

Waterfront Development: A Case Study of Sabarmati Riverfront

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ABSTRACT

The water has a potential to make cities as a cultural and heritage hub. Every tourist that came to the city will pass the river, so by developing the river in a beautiful way that attracts the more people to visit the place and that increase the revenue. In this paper, the case study Sabarmati riverfront at Ahmedabad is discussed. The main concern is to decrease the river pollution, protection from flood and increase the tourism. The development of the river bank has the area of 202 ha. that cover the area from cantonment area to vasna barrage.

KEY WORDS: *Waterfront; River; Ahmedabad; Tourism development.*

INTRODUCTION

Waterfront is a place where urban development and water interact, and defined as a unique and irreplaceable resource where land, water, air, sun and productive plants interface with each other. It is also defined as a place of integrating land with water and also having a characteristic of natural attraction to people. Any development takes place in fronts of water or water body like river, lake, ocean, bay, creek or canal is term as a waterfront development.

In the present scenario, the waterfront development is a global trend. Nowadays, thousand of schemes for water development are being carried out in all over the world. The principal function of waterfront can be classified as below:

- **Natural waterfront-** encompass beaches, wetlands, wildlife habitats, sensitive ecosystems and water itself
- **Public waterfront-** concluding parks, esplanades, piers, street ends, vistas and waterways that offer public open space and waterfront view.
- **Working waterfront-** where water dependent, maritime and industrial uses cluster or where various transportation and municipal facilities are dispersed.
- **Redeveloping waterfronts-** Where land uses have recently changed or where vacant and underutilized properties suggest potential for beneficial change.

The waterfront can also be classify based on the source of water in the city as Riverfront, Lakefront, and Seafont.

Need for Waterfront Development

Due to increase in urbanization and industrialization, many cities/towns faces minimum avenues for recreation and open spaces. A developed waterfront provides access to new recreation opportunities and awareness of natural aspects of river life to residents. This utility will attract exceptional new high standard investments, and motivate people to approach water that was once lost during the century of industrialization. Most importantly, a central and vibrant waterfront perform services to resident and visitors in shared adventures of the city.

General Principal of Waterfront Development

- Linear development of waterfront interconnected with broad public access
 - As a daily consumer path and recreational amenity, the use of riverfront greenway is encouraged.
 - Illustrating the connection between access, greenway development, and market demand.
 - Creating a logical and visually pleasing order to the water's edge.
- Protection and improvement of the natural riverfront environment
 - To preserve environmentally diverse the ecological state of the waterfront is documented.
 - To prevent and eliminate inappropriate use from river's edge.
 - To protect existing natural areas from development.
- Retrieve the identity of city as one of the most preferable water cities
 - Raising public expectation of what the city's waterfront offers.
 - Attracting people, investors and best aspect of urban living to the waterfront.

CASE STUDY: SABARMATI RIVERFRONT DEVELOPMENT

KPMG (Klynveld Peat Marwick Goerdeler), one of world's top advisory firms has included Sabarmati Riverfront Development Project in '100 most Innovative Projects' in the field of urban regeneration (2012) that make cities livable as well as sustainable. Ahmedabad Municipal Corporation (AMC) received HUDCO National Award 2012 for innovative infrastructure development for the riverfront project. The project consists both banks of the Sabarmati for a 10.5 km stretch, creating approximately 202 hectares of reclaimed land. There is a water management system for minimizing flooding and clean up the river with new sewage treatment infrastructure.

The Sabarmati River Front Development Corporation Limited (SRFDCL) is established in 1997 for the development of the riverfront in the city. (1) SRFDCL reached out to a number of NGOs and citizen groups for planning and implementation. The process of implementation was done by build, maintain, operate and transfer. SRFDCL appointed Independent Third Parties to supervise the private sector contractors who were selected on fixed time and rate. The fund for the project is set out by different sources that are equity capital, loan fund and proceeds from land sales.

Riverfront Land Use

The proposed development is of mix land use that includes commercial, recreational and residential developments within the both side of river bank from Gandhi Bridge to Sardar Bridge.

Table 1 Land use of Sabarmati riverfront

Sr. No.	Sanctioned Land Use	Area Sq. m.	Area Ha.	%
1	Road	4,44,378	44	22
2.	Garden	2,74,585	27	14
3.	Open space	3,71,198	37	18
4.	Public purpose	2,88,875	29	14
5.	Lower Promenade	2,66,462	27	13
6.	Multi use for sale	2,94,083	29	14
7.	Sports	72,503	7	4
8.	Residual (Utilities, Residential, Commercial, General, Education)	15,787	2	1
	Total	20,27,871	202.8	

(Source- <http://www.sabarmatiriverfront.com>)

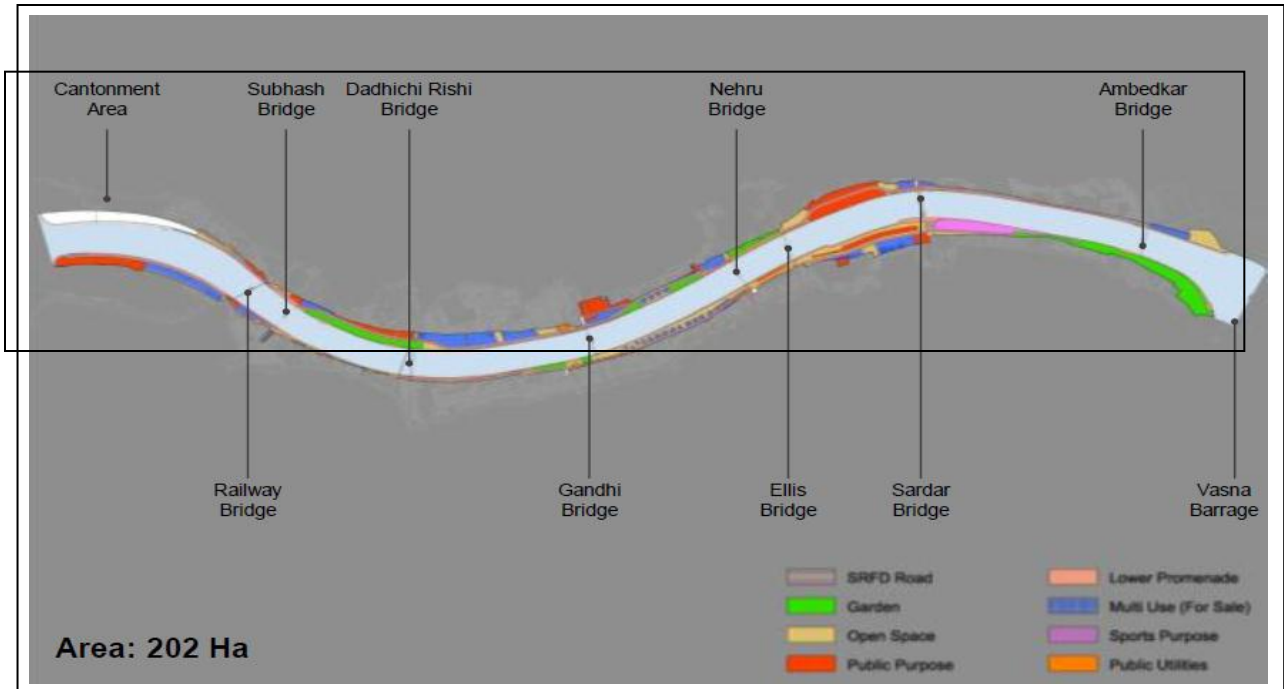


Fig. 1 Land use map

Development in Different Sector

The major component of the project concludes embankment and reclamation works, construction of road and installation of infrastructures such as water, sewer network, storm water drainage, etc., resettlement and rehabilitation work, construction of promenades and garden and maintenance of public spaces.

(Source- <http://www.sabarmatiriverfront.com>)

Rehabilitation of Slum Dwellers

There were around 12000 hutments on both side of river bank that cover nearly 20% of the critical project area. More than 10000 families are allotted with houses for resettlement, and 9078 odd families have already been shifted. Each house is of 26.77 sq m carpet area. Commonly the relocation of a slum is provided on the outskirts of the city, but in this case, it is located near to the prime location of the city.

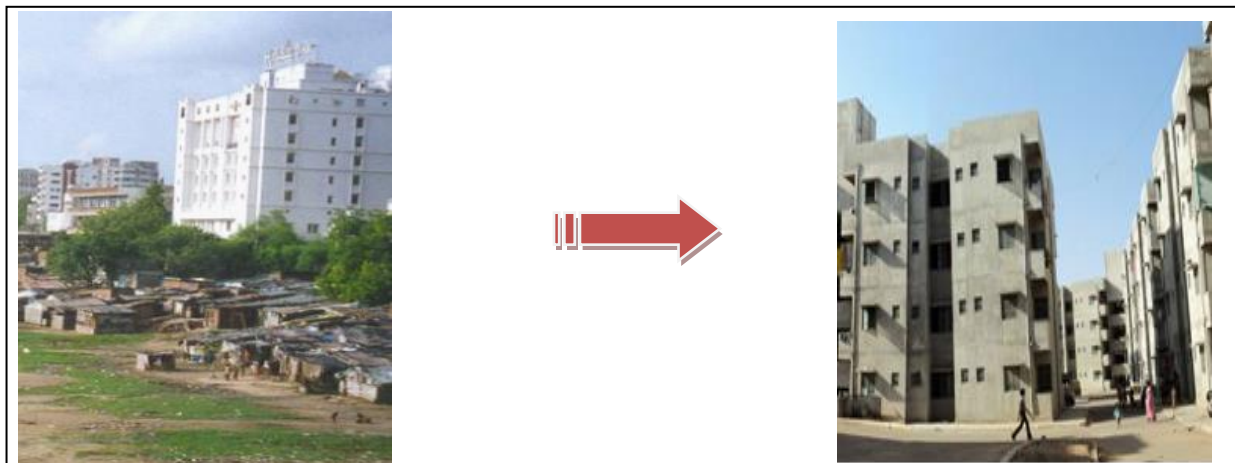


Fig. 2 Development of slum dwellers

(Source- <http://www.sabarmatiriverfront.com>)

Gujari Bazar - Sunday Market

It is an age-old Sunday market, where 40% of traders were women and half of them describe themselves as Dalits. It was unhygienic and also there is a risk of

flood in monsoon. Now, it is spread over 70.00 sq.mt area, and 1600 vendors can do their business on 788

pucca platforms and 783 laris.



Fig. 3 Development of Gujari bazar

(Source- <http://www.sabarmatiriverfront.com>)

Dhobi Ghat

Around 172 Dhobis were using both the bank of the river for washing activities. On the eastern bank of the river near Vasna Barrage is constructed as dhobi

ghat spread over approx. 9400 sq.mt area has utility area of about 600 sq.mt. There are seven blocks in modern Dhobi Ghat, and each block has 24 units with well-developed water supply and drainage system with a water meter for inlet watering.

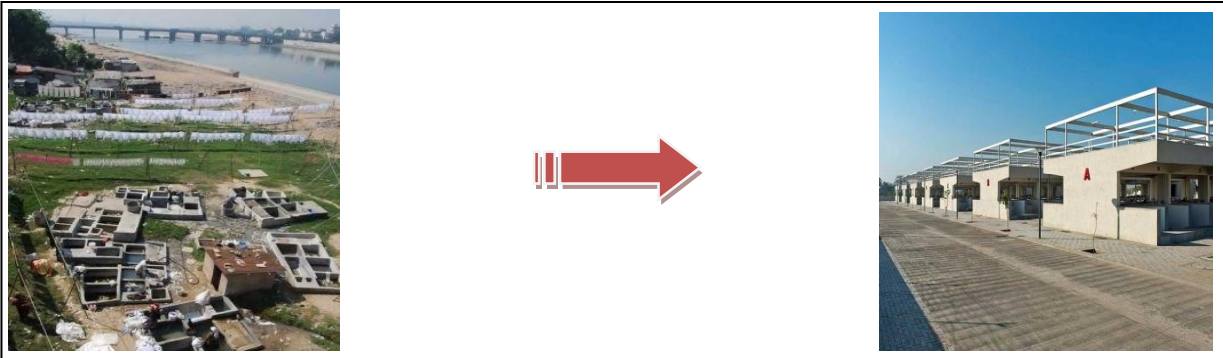


Fig. 4 Development of dhobi ghat

(Source- <http://www.sabarmatiriverfront.com>)

Event Area

Earlier the dry river bed was used to host events like circus and cricket etc. However, a mega city like Ahmedabad requires a proper event management

ground facilities. So that an area of 60.00 aq.mt, spread between Sardar Bridge and Ellis Bridge on the west bank has been designed for hosting events such as the Kite Festival, the Marathon, the Cyclothon and Garib Kalyan Mela are organized.

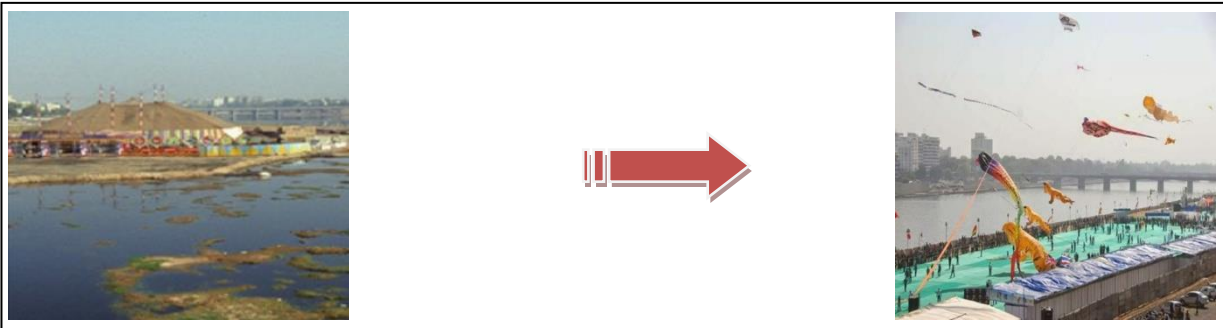


Fig. 5 Development of event area

(Source- <http://www.sabarmatiriverfront.com>)

Urban Forestry

Between Vasna Barrage and Ambedkar Bridge, the unique afforestation project is situated over 1 lakh

sq.mt area. The natural forestry is being developed with different plant species from Gujarat, including



certain very rare species.



Fig. 6 Development of urban forestry

(Source- <http://www.sabarmatiriverfront.com>)

Sewage System

To intercept the sewer running into the river and divert it to the treatment plants, the interceptor sewer system was constructed. Earlier the sewage from 36 drainage points directly falls into the river that makes

the water dirty, mosquito ridden and unhealthy environment. Now, there is an extreme change in the environment around the river because all sewage goes to a pumping station for transformation it to river quality.



Fig. 7 Development of sewage system

(Source- <http://www.sabarmatiriverfront.com>)

Promenade

A key feature of this project is a two-level, continuous walk on both sides of river bank built just

above the water level for pedestrian and cyclists. So there will be no private ownership of river bank, and the whole stretch is open for every citizen.



Fig. 8 Development of promenade

(Source- <http://www.sabarmatiriverfront.com>)

Public Garden/ Flower Garden

For parks and garden space 27% of project land is developed. There are three gardens.

- Garden of 60000 sq.mt between Subhash Bridge and Dadhichi Bridge;

- Garden of 25000 sq.mt at Usmanpura between Gandhi Bridge and Nehru Bridge on West bank and
- Flower garden of 40000 sq.mt near event area on west bank of the river.

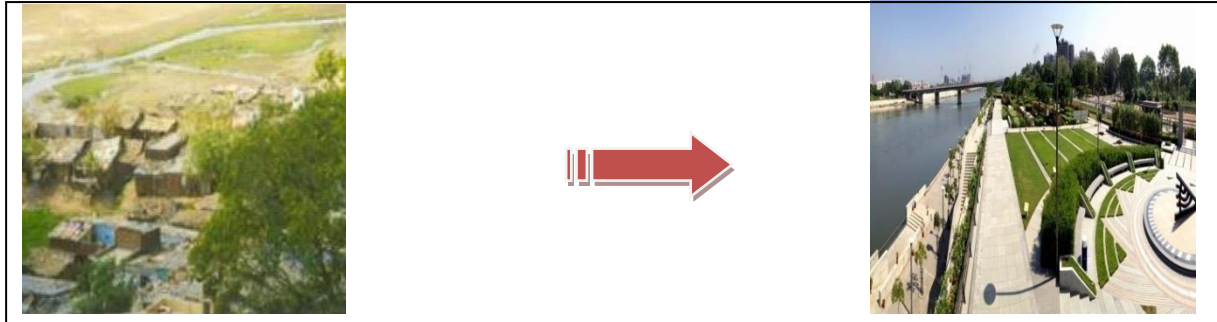


Fig. 9 Development of gardens

(Source- <http://www.sabarmatiriverfront.com>)

Water Recreation

Various water sports are provided in the project on both sides of the river bank. Boating facilities are

available on both side of the river bank in different places. For the future plan, there will be a zip line, Amphibian bus, Sabarmati Darshan through ferry and adventure water sports.

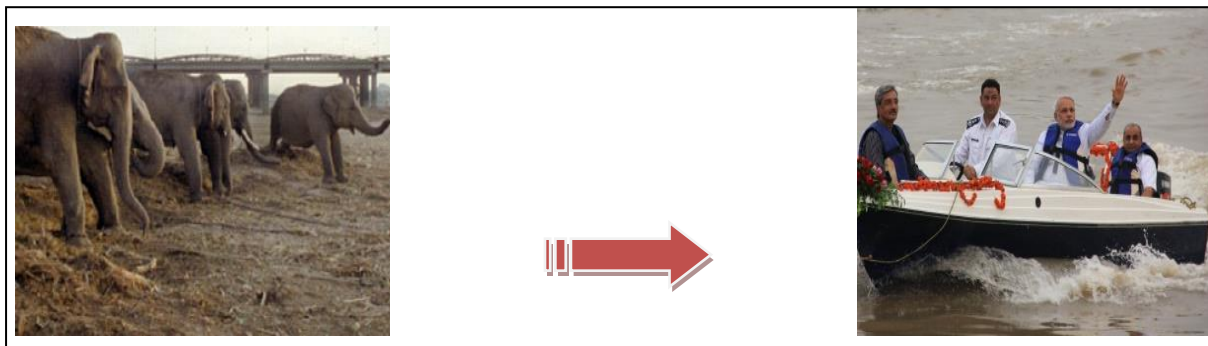


Fig. 10 Development of water recreation

(Source- <http://www.sabarmatiriverfront.com>)

Project Benefits and Impacts

- Now it is possible to retain surface water in the river all year around.
- The ground strata are recharged with storage of 12.5 million cubic meter river water.
- More than 250 MLD sewage is diverted from the river and pollution is eliminated.
- The river is protected from the scour and stopped the erosion of the river banks with Diaphragm walls.
- 202 ha. land is available by retaining wall on both sides for further development for the city and flood protection.
- The embankments provided with wide walkways, green space with tree plantation and many other facilities.

- Rehabilitation of resettlement of 10000 slum dwellers in great pukka houses.
- Traditional users of a river like washer men and unorganized vendors are now provided with organized facilities.
- Easy access to the river water through Ghats, Stairs/ Ramps.

CONCLUDING REMARK

The abused river can be brought back to the city by utilizing the resources of the river itself and convert the abandoned land of riverbed and nuisances at the centre of the city into people's attraction, tourist attraction, creation of infrastructural and recreational facilities and transform the city more livable in terms of environmental improvement and inclusive development.

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