



Ganga Riverfront Development at Patna, India: Urban Rejuvenation Project

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Abstract

River front project at Patna, India along the river Ganga has rejuvenated the linear city of Patna, India. Patna is a historic city having lived for more than two thousand years. The city has grown linearly on the bank of Ganga. Like other cities of India, it faces the problem of pollution, congestion and lack of public open spaces and recreation spaces. After the completion of River front project, this city has a new life. Once neglected and treated as back yard of city, it has opened up for the residents and has added new avenues of urban open spaces. It has added the recreation space to the city and the happiness index of the city will certainly rise. This paper examines the positive aspects of River front development in the city and how the residents have reacted to it.

Keywords: Public Open Space; Recreational Open Space; River Front; Patna

1 Introduction

Open spaces play a very important role in city's landscape. They have physical, social, economic and environmental benefit. With increase in Urban Population and land use change, these spaces are very vulnerable. This change and pressure of increasing population density is more on the urban core areas. (Ghose, 2015). The growth of Patna is Linear from east to west. Then it grew towards a little of south and then towards west. As per the report and older map, the older city is the special area demarcated in the City's master plan. (Sharma, 2016) (See Figure 1). Patna being the historic City whose history goes back to 600 BC, the core area faces the space crunch for people recreational need. As per the study by Kumar recreational, there is lacuna of open spaces in the core city of Patna (Kumar, 2015).

The core city area lacked the recreational open space (Kumar, 2015). There was a need to fill this lacuna with the potential open space, which will cater the needs of the people. The Riverfront Ghats, which was earlier, isolated, were also unsafe. These potential recreational spaces was then connected and developed as riverfront. Total 6.6 km stretch has been connected alongside of the river, as Ganga river front development out of 21 km stretch touching the Ganga of Patna city. Which, tries to cater the recreational need of nearby residents of the old city area, and now this acts as an active public space.

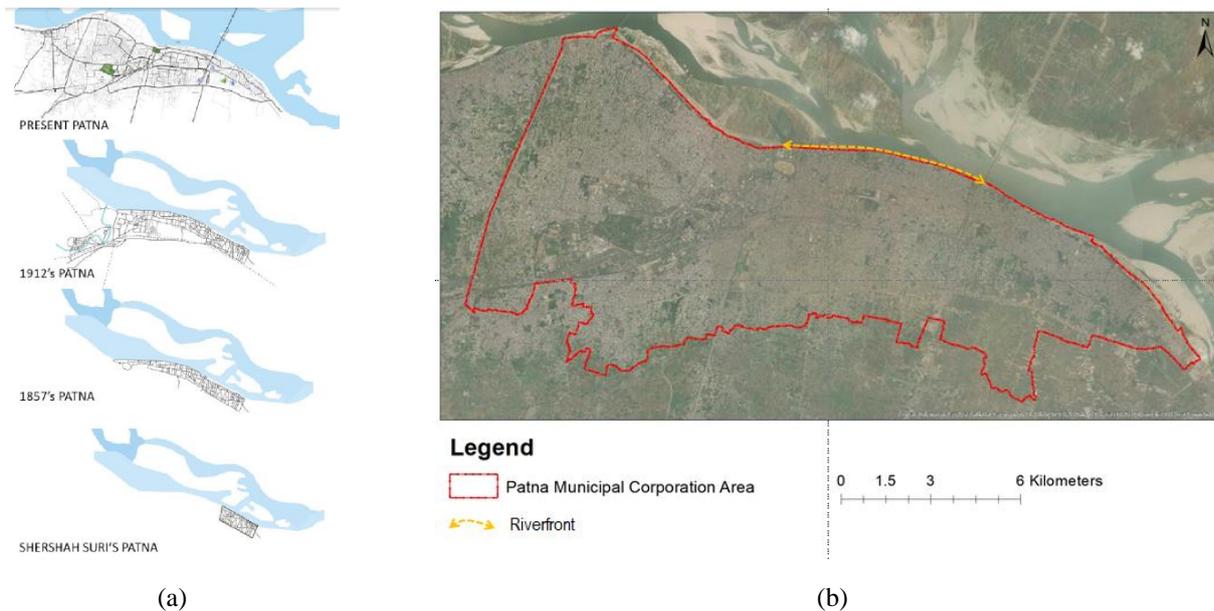


Fig. 1: Figure showing (a) Evolution of Patna city (b) Patna city map with Patna Municipal corporation boundary showing Ganga riverfront

2 River Front of Patna

The riverfront benefits a population of 1 million (Urban Development and Housing Department, 2010) in the special area zone as nearby Residents with accessible open space, Fisherman with more mooring capacity, and infrastructure for Low income communities such as new community hall electric crematorium for the city (Lall, 2021). The developed riverfront with promenade and Ghats comprise of many activities and acts as an active public space which caters the diverse activity, ranging from leisure seating, walking, jogging, skating, outdoor classroom, religious gathering, skits, etc. Apart from these formal activities, it also support informal economy such as local tea and snack seller, religious goods kiosks, which support the formal activity on the riverfront. Earlier before 2016, the riverfront was the neglected space and was acting as backyard of the city. The rejuvenation of Patna riverfront has contributed to the healthy and psychological well-being, of the residents. This also helps in increasing the happiness index of the city with activities like cultural, educational, environmental, health and psychological wellbeing.

The riverfront promotes the walkable city, creation of usable open space catering diverse activity and sensitivity toward local context as per the development vision (Lall, 2021). We will try to assess the vision with the current context and condition based on the observation.

2.1 Accessibility

Ganga river front is accessible from Ashok Rajpath catering diverse land uses. It starts with Collectorate Ghats and Anta Ghat on west and ends at Hanuman Ghat and Gosai Ghat in east. In terms of accessibility, it supports the concept of walkability as it connects the dense area of Patna through walking and non-motorised vehicle network. The major road in old city area is Ashok Rajpath, which is very congested and have very high vehicle commute time, with less pedestrian walking facility. The Ganga River front earlier being the backyard now is accessible and connected through out to provide commute through walking and justifies the walkable city vision for this old city area. It has several accessible puncture from different land use along the river (see Figure-2). However, a few places, it does not have universal accessibility, which gives a break to NMV and makes it difficult to differently abled to connect throughout the riverfront.



(a)



(b)



(c)

Fig. 2: Figure showing (a) Accessibility through the residential area towards riverfront (b) Connection from the Patna College (Institutional Land use) (c) Connection from Kali Temple

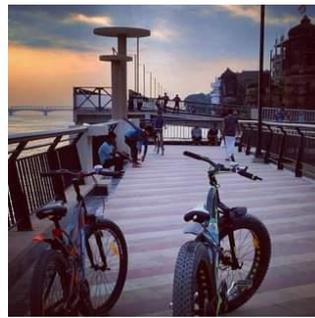
2.2 Usability and Activity of Ganga River Front

Open spaces provide many functions in urban context that benefits people's quality of life (Ghose, 2015). It provides physical, psychological, social, environmental, and economic benefit, for that should support diverse activity (Rukiye, 2014). Ganga Riverfront being a recreational open space caters a variety of activity throughout the day like, walking, cycling, jogging, group gathering, outdoor classroom, and caters informal kiosks. It supports the religious activity also; as river Ganga in the Hindu mythology is considered the goddess and rituals such as, Ganga Aarti happens once a week. The spaces also caters the activity for which it is not designed for such as classrooms or group reading at the steps of the Ghats especially near Institutional land use. Pictures showing different activity at Ganga river front is shown in Figure 3.

Physical and Social Activity



Liesure walking and seating



Cycling at Ganga river front



Group gathering at Ghat

Religious Activity



Praying near Ghat



Regional Chhath Festival



Ganga Aarti on Saturday evening

Educational Activity



Steps used as knowledge sharing space

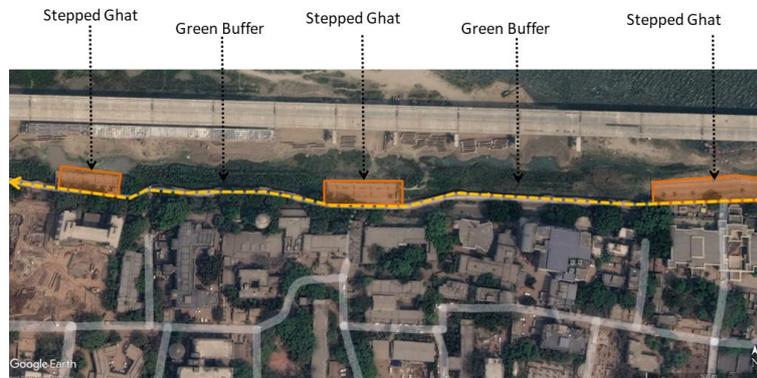


Group reading at Patna College Ghat

Fig. 3: Figure showing different activity at Ganga River front, Patna

2.3 Sensitivity towards Local Context

The spaces in Ganga River front have diverse spaces to accommodate the local context. The riverfront is mix of natural and constructed edges. Ghats provide connection with the nearby land use to the river, especially near religious and institutional areas. The green buffer in between Ghats acts as riparian buffer (See Figure-4). Riparian Buffer consists of macrophytes, native grasses, sedges, climbers, shrubs and trees (Dutta, 2011). It is the most significant component in ecology and environment as they help in conserving soil, habitat of that area and indirectly influencing fauna and aquatic ecosystem with grassland, wetland, for their habitat. The riverfront shows the combination of grey and green zones within the developed stretch. The local context of social connection as well as the environment connection can be seen in the Ganga riverfront development. However, the expressway proposed in front of the riverfront promenade can affect the riparian buffer of the stretch.



Legend
 Ghats
 Riverfront

(a)



Legend
 Ghats
 Riverfront

(b)

Fig. 4: Figure showing (a) Ghats and Buffer green spaces, (b) 6.6 km Ganga riverfront

3 Discussion

As per the observation analysis of accessibility and usability of the riverfront and contextual analysis through map, the riverfront stands as per the vision. However, it lacks in the universal accessibility as all the places have not been connected with ramps wherever the level difference area there. In usability, the spaces cater variety of activity and support flexible open space to cater different needs of people (see Figure 3). In terms of the context local land use and river connection has been established on the basis of accessibility, and usability. Environmentally the grey and green buffer combination has been provided to support riparian buffer (see Figure 4 (a)). The main findings of the study are that, the riverfront is making city more accessible and walkable and it is creating usable open space in the open space scarce core city area. It is also accommodating the green buffer zone, which helps in conserving the riparian zone, ecology and environment.

4 Conclusion

Patna lacks urban green open spaces especially in the core area (Kumar, 2015). The core area also faces congestion and traffic issue. Ganga riverfront tries to solve these two main issues and justifies the vision for the development i.e. walkable city, creation of usable open space catering diverse activity and sensitivity toward local context. The creation of public open space and green areas also support the Sustainable Development Goal 11, and 13 of United Nation. Patna has total 14.5 km stretch touching the river edge excluding the developed 6.6 km riverfront. The remaining area also can be connected to make it one of the spine to connect city, and make city walkable.

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