

SPACE SYNTAX ANALYSIS: TRACING THE RATIONALE FOR ACCESSIBILITY OF RECREATIONAL/MOVEMENT ECONOMY GROWTH ALONG HATIRJHEEL LAKE PARK THROUGH INTEGRATION AND CONNECTIVITY

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Abstract— This paper starts from the debate with 'critical imbalance observed between users' need and aspiration of the urban open space use and the accessibility array they benefit from. For Dhaka, the problem is further aggravated by limited land supply due to the rapid influx of population stimulates construction of built-up areas in huge proportion and lack of proper policy and planning of land use. Within this junk of concrete, open green spaces act like its lungs, being used as an essential part of the city for its environmental and ecological balance. Acknowledging that, when a city is densely developed, it leaves little scope to have more open spaces inside. Consequently, concentration should be paid in retaining, up keeping and exploiting the potentials of existing urban open spaces. Configuration of the urban accessibility is an important generator of aggregate patterns of movement in urban spaces [1]. In addition, the movement economy asserts that retail and commercial activities migrate to configurationally hotspot locations to take advantage of the economic opportunities created by movement [2] for satisfying the user's need. Regarding that, an integrated mobility pattern with better connectivity to public open spaces is a priority as a revitalizing action for the city dwellers. Following the objective, this study aims to analyze the closeness variable 'integration' and connectivity through a case of Hatirjheel & lakeside green spaces and justify the growth of movement economy/recreational activity potentials with space syntax methodology. Moreover, further investigation has been conducted by a number of observations and informal questionnaire survey to study the user's accessibility and their expectations. Through observation and syntactic analysis, this paper thrives to find out the comparative manifestations of potential accessible public recreational points along Hatirjheel Lake Park through integration and connectivity parameters.

Index Terms— Accessibility, Connectivity, Integration, Road Network, Space syntax, Spatial configuration, Urban open space.

1 INTRODUCTION

In the vision of retaining and up keeping potentials of existing urban open space, the theory of experiential landscape [3] proposes that human experience has spatial dimensions, and certain spatial configurations may be beneficial to the human experience of the external environment. With a better urban design and environmental quality, the streets may be enhanced as "great streets" [4], facilitating the urban legibility and their own identity [4]. In this way, streets as connectors among public spaces (parks, gardens, etc.) should be considered, analyzed, treated and designed as public spaces [5]. In that sense, accessibility is related to both vehicular and pedestrian access and this research considers both modes of transit choice according to integration that encourages the possibility of participating trading activity and cultural one along the streets [4]. Regarding this, identifying an integrated mobility pattern with better connectivity to public open spaces is a priority as a revitalizing action for both social and environmental

issues among the city dwellers.

So it is high time to analyze how to create a well-connected city where all the public gathering spaces will be accessible and highly integrated within the whole Dhaka city grid so that people can have easy access to these places which can create a strong impact on city dwellers [4]. The following figure has been shown for the integrative framework for urban open space accessibility and how this can be modified.

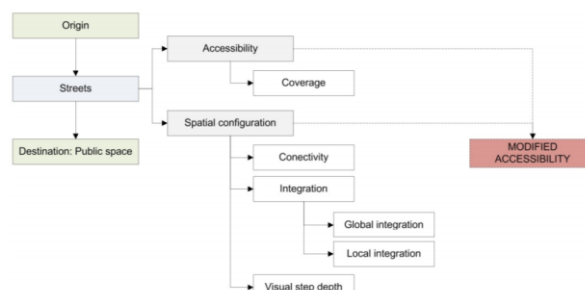


Figure 1: Integrative Framework of Urban Park Use [5]

The focus of this research is to assess the accessibility or permeability of certain points of public magnetism along Hatirjheel Lake Park to identify integrated mobility patterns for movement economic function. To meet this aim the study will implement a Space Syn-

tax methodology to measure the accessibility of Hatirjheel Link Road with the whole city network.

2 LITERATURE REVIEW

2.1 Theoretical framework of Space Syntax

Space syntax is a method for describing and analyzing the relationships between social and spatial structures. In Space Syntax analysis, there are few key terms that need to be clarified. These are axial lines, spatial accessibility and spatial choice. Every urban block is surrounded by axial lines and every street intersection within the urban grid is recorded as an intersection of axial lines. Thus the axial structure might be considered as an objective transcription of the urban grid. There are four orders and these four may, in turn, be correlated to form second-order measures [6].

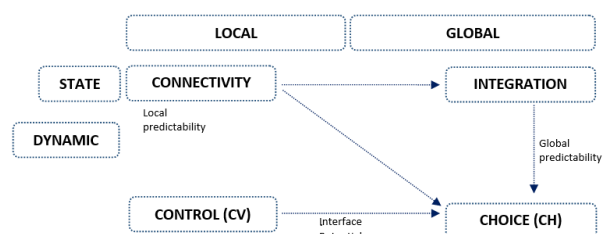


Figure 2: The Relationship between First and Second-Order Syntactic Orders

Spaces are represented by straight lines called ‘axial lines’ drawn between two points (Figure 3). These lines are based on how far an observer can have an uninterrupted impression of visibility or permeability along the street [7][8].

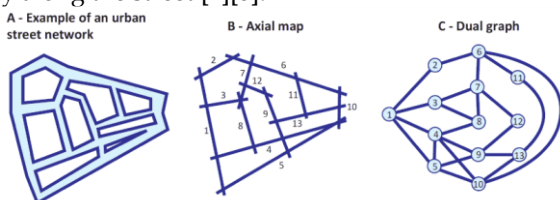


Figure 3: Illustration of how axial lines are extracted

Urban Morphological relationships are measured through the concepts of ‘integration’ and ‘connectivity’ of each street (axial line). The measure of the integration of a space is determined based on the term ‘depth’, which calculates the number of spaces and changes needed in order to reach all other spaces in the system. From a reverse point of view, this is also a measure of ‘closeness’; that is, how to close space is, on an average, from all other spaces in that network. Spaces with lower average depth to all other spaces in a street network are said to be ‘integrated’, and those spaces with higher average depth are ‘segregated’.

Integrated streets in a system are assumed to be more accessible as well as more attractive destinations of movement than segregated ones [1]. The set of most integrated streets is collectively known as ‘integrated

core’ whose nature shapes the connectedness and geometry of the urban system and its mode of growth. The method is also used for understanding locally integrated grid structure ($R=3$ or 4), by computing a value for integration among the spaces up to three or four steps away from the root. Connectivity (CN) is literally the number of immediate neighbors that are connected to space. It is a local syntactic measure.



Figure 4: Axial Map of Dhaka City with Local Integration ($R=40$) (Left), Global Integration ($R=N$) (Middle), Connectivity (Right)

2.1.1 Configurational Accessibility

Accessibility between two urban places can be computed based on two different concepts namely ‘shortest path’ and ‘simplest path’. The shortest distance between two points is calculated based on metric distance. On the contrary, the simplest route selection does not consider metric distance but instead depends on the cognitively understood path (Courtat, Douady, and Gloaguen 2011).

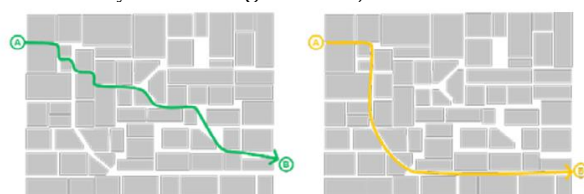


Figure 5: least effort path vs. least information path

Space Syntax accessibility measures movement based on the concept of the simplest route. The simplest route between two points determines the path connecting the points with a minimum number of turns. This theory argues that the perception of location accessibility or remoteness based on the choice of paths depends on people’s wayfinding skills [9] and mental conceptualizations of the environment [10]. It is suggested that the most accessible locations are not necessarily those closest to all other locations in terms of metric distances but rather those closest in terms of topological turns [11].

Consequently, the most important configuration accessibility measure is integration. Integrated urban space is expected to attract more movement than segregated spaces, which in turn affects land-use pat-

terns [1].

2.1.2 Configurational Centrality: Integration

Centrality has been dealt with as a means of measuring the spatial interactions of activities. Configuration of the street network is the driving factor for the creation and consolidation of activity centers (live centers). While urban centrality is defined as the concentration of activities (Local Integration); configurational centrality is a location of core integration values (Global Integration). These locations of higher integration values are expected to attract a higher number of movements. Movement seeking activities will follow movement-rich locations. Therefore, the creation of centers becomes a process of interaction between movement seeking activities and movement itself [12] asserts that centrality is a dynamic phenomenon and one should understand centrality as a process rather than to describe it as a static state because centers not only expand or contract, but may also shift their focus over time [12]. Even though socioeconomic processes drive the creation of spaces of the city, they do not exclusively shape them at all [12].

2.1.3 Movement Generation along Integration

Two classical theories supporting movement generation namely 'natural movement' and 'movement economy' are at the center of the centrality process, and are described below.

Natural movement theory postulates that the proportion of urban movement is determined by the configuration of the street layout. [1] asserts that configuration is the primary generator of movement patterns in urban systems. Land use is a by-product of movement and cannot change the configuration but can only have a multiplier effect on the basic pattern of movement established by the configuration. The phenomena that the basic pattern of movement generated by the configuration of the urban grid itself is called 'natural movement'.

Movement economy theory, on the other hand, deals with how movement generated by the spatial configuration of street layout shapes land-use patterns. Hillier asserts the land use pattern inherently follows the hidden property of spatial configuration. Some land uses such as retails and commercial activities naturally search and migrate to more integrated streets to take the economic advantage of movement generated by the configuration. The process of attracting users and multiplying movement has a cyclic nature shaping the land use and centrality patterns of urban areas.

Hillier explains that the layout of space first generates movement, and then movement-seeking land uses migrate to movement-rich street segments producing more movement (multiplying movement), which further attracts more retail and other uses. This leads to the adaptation of the local grid to ac-

commodate the greater density and mix of uses. This dynamic process is called the 'movement economy' [1][13].

2.1.3 Cause of Multiplier-Effect

Hillier's concept of accessibility refers to the most integrated route in an urban grid configuration. In his view, the location of the retail land use has been influenced by the configuration of the urban system in which they are distributed. In such cases, shops locate themselves on the most integrated (most accessible) route and these groups of attractors act as a multiplier on the basic pattern of natural movement [1].

2.2 Urban Space and Urban Experience Context: Hatirjheel Dhaka

Dhaka has a rich history of interconnected and navigable water bodies all over the city in the past, has been struggling to re-establish the missing water links encroached by illegal settlers, uncontrolled urbanization and prioritized attitude towards a car-based society. In that sense, The Hatirjheel-Begunbari canal project was initiated in 2007 to preserve the lake and its surrounding areas as retention basin and completed on late June 2010 [14] in vision of need for a) different land use, b) encourage sustainable transportation, bus route & cycling track, c) identify the quality of lakeshore drive, d) walkways which will celebrate cultural and natural heritage, and e) adjacent green spaces for public use. A new, 60-foot wide ring road encircling the water body is constructed to protect the water from further infringement. Mostly lying in the mid-density and mid-income area, Hatirjheel qualifies for being a landscape urbanism project where water could act as the organizer of space as well as reconfigure the existing urban fabric by creating 'interplays between infrastructure, landscape, and urbanism' [15].

This incredible urban open space the HATIRJHEEL-BEGUNBARI development project (Fig. 6) covering an area of 320 acres at the center of the capital city, creating potential connectivity stretches from Sonargaon Hotel, Moghbazar in the south to all the way to Banasree and Gulshan in the north Dhaka.

Legend:

Integrated Vehicular Route —————
Economic activity density route ··········

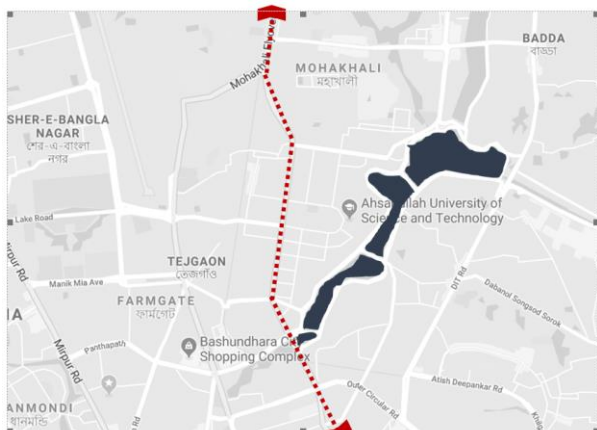


Figure 5: Hatirjheel-Begunbari Development project connecting Ghulshan, Badda to Moghbazar Road, and Location and Integration level of Hatirjheel Project in respect of the whole city.

The research work especially focuses on tracing the justification of growing recreational/economic activity along Lake Park. For investigating accessibility selection of high potential accessible points has been marked to relate their growth according to integration and connectivity value in respect of whole city street network. The reasons behind choosing a particular spot by the visitors are proximity to their home (43%), the aesthetic quality of the lake (23%) and the ambiance they experience in the lake (20%). Because of being highly potential “recreational hub” performing as public gathering space further economic sustainable development proposals are on the process around Lake Park.



Figure 6: Hatirjheel Lake-Park recreational/economic activity connecting Niketon to Moghbazar Road (left), Hatirjheel Water-Taxi service from south to north Dhaka (right).

Illustrated Figure 6 (Left) presents the prior vehicular transition from Rampura to Moghbazar area (.....) and less generation of public active points along with Lake Parkside because of organic identity with multiple angular changes create less connectivity of the adjacent neighbourhood to city network while Moghbazar through Tejgaon area to Gulshan link road is more vibrant as public active space.

3 Objective and Scope of Analysis

In order to analyze all the above assertions about

spatial characteristics; the level of integration, connectivity, and choice route of the study area is going to be assessed. This paper intends to identify public gathering spaces at selected accessible points along Hatirjheel Lake Park from adjacent neighborhoods since some of these are theoretically less accessible because of low connectivity or vehicular one-way access only. In order to assess how these areas are integrated within the city, this paper considers the followings:

- To identify the major integrated artery of Dhaka city and compare the integration level of the Hatirjheel link road in respect of the whole city network.
- To locate the areas of potential recreational points and growing retail business for public support.
- To analyze the integration level of some selected access points and assess the level of connectivity and accessibility of these spaces using space syntax.
- To suggest an urban intervention strategy to increase the potentiality of some public gathering points.

Following this objective, this study only focuses on analyzing the accessibility range of selected existing public active points and suggests some propositions to increase the potential use of those spaces using space syntax.

4 Research Methodology

Available relevant literature has been reviewed to understand the meaning of accessibility and configurational centrality, the integration core value of open space from an urban design perspective. For comparing with the practical scenario of public active access points, a casual observation, and informal questionnaire survey has been conducted to study the user’s accessibility and their expectations. Space syntax methodology has been applied as a major tool to find out the most integrated roads and connectivity value with respect to the whole city network to assume the spatial configuration of Hatirjheel Link Road. Different measures of the axial map have been used here developed from a GIS base map, provided by depth map software. The study process is summarized in the following figure.

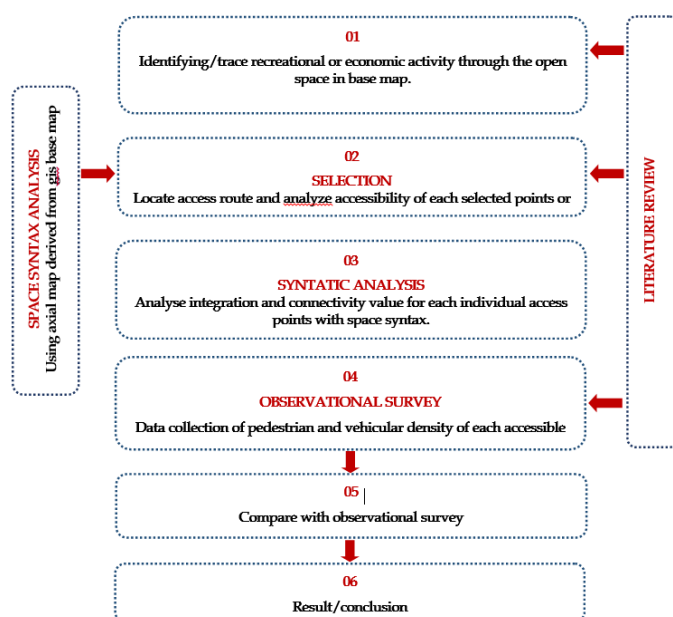


Figure 6: Study process

The methodology suggested in this study is a two-phase approach, used for data collection and analysis.

➤ **PHASE 01: SPACE SYNTAX ANALYSIS**

Under the theory of space syntax, the level of integration and connectivity of configurational properties of the Hatirjheel link road network measures the movement flow through open spaces.

➤ **PHASE 02: OBSERVATION**

An observational survey has been conducted to identify accessibility through movement analysis on each junction point. Data for accessible pedestrian and vehicular movement per minute has been collected on peak time for 10 min observation to understand the public density or choice of access route. After that, a comparative manifestation is prepared with the syntactic analysis for practical justification.

4.1 Identifying Access Road to Sample Area

The issue of urban planning dealing with public spaces and that of mobility planning dealing with accessibility should be managed in an integrated way. Now, the Global and Local Integration, and Connectivity of these access roads are analyzed to evaluate the existing condition of the Intelligibility of the recreational/economic active spaces.



Figure 7: Identification of Selected Junction Points and Integrated Major City Network Connected With Hatirjheel Link Road (A, B, C, D, E, and F)

Table 1: Integration Value of Major City Network

Surrounding most integrated city network	Identification number	Global Integration Value (R-n)	Local Integration Value (R=4)
SHAHEED TAJUDDIN	A	1.13672	2.76635
AHMED AVENUE	B	1.17531	2.82966
BIR UTTAM MIR	C	1.10147	2.42637
SHAWKAT SARA K	D	1.02437	2.21027
	E	1.02899	2.63576
DIT ROAD	F	1.11054	3.1372

Table 2: Access point identification

4.2 Analysis of Access Route to Sample Area




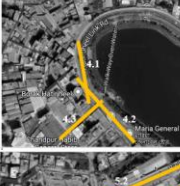


The permeability of any system of public space depends on the number of alternative routes it offers

Junction No.	Identification No.	Junction No.	Identification No.
01	1.1, 1.2, 1.3, 1.4	04	4.1, 4.2, 4.3
02	2.1, 2.2, 2.3, 2.4	05	5.1, 5.2, 5.3
03	3.1, 3.2, 3.3, 3.4	06	6.1, 6.2, 6.3, 6.4

from one point to another but these alternatives must be visible [16]. The entrance points are decided based on the chosen value (global measure) and connectivity (local measure) of each link to achieve a balance between the accessibility at the city-wide and local scale.

The integration values below 1 of the order of 0.4 -0.6 indicate more segregation and while the value ending above 1 shows strong integration. The following figure has been presented for depicting the integration level on selected junctions.

Table 3: Analysis of Access Road to Sample Area

JUNCTION NO.	ECONOMIC RECREATIONAL POINTS	ACCESS ROAD	CONNECTIVITY	INTEGRATION (R=n)	INTEGRATION VALUE (R=4)
1.		1.1	5	1.02763	2.03846
		1.2	6	1.03561	2.22796
		1.3	8	1.06161	2.4951
		1.4	3	1.02306	2.03846
		Public Pedestrian And Recreational Active Zone Hatirjheel Lake Park Water Bus Taxi Terminal 03 Yod Restaurant Food Courts			
2.		2.1	5	0.969510	1.94744
		2.2	14	1.021553	2.36683
		2.3	4	1.010179	2.00438
		2.4	7	0.969510	2.03044
		Public Pedestrian And Recreational Active Zone Lake Side Walking Trail Several Food Courts Hatirjheel Circular Bus Access Point			
3.		3.1	4	0.905193	2.04632
		3.2	4	0.871655	1.69259
		3.3	3	0.848923	1.5853
		3.4	6	0.889572	1.77735
Vehicular Transit Active Zone Lake Side Walking Trail Prioritized Vehicular Transit With Overpass (3.1, 3.3 and 3.4) Plots Proposed For Commercial Development on West Side And Existing Mohanagar Housing on East Side.					
4.		4.1	3	0.862991	1.43401
		4.2	4	0.894777	1.60195
		4.3	2	0.851185	1.25825
Vehicular Transit Active Zone Lake Side Walking Trail Less Recreational Activity More Commercial Plot Development					
5.		5.1	10	0.987409	2.63621
		5.2	10	1.02437	2.63576
		5.3	7	0.935357	2.04632
Both Pedestrian & Vehicular Transit Active Zone Lake Side Walking Trail And Massive Amphitheatre Restaurants And Food Courts Water Bus Taxi Terminal 02 More Commercial And Retail Business Active Zone					
6.		6.1	9	0.919237	2.63001
		6.2	3	0.919237	2.02911
		6.3	4	0.919054	2.02206
		6.4	3	0.877709	1.69277
Vehicular Transit Active Zone Lake Side Walking Trail Water Bus Taxi Terminal 01 Food Court Less pedestrian activity					

The integration and connectivity value of six selected access roads of this open space are analyzed to understand how the sample area is integrated with the whole city network. Illustrations indicate the more integration value attracts more economic and public active zone for greater connectivity (Access Road 1.3, 2.2, 5.1, 5.2, 6.1).

4.3 Findings and Correlations

The axial line integration analysis says something fundamental about the spatial integration of public green and open spaces. Integrated spaces will, according to the theory of natural movement [1], play a more central role in the urbanity. These spaces will not only be more frequently visited and used, but they will probably get also better known because they are located in more legible places and at the same time within the people's daily movement patterns [17].

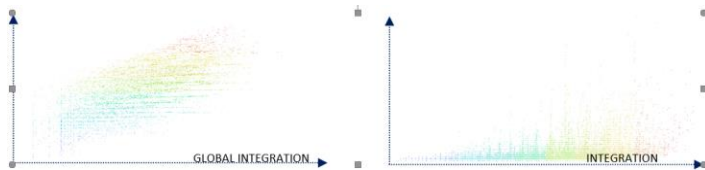


Figure 8: Correlation between Global vs. Local integration (left) and Integration vs. Connectivity (right)

The following graph has been presented to state the correlation between global and local integration (Fig 10) and integration vs. connectivity (Fig 11) in respect of whole Dhaka.

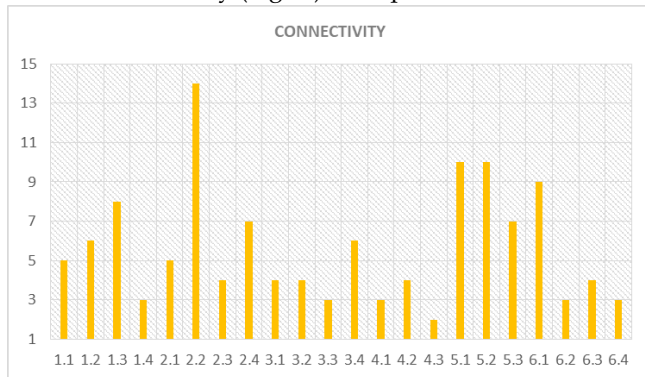


Figure 9: Connectivity value for each access road

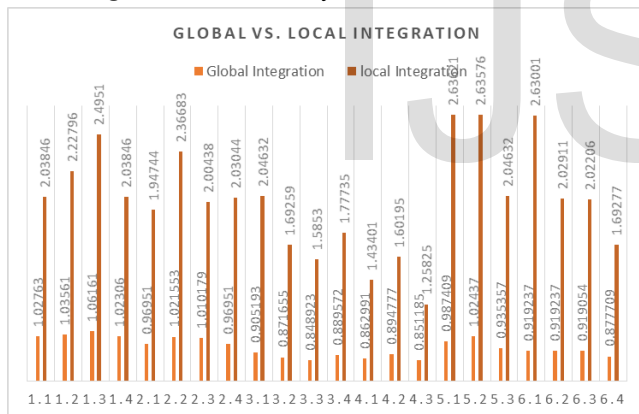


Figure 10: Global vs. Local Integration value for each access road

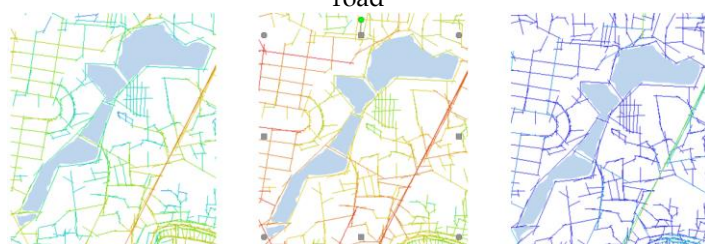


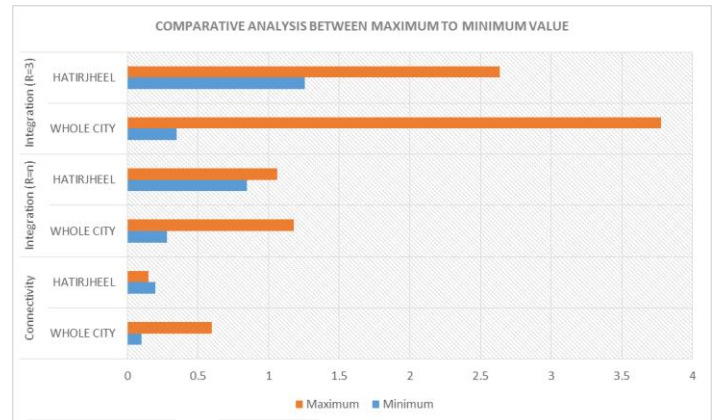
Figure 11: Hatirjheel Local integration (Left), Global Integration (Middle), Connectivity (Right)

Accordingly, with the increase in global integration, local integration and connectivity increase consequently. As per syntactic analysis from above allegations, most accessible routes (1.3, 2.2, 5.1, 5.2, and 6.1) for both vehicular and pedestrian purpose, attract enough public activity and movement econ-

omy with adequate parking facilities. Moreover, a comparison between the maximum and minimum value of analyzing attributes are stated in Table 04.

Table 4: Comparison In Varying Range of Connectivity, Global Integration, Local Integration and Choice Value For Selected Access Routes of Hatirjheel Lake Park

	Connectivity		Integration (R=n)		Integration (R=3)	
	WHOLE CITY	HATIRJHEEL	WHOLE CITY	HATIRJHEEL	WHOLE CITY	HATIRJHEEL
Minimum	1	2	0.279774	0.848923	0.351994	1.25825
Average/Mean	6.84389	-	0.767956	-	1.90765	-
Maximum	84	14	1.17704	1.06161	3.77738	2.63621



Global Integration value basically varies here from 1.02-.84, local integration varies from 1.25-2.67 and connectivity range (2-14) of total Hatirjheel Link Road while maximum Global Integration value is 1.17704, maximum Local Integration Value 3.77738 and maximum connectivity is 84. So this can be stated that Hatirjheel is comparatively well integrated locally to the city network as a potential urban open space. Already further economic sustainable development proposals are on the process around Lake Park because of being the high potential of accessibility and connectivity between city integrated road networks.

5 OBSERVATIONAL SURVEY

The success of urban spaces is associated with its quality of movement experience that has been often referred to as 'total satisfaction' [18]. Therefore, 'satisfaction' or 'experience quality' is found to be a credible indicator of the quality of open and green space. Here, an observational survey has been studied in two-mode of access: vehicular access and pedestrian access of HATIRJHEEL & Lakeside Green Spaces. The scope of the observational study is limited to user satisfaction or experience quality.

5.1 Accessibility

In the case of Dhaka city, the Hatirjheel-Begunbari project basically is a motorized vehicular oriented development project. According to observational analysis, most of its portion is dedicatedly Hospitable for the motorized vehicular transition from Gulshan, Badda to Mogbazar area as bypass road against Shahid Taz Uddin Ahmed Avenue and new airport road un-

der Mohakhali flyover. Moreover, this lakeside road also connected Rampura Badda through the Hatirjheel link road to Moghbazar road as the shortest vehicular route. But this area has become less hospitable for pedestrians where there is little or no consideration for traffic management, pedestrian crossing, driving in the wrong direction, and consequently, the increased number of road accidents in recent times are seriously affecting a pedestrian-friendly walking environment from its adjacent neighborhood.

5.2 Activities in Hatirjheel

Field observation shows an average of 3000 people visiting this lake area on a daily basis [14]. The general observation reveals the fact that the southern part of the lake is more utilized than the northern part [14]. It is the recreational purpose that attracts almost all the visitors towards this place. Walking, sitting, chatting, physical exercise is the common scenarios of the visitors while the hawkers try selling peanuts and candy floss to them. But Hatirjheel falls short in accommodating cultural activities like performance arts, open-air movies, roller skating rings, etc. in its premises.

5.3 Mode of Transit

The findings from the survey show that mainly three types of activities are taking place in the lakeside like recreation, social gathering and health-related activities. Users come mostly in the evening and night for recreation & social gathering (70%) [19]. In the case of HATIRJHEEL, as it is a motorized vehicle oriented development, people from a greater distance are found more in number instead of people from nearby neighborhoods. The dominance of motorized vehicle users (74% car & 5% bus) are observed [19]. Consequently, the private car users get the full benefit from the transportation route of Hatirjheel. On the other hand, NMV (Non-Motorised Vehicle) users are excluded. Thus, private car user’s interests get importance here. Observational pedestrian density shown in table 05 and 06 has been performed by collecting data through calculating movement on peak hour for 10 minutes at each junctions to understand pedestrian’s choice of access route.

Table 5: Observational pedestrian density graph

Table 6: Observational vehicular density graph

According to field survey, junction 01 and junction 02 are pedestrian active at 8.00 am, 5.00 pm and 7.00 pm (Table 5), as well as vehicular density, arise 8.00 am, 5.00 pm and 7.00 pm through junction 5 and junction 06. So it can be stated that the most accessible route is junction 01, 02, 05 and 06 for both pedestrian and vehicular purposes. These junctions are most integrated and potential enough to promote movement economy while practically different public activities have already grown at junctions 01, 02, and 06 as a park, restaurant, and several food courts in place of recreational purposes.

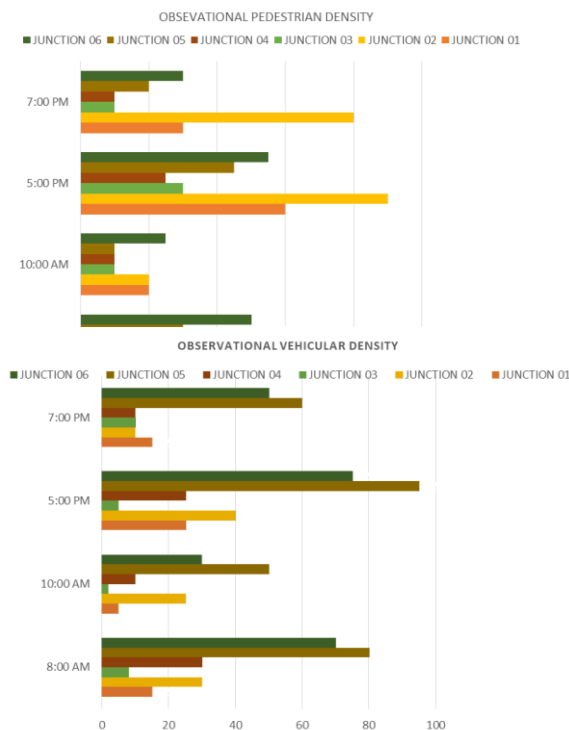
5.41 Scope of Integrating Hatirjheel in Dhaka’s Social Fabric

As an urban renewal project, Hatirjheel stated the goal to encourage diversity of year-round recreational activities with the celebration of cultural and natural heritage.



Figure 12: Photographs of public accumulation at different times

In that sense, the design of accessibility to lake bank area, foot over bridge, viewing platform, pontoon, deck, stepped ghat is a success as long as development of the lake bank as garden, park, children play area, walkways for morning & evening walkers, cycling tracks, installing street & park furniture, incorporating bus stand, water taxi deck, car parking, public toilet, information center, souvenir & flower shop as stated in the project brief. Although conversation with the users reveals the fact that they identify the project as a landmark to be proud of, nevertheless the lack of universal accessibility, safety issues, and proper maintenance has become obvious [14]. Nevertheless from observational survey, Lack of NMV, private car riders benefiting from the transportation route, traffic congestion, conflict between pedestrian and vehicular traffic, Illegal establishments, dumping of wastes and the wastewater released from adjoining areas in to the lake, chaotic and unor-



ganized public space cause degradation in social environment and undermines the public interest. As it is a motorized vehicle oriented development, people from a greater distance are found more in number instead of people from nearby neighborhoods. While vehicular access overlap on pedestrian connectivity disturbs the pedestrian traffic flow, the growth of public interaction on overpass or bridge connections become more live rather than roadside active zone because of the continuous pedestrian walkway.



Figure 13: Public Activity on Over Pass and Non-Motorized Lake Side after 5.00 pm

5 DISCUSSION

A comparison between two methodological surveys differs a little in terms of socio-cultural environment. As a whole, it can be said from software analysis that enlisted integration and connectivity value on selected access points are satisfactory enough to identify potential economic active points. Combining both analysis junction point 01 (Hatirjheel lake park), junction 02 (Bridge 02), junction 05 (in-between space of access road 5.1, 5.2 and junction 06 (water bus terminal) points are highly potential existing recreational active zone where vehicular transition seems comparatively lesser. According to Hillier's movement economy concept, the East part of Hatirjheel Lake Park cannot become the potential for recreational activity at all. Retail land use growth can't take the benefit of this network system because of intense vehicular transition and organic development with multiple angular changes create less pedestrian connectivity to the adjacent neighborhood. As well as this route can be potential for commercial development rather than a recreational activity. While Moghbazar through Tejgaon to Gulshan link road is more vibrant as public active space. Nevertheless, from the city's cultural aspect Hatirjheel springs life to city dwellers and also promote recreational active zone for the public in spite of being vehicular transit zone. However, it has greater potential as integrated urban lungs in the city core that attracts people from a larger distance for a refreshing urban open space sensation. Further research might lead from this preliminary research in order to suggest some improvements over the accessibility and location of these public spaces.

6 CONCLUSION

When large scale open spaces are located in highly integrated areas, they are within people's daily movement networks and used frequently. In the case of Dhaka, Space Syntax identifies that Hatirjheel as an urban renewal project creates a large well-integrated open space within the city grid. Selected junction points of this space are also well integrated at the local

level. From our daily experience, we see that Hatirjheel link Road is used by people frequently for recreational purposes which promote economic activity along Lake Park. The use of these parks can be made better by taking a few steps like increasing access points and the proper location of those points. The space syntax method can provide a deeper understanding of how the design of public spaces can shape individual and collective behavior as well as contribute to the decision-making process in planning from the estimated flow of traffic and pedestrians along adjacent roads. In order to better predict people's movement, future research may need to consider the possibility of combining space syntax and measures of land use.

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