

## Flood Architecture ... along the Ganges River

Eduard Epp

Professor and Chair

Environmental Design Program  
Faculty of Architecture  
219 Arch 2 Building  
University of Manitoba  
Winnipeg, Manitoba, Canada R3T 2N2

phone: 1 204 474 8410  
e-mail: epp@cc.umanitoba.ca



### Abstract

Flood Architecture addresses global cultural settlement ideals and practices in geographic regions temporally affected by extreme hydrological / climatic cycles, primarily in river basins. These are explored through the notion of network infrastructures, natural and human systems working inter-dependently in space, time and formal constitution. Flood Architecture explores the idea of working with water instead of against it. It embraces systems, open to the phenomenology of landscapes in a constant state of flux and change, both relational and tangential – while connecting experience with place. Flood Architecture practices are discussed in relation to their temporal and contextual constitution in the Ganges River basin and with reference to landscape form, infrastructural works, settlement practices, and events. These are inextricably bound to the cycles of the seasons, the cycles of life, death, and rebirth, and predicated by the annual monsoon flood event.

## 1 Flood Architecture



Figure 1a, 1b: Flood Architecture ... just add water

Water has an inherently temporal and fleeting character in that it is continuously changing and dynamic. Its capacity to transform itself from solid, to liquid, to gaseous states clearly demonstrates its spatially temporal nature. To discuss urbanism, that is cultural settlement ideals and practices, in relation to water immediately invites speculation on the subject of temporality – of trying to establish a sense of place in an ever-changing and fluid landscape. The notion of the temporary – of transformational landscapes – is discussed in terms of Flood Architecture. During a flood event, human measures are taken to mediate between settlement and the forces of water, occasionally to divert a catastrophe or, alternatively, to celebrate its arrival.

Human life and affairs evolve through their intersections with the natural universe. They also evolve in the phenomenal world of our mental systems. Interpretations of nature thus can be varied and difficult. Flood Architecture recognizes that we are part of the natural environment and posits that the natural environment is part of the way we conceptualize life as an irreducible system. It embraces a ‘pioneering’ approach that recognizes both natural and human systems as intrinsically related. Natural systems include atmospheric, terrestrial and hydrological components. Human systems include biophysical, psychosocial / cultural, and technological components. These are investigated through the conceptual framework of network infrastructures, of natural and human systems working inter-dependently in space, time and formal constitution.

Flood Architecture addresses the idea of working with water instead of against it. Flood Architecture resists our compulsive, single-minded efforts to control water through elaborate structural interventions. Instead, it embraces the dynamic relation between land, water, settlement, and built form through a critical exploration of possible relations between natural and human systems and posits hybrid spaces and forms. Flood Architecture supports the notion that the landscape is functionally operational, composed of natural and artificial ecologies and systems, working inter-dependently in time and space. It calls for a new sensitivity, toward a more open engagement with the landscape, that supports new modes of occupation.

## 2 The Ganges River in the Utteranchal + Utter Pradesh States



Figure 2a, 2b: The evanescent source of the Ganges in the Himalayas and the life Gods

For almost one billion Indians of the Hindu faith, the Ganges River is intimately associated with life in physical and meta-physical terms, dating back thousands of years. Flowing eastward and south from the western Himalayas to the Bay of Bengal, the Ganges is 2500 kilometers long with a basin that is 1,120,000 square kilometers in size.

The Ganges is the water that binds the millions of people living along its course. The holy cities of Rishikesh and Hardiwar in Utteranchal, and Allahabad and Varanasi in Utter Pradesh serve the Hindu faithful as permanent markers in an otherwise transitory landscape. The Gangetic Plain is configured by the seasonal contractions and dilations of the stream and river channels as the Monsoon season approaches and passes. The Ganges is a river of events ... a rhythmic succession of settings along its course and across the river basin. The transitory nature of these events and their provisional and/or enduring manifestation along the Ganges are the subject of this discussion.

Both natural and human systems share a similar space of occupation, mediated by seasonal changes measured over an eternity. Temporality is the only constant – a definitive measure of being in the world. The psycho-social character of this understanding is most telling in the Hindu notion of on-going transformation and transcendence. The Ganges, the river of life, is an apt metaphor that is in a state of perpetual change. In turn, all of life is negotiated through the landscape, created and perpetuated by the Ganges River. The socio-spatial dimensions of this reality play out in numerous ways embracing the cycles of birth, life, death and rebirth.

## 2.1 Transcendental Settlement



Figure 2.1a, 2.1b: Transcendental landscape and settlement at Rishikesh

From its source at the Gangotri glacier in the Himalayas, the Ganges River drops quickly through the mountains toward the great Gangetic Plain. Its route is marked by numerous pilgrimage sites including Rishikesh, where the water flows clearly closest to its source. Rishikesh rises from the banks of the Ganges, just above the seasonal flood elevation. The river is made accessible by the ghats [the steps] that line both banks. Many of the pilgrims visiting Rishikesh are seeking Moksha, that is, the liberation from the cycle of death and rebirth – the transcendence of phenomenal being – through meditation. Similarly Rishikesh takes on a dual character, at once ancient and transitory.

## 2.1 Episodic Infrastructure



Figure 2.2a, 2.2b: Episodic purifying infrastructure at the Har Ki Pauri in Haridwar

On the upper Ganges lies the town of Haridwar, which is the site for the Hindu Kumbh Mela Festival. This religious pilgrimage, the world's largest, is held every 3 years at 4 different river sites throughout the Ganges River basin. Every 12 years the Kumbh Mela Festival pilgrimage is held in Haridwar. The pilgrimage coincides with planetary alignments that the Hindus believe charge the river waters with special qualities to become spiritually cleansed and renewed. To accommodate the Hindu faithful, a temporary tent city is constructed in Haridwar. The religious infrastructure is considerable – some of it even incredible. It includes a human-made canal diversion for bathing known as the Har Ki Pauri. Its architecture is composed of a series of bridges, locks, pedestrian ramps and containment areas running parallel to the Ganges and the town. By some estimates, millions descend into the Ganges at the Har Ki Pauri to purify their souls on a daily basis, and to share in the celebrations.

## 2.2 Volatile Settlement



Figure 2.3a, 2.3b: Volatile habitation and agricultural practices in the Ganges River basin

The river basin is a fractal landscape of conjoining rivers, streams, lakes and canals that is activated yearly by the Monsoon rains. Increasingly some river channels are not active at all because of colonial irrigation practices in the 19<sup>th</sup> and 20<sup>th</sup> centuries and more recently because of global climate changes. There are no authorized uses in this unregulated landscape. Improvised habitation and subsistence agriculture practices are common to the river basin since the land is constantly shifting. Beginning in the early summer, the monsoon rains transform the basin landscape. Extensive islands are thrown up, and attach themselves to the mainland, while the river deserts its old bed and seeks a new channel, sometimes many kilometers away. Such changes are so rapid and on so vast a scale that whole settlements, often provisional, are swept away only to appear again in an abandoned channel upstream the following year.

## 2.3 Transformational Landscape



Figure 2.4a, 2.4b: The Upper Ganges Canal intersecting intermittent rivers, under and over

The Ganges River basin is an operational landscape, composed of natural and human systems, working inter-dependently in time and space. The Upper and Lower Ganges Canals, built in the 19<sup>th</sup> century, irrigate approximately 400,000 hectares each and provide water to numerous settlements. The course of these canals is remarkable. Their paths often cross rivers, streams and intermittent riverbeds. In the case of the Upper Ganges Canal, it crosses both under and over existing riverbeds in its course through the Gangetic Plain. As such, it forms a laced network over the landscape. When entirely active during the Monsoon period, the rivers and canals work together to provide water to the millions that live in the basin.

## 2.4 Ephemeral Landscape



Figure 2.5a, 2.5b: Transitory landscape at the Magh Mela festival along the Sangam in Allahabad

Every year thousands gather at Allahabad to take part in the Magh Mela festival. It is located at the confluence of two great rivers, namely the Ganges and the Yamuna. The mythical underground Saraswati River, is also believed to join them there. The confluence is known as the Sangam ... and is the site for the Hindi faithful to visit at least once in their lifetimes. Both the setting and the experience are ephemeral. The occupation of the sandbars is somewhat unstable and always shifting and the materialization of the tent city is almost instantaneous, only to be decamped to make room for the rising river waters.

## 2.5 Im/permanent Settlement



Figure 2.6a, 2.6b: Im/permanent settlement at Varanasi ... passing of lords, swamis and common folk

Varanasi is considered to be one of the oldest, continuously inhabited cities in the world. It is also one of the holiest. The Hindu faithful gather at the ghats to cleanse themselves, to purify themselves physically and spiritually, to worship and to mourn. Hindus are inextricably bound to the cycles of the seasons, and the cyclical process of life, death, and rebirth. Varanasi embodies these events along the banks of the Ganges River amidst temples, ghats, castles, and open crematoria. Its architecture evokes a presence that simultaneously acknowledges life, death and rebirth, amidst ancient forms, in a constant state of change and becoming. The stains of previous flood waters on the sides of the buildings mark the passing of time.

### 3 In Conclusion



Figure 3a,3b: Locating the transitory: life, death, rebirth

The Hindu faithful have learned to work with water and periodic flooding, to embrace and to celebrate it. Their focus however, is not on the value of water but on the value of life and more importantly, its transitory nature. The Ganges is the meter by which they gauge the passing of time. They live at the intersection of natural occurrences and the human rhythms of life and with the knowledge that all is temporary and fleeting.

### References

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### Illustrations

All photographs taken by the author.