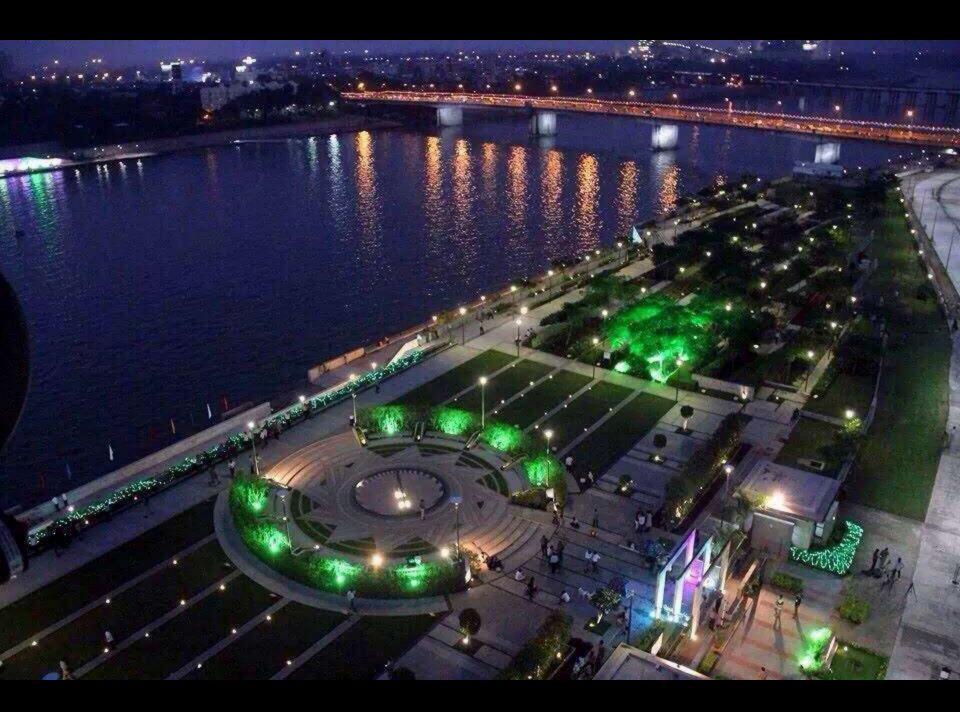












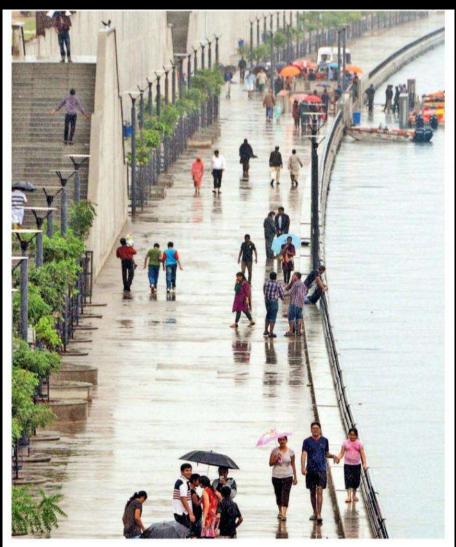


PROMENADE OF JOY

Bhadresh Gajjar



Amdavadis enjoying river breeze at the newly inaugurated Sabarmati Riverfront on Sunday



RIVERFRONT MUSINGS

Amdavadis were seen enjoying the weather at Sabarmati riverfront walkway on a beautiful Sunday morning, colourful umbrellas in hand. The visitors including senior citizens, couples and children celebrated the weather, singing, dancing and posing for the cameras they had got with them.

A brimming river reflected the joy in their hearts.





CLINICAL PSYCHOLOGIST



A beautiful

morning stroll at the newly-opened Riverfront. It is stunningly gorgeous in the morning as I have been for strolls there

earlier as well. With my hubby and son, I plan to go there with some corn preparations himaround.

The Riverfront has a nice pathway and benches where one can sit and relax. It is a place which is in the heart of the city, yet away from all the hustle and bustle.



Washroom zen

ANERI PANCHAL AND RICHA G

RIDLE PIG SPACE college reach more

Where would you go for last man-us revisions before a ling enses or test? For Amer: Penchel en diriche G, students of lifered arts, it is the resultroom of the Pandit Drendand Petroleum Chargestry (PDFC).

They make the modes a conductable on the walldoon platform a they recise their leastern Arent and, "Once, we went to the wall-room of the college before the exact. At we were personal, we contimed realing even as we entered the washoom: and suddenly we reaked

THE R. LEWIS CO., LANSING MICH. P. LEWIS CO., LANSING MICH.

that it was the ideal place for us. There were not many people there undit was percelul."

Azum addied, there are several students who love to read as the partry or the contren or under the items

"Once you find your york, you see all exited our. No reds are the best because constitues a large rander of people patter in a student's more and there is a group study ession. The interaction and things you learn in a group is billulous," the said.

Positive vibes

TRISHALI CHAUHAN, 1%

SY 98A, B.W. Marrunder (set But a Or. Dods ess Administration READ PAGE SPACE: Reconstitled



n hale's favorance goot to study is her childhood soons, full of shiffed toys. But these toys see a lot succe than put renonders of her childhood. According to Tracticals, the staffed tops give her a sense of proce and confidence. Some thank that the idea is perposterious. But I have always full that the pressure of my studied toys help our study better, " she suid.

Industrial and, "These yever had a paraattack before/ during/after my memories those. My soft toys calminate down it is my adir bayen.

Studyall is often housed by Yes brother. for her chies son, with loft flow. But that, down't bother but. The thinks I am craig But them toys give son positive energy."



Study Having a study area with an old table and

chair with a soft board on the wall is such a passé, Now-a-days, students choose the 'perfect' study spaces that calm their nerves and belp them focus, find out HIYAYI RANA

Perfect ambience

MK, Coptak Harratura, IGHEN PEASING SPACE Television Program

For most Arminodia, Informati Fronticest is a place to convent with handly as different. Jones we letter norman, you'de and an occasional rate. To this Anilists, it is fer perioded what's spot. The prefers the creeks behand the VI Hoopital. A makes of Stucket in contrary, that out Q. No. I have to send power and wetch plays, becatiful ambience at the creedinal - the setting yes, chapping of back and sedling by the water in the perfect study architected in the Lindson, whenever I read. here, it not only books my confideve by six helps we mappe and under hand," what's works for a RPO und to the gets time only on wednesds to go to own

On weekshop, due sticks to her rooms, want to adornot to notich plays online and refer to online respected Bywales for 12 sygrester on her two wheeler to drive from Victoria Clede to Riverbook Sive. pends resulty test factors is day of the inwitions, wadaugitation.

The said, coasts want the place with common to do places shout, to walk and do creative activities and so it with to the channel the Hom book.

In lap of nature

Engratured, U holitate of Technology #1043 PM SPACE Section of garden

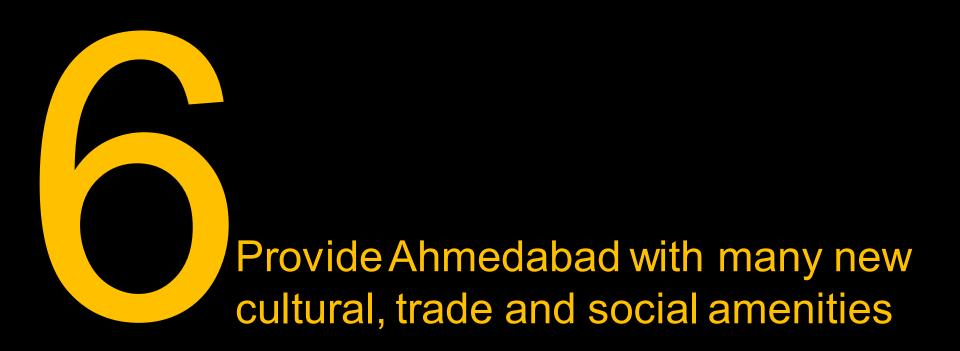
he life of an expressence student to her to, full of countless sudgiments and projects to when it come to choosing his personal shady spece, he got a lot of thought into it. The mechanical engineering student transformed bus badayand into a exist-garden. which he uses white 'muly sport

Thave abects schedule with lots of assgument and projects. So, when I sit down to study, I like peace and quest and lots of finds as: There are not many places in the city where you can find each spots 301 maked one right as my backpard."

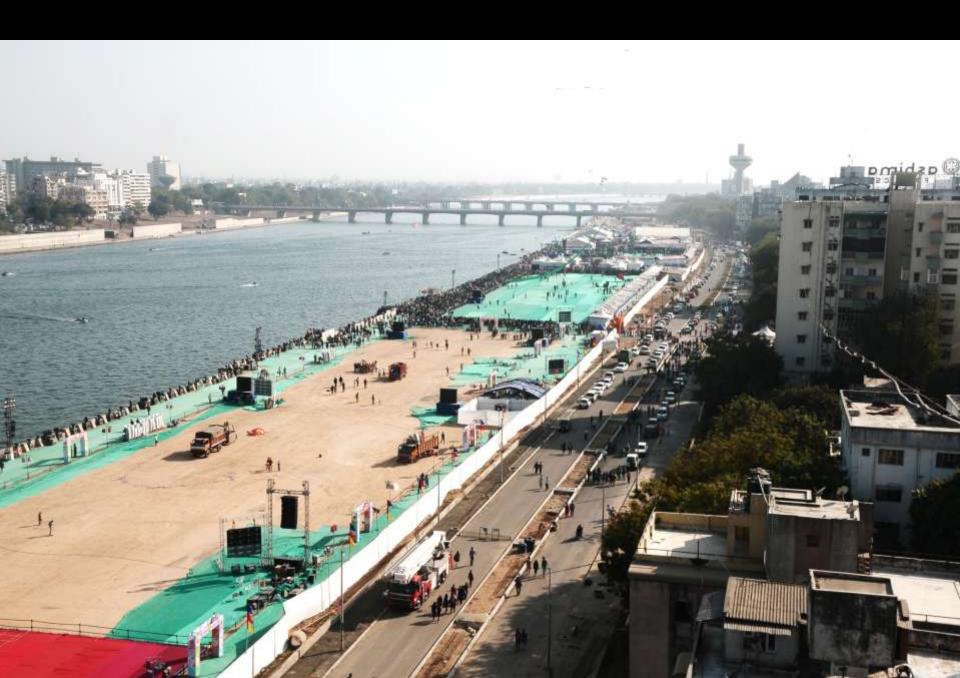
Redat has placed several potted plants, a coming and a table in the garden. According to have, atting in the open with a light bream and quart helps have focus. He seed, "This place has a coloning effect on me. What I study here, I lied at prace studi early receive ber all that I shally been I have been straffying here for

Reductively particular of his multi-spot and preconsider themse the space and maintains it. He has also hept the space is no will note to ensure these are no

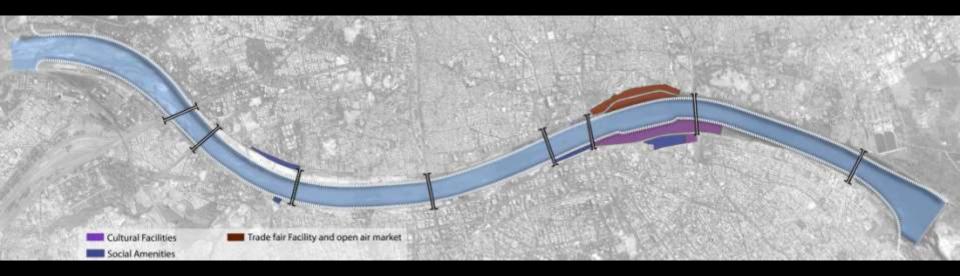




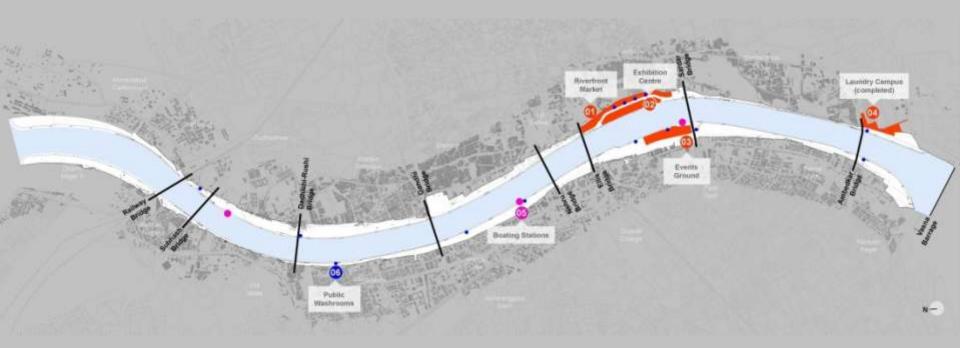
Temporary Event Ground Between Gandhi & Nehru Bridge



Cultural, Trade and Social Amenities

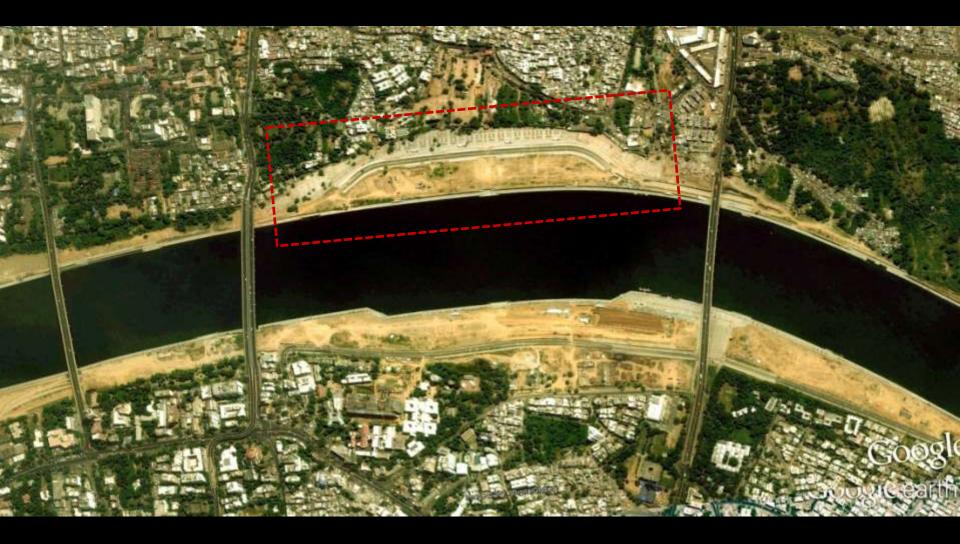


Cultural, Trade and Social Amenities

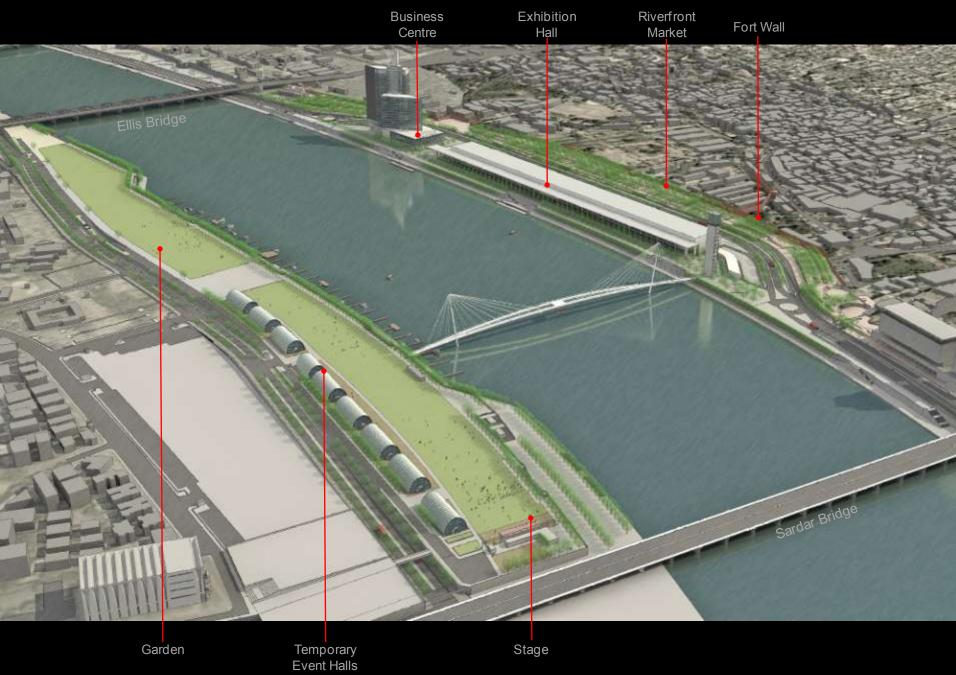








Overview of the Event Ground



Trade Fair Complex – View from River



Riverfront Market – Service road and Access



Riverfront Market – Service road and Access



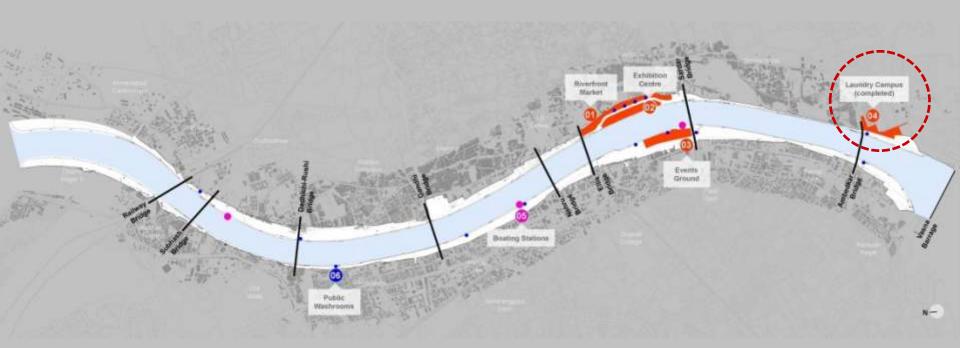


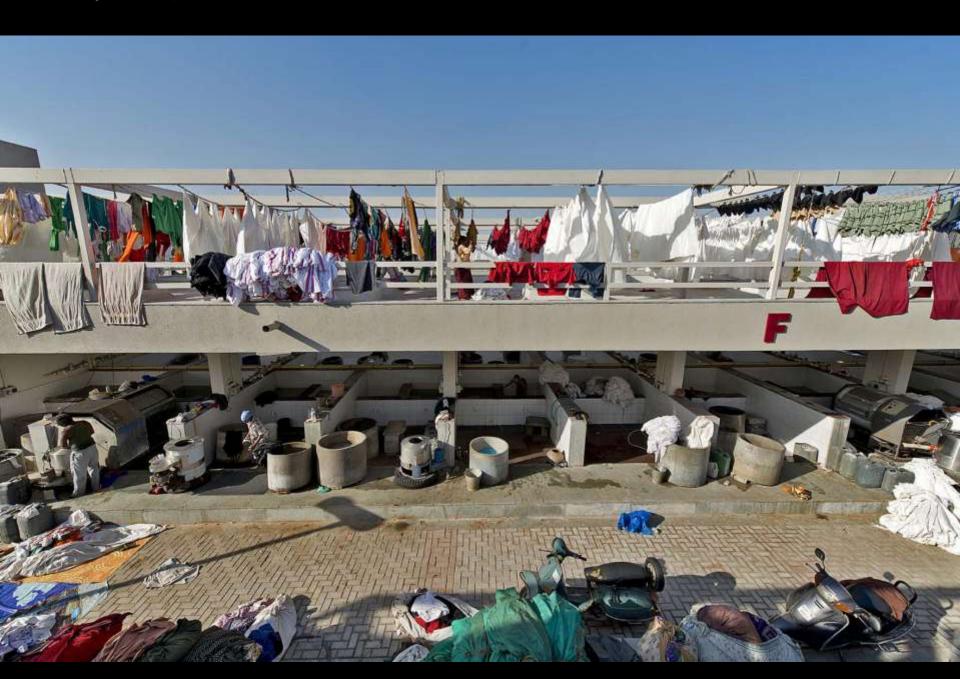


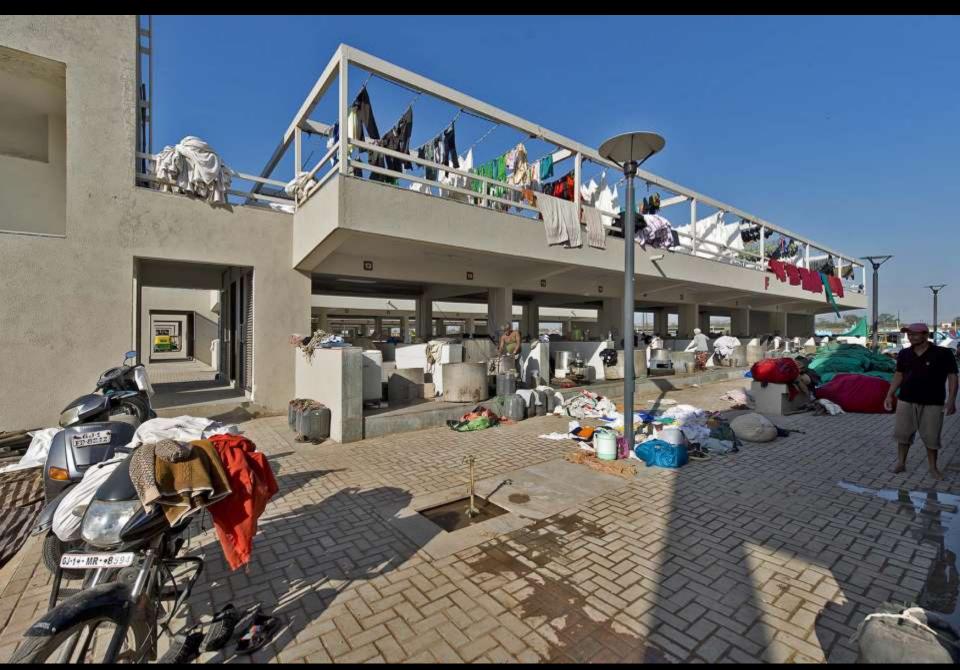


Informal Market at "Delite-Junction"











The Sabarmati Riverfront Project will help provide Ahmedabad with many new cultural trade and social institutions!

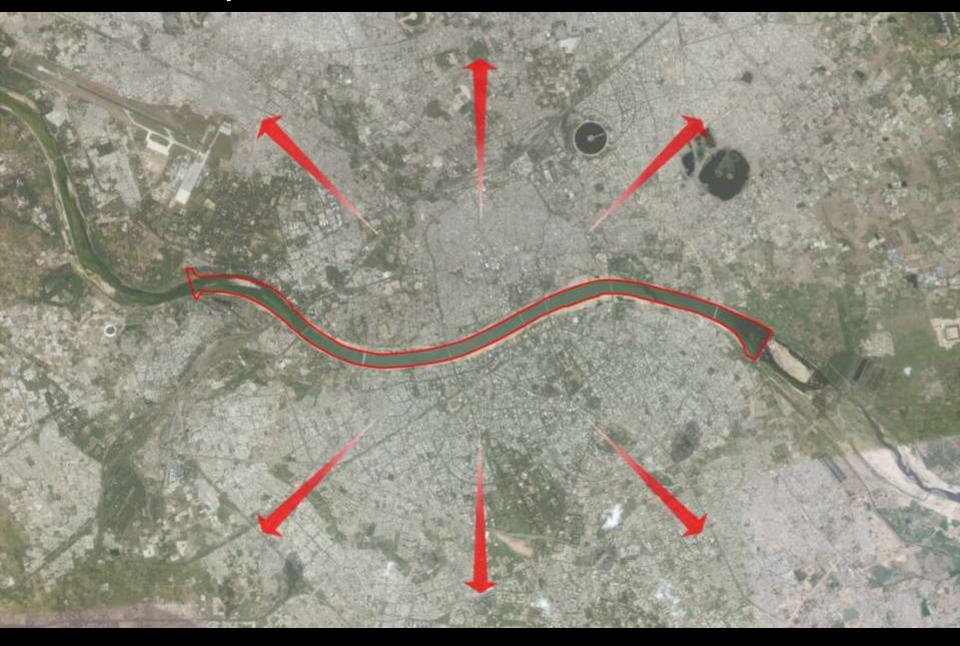


Revitalize riverfront neighborhoods Rejuvenate Ahmedabad

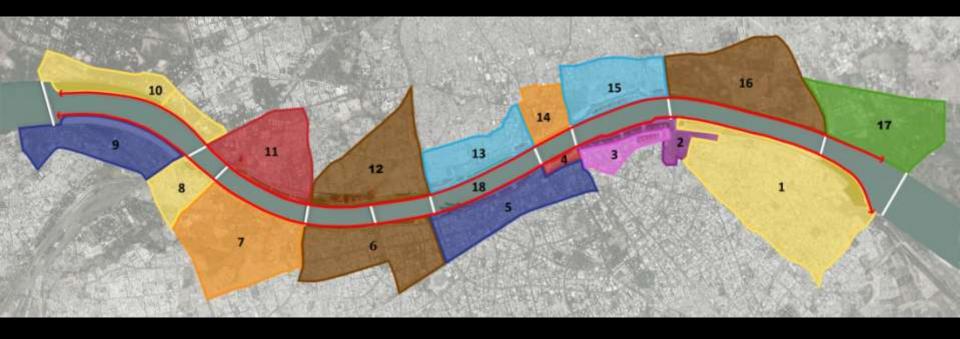
The Riverfront Project can transform all of Ahmedabad . . .



The Riverfront Project can transform all of Ahmedabad . . .



Planning Precincts



- 1. Paldi Residential Neighborhood
- 2. Cultural Mile
- 3. Health-care Hub
- 4. B J Park Institutional Precinct
- 5. Ashram road Business District
- 6. Ashram road Mixed Use Precinct
- 7. Gandhi Ashram Heritage Precinct
- 8. Sabarmati Residential Neighborhood
- 9. Sabarmati Redevelopment Precinct

- 10. Shahibagh Residential Neighborhood
- 11. Shahibagh Institutional Precinct
- 12. Dudeshwar Mixed Use Precinct
- 13. Khanpur Mile
- 14. Lal Darwaza Heritage Precinct
- 15. Fair and Market Precinct
- 16. Calico Redevelopment Precinct
- 17. Pirana Precinct
- 18. Lower Promenade

Planning Precincts – Ashram Road



Planning Precincts – Ashram Road

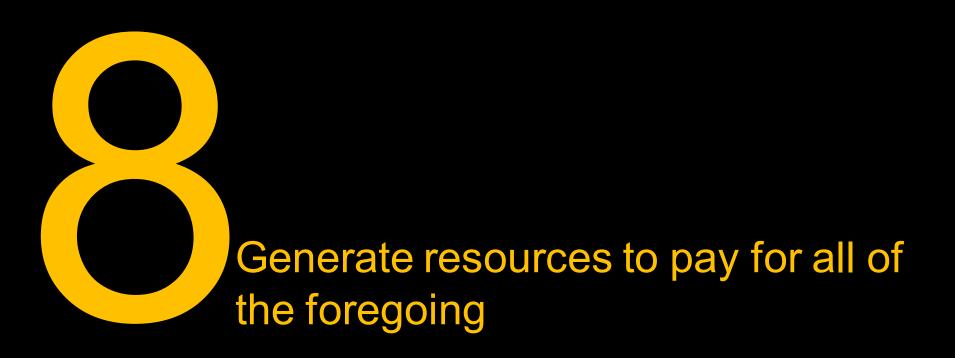


Planning Precincts- Shahibaug

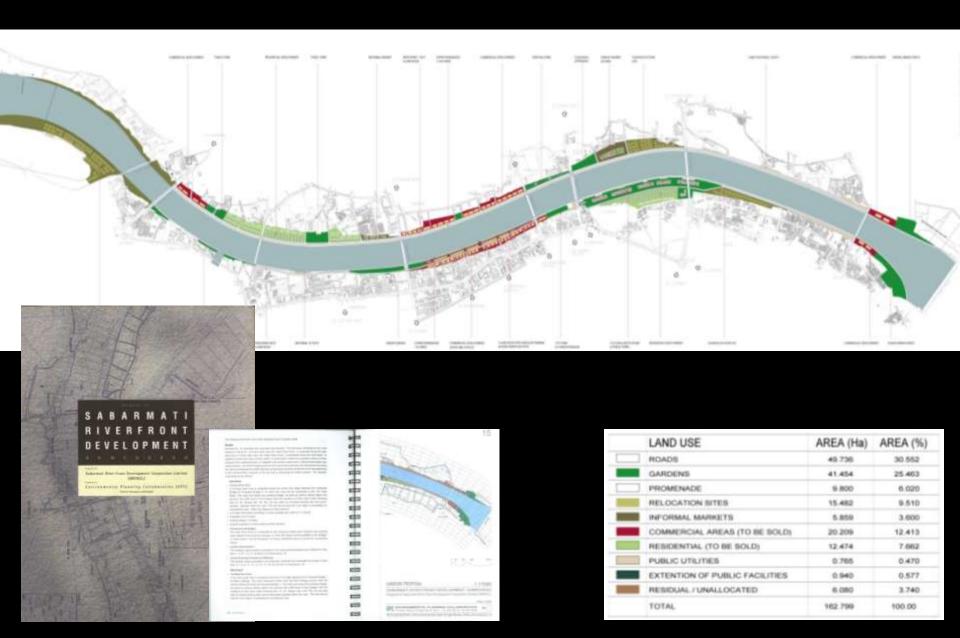


Planning Precincts- Shahibaug





Masterplan Proposal (Landuse) - 1998



The 1998 proposal – Project Cost and Revenue Potential

C1 PROJECT COSTS AND REVENUE POTENTIAL

This section and Drawing No. 29 present preliminary cost estimates and a preliminary estimate of the revenue potential.

Project Costs

At this stage of work the various SRFD Proposals have only been schematically defined. Its arrive at the preliminary base cost estimate for the project, at various places, it has been necessary to use approximate quantity estimates. It has also been necessary to make assumptions regarding the eventual design of various components. Unit rates used to derive costs are based on these assumptions and prevailing market conditions. On account of this the project cost may vary when detailed design is undertaken. Effort has been made to include all foreseable costs. Wherever it is not possible to estimate costs at this stage, it has been clearly indicated. Calculations for quantity estimation, design assumptions, and the sources used for determining unit costs have been adequately documented and are available with EPC. A value engineering exercise will be carried out in the next phase of work.

Preliminary cost estimates for the different components of the project are presented below. Drawing No. 29 shows the location of item numbers 7, 8 and 10 to 14.

No.	Barn	Quantity	Unit	Unit Rate (Rx)	Amount (Rt Crores)	Hem Total (Rs Crores)
1	Earthfiling	11,372,008	ou m	40	45.49	45.49
2	Retaining Wall (iff earth +cc panels)	135,000	eq mi	2,123	28.66	28.66
3	Parapet wall	18,000	m	0,928	16.07	16.07
4	Disphragm wall	18,000	. 100	45,908	82.63	82.63
5	Bridge anchoring	166	girtler	1,19,000	2.07	2.07
6	Bridge foundation garland blocks	1,090	cu m	3,000	6.33	6.33
7	Water Supply					
7.1	Mains (xest)	8,774	- 10	7.544	6.62	
7.2	Mains (west)	7,590	- 100	7,544	5.73	
7.3	Branch lines (east + west)	4.000	100	054	0.38	12.73
8	Severage					
0.1	Trunk sewer (east)	11,758	per.	1.600	1.08	
8.2	Trunk sewer (west)	10,604	en:	1,300	1.38	
n.3	Branch lines (east + west)	4,000	-	500	0.20	
8.4	Man holes @ 30m ot:	746	No.	20.000	1.49	
8.5	Pumping stations		No.	1000,000	0.80	5.75
9	S.W. drain extensions					
9.1	Slab culvert (west)				2.02	
9.2	Slab culvert (west)				1.62	
9.3	Pipe culvert (west)				0.06	
9.4	Pipe culvert (west)				0.17	
9.5	Stilling basin	24	No.	1,31,760	0.32	4.18
10	Roads					
10.1	L1: Carriageway (east) (8400x21m)	176,400	sq m	725	12.79	
10.2	1.1: Footpath (wast) (8400v15m)	126,000	act to	700	8.82	
10.3	L2: Carriageway (west) (5800x14n)	95,200	142 70	725	6.90	
10.4	LZ: Footpath (west) (6800x16m)	108,800	aq m	700	7.62	
10.5	L3: Carriageway (3680x10H)	36,600	842 76	725	2.67	
10.0	L3: Footpath (3680x5m)	18,400	aq m.	700	1.29	
10.7	L3: Out-de-sac	3.500	eg m	725	0.25	47.34

Revenue Potential

It is proposed that approximately 21 percent of the reclaimed land (34.6 ha) be sold for residential or commercial development. To estimate the revenues that are likely to accrue from the sale of land, a systematic analysis of land prices along the riverbanks during the last five years was undertaken. Based on this and the proposed development of infrastructure and other facilities on the reclaimed land a forecasting exercise was carried out. Each parcel of land for sale was treated separately – therefore each parcels location, new facilities and existing developments surrounding it, and potential for development were taken into consideration.

The table below shows the revenue estimated from the sale of the tand. Drawing No. 15 shows the location of the various parcels of land.

No	Location of Parcel of Land	Proposed Landuse	(sq m)	Estimate Land Price Rateq m	Extimate Revenue Rs Crores
6	Between Subhash Bridge and Proposed Bridge 1	Commercial	33,246	10,000	33.25
ZE.	Between Proposed Bridge 1 and Proposed Bridge 2				
æ	Between Proposed Bridge 2 and Gandt's Bridge	Plesidential	20,441	6,000	12.26
4E	Bielsean Gandhi Bridge and Nehru Bridge	Commercial	\$2,300	15,000	78.45
56	Between Netro Bridge and Ellis Bridge				
33	Between Ellis Bridge and Sardar Bridge				
7E.	Between Banlar and Proposed Bridge 3	Commercial	11,992	5,000	6.00
AE.	Between Proposed Bridge 3 and. Vision Barrage	Commercial	10,779	5.000	5.39
	Subtotal		128,758		135.35
TW	Between Subheat Bridge and Proposed Bridge 1				
244	Between Proposed Bridge 1 and Proposed Bridge 2				
344	Between Proposed Bridge 2 and Gandris Bridge	Commercial	3,040	7,500	2.28
411	Between Carothi Bridge and Notes Bridge	Commercial	89,940	20,000	179.86
5107	Sebesson Nehrs Bridge and Ellis Bridge	Commercial	758	20,000	1.52
sw	Between Dis Bridge and Sander Bridge	Residential	104.302	12,000	125.16
TW	Between Santar and Proposed Sintge 3				
mv	Between Proposed Bridge 3 and Vasna Barrage	Commencial	19.539	7,800	14.65
	Subtotal		217,579		373.49
	Total		346,337		458.84

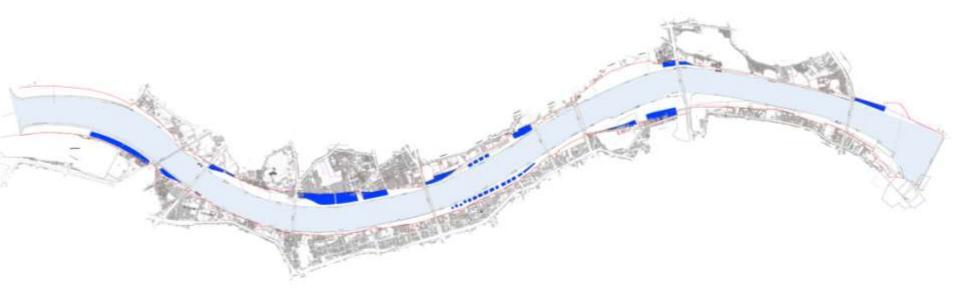
It should be noted that the cost of capital (interest on the loan funds) has not yet been added into the project costs. The entire costs mentioned in the above table on costs will be spread over a period of 5 years. The revenues estimated from the sale of land are likely to accrue over a longer period of time. The revenues would be dependent on a number of factors namely, the completion of the reclamation works, construction of embanisments, provision of infrastructure services and establishment of major connecting roads. These factors are listed for each salesble percel of land in the table next page.

Proposed Landuse – June 2010





Saleable Land – SRFD Project



Total Amount of Land – 2,97,119 sqm

Total Floor Area (Construction) – 9,52,268 sqm

Total Revenue – 1500 Crore

Project Cost – 1103.42 Crore

	S R F D C L Area Statement of Proposed Draft Land use								
No	Proposed Land Uses	Area (Sq.m.)	Area (Ha.) 40.36	% 19.69					
1	Roads	403562.36							
2	Garden	274585.49	27.46	13.40					
3	Opne Space	376610.71	37.66	18.38					
4	Public Purpose	281812.29	28.18	13.75					
5	Lower Promenade	273892.72	27.39	13.37					
6	Multi Use (For Sale)	297119.07	29.71	14.50					
7	Sports Purpose	67380.52	6.74	3.29					
8	Public Utilities	8360.27	0.84	0.41					
9	Residential Zone-I (Residual)	7988.55	0.80	0.39					
10	Commercial Zone-I (Residual)	55937.53	5.59	2.73					
11	General Industrial Zone (Residual)	916.14	0.09	0.04					
12	Educational Zone (Residual)	822.92	0.08	0.04					
13	Burial Ground (Residual)	108.44	0.01	0.01					
	Total	2049097.00	204.91	100.00					

Commercial Development – Sardar Bridge



Commercial Development – Khanpur



Commercial Development – Subhash Bridge





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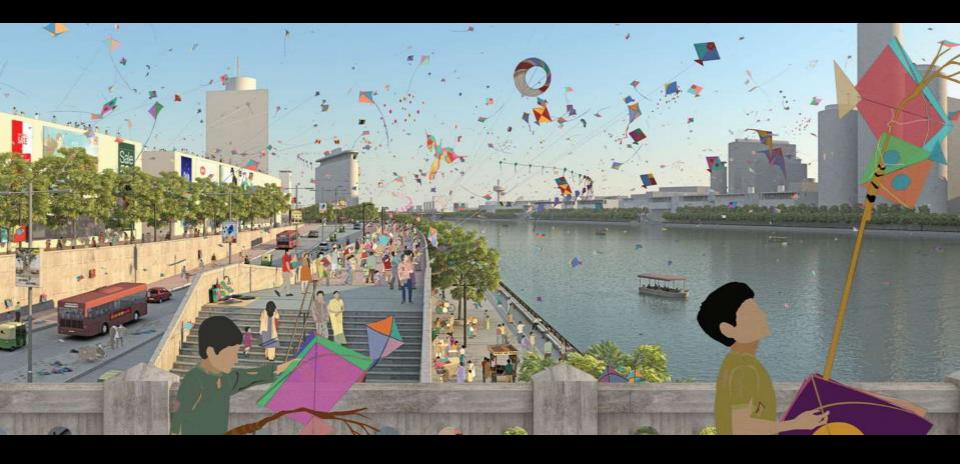


















This city will be known for bringing the Sabarmati back to Ahmedabad and for bringing Amdavadis back to the Sabarmati

THANK YOU