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CHANGING PARADIGM OF INDIAN FOOTBRIDGES: FROM CONNECTORS TO DESTINATIONS

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Summary:

The paper unfolds the journey of footbridges from the vast spectrum of India's historical, rural, peri-urban and urban context. The footbridges are studied from the lens of their need in their respective contexts, the transience or permanence of their nature, building materials and construction methodologies and how it ultimately defines their design aesthetics. It delves into the planning principles that have been considered for the footbridge like accessibility, site context integration and stakeholder range that have directly or indirectly impacted to their success or failure at multiple scales. It further goes on to discuss the morphological changes that some of the old footbridges have undergone and their adaptation or lack thereof to the needs of today's pedestrian needs. This gives an indication of the factors that dictate the premise for pedestrian infrastructure in general and the opportunities for footbridges in particular within the Indian context. It later outlines the attempts of RJB-CPL as a leading design firm in India in collaboration with structural designers to take these learning's through specific examples from their professional practice. The question that this paper presents is the need for such footbridges to commemorate places that are unique. It provokes these connections solely for the pedestrians who are the largest contributors to the modal share but remain majorly and literally side-lined on non-existent sidewalks of India. The paper also debates the notion of basing the development of cities by the measure of its 'walkability' and the role that the footbridges might play viz-a-viz its vehicular counterparts. The central idea of the paper is how these destination bridges could make our cities more pedestrian friendly and inclusive in nature.

Keywords: footbridges; negotiating boundaries; celebratory destination; emerging bridge design concepts; sensitive structural design; place making; walkability network; pause spaces

1. Chronological growth of foot bridges in India:

The Ram Setu Bridge connecting the Indian sub-continent to Sri Lanka is supposedly 1.7 million years old and one of the historically earliest known footbridge in the Indian context. Another compelling model from the remote rainforests of Meghalaya in eastern India is that of the Living roots bridges made by the members of the *Khasi* tribes, successively over the period of 15-30 years. With the exception of these rare cases, most of the other footbridges built in the rural counterparts of India till date, are made from readily available natural materials like ropes, bamboos or pontoons. Even though some of these bridges are temporal in nature 'by design', an extensive experimentation of construction methodologies is undertaken during the construction stages, due to the limited availability of technological resources in the remote locations. The same emphasis on moving the people across similar difficult terrains on foot does not however, hold true in the urban cities of India where infrastructure planning is undertaken formally for cities unlike the rural regions.

2. Infrastructure planning in Indian cities:

Numerically speaking, 15 million trips out of the total of 28.5 million trips undertaken in a city like Mumbai are solely completed by foot. These include last mile connectivity and trips without any other motorized modes of transport. In spite of this, different parts of the cities are being linked with only high speed vehicular

connections; wherein provisions for pedestrians have formed an implied subset without any dedicated design considerations. The construction of these pedestrian connections for commuting, much less for recreation or leisure purposes have never really gained much momentum in India with the investment towards this critical mode of transport being inversely proportional to that of their vehicular counterparts in India. Often the eventual sparsely located foot bridges that are planned to traverse these roads are at undeniably elevated heights with no structural aesthetics or street furniture to engage the pedestrians wanting to escape these corridors or worse, trying to trespass at grade instead of actually making use of this infrastructure.

3. Leapfrogging to skywalks:

In the past decades in cities like Mumbai, these foot bridges have been augmented by long skywalks manoeuvring across sometimes non negotiable territories like mangroves, conveying huge crowds from farther neighbourhoods towards the railway stations. This experiment of grade separation for pedestrians sometimes leapfrogged the construction of sidewalks for want of wider roads in these zones. Nonetheless, these mushrooming skywalks failed to gain popularity in the city due to various reasons like the absence of any pause points in their long and monotonous journey and lack of local stakeholder participation in the planning process. This resulted in restrictive commuter safety and programmatic disconnect with the adjoining fabric proved fatal to its acclimatization within the context.

4. Opportunities of footbridges in Indian context- from Connectors to Destinations:

In a context like Mumbai, where the green lung of the City are nowhere close to the proposed urban design standards in cities, such footbridges could become potential places or destinations to effectively pitch in towards and provide to its citizens their share of breathing spaces to the city. A footbridge has an added advantage of an elevated view point which allows the users to gaze at the subject be it a riverbank or a vehicular road or any other location that allows the user to engage with its surrounding passively without any interaction.

5. Footbridges through professional practice:

Ratan J Batliboi- Consultants Private Limited (RJB-CPL) has in their practice of over three decades been a part of the journey of many such successful public places and footbridges, some of which have been experienced and adored by its cities while some others are still in the pipeline. Juinagar Pedestrian Footbridge crossing Sion Panvel Expressway abutting Juinagar Railway station is one such example completed in the year 1997 along with Shirish Patel & Associates Consultants Private Ltd.

The other footbridge which is in the pipeline, is the competition winning entry of the Pedestrian and Cyclist bridge over the Mithi river in collaboration with Schlaich Bergermann Partner This bridge spans 350m and connects socially diverse neighbourhoods of the Dharavi slums abutting Maharashtra Nature Park to the shiny office complexes of the Bandra Kurla Complex.

During the entire process of design development, what we constantly struggled with was the need to restrict an over specification of design and allow the users to appropriate the use of the spaces on an everyday basis or during a special event..

5. Discussion and Conclusions:

While rural India has seen the advent and refinement in design for footbridges for more than half a century, urban centres within India seem to be just about warming up to the idea of permanent footbridges for leisure. By working towards providing improved pedestrian infrastructure, footbridges could become potential guides to align these eventual 'walkability' networks. The pause points on the footbridges could also drive the need to clean the 'view' that the footbridges would be crossing over and become destinations whether at a state, city or even a neighbourhood scale. This would be real indicators of development of our cities, when they become liveable, social and truly inclusive cities.