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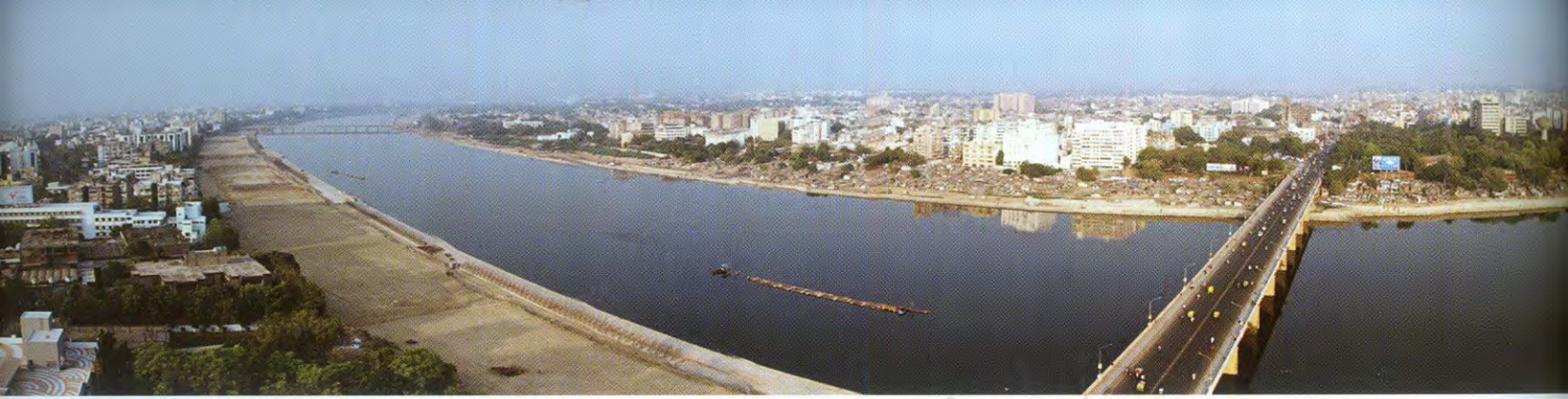
# Water

## Resource and Threat

**USA** LOS ANGELES RIVER REVITALIZATION; SPONGE PARK IN BROOKLYN; STRATEGIES FOR NEW ORLEANS • **INDIA** SABARMATI RIVERFRONT IN AHMEDABAD • **MOROCCO** FEZ RIVER REHABILITATION • **CHINA** NEW WATER CULTURE FOR TIANJIN • **UK** SUSTAINABLE DEVELOPMENT AND FLOOD-RISK • **NETHERLANDS** ROOM FOR THE RIVER; RIJN-MAAS-SCHELDE DELTA PLAN • **BELGIUM** DE-POLDERING IN BEVEREN NORTH • **GERMANY** COASTAL ADAPTATIONS; DESIGNING TIDAL LANDSCAPES IN THE HAMBURG REGION







# Sabarmati

## Riverfront Development Project

Ahmedabad is rethinking its riverfront at a scale unheard of in India. Though implementation will be challenging, the city hopes that this integrated environmental improvement project will be a model for the nation.

Anne-Katrin Fenk, Karsten Scheffer

SABARMATI RIVERFRONT DEVELOPMENT PROJECT,  
AHMEDABAD, INDIA

Client: Sabarmati Riverfront Development Corporation  
Limited, SRFDCL

Feasibility study: EPC

Urban design: HCP Design and Project Management,  
Pvt., Ltd.

Planning period: 1997 onwards

Realisation: 2004 onwards

Area: reclamation of approximately 185 hectares

Costs: 15 billion Indian rupee (approximately 307  
million US dollars)

India had a tradition of heterogeneous town planning paradigms long before it became influenced by today's global models. Registered city designs at the time of British colonisation, the setting of internationalisation that followed independence, and modern and post-modern urban projects have all left different images. At first glance the majority of Indian cities show a fascinating variety of urban patterns distinguished by a multitude of fragments dating from those various times. The majority of planning projects today, however, are popular real estate developments with upmarket service complexes, self-contained apartment complexes, gated residential enclaves, information technology parks, malls and multiplexes. It is only very recently that discussions regarding sustainability, public infrastructure and public space have been opened. It is also very recently that these discussions have been re-embraced by the planning profession.

Le Corbusier once quipped to the writer and philosopher Mulk Raj Anand during a meeting in Paris, "always late, in the true tradition of India." India was indeed late in reforming its urban planning systems to overcome its massive lack of infrastructure, dearth of open space and

huge housing demand. Today's situation provides a stark contrast to tradition: never before in India's history have cities transformed themselves in such a dynamic, fast and irreversible way. These transformations are a result of far-reaching economic policy changes towards a free market economy (1991) and the launch of a massive city modernisation scheme called the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). While the decades after independence were characterised by policies supporting rural development, the focus is now shifting to urban areas. This has had immense effects on the economic and geographic structure of India, and has activated a process of wholesale redevelopment of the urban fabric of Indian cities. Waterfronts, as the last large urban public spaces, are in the spotlight of this trend and provide cities with significant new development opportunities. The Sabarmati Riverfront Development Project (SRDF) in Ahmedabad is a first and unique example of a comprehensive transformation.

As the seventh largest metropolitan region in India and the financial and cultural capital of the state of Gujarat, the city of Ahmedabad is a core area of economic development. Founded in 1411





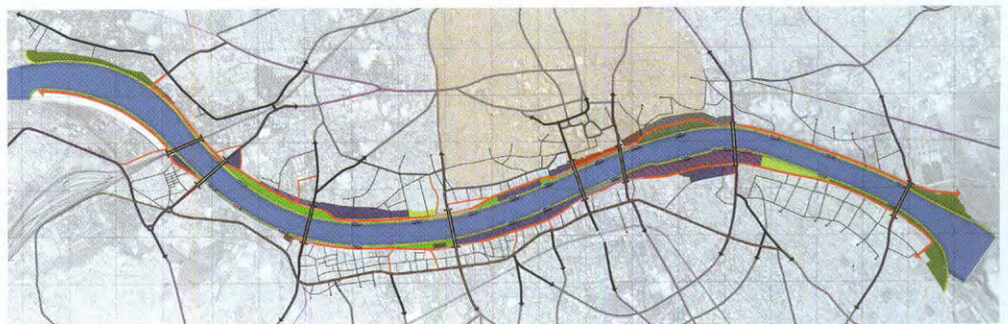
The Sabarmati River splits the city of Ahmedabad in two. The basic design idea of the development project is to convert the urban river landscape into a new part of the city by reclaiming land. The original size of the riverbed was between 330 meters and 680 meters wide.

AD by Sultan Ahmed Shah, the city has a rich urban heritage marked by a long phase as a trade hub and as the centre of India's textile industry until the 1970s. After Indian independence the city succeeded in establishing modern, cutting-edge architectural and educational projects, like universities and institutes, some with the participation of foreign architects like Louis Kahn, Le Corbusier and Ray and Charles Eames. The city is also home to the Gandhi Ashram, from where Gandhi began the peaceful Salt March in 1930.

The Sabarmati River, which runs through Ahmedabad, originates in the Arravalli mountain ranges and pours into the Gulf of Cambay in the Arabian Sea. The river flows from north to south, splitting the city into two very different halves: the old medieval walled city on the east and the new city to the west. The original size of the natural riverbed was between 330 meters and 680 meters wide. South of the inner city the Vasna Barrage dam controls the river's water level and also serves agricultural irrigation canals.

The Sabarmati is a seasonal river, unlike rivers in Europe. Hence this landscape is characterised by two extreme intervals: the temporarily full, flooded riverbed during the monsoon (1.5 months of the year) and a small stream in a dried-up sandy riverbed during the summer, where in earlier times there existed a temporary open space for the public. In the last few decades, as a consequence of fast urbanisation, large areas of the floodplain began to be occupied by numerous squatters with very poor living conditions and always threatened by the risk of flooding. The existing river continuum was already disrupted by existing barriers, and former water quality was poor due to increasing pollution (the river was illegally used for sewage disposal). In consequence the former ecological function had been limited and the spatial significance of the riverfront had disappeared from the public's awareness.

The Sabarmati Riverfront Development is a social and commercial project and is to be partly funded by selling the land to develop a business district. The city will own most of the reclaimed land, providing public open space for citizens.





The goals of the water management innovations are to eliminate the danger of periodic flooding and to establish a new sewage system. The width of the new waterway will measure approximately 275 meters.



The Sabarmati Riverfront Development will transform the historic riverfront drastically. From top: impressions of Ahmedabad's cityscape in 1672, painted by Philip Baldeus; existing informal settlements on the eastern riverbank and the current land reclamation works.

Ideas for the development of the Sabarmati River began decades ago. The first known proposal was made in 1961 by the French architect Bernard Kohn. A second proposal was created in 1976 by the River Front Development Group – a group of local professional firms led by the architects Hasmukh Patel, Rasu Vakil and others. In 1992 the river was included in the National River Conservation Plan (NRCP), designed to reduce inputs of solid waste and waste water. The NRCP led directly to the formation, in 1997, of the Sabarmati Riverfront Development Corporation Limited (SRFDCL), which commissioned the urban planning firm EPC to prepare a comprehensive feasibility study and to provide

development management services. Since 2002, another firm, HCP Design and Project Management, Pvt., Ltd., has been responsible for the project's architectural, urban and structural design.

Following the city's tradition of visionary projects, the Sabarmati Riverfront Development is to be seen as a first-of-its-kind urban renewal project in India. It has already and will continue to significantly affect the spatial structure and habitat conditions of the river and adjoining areas. The risks of this transformation were carefully evaluated by Indian and international experts, including analysis of ecological function, water quality, river continuum, and open spaces. In addition, the concepts of the "compact city" and "liveable city" were considered. In contrast to most Indian cities, which provide space for business and new housing at their peripheries, Ahmedabad starts to solve this in its centre: a new planning approach focusing on the inner-city as a means of reducing further uncontrolled sprawl.

The project's basic design idea is to convert the urban river landscape into a new part of the city by reclaiming land. The width of the new waterway will measure approximately 275 meters, much narrower than before. Although the river bank's soft, seasonal, varying edges have been transformed into a hard linear edge, the overall future impression will be more like that of an artificial lake, drastically transforming Ahmedabad's historic riverfront. According to the SRFDCL, 28 percent of the new land will be consumed by road development, 26 percent by gardens and 22 percent will be sold. The remainder will be occupied by new retaining walls; storm water outfalls, ghats and jetties; new infrastructure; extensive housing development; utility buildings and structures; and a green space network and recreational spaces which the city still lacks today.

The goals of the water management innovations are to eliminate the danger of floods





(heavy asymmetrical flooding periods are one phenomenon of the unique climate and geographical condition of the city of Ahmedabad) and to establish a new sewage system. The city plans to take a huge step in the improvement of its sewage facilities and drinking water supply. In addition, the project may affect the local climate and groundwater level in a positive way. Relocation of the slum dwellers currently living in the riverbed is also planned. As a result of a socio-economic survey of the riverfront slums (in cooperation with the International Institute of Social Entrepreneurship and Management) the development scheme will provide new housing and space for markets on newly reclaimed land.

The Sabarmati Riverfront Development is a social and commercial project and is to be partly funded by selling the “core land” to develop a business district area between the Nehru and Gandhi Bridges. The city, however, will continue to own most of the reclaimed land, providing public open space for citizens. A key element of the project is a new linear two-level promenade. The lower level, with a width of ten meters, will be just above water level, serve only pedestrians, and provide access to the water. The upper level will also have a dedicated pedestrian pathway, and host a variety of public buildings, cultural institutions, public parks and plazas and a few areas for private development, while new traffic infrastructure will connect the riverfront to the city.

It is interesting to note that this project, in addition to facing functional implementation challenges, has reopened a fundamental professional debate about the need for open public and cultural spaces. While current local discourse focuses on design details of the promenade and the reclaimed land area, other discussions have already acknowledged the risk of regional conflicts concerning possible threats to the water supply. The water demands of the

new waterfront development might affect the future water supply of the households and industry of Ahmedabad itself. There are also potential social risks during the process of relocation, such as losses of social networks, jobs (because of longer distances to the workplace) and temporary land uses like farming. Bearing Indian planning conditions in mind – the general lack of maps, poor sewage infrastructure, and ownership conflicts, to name a few – the realisation of this project is an incredible task. Without the fundamental research, analysis and basic drawing work conducted by EPC/HCP, and the support of SRFDCL, this project would still be in the drawer.

The Sabarmati Riverfront Development itself is part of a debate about further development of the urban landscape in India – a discussion that considers the perceptual conflict between “Real Estate” and “Slum City.” The active role of the municipal administration in Ahmedabad is unique. Though mostly reduced in the 1990s to a provider of infrastructure, the public sector in Ahmedabad is now taking an active role in influencing development. This is leading to more participation by stakeholders, rather than the often top-down process of pure private real estate investment.

In conclusion, the Sabarmati Riverfront Development will prove in the long term if the projected positive change of the urban river landscape is attainable. The balance (or even the imbalance) of public spaces and real estate development areas and the aesthetics of the built structures will testify whether the idea of the river-city fabric – a new artificial landscape – succeeded. Whatever the outcome, the project is a leitmotif in the context of river and waterfront redevelopment projects now popping up in Indian cities like Mumbai, Delhi, Calcutta and Lucknow. Ahmedabad is breaking new ground, both literally and figuratively, in the redevelopment of Indian cities.

A key element of the project is a new public two-level promenade. The lower level will be just above water level, serve only pedestrians, and provide access to the water.

