

Urban Waterways in Sustainable Development – Ensuring Cultural Tourism through Existing Heritage in Kolkata

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Abstract: The city of Kolkata is located on the Gangetic delta in the banks of river Hooghly. Since its inception - the city witnessed its growth through diversity of events from being the British capital to being the city which witnessed the birth of Indian struggle for independence. The city thrives on absorbing the plagues of partition, pressure of population expansion, economic depression and so on. One of the major aspect which makes the city unique and a favorite destination is its authenticity on being the most culturally narrative and livable city which perhaps neutralizes all the adversities that comes its way. Its glorious past is attributed to several reasons - one of which is the presence of an extensive network of canals within the city. These waterways which actually had their intended use for transportation of goods within the city are also symbolic of ensuring a unique cultural landscape and identity to the city today. Unfortunately, the condition of these canals remains ignored and underutilized today. They thrive and deserve to be at their elegant self as they use to be – an existing in built asset, the potential of which cannot be denied in promoting sustainable socio cultural tourism. This paper observes the uniqueness of the Tolly's Nullah or the Adi Ganga - the only canal which is a tributary from the river Hooghly and which has the potential to be glorified in playing its part in creating a Pilgrim Circuit which would not only add to the purpose of the visitors, tourists and the people of this city by adding to their recreational experiences but will also prove to secure itself from the aspects of sustainable challenges that the city would like to meet in terms of reducing the pressure on existing transport, pollution, population distribution, green open spaces, etc.

Keywords: Urban Waterways; Cultural Tourism; Smart City Concepts; Model Solutions.

I. INTRODUCTION

Evolution of Kolkata -

Kolkata - the first head quarters of the East India Company has its share of history, culture and geography attached with its growth and evolution. The city started originating linearly along the banks of river Hooghly. The whole area is in the Gangetic delta belt which starts within 100 km south to the city. Most of the city was originally marshy wetlands, remnants of which can still be found especially towards the eastern parts of the city. The average elevation is approximately 9 meters (30 feet) above sea level. The city can be termed as 'compact' concentrated along the fringes of the river. History recorded its existence since 12th century and its growth dates back to the year 1686 when it started from three small villages. Kolkata underwent several stages of expansion ranging from a garrison town to a company town to a provincial city and then to the headquarters of the British Empire in India. The British shifted their capital to Delhi in 1911. In the process, the country witnessed an English colonization and the city saw an organic and unplanned growth with little regard to sanitary and other infrastructure. The city's journey has been phenomenal as in how a fortified nucleus, basically meant to provide protection to the English went on to become the centre which saw the initiation of many freedom movement against the British to becoming one of the biggest cities of the world today.



Canals and their Social Presence -

The role of canals has been multifaceted all these years – facilitating movement of goods, supplying waters for irrigation, carrying city's refuse and wastes and providing nutrients to the wetlands. The entire layout of the canal system takes advantage of the natural slope of the city. The canals of Kolkata have once defined the image of the city - were used for purpose and pleasure both. But this slow moving water transport system perhaps could not cope up with the pace and development of the city and gradually the canals started losing their



importance and the city started neglecting and misusing them. As the skyline of the city started changing, the canals soon went to the backdrop and became the dumping ground of city affluent.

Overview of different canals flowing across the city -

Bagjola Canal (North Kolkata) originates in the swamps of Ariadaha, Dakshineswar - it continues as a narrow ditch till it reaches south Dumdum. Beyond the VIP Road, the Bagjola moves into the Rajarhat, the New Town area.

Circular Canal (East Kolkata) bifurcates into two branches, the Kestopur and the Beliaghata canal. The Kestopur canal runs parallel to Salt Lake and encircles the area. The Beliaghata Canal flows along the Canal East and the Canal West Road.

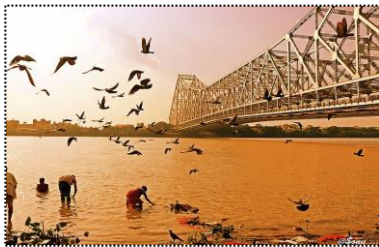
Tolly's Nullah or the 'Adi Ganga' (South Kolkata) enters through the Khidderpore area, bifurcates near Kudghat and flows along Tollygunje to the southern peripheries of the city. The canal runs through some of the major urban areas. (This paper deals with potential of Tolly's Nullah).

Eastern Canals (Central Kolkata) was a natural creek to the sewage pumping station of Entally was converted into large brick lined tunnel for draining storm water of the city. They included the Inner and the Outer Boat Route - presently nonexistent.

Municipal Drainage Channels (South East Kolkata) one originates at Topsia - it carries sewage and effluents to river Kulti. The other is storm water channel - originates at Ballygunje pumping, passes through the Bantala tank - supplies nutrient laden water to wetlands.



The city of Kolkata is suffering from innumerable problems like population explosion, traffic congestion and most importantly lack of public and green open spaces and revival of these water ways promises to counter a few.



This paper is one such attempt with some effective reasoning towards the above thought. The study here highlights the location of the three major tourist destination of the city - the Kalighat, the Belur Math and the Dakshineswar temple which are situated along the waterways. The Kali temple of Kalighat is situated along the Tolly's Nullah, which is connected to the River Hooghly which facilitates access to the Belur Math and Dakshineswar which are on the banks of the river.

Objective -

To address the uniqueness of Tolly's Nullah - its potential in addressing some key concerned areas of the city of Kolkata under present context by creating a 'Pilgrim Circuit'.

Methodologies -

- Overview of Kolkata's standing with respect to various parameters that meet the basic desirable limits in order to be sustainable - the urban area situations.
- Physical studies of emergence existence and transformations of Tolly's Nullah - finding reasons and tentative potential with respect to advantages against its location.
- Formulate the Pilgrim Circuit and its tentative viability keeping the schemes, funding agencies and countering Kolkata's concern towards sustainability.

City Specific Concerns -



Pollution -

The Air Quality Index and Water Quality Index - ideally should be less than 50ppm for both the parameters. Kolkata's average AQI is 250ppm making it 2nd most polluted city and WQI is on average 350ppm which is also a major concern.



Population Density -

The population density ideally is around 400 persons per square kilometer according to the URDPFI guidelines. Kolkata harbours more than 24,000 persons/sq. km. making it the 2nd most densely populated city in the world.



Road Density -

Kolkata has only 6% of area allocated for roads as against 30% minimum for ideal conditions. The time consumed in transportation is one of the major concerning areas making survival in the urban areas one of the most unpleasant experiences.



Recreational / Socially Interactive Spaces -

The city has concerning shortfall of Recreational Spaces throughout. Ideally it should be around 45-50% including the streets and green open spaces. The reality is less than 20% that Kolkata has. This despite the Kolkatans are very much known to be socially proactive.



Traffic / Parking -

Recommended numbers of vehicles around a major node is not more than 50 cars. Kolkata harbours around 70 vehicles on average in peak hours - this is a situation despite being Kolkata having one of the best public transport system in the country.



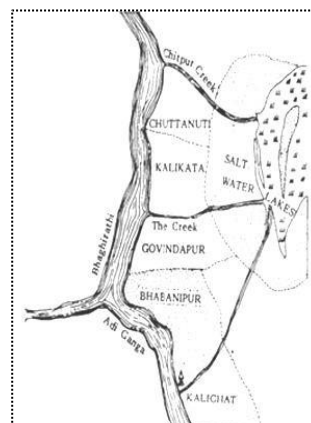
Green Open Space -

Ideally 15% of city's space should be mandatory for Green Open Spaces according to URDPFI guidelines. Kolkata has less than 10% areas of which 3% area is concentrated only at the Maidan area - which is also known as Lungs of Kolkata.

Uniqueness of Tolly's Nullah -

The Adi Ganga, also known as the Gobindapur creek and Tolly's Nullah (presently), was the main flow of the Hooghly River between the 15th and 17th century that virtually dried up due to negligence and natural reasons. The Tolly's Nullah meets the Ganges which highlights the significance of the river in the lives of people in Bengal. The junction where the sea took its name 'Sagar' is the junction of the river and the sea - the Ganga Sagar. The Ganga Sagar Mela is considered as a major annual festival and attracts a huge number of pilgrims and visitors to the city.

The earlier course of the lower Ganges as it flowed through the Bhagirathi channel was somewhat different from what it is today. At Tribeni, near Bandel, the Ganges branched into three streams - the Saraswati flowed south-westerly, the Jamuna (not the same river as in North India) flowed south-easterly. The Hooghly flowed in the middle; it glided down to Kolkata and then flowed through the Adi Ganga, past Kalighat, Baruipur and Magra to the sea. In the old route - Adi Ganga, the original channel was quite identical to present day's Tolly's Nullah from Khidderpore to Garia and further on to the sea. Adi Ganga also marked the southern boundary of the Gobindapur villages.



Present Day Condition -

After independence, Tolly's Canal has neither been restored, nor maintained. This has several socio-ecological implications. Water logging in the city's roads and neighborhoods is a common occurrence every monsoon. This is largely due to the failure of our age old sewerage system that has been neglected by the government. The situation is aggravated by the unregulated and unsustainable urban growth of Kolkata to her eastern side at the cost of her canals and wetlands. Several pumps are pressed into service after every spell of heavy rains but they fail to drain out water as the canals remain heavily silted resulting into tremendous water logging in several parts of the city. Along with ecological costs, the social costs of the degradation of the Tolly's Canal have been severe. Once the Adi Ganga was revitalized by William Tolly, a number of ghats grew up on the banks of the canal. But gradually since the 1960s the water route lost its presence and the canal remained to be a discharging outlet for the southern part of the city. The once navigable canal transformed into a mere Nullah (drain) due to lack of restoration and maintenance.



Canal Specific Situations -

The banks of the canals have little or no monitoring from the administrative perspective following which these become an easy target for encroachments, unauthorized settlements, slums and squatters to settle in. The following are the summation of overall situations -

- Population expansions, existing demographic problems and lack of planning have pushed people to settle alongside the canals causing degeneration of canal banks.
- Inadequate water depth, broken lock gates, excess sedimentation and sludge has caused a near stagnation of water in the canals leading to unhygienic conditions.
- Growth of the city has led to gradual depletion of East Kolkata Wetlands - choked the flow and inviting backflow. The waste waters started filling the canals leading to stagnation and degradation of water leading to serious water pollution and health hazards.

The Tolly's Nullah is the component here which is referred to 'heritage' in the title of this paper. It's not that attempts were not initialized in the past to give this existing asset an assurance for revitalization. But time and again, plans and promises went in vain. The potential of reviving inland water transport leaves a huge task to be fulfilled. The Asian Development Bank (ADB) sponsored Kolkata Environment Improvement Project (KEIP) sought to restore Kolkata's canal system and wetlands since it was launched in 2002. But despite having the fund - very little seemed to have actually happened. Kolkata may be an ecologically subsidized city. The slaughter of Tolly's Canal proves that in spite of pluralities in urban environmentalism, authoritative environmentalism often gains support from the people of the city.

A brief overview of the key areas where the Tolly's Nullah can contribute in ensuring a sustainable development of the city be listed as under -

- **Relevance of History and Heritage** - The canals played their role of transporting goods to various parts of the city which was the need of the city at that point of time when they were trenched. The uniqueness of the Tolly's Nullah being the only canal which connects with river Ganges. This connection itself speaks volumes for its potential in terms of history. The canal further goes by the Kalighat Temple precinct (50m distant approx) which is also enumerative of existence of water source near a religious structure of such historical prominence - Kalighat is one of the 51 piths.

- **Implementation of Ganga Action Plan** – The Department of Environment, GoI prepared an Action Plan for the prevention of pollution of the river Ganga in December, 1984, which was subsequently revised in July, 1985 and has been known as the Ganga Action Plan. The Action Plan recognizes the fact that the Ganges is mostly polluted especially near the towns situated on either banks and recommended for urgent steps to be taken to prevent further degradation. In Kolkata, three Municipal Corporations within the territorial jurisdiction of CMDA are situated along the banks of the river of which the Kolkata and Howrah Municipalities lists top priorities. The plan mainly focuses on making Ganga and all its tributaries and channels free from adversities. For the Tolly's Nullah – its outreach was studied and designed by the River Research Institute, West Bengal and the scheme – 'Improvement of Tolly's Nullah' under CMDA was administratively approved. It included dry brick pitching on its bays, dredging and trenching as per specifications which has been made in part-I of the estimate. Dredging work has been provided in part-II of the scheme as well. Annual maintenance cost @ 11% of the capital cost on the basis of norms in force has been provided. Implementing the Ganga Action Plan, phase –II, would mean -

- Clearing the present pollution and erosion.
- Achieving a clean flow of water.
- Make a strong embankment.
- Achieve the desired depth.
- Restricting construction within 6 meters on both sides of the canal bank.

- **Enhancing Tourism Potential** – Kolkata happens to be the biggest nodal city of eastern India. The geographical location points its proximity to the neighboring countries like Bangladesh, Nepal and Bhutan apart from the adjoining states of eastern and north eastern India. The city is also a proof of peaceful co-existence of most multi lingual sects of people. The city once being the capital of the East India Company is witness to some prominent structures across. The state is visited by a huge number of people for its religious significance as well. The Kalighat, Dakshineswar and the head quarters of the Ramakrishna Math and Mission – the Belur Math fetches a reasonable devotees and tourists throughout the year. But the income through tourism is not up to the mark for the state and lot needs to be done. The Tolly's Nullah stretch assures a considerable tourism potential as it connects with the river Ganga - the Belur Math and Dakshineswar temples are situated in near proximities along the banks of the river.

- **Ensuring Socio Cultural Aspects** – A significant development is always assertive of simultaneous encouragement of related aspects. Here a simple consideration of using existing waterways within the city assures to give Kolkata some unique edge and identity over other cities. The city is historically rich and breathes culture. But under the present context of growth and development – the scarcity of socially public interactive spaces is really less and dying – a fact that can't be denied or ignored. The introduction of allied activities will provide with such forum and platforms for socio cultural exchanges of tourists visiting the city and also for its citizens.

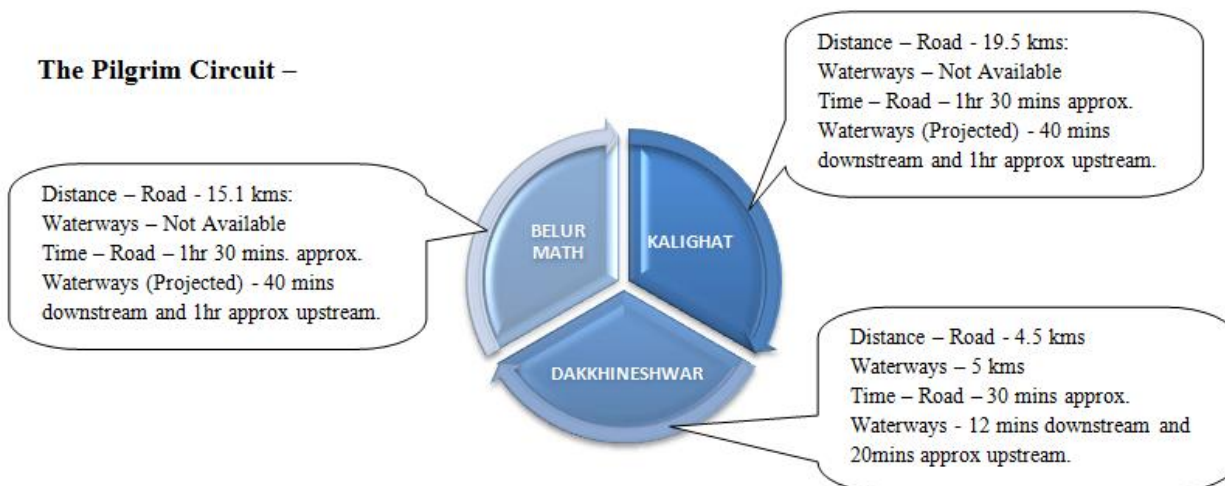
- **Promoting Recreational Experience** – While the original intended use of the canals were transportation of goods – the people of Kolkata used the canals as a place for social interaction and recreation in old Kolkata. Under the modern context, the absence of 'Breathing Spaces' in the urban area is a serious concern – the beautification of the canals will surely add to recreational experience of the city dwellers. Allied activities of various age groups can be categorically identified and addressed by creating multiple zones and activities which would in turn add to recreational experience to the city dwellers.

- **Addressing Pollution and Green Open Space** – Of the Tolly's Nullah can be a modular proposal to serve a potential solution for the concerning situation of the AQI & WQI as observed earlier. The mandatory 'No Construction' up to 6m on either sides assures for Green Open Spaces that is a major shortfall to reduce the AQI. Embankment of canal bays will allow organized landscaping. The dredging and trenching of the Nullah can be observed across all canals throughout the city. This will have a contribution to bring down the WQI.

- **Effective On Road Density and Traffic Load** – As Kolkata is an old city that exhibits its expansion in organic growth – very little can be done to increase the percentage of existing roads that runs through the city except for a few flyovers in selective areas. The upcoming metro railways are expected to make communication faster but they have a selective route and the urban population is also growing by the day – hence, won't be a solution in the long run. The Tolly's Nullah if used properly as mode of transportation can easily be a torch bearer as canals run as spines through many major areas of Kolkata. These blue corridors are inbuilt assets that the city possesses - should ideally be proposed as a mode of daily transport. The city which has such rich blend of existing heritage in forms of Tolly's Nullah and similar others – not only through the old parts of the city but also in the newly developed areas like the Salt Lake and New Town, should be thoroughly appraised and promoted as they serve many aspects needed for a sustainable growth of the city.

- **Employment Opportunities** – An organized effort towards a path breaking initiative always opens up many allied avenues. This initiative is sure to generate many small scale business opportunities in general. This can be a platform for promoting local arts and crafts, cultural display of Bengal's culture, food joints apart from the full time employment of the local people at the micro level.

Key Proposal –



FOOTFALL	KALIGHAT	DAKKHINESHWAR	BELURMATH
DAILY	30,000	40,000	20,000
WEEKEND / SAT & TUES	50,000	50,000	30,000
OCCASIONS	2 lakhs	1.5 lakhs	1 lakh

Confined Proposals -

- To be a package trip by the HRBC or an outsourced agency covering all three making a 'Pilgrim Circuit' – to be promoted keeping all sustainable aspects of the city including revenue generation.
- Both ways trip to start from the Kalighat after the Kali temple visit or vice versa from the Dakshineswar ghat after the temple visit.
- Belur Math is the intermediate stop where the pilgrim destinations can break for their lunch. This will also ensure a substantial tariff for the R.K.Mission, one of the biggest NGO's of the country.
- Ending at Kalighat means making exit in the heart of south Kolkata. Pilgrims can sit for the kalikirtan in the evening and end their trip on a resolute note.
- Proximity of Dakshineswar to the Dumdum airport will mean – ending the trip here will eventually make catching the evening flight easy.
- The ferry after lunch passes through Howrah area – pilgrims intending to catch an afternoon train may cut short their trip and get down at the Howrah Jetty Ghat.
- The Princep ghat in between can also be purposefully be used. A break and breakfast or afternoon snacks at Princep ghat on the way can make the trip more eventful.
- Opening time of Dakshineswar and Kalighat temple premises are important for morning timings of this Pilgrim Circuit. For example Dakshineswar and the Kalighat Temple open at 5am – the first trip may start at 6am after the morning rituals at the respective temples.
- There can be multiple trips throughout the day depending on the opening and closing times of the respective spots – the time required is much less compared to commuting through roads and the experience is hassle free.

II. CONCLUDING DISCUSSIONS –

Taking care of what we have glorifies our responsibilities. The canals are in built heritage that the city possesses and something the people of Kolkata deserves to celebrate. These waterways are symbolic of Kolkata's visual, perceptual, social, cultural, historic and traditional response and their beautification should resolutely counter the impacts of urban escalation of the city. The Government of West Bengal recognises their importance in order to restore its long lost image as this will augur well for a sustainable urban environment ensuring a holistic growth of the city. The study here may go on to show that sensible administrative intervention may well troubleshoot some serious urban situations countered by the city today just by cashing on the existing assets. The proposal formulated in this effort is through a 'Pilgrim Circuit' but this may well be a Modular Proposal for the potential that other water channels running throughout as spines in the city – holds in sorting the urban threats and address sustainability concerns.

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