



RESEARCH ARTICLE

ANALYSIS PROSPECT OF SUSTAINABLE RIVERFRONT DEVELOPMENT IN HISTORICAL  
REGION AROUND KHAN RIVER, INDORE

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ABSTRACT

In India there are so many rivers. Every river has some speciality and historical background. That is why the river can be an attractive place for regeneration and social communication. The Rejuvenation of Khan Riverfront development project has taken to mature the situation along the river bank and to increase the intrinsic beauties of the river as well as the surrounding areas, its existence could encourage the quality of life of a city. The role of river in Indore for communal have been developed throughout times, from transportation provision into public space. This established the importance of river to urban development in Indore. The Khan River Redevelopment Plan is designed to regenerate and to bring the active riverside area. Some portions along the river have been changed to serve as a communal public space. However, the active public space in riverfront could not take place. The unplanned situation of the Khan River-Indore has been reducing the beauty of the river as well as the city. Learning from the several case studies of active riverfront development, this paper efforts to study how to improve and implement the river redevelopment and create energetic and attractive riverfront zone at the bank of the Khan River (Kishanpura Bridge) so that the people of the Indore city can go there and can appreciate the beautiful development of the river.

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INTRODUCTION

The term riverfront is defined as "the land or property along a river, the section of a city or town along a river". In many cases, the redeveloped waterfront acts as a driver for the re-launch of the entire economy of a city, often re-locating it in an international context. For this reason, many cities, even of a small and medium size, are adopting the recovery of their border or of their former port areas in light of economic benefits and of a higher quality of life. In this regard, it becomes necessary to learn from others. The design of a successful riverfront development involves many steps. This research paper will present what is involved in the formation of a Riverwalk, what makes people use and visit the site, and how it adds comfort to a city. The spreading of these regeneration projects, from modest and simple versions to ambitious complex ones, makes possible to restore the symbolic importance of the dialogue between urban building and the nearby water in this early 21st century period. Each place is defined by a different geography and morphology of the surrounding coast, and this multiplicity witnesses the various

possible links between land and sea, and the many differences in ways of living at urban scale and managing of waterfront areas. In fact, by re-generating waterfront redevelopment around the world, it will be possible to identify new and more attractive urban environments for the 21st century.

Objective and scope of the study

The goal of the study is to advise development activities in the Khan River of Indore. Study attention on some development activities in Khan River of Indore such as prospective and pedestrian site transformation. This approach may influence the tourist spots in Indore.

Literature Review

A Guideline to Riverfront Development and river reserves, Connecting communities to the water

Precisely, the guideline for riverfront development concept aims are, as follows:

- Designate and inspire the implementation of guideline in the development planning of riverfront areas.

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- Locate and a guideline for any development nearby to the river areas.
- Deliver uniform guidelines for all parties intricate in the riverfront development process.
- Control all kinds of riverfront developments.

km. Latitude: 22°45'4.32" & Longitude: 75°52'5.88". The mouth of the river hosts Yamuna, the major river of India.

**Riverfront (Re) juvination**

Riverfront is the region of communication between urban development’s and the River. A riverfront area is reflected as a unique and exceptional resource where it is the edge between land, air, sun, water and productive plants. Moreover, the riverfront is a place assimilating land with water and having a regular attraction to people. Waterfront development denotes to any development in front of water and a water body; a river, creek, lake, ocean, bay or canal. In the development area, measured that a waterfront development may not essentially need to be directly fronting water but May only requirement to look attached to the water. They believe that imposing a view of water can still be measured as a waterfront property.

**Riverfront Development practice in India**

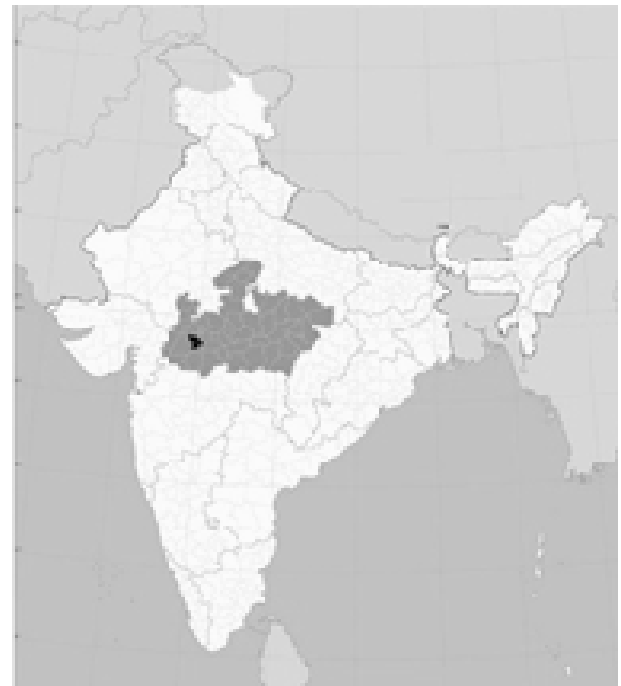


**Fig. 1. Sabarmati Riverfront development, Ahmedabad**

In India the Government has introduced some important projects. For Example Sabarmati Riverfront development project, Yamuna Riverfront development in Delhi, Musi Riverfront development in Hyderabad etc. Sabarmati Riverfront project total area included 201 ha. Of land, in which 44 ha. Of Road, and 27 ha. Of Public garden, 37 ha. Of public purpose and 20 ha. Of Residual. Sabarmati Riverfront project, was inaugurated on October 16, 2013. An initiative taken by the Ahmedabad Municipal Corporation (AMC) to develop the Sabarmati riverfront in the city of Ahmedabad, India. It is being settled by the Sabarmati River Front Development Corporation Limited (SRFDCL), implementing the project costing over Taka ₹1157 crore by June 2014.

**Introduction:** The River Kahn or Khan as it is now known is a river flowing through Indore, the commercial capital state of Madhya Pradesh. It doesn't hold freshwater but instead has become polluted over the period of time carries sewage due to pollution. This fact has much historical importance. Once, while visiting the banks of river Saraswati, Rao Nandlal found a location surrounded by rivers on all sides. To protect his people from harassment by Marathas and Mughals, he started moving his people to this place and constructed the fort of Shree Sansthan Bada Rawala. This city was named Indrapur after Lord Indreshwar, and eventually came to be known as Indore.

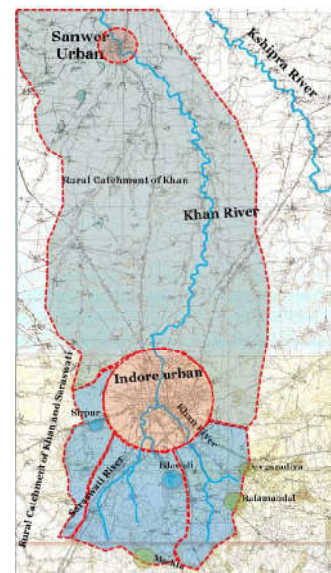
**Location:** Khan River is next to Indore and is located in Madhya Pradesh, India. Length of River Khan in urban area 21



**Fig. 2. India**



**Fig. 3. Madhya Pradesh**



**Fig. 4. Indore**



Fig. 5. Khan River in 1913



Fig. 6. Chattri Bagh in 1934

**Project Area:** The project area is on the bank of Khan River stretching from Kishanpura Bridge to Jawahar Marg.

#### EXISTING CONDITION

**Khan River Industrial pollution:** The polluting industries of Indore, the largest city of Madhya Pradesh in industrial, such as 26 textile mills, 1 DDT plant, 2 chemical complexes, 5 fish processing units, 1 urea fertilizer factory, 1 asphalt bitumen plant, 1 TSP plant, 1 steel mill, 5 oil refinery, 1 paper mill (solid waste disposal hourly 1450 m<sup>3</sup>), 1 rayon mill complex, 2 pesticide manufacturing plants, several soap and detergent factories, 2 cement factories, 4 paint and dye manufacturing plants and a number of light industrial units directly discharge untreated toxic effluent into Khan river. From the survey of sewages from different industries, it has been found that the discharge is generally composed of organic and inorganic wastes.



Fig. 7. Industrial waste



Fig. 8. Illegal activities

**Pollution by waste disposal:** There is no appropriate waste disposal system on the bank of the Khan River. Different types of waste like human waste, unused products, fertilizer, Residential waste, Bags, oil etc. is deposited into the river. There are also many hanging toilets on the bank of the river. While using the toilet, the filth goes to the river and pollutes the water, and the people of the area bathe in the river however the toilet is situated beside the bath and swimming places. Which is very harmful for their health.

**Illegal activities:** In South Toda Slum area, dissimilar illegal activities increase day by day on the river side. Numerous people are playing cards with money. Sometimes they are playing cards in different illegal ways. Native people have no security in this area from these illegal activities. Concrete structures and tin-sheds are being built up along a vast stretch of the Khan River at Azad Nagar in Indore, India. Encroachment still continues on the bank of the Khan River, posing a hazard to the river upstream towards the Lokhande Bridge. After the encroachment of a vast stretch of the river bank in CP Shekhar Nagar Slum, illegal occupants' in a latest move are now constructing concrete structures and filling up the water bodies of the Khan River.

#### ANALYSIS

**Khan Riverfront Development Project and References from the past Riverfront Project:** The Khan River has a historical background in Indore. Virtually the whole of Indore is laid up and crisscrossed by the Khan River. Large and small communities along the river have started determining their river heritage, turning back to the riverfront and recognizing them as incredible community and financial effects. People with more access to their home refreshment facilities, including riverfront paths, boating and nature observing are included here. In view of the mass claim, the Indore Development Authority (IDA) has absolute authority to develop a project on the inspiration of the bank of the Khan by connecting the communities.

**Khan River Front Development Project and other Riverfront:** According to the project of water front development and the principle which is emphasized most. The points from the Sabarmati Riverfront project, Ahmedabad have been seen for sustainable water development. They emphasized on

- Protected the quality of water and the environment.
- Waterfronts are the part of the present urban fabric.
- The historic uniqueness gives attractiveness.



- Mixed-use is the priority.
- Public access is a requirement.
- Planning in public-private companies speeds the course.
- Public contribution is an element of sustainability.
- Waterfronts is long term projects.
- Regeneration is a continuing process.
- Waterfronts revenue from global interacting.

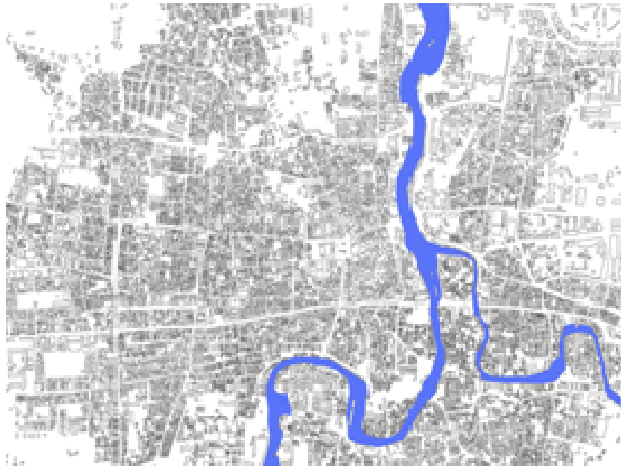


Fig. 9. Indore Raster plan



Fig. 10. Kishanpurachattri

**Environmental Quality Impact**

- Ecological roles of the Khan River will be maintained / improved.

**Social Impact**

- The Development will grow social interaction between people.
- It will inspire people to visit the riverbank.
- Participating planning process will inspire community ownership of the project.

**Target Beneficiaries**

- People of Indore
- Tourists

**PROPOSAL**

**River Network:** A large number of economic activities take place along the Khan River using the numerous Ghats situated along the river. There should be a wide pedestrian footpath (at

least 30' to 40') along the river side so that people can walk easily and they can sit and gossip freely with the other people.

**Embankment and Road along Khan River:** In order to provide protection to the riverbank and to enhance traffic circulation in the southern part of this zone, an embankment has been proposed by IDA in IMC between Strand Road and intersection of the Khan river Approach Road at Kishanpura Bridge. A road should be within Kishanpura Bridge to Jawahar Marg Bridge. The road should be located 300ft opposite from the river bank. Beside this road 5 fat road curve should be given and then landscaping should be started.

**Parks and Open Spaces:** To enhance the city environment and make it habitable, it is necessary to build some parks and new Urban Green blocks in this zone. Some such locations are at Indore crossing, near Rajwada residential area. This green park should be kept open for public visit and leisure. There will be a park beside the Kishanpura Bridge which will be the recreational place for people. The areas of this park will be 2.5 Acres. Another park will be in the side of Jawahar Marg residential area. This will be 7.5 Acres.



Fig. 11. Park & Open space



Fig. 12. Public Art

**Shops:** There should be some small shops. For example-clamps necklace, shops of fuchka, Chotpoti, various types of flowers shops should be available along the river side. But there should not be any large shops or departmental shops in the river side.

**Vehicles:** Motors vehicles are not allowed in the footpath regions. If anyone wants to go with motor vehicles then he/she must park it in the parking lot.



**Fig. 13. Restaurant**

**Picnic spot:** The river side can be a turned into an attractive place if any picnic spot are available in this side. Some specials project should be taken to develop this place.

### **Conclusion**

This paper aimed to discover the effectiveness of Khan Riverfront in Indore. The analysis part confirmed that the designer level of awareness of the guidelines, which directly or indirectly communicate to the control of riverfront developments. The majority specified that they were somewhat familiar with the guidelines. However, some guidelines were designed specifically for definite areas, and some time not necessary like others. Moreover, the results showed that Indore does not presently have satisfactory regulations and guidelines to control riverfront development.

Now there are some plans for the Indore Authority to control the random growth of buildings. For example there is a master plan for Indore city, detail area plan, there is structure plan etc. But in relation of riverfront development, there is no precise plan to control or to remodel the Khan River front development. More than that, the failure of the India government and the responsible organizations, precisely to enforce the regulations and guidelines, has caused unsuccessful riverfront developments in this country. In order to reinforce regulations and guidelines for riverfront developments in Indore, the government and the policy creators are required to do more with the guidelines in the future. In this paper, also acknowledged some components that should be included in riverfront development guidelines in an effort to practice riverfront developments in a good means. Improvement is mandatory in order to develop and maintain sustainable riverfront developments in the future, in this country.

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