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Thinking Spatially: Discourse on Spatiality of Yamuna Riverfront

Owais Asif Khan and Ar. Anoop Kumar Sharma

Department of Architecture and Landscape Design,
Shri Mata Vaishno Devi University, Katra - Jammu & Kashmir, India

(Corresponding author: Owais Asif Khan)
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ABSTRACT: Water is the fundamental mechanical system in building and sustaining a city, throughout history, water has been a part of the formation, progress and annihilation of cities. Today, with the abysmal state of drainage and solid-waste management of the city of Delhi, the Yamuna has become a huge drain carrying the waste of this mega city. The spaces around the river are also rather 'lost spaces' with agricultural fields, derelict power stations, stadiums and memorials. This paper will use Henri Lefebvre's spatial triad model to investigate into the spatiality of Yamuna Riverfront. This paper will study the urban *spatial practice* of everyday life through empirical research. This paper will also explore the schemes provided by the technocrats *(conceived space)* and at last, this paper will present how the inhabitants are conforming to the urbanized environment of Delhi i.e. producing *lived space.*

Key words: Delhi, Yamuna, river, Henri Lefebvre, space, spatial triad, spatial practice, conceived space, lived space, urbanization.

I. DELHI & YAMUNA

A. Background

River Yamuna originates from Yamunotri and covers 1400 km of journey finally meeting Ganges at Allahabad, between these two points it traverses through various states like Uttar Pradesh, Haryana and Delhi. The growth of Delhi started between the Yamuna River and the Aravali Ranges. It has been observed that earlier the river used to flow between Salimgarh Fort and Red Fort and due to a tectonic shift, the river changed its course.

B. Present-conditions

The city of Delhi receives majority of its fresh water from Yamuna, upstream of Wazirabad barrage, this happens before it has entered the national capital territory stretch. The 22 km stretch of Yamuna from Wazirabad to Okhla is the most polluted segment of the river as it receives outfall from 22 major drains, which contribute 80% of the pollution load of the river. The vast floodplains, which serve as a floodway and help recharge ground water, have also been gradually eliminated largely and encroached upon by gradual reclamation by dumping solid wastes and construction of various buildings. This has reduced the flood carrying capacity, groundwater recharging capacity, and other biodiversity related ecological functions. The morphology of the river and the wetland functions are also altered by embankments, bunds, roads, flyovers, guide bunds and spurs, several bridges and three barrages. The river Yamuna is one of the most polluted rivers in India and pollution is mostly contributed by domestic sewage (untreated/partially treated), industrial effluents and agricultural practices[(1)]. Initially the drains, which are flowing into the Yamuna River, were conceived as storm water drains but with the advent of time and urbanization, the storm water drains were transformed into sewers.

II. SPATIAL TRIAD MODEL

According to Lefebvre, space is not a mere container, an empty area or a backdrop but it is inherently social, dynamic and changing, the people who interact in that space appropriate it and give it meaning.

(i) Spatial Practice (perceived space, Espace percu): Spatial practices can be revealed by 'deciphering' space and have close affinities with *perceived space*, to people's perceptions of the world, of their world, particularly with respect to their everyday world and its space.

(ii) Representation of Space (conceived space, Espace concu): It refers to conceptualized space, to the space constructed by assorted professionals and technocrats.

(iii) The list might include planners, engineers, developers, architects, urbanists, geographers, and others of a scientific bent.
(iv) Representational Space (lived space, *Espace vecu):* It is directly lived space, the space of everyday experience. It is space experienced through complex symbols and images of its 'inhabitants' and 'users,' and 'overlays physical space, making symbolic use of its objects'[(2)].

III. THE SENSORIAL, THE PROFESSIONAL AND THE LIVED EXPERIENCE OF YAMUNA RIVERFRONT

To carry out the research a stretch of Yamuna riverfront had to be shortlisted, which had to fit the criteria of research methodology. The stretch of riverfront selected is located between Indraprastha Metro station and Vikas Marg/Old ITO Bridge *(Figure 1).*

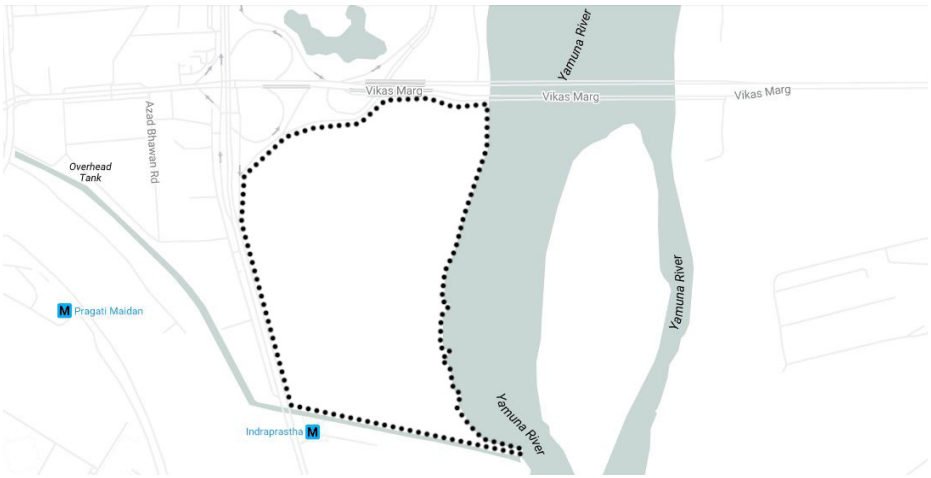

Fig. 1. Map illustrating the site chosen for research. (Source: Google Maps).

Sensorial Perception of Space along Yamuna Riverfront (Spatial Practice):
The site is located in a highly urbanized environment surrounded with institutional structures, sports facilities, historic monuments and industries. Within the site a ruins of a derelict coal power station is standing and along the river a chhath puja ghat, and an informal market plays its role throughout the day. To gain the sensorial perception of the place site visit was performed on 20th August 2016 and the scenes of everyday life were observed and several interviews were conducted to assess the everyday life and perception of the users of the space. The data collected was evaluated under the following set criteria:

Table 1: Sensorial Analysis of riverfront.

EVALUATIVE CRITERIA	**YAMUNA RIVERFRONT *(IP METRO STATION TO VIKAS MARG/ITO BARRAGE)***
Sound & Music	**Natural and spontaneous** Sources: wind, trees canopy, water, birds, market, religious performance.
Scent	**Episodic and unfiltered** Predominantly natural, foul at moments.
Light and Color	**Clear and Changing** Natural light intersects with shadows, vibration of trees' canopy.
Materials	**Soft and porous** With vibration of greenery. Water, shadow play softens the hard surfaces.
Touch	**Flexible and permissive** Interactive space.
Taste	**Localized** Local street food.
External Image	**Heterogeneous and memorable** Capable of inducing emotional reaction to the place.

Professional Image of Yamuna Riverfront (Representation of Space):

In New Delhi, the first power station was set up in 1963-71 the Indraprastha power station, which served NDMC area and some areas of South Delhi. The average life of power plants is about 35 years, however, this power station stood for almost five decades. The first proposal to close it down was in 2002 but the officials decided against it and after waiting for eight more years, they closed it down in 2010.

Delhi State Industrial and Infrastrcture Development Corporation Limited (DSIIDC) floated, in the same year, a proposal for the re- development of Vikas Bhawan, I.P. Power Station, DTC Head Quarters and Bus Depot at IP Estate. The redevelopment was supposed to change the skyline of the central business district of New Delhi. The land was to provide office space within the outer envelope of the existing IP Power Plant by making suitable modifications and providing facilities for bus parking in the low-lying area used for coal storage for the Power Plant. This did not materialize.

In 2015, Delhi Urban Art Comission DUAC came up with a proposal for riverfront development for Indraprastha zone. The main features of the proposal were to adaptive re-use the existing structure with facilities like art exhibit, offices, cultural center, museum and cafes. The site would have multiple entry points and the stretch along the embankment will be used for extensive development, such as a promenade. The chat puja ghat would retain its position with the addition of chhath maidan, the low-lying area in the center of the site would become ecological zone and a solar farm for the production of green energy. The existing railway line would be transformed based on the concept of high-line of New York. The whole site is to be pedestrian friendly and developed for recreational activities.

The conceived plans were evaluated under the following set criteria

Table 2: Conceptual Analysis of riverfront.

Evaluative Criteria	**Yamuna Riverfront *(Ip Metro Station To Vikas Marg/Ito Barrage)***
Present Image	**Brown Field of a thermal plant** I.P Thermal Power Plant
Future Image	**Ecological and Recreation Zone** Integration with river and city promoted
Design Proposal	**Community Oriented** Integrated development of recreational activities
Access and Connectivity	**Public and Integrated** Public transport and parking facility.

Lived Experience of Yamuna Riverfront:

To understand the lived experience, the activities were divided into two sets. One set of criteria refers to the events that take place and the other set is defined by the activity of the user. The occurrence of organized events is yearly celebration of the *Chhath Pooja* festival, *Ganpati Visarjan* festival and *Durga Puja* festival.

Table 3: Lived Analysis of riverfront.

EVALUATIVE CRITERIA	**YAMUNA RIVERFRONT *(IP METRO STATION TO VIKAS MARG/ITO BARRAGE)***
Function	**Unspecialized** Religious and recreational activities.
Events and Activities	**Episodic and Unscripted** Scheduled yearly events and spontaneous happenings of everyday life.

These are public events, which have direct relation to the river. The regular activity of a user of Yamuna River is mainly performing religious activities with a small everyday market selling products related to religious activities and strolling along the edge of the river. However, the religious activities in this area far dominates any other the recreational activities.

IV. CONCLUSION

The study was done in order to understand a space in an urban environment using the methodology of Henri Lefebvre. The site chosen was studied from different perspectives, by conducting empirical research, interviews and theorization. Which has led to conclusion that riverfronts are spaces that have very strong imageability, they are capable to induce emotional experience to the user, which in turn will give rise to memory and a sense of belonging to the place. The development should be such, that it should produce and reproduce the social & cultural activities of the society. The development should be holistic, focused on both environmental conditions and social impacts.

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