REJUVENATING THE DISAPPEARING URBAN SPACES IN DHAKA
An approach through placemaking around Hazaribagh Canal area

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Abstract: With its proximity to the Buriganga River, Hazaribagh boasts a rich historical significance. Though it is one of the most highly dense areas in Dhaka, its living standards have been highly criticized. Hazaribagh Canal, as one of the oldest canals in Dhaka, has been unfortunately damaged by human activities-especially tannery wastewater discharge. What was once a lifeline of transportation has now degraded through lack of planning, mismanagement, and human disdain into an urban hazardous and unsanitary area. We aim to tap the potential at the canal and implement sustainable strategies to revitalize this fading space and promote social activity. The approach will involve both qualitative and quantitative methods of collecting and analyzing data to develop design guidelines for improvement of the current condition and ultimately improving the social well-being of the residents. Furthermore, our overarching concept centres on "Placemaking," that involves a collective effort to turn public spaces into vibrant urban hubs that strengthen the bond between people and the places they inhabit.

Keywords: *Urban Placemaking; Urban Rejuvenation; Water Urbanism; Canal Revitalization*

1. Introduction:

Dhaka's urban history once depicted a vivid picture of a city rich with lush greenery and a complex network of waterways, showcasing a harmonious blend of nature and urban life. Yet today it is impossible to clearly see any of these aspects or attributes as the city due to encroachments, unplanned offices, and various other deviant attitudes from both government and the people, has lost its green beauty. The consequences of such unchecked urbanization are now evident. Over time, Dhaka has witnessed a gradual decline in its urban green open spaces and free-flowing waterways. What was once a city of lush greenery has now turned into a concrete jungle! This disappearing phenomenon of urban spaces in Dhaka eventually led to a decline in the quality of urban life.

Over the past three decades, Dhaka, the world's most densely populated capital, has lost over 50 canals, disrupted its natural drainage system and caused severe urban flooding during monsoons. This urban crisis is a result of unchecked construction and massive garbage dumping. In response, the Local Government Division has launched a project to reclaim and develop four major canals in Dhaka, aiming to alleviate the waterlogging problem, particularly during monsoons, in the southern part of the city. The Hazaribagh Canal, Jirani Canal, Manda Canal, and Shyampur Canal are set to be developed and freed from illegal occupation and pollution. This initiative is expected to benefit around 50 lakh city dwellers in the Dhaka South City Corporation (Zakaria, 2021).

The Hazaribagh Canal, also known as the "Kalunagar Canal," is pivotal in the urban reclamation and development project due to its strategic urban location and historical significance. Considering how much it was destroyed and harmed, it is essential to rehabilitate Hazaribagh now. Making the canal a Hazaribagh again is not about saving and restoring the river, but about adjusting the lands to the waters and around the areas of the canal that satisfy the modern principles of urban development. It is very important to revive the Hazaribagh canal environment, considering that there has been a lot of encroachment and damage done. The revival of the Hazaribagh Canal goes beyond reclaiming and restoring the waterways; it necessitates a harmonious relationship between land and water around the canal areas, incorporating urban placemaking concepts. This paper delves into the haphazard condition of the Hazaribagh Canal, analyzing its historical, demographic, and contextual aspects. This paper examines the structure of the Hazaribagh Canal while discussing its historical, demographical, and contextual aspects. Further, it discusses the adverse effects of the uncontrolled development of Dhaka city on the aquatic system and greenery within the city, which in turn causes a burden to the settlement within the city regarding societal and economic factors. The study proposes an ideal model for reclaiming leftover urban voids by successfully revitalizing the canal using urban placemaking concepts that foster cohesive, sustainable communities.

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2. Study area:

The study is focused on the Hazaribagh Canal area in Dhaka, which is undergoing transformative urban design efforts to become a vibrant urban place. Hazaribagh, located within Dhaka city's Detailed Area Plan (DAP) Zone 16, represents a critical area for urban redevelopment due to its significant physical and environmental degradation, exacerbated by brownfield sites and other urban issues. Once a hub of industrial, commercial, and community activities, many areas within Hazaribagh are now abandoned or underutilized, offering unique opportunities for revitalization. Geographically, Hazaribagh is situated southwest of Dhaka's city centre and became integrated into the city as it expanded (Figure 01).

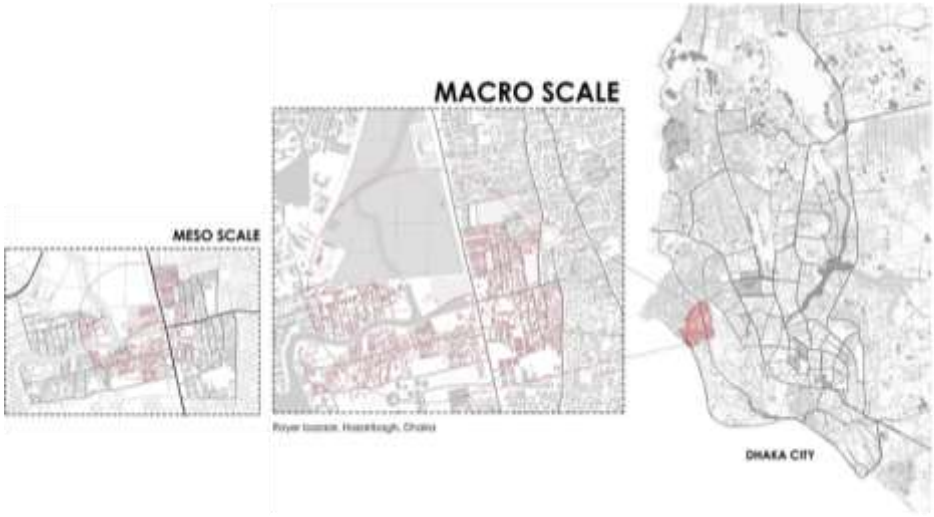

Figure 01: Location of Hazaribagh within the context of Dhaka city (Left) and Existing location map of Hazaribagh Canal in context of its surrounding neighbourhood area – Hazaribagh, Dhaka, *Source: Author*

The Hazaribagh canal is significant because it flows from Buriganga. It mainly flows within the residential and mixed-use zones. The canal flow is discontinued. The main portion falls into residential zones. It divides two Thanas. The northern portion is Mohammadpur, and the southern portion is Dhanmondi. The existing land use map (figure: 02) from DAP shows the area as predominantly residential, with a portion of unused land and commercial areas. The proposed land use of DAP indicates the area to be developed as a mixed-use zone (residential based) (Detailed Area Plan, DAP,July 2022).This junction has historically separated residential communities. For the purposes of this study, a 1 km radius around the junction point is defined as the survey area, corresponding to a 5-minute neighbourhood for data collection. The area of interest is further divided into three prime zones: the Buriganga River View Town, the Metro Housing Area, and the Sadek Khan Krishi Market Area. All these zones are projections on the urban background showing the Hazaribag Canal area's potential of urban regeneration while showcasing diverse urban fabric.

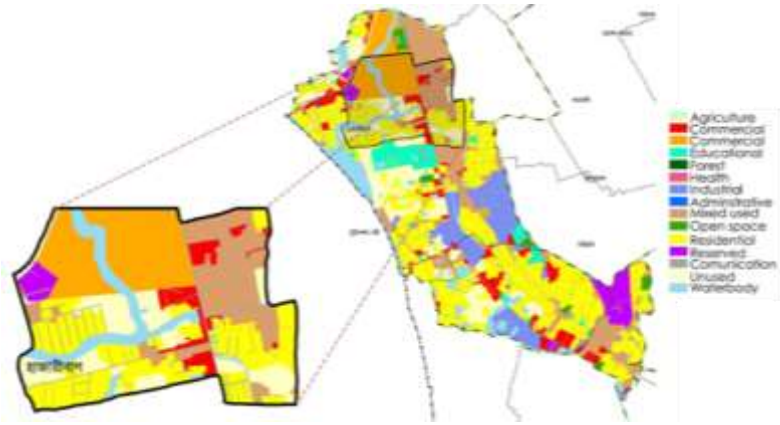

Figure 02: Existing Land use map of Hazaribagh, *Source: Detailed Area Plan 2022-2035 volume 2, zone 16*

3.Historic analysis:

Historically, The Hazaribagh Canal served as a crucial transportation route for people and goods. The area was characterized by its numerous ghats. However, there is an interesting trend concerning these ghats - most of them are no longer there because the canal has degraded over time, some however have expanded and are still in use and in reasonably good shape. To the west, an embankment was built in the late 1980s to protect the area from flooding. Beyond this western embankment

lies the floodplain of the Buriganga River (Rahman & Fatemi, 2015). As urbanization increased, encroachment occurred. The supply and storage of brick along the canal caused it to fill with sand, hastening its deterioration. Additionally, the character of the canal has been further compromised by waste disposal activities and consignments such as dumping, thereby leading to loss of the historical connection of the area to water, ghats and boats. Unplanned settlements, lacking essential infrastructure like sewerage lines, worsened the situation. The canal front, which could have been a prime development area, became neglected. Only one boat remains at a ghat, while others have disappeared. Rapid and unplanned urbanization has primarily forgotten the Hazaribagh Canal's historical significance as a vital waterway.

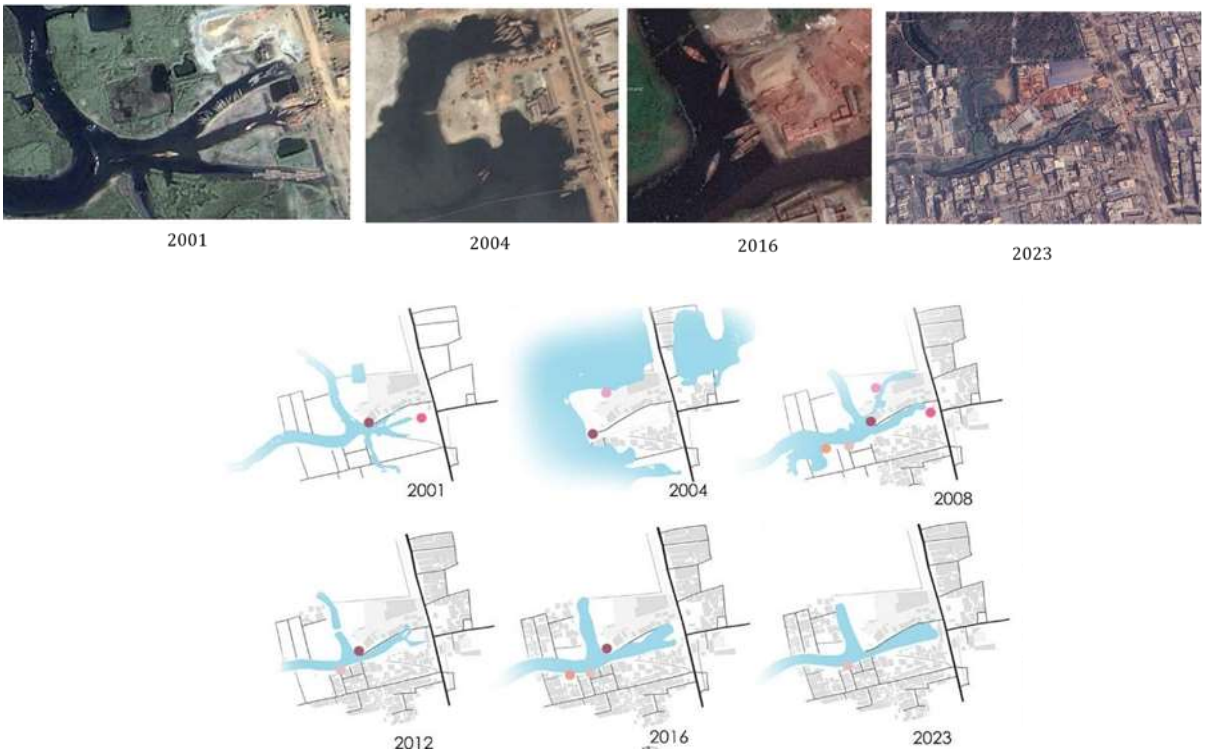

Figure 03: Understanding the changing pattern of the Hazaribagh Canal and its surrounding through analysing google earth historic timelines and GIS Mappings, *Source: Google Earth*

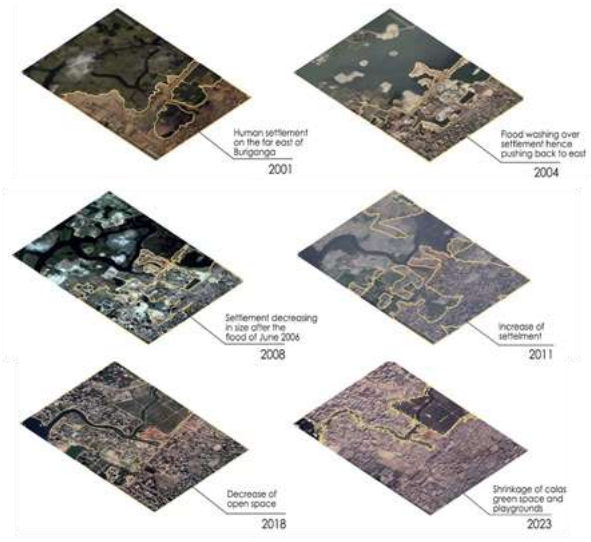

Figure 04: Understanding Evolution and Changing of Settlement Pattern over time, *Source: Google Earth*

4. Objective:

One of the main objectives of this paper is to identify the disappearing urban spaces around Hazaribagh's canal area and to find design strategies to mitigate the deteriorating condition through proper revitalization of urban spaces. Such an approach involves designing a contextual place by uniting placemaking concepts with urban design principles to facilitate user-friendly and creative use patterns while fostering a sense of innovation and adaptability. At present, uncontrollable urbanization and social disinterest are responsible for causing a vacuum of public spaces that are beneficial in and around

Hazaribagh running canal, hence inevitably diminishing the sense of community and locality. Addressing these issues requires a studious approach, prioritizing connectivity, environmental sustainability, and social inclusivity. By reimagining these spaces to serve the community's needs and aspirations better, the canal area can evolve from a neglected backdrop to an active and integral part of Dhaka's urban fabric. Rather, the focus is on the development of physical, environmental, cultural and social aspects of these regions. Additionally, the paper aims to propose an accessible public urban realm around the canal area while prioritizing human scale and promoting enhanced pedestrian movement while ensuring better accessibility to these essential public areas in Hazaribagh and the broader city.

The concept of "Placemaking" refers to a collaborative process aimed at shaping the public realm while maximizing the shared value of a place or community. This paper will develop a focused and methodical understanding of the study area and the probable outcomes of the proposed strategies. Holistically, these design principles and approaches will be envisioned at different scales within the study area to achieve the intended urban design objectives for revitalizing the disappearing urban spaces in Dhaka city (Project for Public Spaces, 2007).

5. Methodology:

Our research employs a variety of methods, each aligned with placemaking principles to engage the community about their needs, site- specific insights and stakeholder feedback in the design process. Questionnaires, interviews, and expert consultation are instrumental in gathering data from community members. Mapping and surveying, on the other hand, provide crucial insights into the site. These methods, when combined, form the foundation for our comprehensive design decision-making process.

a. Site Analysis (secondary sources): Placemaking principles underscore the importance of history and context in shaping vibrant urban spaces. To conduct a comprehensive analysis of the secondary sources on the Hazaribagh area, examining the history, phase-wise aerial maps, existing conditions of the canals, adjacent present land use, and surrounding infrastructure. Timeline analysis, CS RS map, and Detailed Area Plan are studied thoroughly to gain knowledge about existing and proposed planning development.

b. Literature Review: Placemaking values collaborative and culturally relevant spaces, drawing from urban design principles and theories such as water-urbanism and brownfield redevelopment. A thorough literature review guides our design decisions and policymaking. We draw on relevant urban design principles, water-urbanism theories, brownfield development, and case studies to inform our approach. This review of existing works and reports provides a solid foundation for our design decisions.

c. Expert Consultation: Diverse perspectives and insights from the expert consultation provides insightful knowledge for a successful urban intervention. By attending lectures of urban design experts, environmentalists, and local stakeholders, we ensure that our design decisions are shaped by diverse perspectives and insights. Integration of diversified insights informs our approach to placemaking by incorporating different perspectives into the design process.

d. Surveys and Mapping: Undertaking physical surveys and mapping techniques at micro, meso, and macro scales to understand the spatial and environmental issues, as well as the socio-economic dynamics affecting the canal. Questionnaire surveys, urban activity mapping such as people following methods, mental mapping, and interviews are conducted with the residents of the canal-side areas. Surveys are conducted according to different ages and genders as well as according to area by applying placemaking principles of inclusivity and accessibility.

e. Stakeholders' feedback: The design process is enriched by the inclusion of diverse perspectives. Stakeholder feedback, which includes discussions with local communities, authorities, and environmental organizations. It is a key part of communal inclusivity. It ensures that the design process is not just about the designers but also about the people who will live with the design. Interviewing them will result in understanding real problems in their views, which will guide decisions and policy making.

6. Analysis:

The overall study has been conducted in several phases. The primary data have been collected through visual observations, mapping, photographs, field surveys, sketches, and field notes. To understand the current situation of the three separated communities and the Hazaribagh Canal front along the encroached open space adjacent to the canal area and to arrive at some planning and design decisions that would mitigate the problem—identifying economic class and significant age groups and livelihood scenarios. Interviews and questionnaires are used to find the community’s needs and aspirations. The following methods were primarily used in completing the study.

6.1 COMMUNITY SURVEY (AREA BASED)

Along with the Hazaribagh canal, the area of interest is surrounded by Rayer Bazar Graveyard, Rayer Bazar residential area, Sadarghat-Gabtoli Road, Dhanmondi Riverview town, and West Dhanmondi residential area. In the area surrounding the Hazaribagh canal, there are three distinct communities based on location and income levels. Besides the main road, the Rayer Bazar Residential area has two parts: a middle-income zone for working-class people and a high-income zone where most residents run businesses. There is a proper road network in the area, but the road conditions could be improved, and there is a need for organized residential buildings as well as taller structures like hospitals, schools, and commercial buildings. Due to encroachment and lack of connectivity, the Dhanmondi Riverview Town has mainly lower-income residents; both authorized and unauthorized structures are built in this area. The area is in dire need of proper infrastructure, such as better roads and sewerage facilities. A developed residential area in West Dhanmondi is considered a middle-income zone and is disconnected from Rayer Bazar and Dhanmondi Riverview. An underutilized non-residential encroached space adjacent to the canal stores construction materials such as brick, sand, etc.

Figure 05: Site-surrounding Condition Mapping of the Adjacent Canal Area based on Site Survey, *Source: Author.*

Figure 06: Income-based Zoning of Hazaribagh Area, *Source: Author*

6.2. COMMUNITY SURVEY (AGE AND GENDER BASED)

According to Gehl, activities in public spaces can be categorised into three types: necessary activities, optional activities, and social activities (Gehl, 1987). This survey - a collaborative effort with the community, aims to assess the current state of Hazaribagh's public spaces through Gehl's vision and identify opportunities for improvement. Observations were made on how often and in what ways people interact in public spaces to understand how these areas facilitate community connections. Additionally, residents were asked about their experiences and views on public spaces, particularly regarding accessibility, making them integral to the assessment process.

Figure 07: Visual Illustration of Community Survey of Hazaribagh Canal Area_ An Ideal Cohesive Community, *Source: Author, Illustrated by Md. Shaidujjaman Shuvo*

Respondents identified several reasons for the decline in canal use. Respondents' answers hint that lack of secondary transfer stations (STS) in the area is the main challenge. This absence has led to unplanned settlements needing more

connections to the city sewage system, resulting in residents continuing to dump waste along the canal side. Many respondents reminisced about the glory of the canal front as an active social space but now tend to avoid the area. A newly developed residential area in West Dhanmondi is considered a middle-income zone and is disconnected from RayerBazar and Dhanmondi Riverview. An underutilized non-residential encroached space adjacent to the canal stores construction materials such as brick, sand, etc.

The questionnaire targeted a wide array of people: from the neighborhood and nearby areas, workers, to local businessmen. Different views were recorded in various age sets and sexes on what they wish to see along the riverfront. Younger people wanted more playgrounds, but older generations aspired to more leisure spaces. A common theme among all respondents was the desire for a well-connected bridge linking residential areas and a clean environment around the canal.

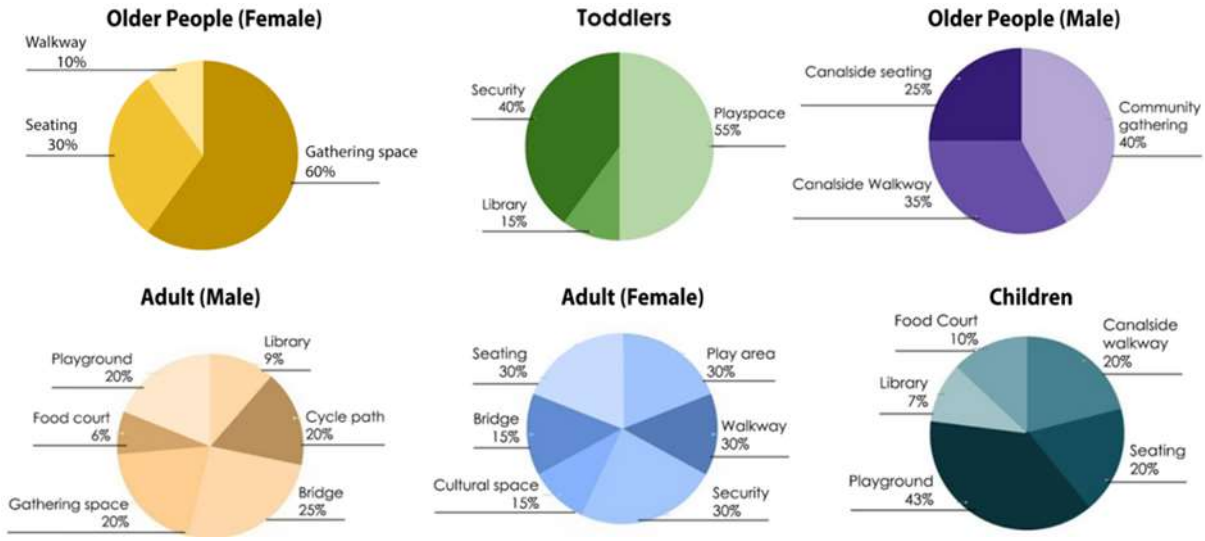

Figure 08: Community Survey Data for Public Urban Need Analysis based on Age Group, Income Group and Gender, *Source: Author*

6.3. SWOT ANALYSIS

The SWOT analysis conducted for the Hazaribagh Canal area comes from a systematic and multi-method approach that includes observation, surveys, mapping, and community feedback from the methodology section. The gathered data was critically analysed to synthesize interconnections between different factors, such as how poor drainage exacerbates health hazards or how existing open spaces could be better utilized to connect the communities.

STRENGTH	WEAKNESS
● Abundance of open space ● Scattered green spaces ● Existence of water bodies ● Green space between building, ● Local bazaars fostering commercial activities.	● Poor drainage planning ● Disadvantageous condition of streets and roads ● Illegal occupation of land and water bodies, ● Improper placement of personal belongings on public space.
OPPORTUNITIES	**THREATS**
● Available local bazar, ● Food security, ● Connection between commercial, residential area and canal-side, ● Connection between road and canal, allowing it possible for renovation.	● Absence of appropriate setback and zoning, ● Deteriorated condition of road and transit, ● Health hazards from dust, mosquitoes, and waste mismanagement. ● Improper waste disposal threatening the ecosystem.

7. Discussion

The SWOT analysis pinpoints challenges and opportunities in the Hazaribagh Canal area as two sides of a coin. Strengths include green open spaces and water bodies that provide a firm base for sustainable interventions, while weaknesses like poor infrastructure and misuse of land indicate urgent needs for regulatory and design measures.

Opportunities for enhanced connectivity and local economic activity can be leveraged to counter threats like health hazards and environmental degradation. This analysis serves as a vital tool for formulating informed, community- oriented urban design strategies. Findings from the survey show the current condition of the canal front along the Hazaribagh encroached area as an alarming situation.

7.1 DETRIMENTAL CONDITION OF HAZARIBAGH CANAL

This canal has lost Navigability due to Silt Deposition and a Permanent Bottom at the Canal (which affects water flow), which has hampered the frequent movement of Boats and caused heavy loss in time and economy of this once busy commercial area, which had some major Ghats in its past. Furthermore, the dumping of dirt, domestic waste, and toxic waste from residential and commercial areas on the Canalside roads (figure: 09) and the lack of a proper waste disposal system resulted in a detrimental working environment for workers and businesspeople. Nowadays, this canal has become a mere drain for sewage (figure:10 & 12). There is an encroached space adjacent to the canal where many construction materials (mainly sand) are stored and brought by a pipe through the canal, which is one of the main reasons for the canal's lost Navigability (figure:13). There are no visible canal-based activities, public open spaces, resting areas for local labourers, or community green spaces. It is making the canal front unusable day by day instead of being a potential area for generating optional and social activities. Previously used for transportation and fishing, the canal is now devoid of fish, and its potential for transportation is minimal (figure: 11 & 14).

Figure 09: canal-side domestic waste disposal

Figure 10: Sewerage line opens at canal front.

Figure 11: canal-side broken walkway

Figure 12: canal filled with water hyacinths

Figure 13: Sand carrying pipe over canal.

Figure 14: Only remaining waterway transport and ghat

7.2 ACCESSIBILITY & RELATIONSHIPS WITH THE CANAL AND ITS SURROUNDING

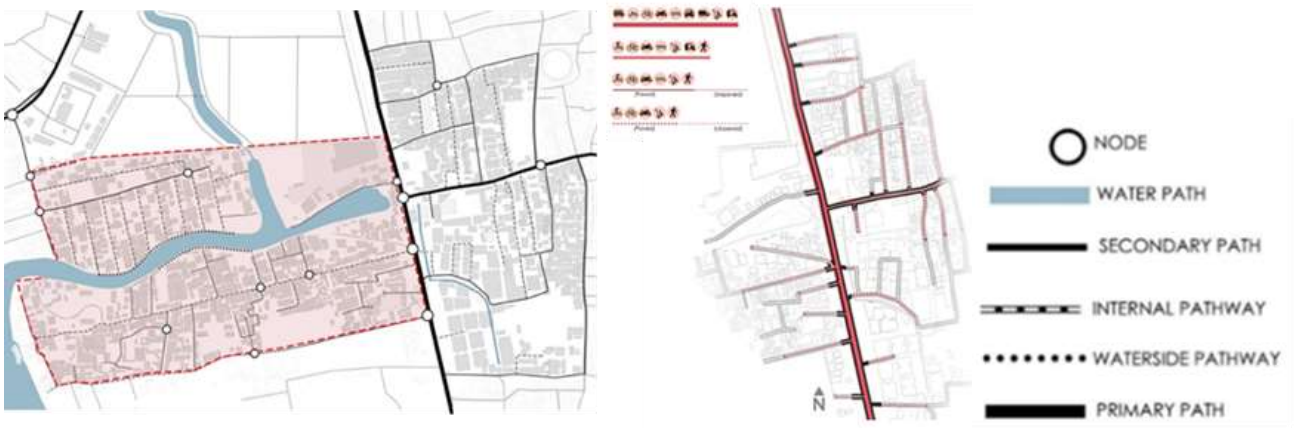

Figure 15: Existing Transit and Primary Road Mapping Diagram, *Source: Author*

The Hazaribagh Canal, accessible through the Sadarghat-Gabtoli main road (figure no 15 right) and various minor roads, is facing a significant issue. Severe waste disposal at the end of the road has turned these areas into dead ends, blocking access to the canal front. The unauthorized construction at the canal front has not only reduced the canal's width but also eliminated proper pedestrian ways. The two existing pedestrian roads, one beside the West Dhanmondi Residential area and the other beside the Dhanmondi Riverview area, are in a deplorable condition. They are broken, congested, and filled with domestic waste due to a lack of maintenance, highlighting the urgent need for improvement.

7.3 CANAL RECLAMATION

The canal should be dredged to increase its depth, increase the water capacity, and remove water hyacinths. Illegally encroached areas should be taken. So, the canal will be widened to increase its natural flow. (figure 17) The canal front walkway should be widened and visually connected to the main road so that it can be used for circulation and commercial activities. The buildings beside the walkway should be constructed/converted as canal-facing warehouses/shops, the same as the main road's frontage. It will also create a sufficient environment for the canal front to be suitable for functional commercial activities and Social Interaction between the residents, business houses, and workers.

Figure 16: Existing Canalside encroached space,
source: google earth

Figure 17: Proposed canal restoring proposal,
Source*: INTEGRATED DETAILED AREA PLAN (2022-2035)*

7.4 CANAL FRONT SPACE REVITALIZATION

The canal front walkway should be widened and visually connected to the main road so that it can be used for circulation and commercial activities. This will create a welcoming environment for both business and social interaction among residents, business owners, and workers. Also, providing green spaces will help a great deal to make this canal front more liveable once again. Moreover, the side streets/alleys connecting the canal access road and the vehicular main road will be used as the access road for buildings in between them. They should have the minimum requirement of accessibility, depending on the needs of the community. Different types of reintegration based on the community's needs should be considered. Diverse recreational options for all age groups and inviting spaces with seating, shade, public art, and community gardens can be added to encourage social interactions and make the area more appealing.

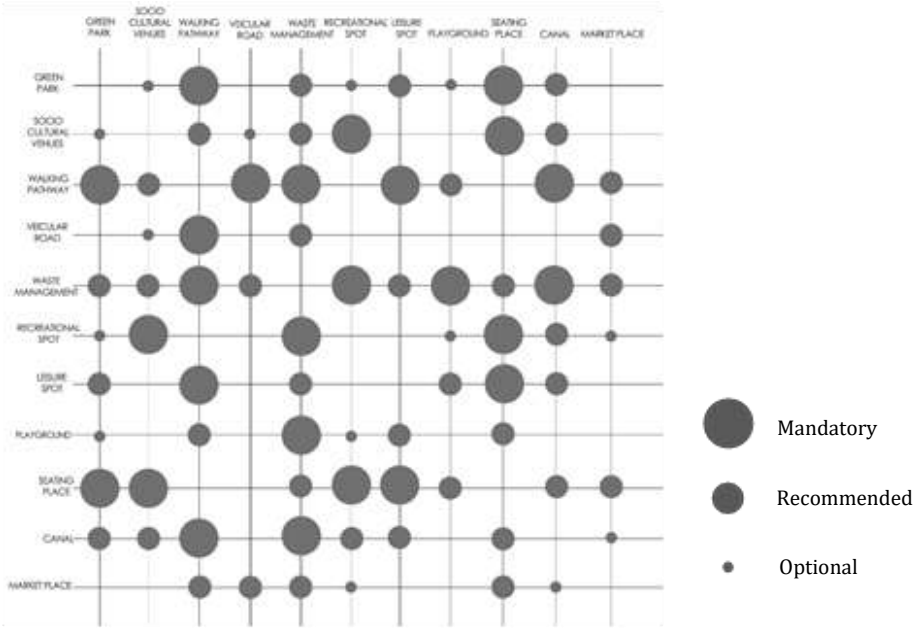

Figure 18: Program Matrix Diagram based on Site Survey and Literature Review (Tangible and Intangible Urban Elements),
Source: Author

7.5 PROPOSALS AND RECOMMENDATIONS

Specifically, the proposal aims to find a suitable placemaking solution to restore the canal edge, as well as a buffering system for protecting against future encroachment and integrating this with the present and the future development of the urban area. In overview, this proposal aims to come up with a model that will combine a new city pattern with the rejuvenation of a canal system, thus opening the doors to a new urban experience. The new reintegration planning is done remembering the past referring to the positioning of the old ghats and thus a place of misery is transformed into a place of happiness.

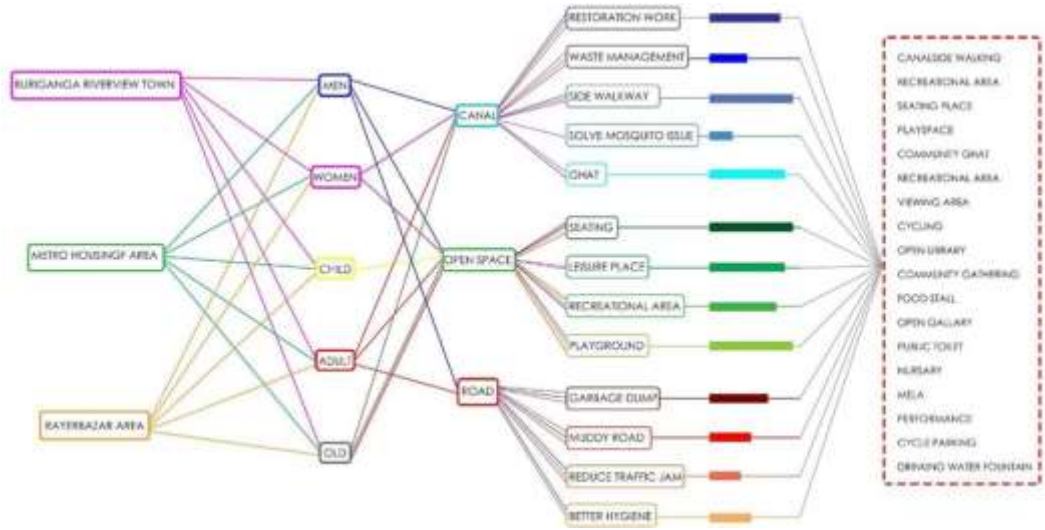

Figure 19: Proposed Program Generation Diagram for Hazaribagh Canal Revitalization based on surrounding community survey, *Source: Author.*

In Figure 19, the program generation diagram resembles the proposed urban regeneration interventions to reintegrate the Hazaribagh Canal with its surrounding neighbourhood following the concept of urban placemaking. Some of these key solutions involve creating bridges and a continuous route to link the canal to the surrounding neighborhoods. The links will easily allow residents to cross the front of the canal, making it an artery of mobility. By constructing pedestrian bridges at strategic locations, safe and easy crossings over the canal will connect the divided parts of neighborhoods. A continuous route/path alongside the canal would achieve a number of functions (figure 20). It would provide a route that is pleasurable to walk, jog, and cycle along, promoting healthier lifestyles. Creating these connections is not just about physical infrastructure but about fostering a sense of community. As residents from different parts of Hazaribagh come together along the canal, they can engage in shared activities and form stronger social bonds. This can lead to a more cohesive community where people feel more connected to their city and each other (Whitten,2018).

Figure 20: Proposed Masterplan for Hazaribagh Canal Revitalization, *Source: Author.*

Social engagement could be encouraged by providing space for people to converge lively plazas, open marketplaces, and community gathering spots. In this respect, cultural festivals, art exhibitions, and farmers' markets can also serve as a point of convergence that helps bring people together and solidifies community bonds. To ensure, a successful integration of Hazaribagh Canal area, the following steps can be taken in policy level to mitigate the deteriorating situation.

- All the illegal encroachment should be removed, and the river edges should be free from any kind of encroachment.
- A proper landscape intervention for the buffer zone must be planned while preparing a masterplan for the development of the Hazaribagh Canal Area; the proposed master plan can be considered as an ideal example for urban regeneration.
- Land management laws must be introduced to recover the lands that have been invaded.
- In order to grow awareness among neighbourhoods, awareness campaigns must be conducted.

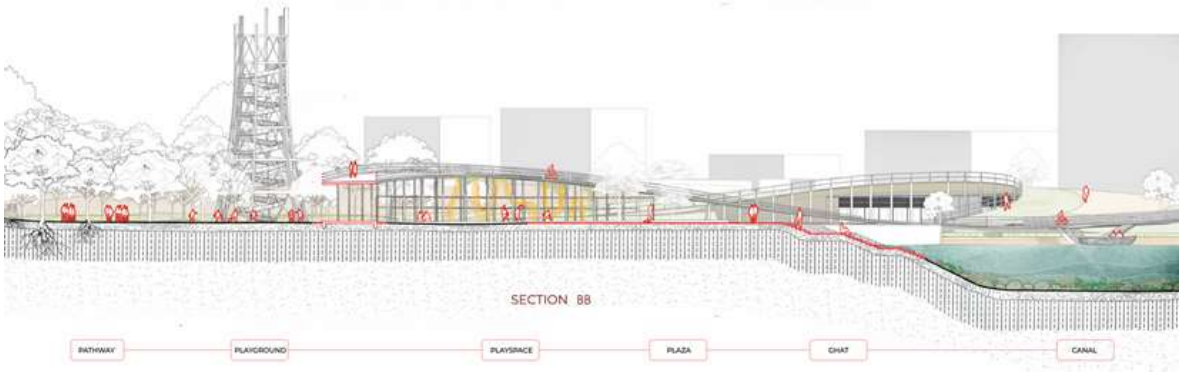

Figure 21: Section BB of the proposed Masterplan for Hazaribagh Canal Revitalization, *Source: Author.*

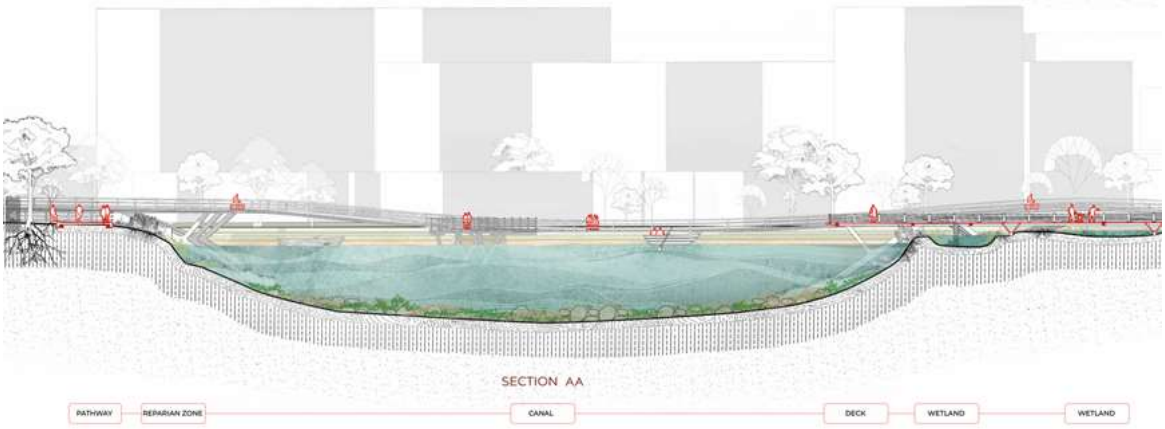

Figure 22: Section AA of the proposed Masterplan for Hazaribagh Canal Revitalization, *Source: Author.*

8. Conclusion

Public space at Hazaribagh has challenges in terms of their location along the canal front and areas that are quite narrow. The canal front, with a great potential to become a vibrant community hub, is currently hindered by a lack of infrastructure and amenities that are crucial to support daily, recreational, and social activities. Addressing these issues and enhancing the canal front with better walkways, seating, and lighting can make this a far more attractive and useful space. By addressing these issues and enhancing the canal front with better walkways, seating, and lighting, we can transform it into a more inviting and functional space. Additionally, community engagement is challenged by the lack of public space in densely populated areas. However, through innovation, such as designing multifunctional spaces and making use of underutilized areas; we can overcome these challenges. By focusing on these specific issues, Hazaribagh can develop more accessible, enjoyable, and community-oriented public spaces, thereby improving its residents' overall quality of life.

9. Acknowledgment

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