

DEVELOPMENT PROSPECT OF GULSHAN-BARIDHARA LAKE AND LAKE-SIDE AREA: LEARNING FROM THE DHANMONDI LAKE EXPERIENCE

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ABSTRACT

Urban Lakes and water bodies always play a significant role in the city's development. The urban lakes are an integral part of the ecology of the city it belongs to as it contributes to ground water recharging, flood management and overall drainage system, especially if the city is situated on a flood-plain like Dhaka city. The Lake side developments of any area create impact on the surrounding neighborhood both ecologically and economically. It can enhance the surrounding land use with the proper development. So for any lakeside development it is necessary to assess other previous development which can enhance the scope for the future development of any lake side area. In this research the scope for Gulshan-Baridhara lake development is assessed from the experience through already developed Dhanmondi lake project with different physical and questionnaire survey. From the study some recommendations are suggested for the already taken project of Gulshan-Baridhara Lake and Lakeside area.

KEYWORDS: Dhanmondi Lake, Urban Areas, Relavant Works, Building Partnership

INTRODUCTION

For a planned growth of a city, both physically and environmentally, it is necessary to maintain a hygienic and aesthetic civic environment. But the present scenario of escalating population has put a tremendous pressure on the natural resources available with the cities. Thus for the urban planners, it's a great challenge to handle the available natural resources, especially the urban water bodies and lakes, which are till now being ignored. (Brar, H.P., 2004)

An urban lake has a multi-faceted role to play in its context. It is an integral part of the ecology of the city it belongs to as it contributes to ground water recharging, flood management and overall drainage system, especially if the city is situated on a flood-plain like Dhaka city. Secondly, it enriches the urban life by providing the people with an open space of aesthetic quality and recreational scope.

Thirdly, a lake has immense economic potentiality as it can contribute to fresh water supply and transportation system. But all over the world lakes are becoming a forgotten heritage because of inadequate supportive policy for lake preservation at local, state, national and global levels.

As lakefront property is highly desirable, it is quite common to have intense shoreline development even in lightly developed urban watersheds, which is exactly the case with the **Gulshan-baridhara Lake** situated in the SPZ 6 demarcated in DMDP urban area plan.

The lake is under constant pressure to be filled by RAJUK for creating new residential plots. If it is allowed to continue unhindered, it will not only destroy this wonderful open space, but also the essential retention capacity for storm water from a vast area resulting in local flooding and water logging (DMDP, VOL 2).

Background of the Study

Rajuk, then DIT in 1961 took up “Gulshan Model Town Project” and at the same time, it took up 1000 Acres of land development (Banani-Baridhara) project for residential purposes. In 1992, Gulshan Model Town Project was completed and partial development of Banani and Baridhara residential areas was achieved as a part of “1000 Acres Land Development Project”. Between the two aforementioned project areas two lakes are located, one in between “Banani Model Town” and “ Gulshan Model Town” and another in between “ Gulshan Model Town” and “ Baridhara Model Town”. The combined area of the two lakes is 200 Acres. The pilot owners have constructed buildings on their plots after the completion of development work in the model towns. But the development of the two lakes is yet to be done. The continuing capacity of the lake has been reduced due to accumulation of wastes for long time. (DPP, RAJUK)

In July 6, 2010 Executive Committee of National Economic Council (Ecne) has approved the “Development of Gulshan-Banani-Baridhara lakes” project undertaken by Rajuk (Siddique, A.B., 2013).

Some portion of the lake banks is under private organizations and owners. So there has been kept a provision of land acquisition of 12.16 acres by length 13,245 feet and width 40 feet. In Gulshan-Banani Lake some portion i.e. 8350 feet is under control of T&T, WDB and Steel Engineering Corporation. Construction of walk way has included earth filling and concrete post palisading. Provision of turfing, tree plantation, set up of bench, shed etc has also been included.

Objectives of the Study

- Evaluation of a similar urban lake development project, **The Dhanmondi Lake** from user’s point of view for comparative analysis.
- Identification of development scope of Gulshan-Baridhara Lake and lake side area by examining existing physical, legal and social conditions.
- Formulating recommendations regarding planning policy, implementation and maintenance of the development project.

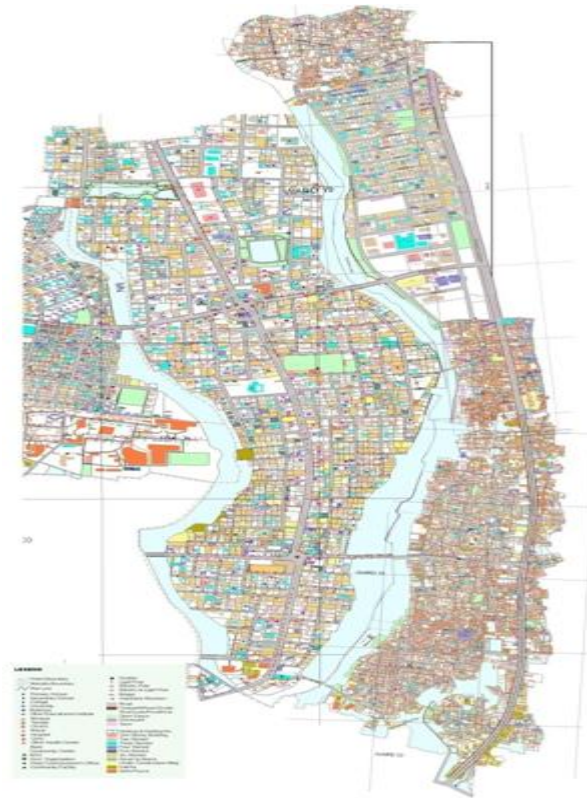
Methodology of the Study

For the study, relevant data and maps have been collected from different research works, reports and relevant government organization as RAJUK, DCC (Dhaka City Corporation) and non-government organization as mappa which were helpful in identifying the existing situation of Gulshan-Banani-Baridhara lake. Questionnaire survey and physical survey have been prepared to collect data/information for the subject under study. The attribute data required for the study have been collected from the field survey by pre-coded questionnaire. Individual respondent have been selected on the basis of stratified random sampling of household. To collect some technical information, interview has been taken from some key person as members of Gulshan community, chief planner of RAJUK, engineer of DCC and so on.

Physical Feature of Dhanmondi Lake and Gulshan-Baridhara Lake Area

The Gulshan-Baridhara Lake has spread itself over the wards 18, 19 and 21 of zone 09 of DCC area (Map-01). It is surrounded by the planned residential areas of Gulshan, Banani, Baridhara, the Diplomatic Enclave of Dhaka and the areas of spontaneous development, Baddah and Mohakhali. The Zone is served by two commuter corridors and the large banani and Gulshan lakes provide open space while also functioning as retention ponds.

The combined area of the Gulshan-Baridhara and Banani Lake is about 200 acres of which 60% is contained by the Gulshan-Baridhara lake. The lake width inside the study area is as follows;



Map 1: Base Map, Ward No. 19, Zone – 09, Dhaka City Corporation

- Lake width along the link road between Gulshan circle-1 and baddah is 600ft approx.
- At Gulshan-01 road no. 121 corner, 440 ft. approx.
- At the corner of Gul-01, rd no. 106, 280 ft. approx.
- Along the link road between Gul-02 circle and Baddah, 400 ft. approx.

On the other hand Dhanmondi-lake has only 54.6 acres of water body and the average width is 100 ft.

Water Connectivity

Dhanmondi -lake is a closed water body with no remains connection to other channels or rivers, while the Gulshan-Baridhara lake has connection with the eastern water system through various channels to the Balu river.

Development Pattern Around

The Dhanmondi-lake is completely surrounded by a planned residential area; on the other hand, the study lake has a planned development on the Gulshan side and a spontaneous development on the Baddah side.

Organizational Strength of the Civil Society

The Gulshan Society is a strong Community organization which has an elaborate structure to influence in decision making and taking responsibility which was lacking in the case of Dhanmondi during the project development period.

Evaluation of Dhanmondi Lake Development Project

As a reference case at local context, the development of Dhanmondi Lake bears remarkable importance for the present study. The scenario of Dhanmondi area before the lake development differs strongly from that of present. The

change in land use pattern after the lake development reflects the influence of this development.

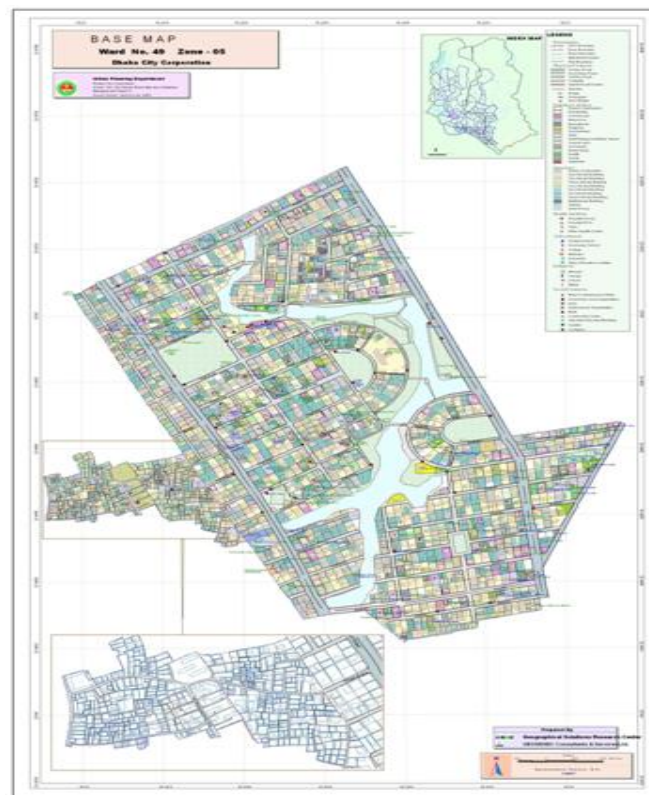
It receives many contradictory opinions for its scale and character of development and many other issues. One of the main reasons of contradiction is the nature of development that conflicts with the residential environment.

In the development phase Public participation is another important issue which was apparently ignored in the Dhanmondi Lake Development project according to many interviewee of this study. Although the consultant of the project claims that they tried their best to involve the community in the early phases but failed due to many reasons including indifference on the govt. authorities' part, bureaucracy and proper coordination skill on the part of government agencies.

The project is still incomplete and it is an open secret that the delay and lack of initiative is due to the change of the ruling party.

Present Condition of Dhanmondi Lake Development Project

Dhaka City Corporation has developed the Dhanmondi lake as the “Dhanmondi Lake and Lakeside Area Development Project” under the ministry of LGRD. The project stretches within an area of 85.60 acres out of which almost 31 acres as land area and the rest 54.6 acres as water body (Map 02). The vision of the project was to restore the environmental quality with enhancement of public facility.



Source: Shaka City Corporation

Map 2: Base Map, Dhanmondi Lake and Surrounding Land Use

To administer properly, the project area has been demarcated into 7 physical sectors each with a stretch of land that includes the newly developed facilities in each. These sectors except the sector no. 2, had been leased to the selected bidders.

The administration of the project activities concern is based on a two tier management body. The two separate committee responsible for the operation and maintenance of the whole project facilities namely;

- The Advisory Committee
- The Management Committee.

The advisory committee is consisting of representatives from; government (LGRD), project implementation authority (DCC), other related authority representative (WASA, LGED), local community and Bangabandhu Smrity Museum.

This committee will review, guide and instruct the management body.

The Management Body is comprised of the following members;

- Chief Executive officer, DCC
- Chief Engineer ,PWD
- Chief Engineer, DCC
- Chief Engineer, or Additional Chief Engineer, LGED
- Consultant of the Project, Vitti Sthapati Brinda Ltd.

Existing Physical Environment and Use of Dhanmondi- Lake

Positive and Negative Aspects of Dhanmondi Lake; from the User’s Point of View

A questionnaire survey was done by the researchers to get a picture of user satisfaction level among the Dhanmondi residents.

Total 25 households were covered in the survey which continued from may, 2006 to july,2006.

General Opinion about Dhanmondi Lake-Side Development and Activities

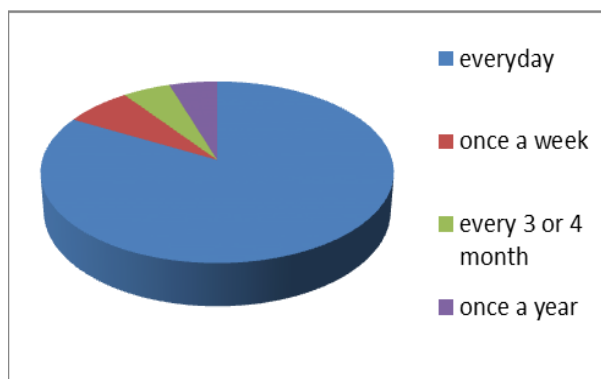
- **Use of the Lake Premise**
 - Dhanmondi lake premise is extensively used by the residents for jogging & exercise purpose in the morning and evening. Other popular activities are cultural gathering and leisurely passing of time.

Note: Once a month = 0, never = 0

Frequency of Using Dhanmondi Lake

Table 1

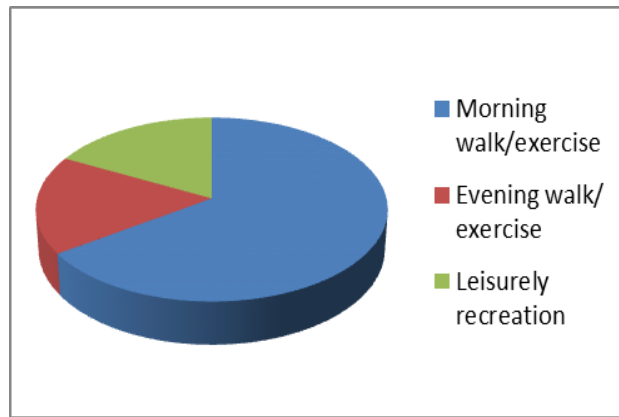
Percentage (%)			
Everyday	Once a Week	Every 3 or 4 Months	Once a Year
83	7	5	5



Use of Dhanmondi Lake

Table 2

Percentage (%)		
Morning Walk/ Exercise	Evening Walk/ Exercise	Leisurely Recreation
83	22	22



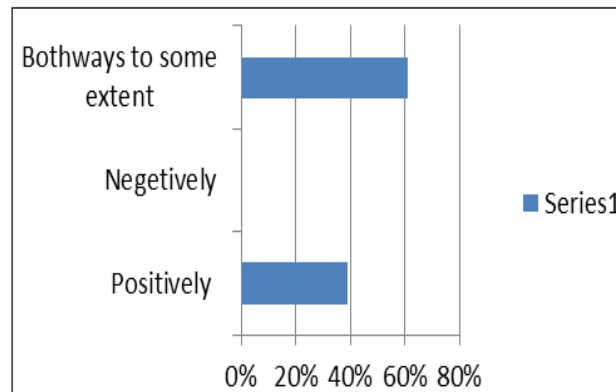
• User’s Satisfaction Regarding Lake Side Activities on Neighborhood

- People have a mixed opinion about the nature of lake side public activities.

Effects of Lake-Side Activities on Neighborhood

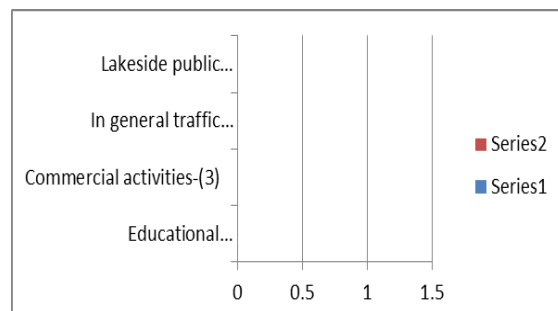
Table 3

Percentage (%)		
Positively	Negatively	Both Ways to Some Extent
39	0	61



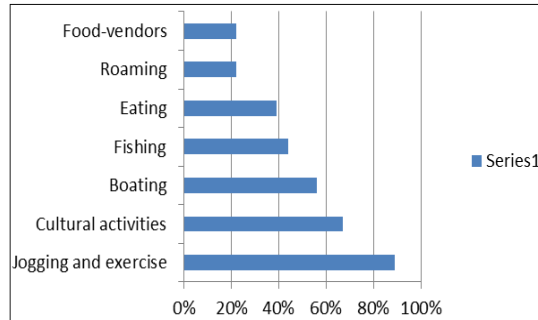
• Impact of Traffic Problem for the Lake Side Development; (From Highest-4 to Lowest-1)

- i. Educational institutions and offices in this area-(4)
- ii. Commercial activities-(3)
- iii. Other destination - (2)
- iv. Lakeside public activities- (1)



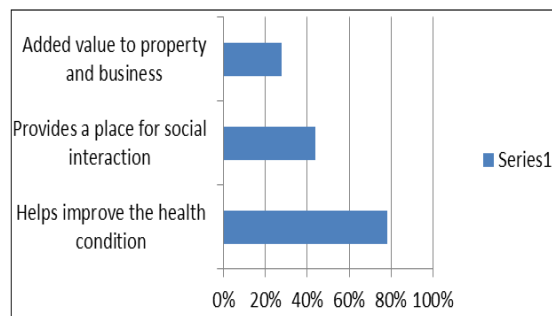
• **User Preference of Various Kinds of Activities on the Lakeside**

i.	Jogging and exercise- 89%
ii.	Cultural activities- 67%
iii.	Boating-56%
iv.	Fishing- 44%
v.	Eating- 39%
vi.	Roaming- 22%
vii.	Food-vendors- 22%



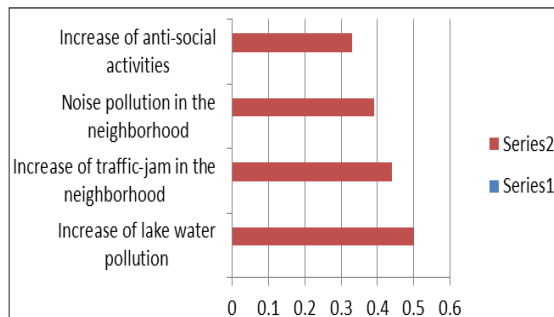
• **Benefits Resulted from the Development of the Lake and Lakeside Area**

i.	Helps improve the health condition- 78%
ii.	Provides a place for social interaction- 44%
iii.	Added value to property and business- 28%



• **Negative Impacts of Lakeside Activities on the Neighborhood**

i.	Increase of lake water pollution- 50%
ii.	Increase of traffic-congestion in the neighborhood- 44%
iii.	Noise pollution in the neighborhood- 39%
iv.	Increase of anti-social activities- 33%



• **Opinions about Improvement of Lakeside Facilities and Environment from User’s Perspective**

Safety and Security

Thirty-nine percent (39%) of the respondents stressed on the improvement of safety and security system. Suggestions for full time entry-point control and strong fencing around the lake premise came out.

Maintenance and Management

Almost forty percent (40%) of the lake users are dissatisfied with the existing maintenance quality. Suggestions came out that manage should be bestowed upon the local community in cooperation with D.C.C. Some of the respondents suggested the whole maintenance be given to private-sector like the City-Beautification project.

Quality of Service and Facilities

Forty four percent (44%) of the respondents pointed out the lack of public toilet in the area. Widening and leveling of walkways, more sitting arrangements along the walkway and proper lighting are the majorities demand.

Overall Environment

Fifty-six percent (56%) of the respondents gave importance on strict vigilance to prevent public nuisance, antisocial activities and crime.

Majority have suggested more plantation and regular cleaning of lake water.

Feedback from the Survey on Dhanmondi -Lake Development

- In developing an urban lake, which is surrounded by a planned residential area, for the benefit of the urban society, the balance between the community interest and public interest and most importantly the environmental aspect should be more carefully addressed.
- People's participation should be ensured from the very early stage to the final stage of a development project like this by involving the local community in every phase of planning decisions about the appropriate development type to after development management and maintenance. This would prevent irregularity, controversy, and tendency of avoiding responsibility on the part of resident users.

Scope of Development in Gulshan-Baridhara Lake Area

Problems Identified from the Physical Survey of Gulshan-Baridhara Lake

- A continuous process of more and more encroachment by general people and irregular plot creation due to improvidence on part of RAJUK which resulted in shrinkage of lake width.
- Water quality degradation and bad smell due to disposal of sewage from sewer lines coming out from Baddah side and also in many cases from Gulshan side.
- Water connectivity of the lake with the Balu river through many channels is at risk due to garbage concentration, illegal land filling and improper maintenance of pipelines under the vehicular bridges
- Domestic solid waste and industrial waste disposal into the water causing death of fish and water quality degradation.
- Land available for landscaping is too narrow along both side of the water body which is currently being used for
 - dumping of garbage
 - Shanty dwellings
 - Informal selling outlets
 - Storage of construction materials
 - Partial pavements made by RAJUK



Damped Construction Materials



Storing of Construction Materials on the Lake Side Informal Handicraft Selling Point on the Banks

Challenges and Constraints

- **Physical Condition**

The existing width of the lake side open space is not appropriate for providing public scale facilities along most of the length. The only spaces that can be transformed into public recreational area by proving income generating facilities are on the Baddah side.

- **Legal Aspect**

The legal complicacy regarding the ownership of the lakeside area (khas or private) along the Baddah side which is under continuing litigation.

- **Social Aspect**

The two sides of the lake, Gulshan and Baddah vary in their resident’s socio-economic status widely, which is visibly clear by the contrasting character of physical structures within the study area.To create a public recreation space which will attract and act as a mixing place for the two social groups will be a tricky job

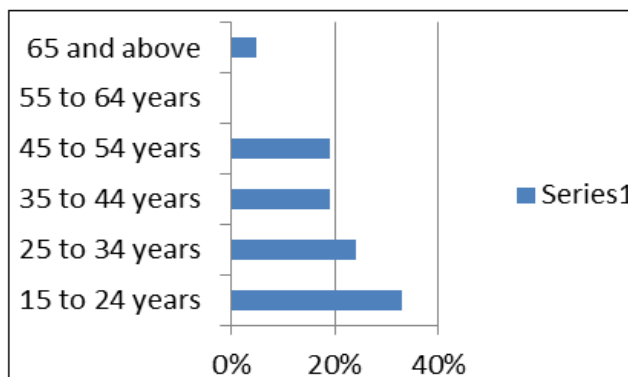
Study of the Lake from People’s Perspective

A questionnaire survey has been done to understand the expectations of the neighboring community. Total 30 households were covered. The study was done between may, 2006 to july, 2006.

Identification of the Respondents

Table 4

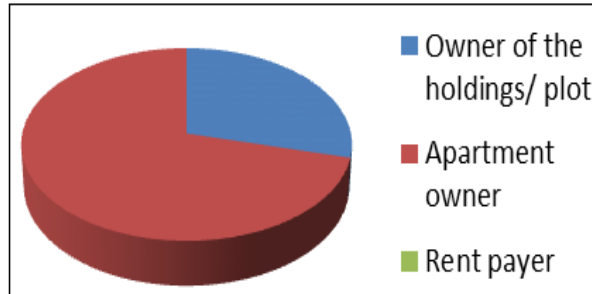
Age	Respondents					
	15 to 24 Yrs	25 to 34 Yrs	35 to 44 Yrs	45 to 54 Yrs	55 to 64 Yrs	65 and above
Percentage	33	24	19	19	0	5



Type of Residents

Table 5

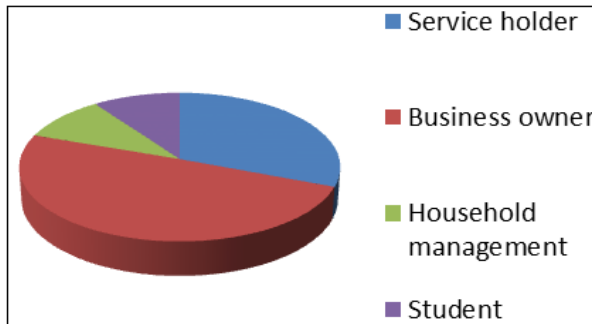
Percentage (%)		
Owner of the Holdings/ Plot	Apartment Owner	Rent Payer
29	71	0



Occupation of the Respondents

Table 6

Percentage (%)	Occupation			
	Service Holder	Business Owner	Household Management	Student
	30	48	9.5	9.5



Note: Retired = 0, Unemployed = 0

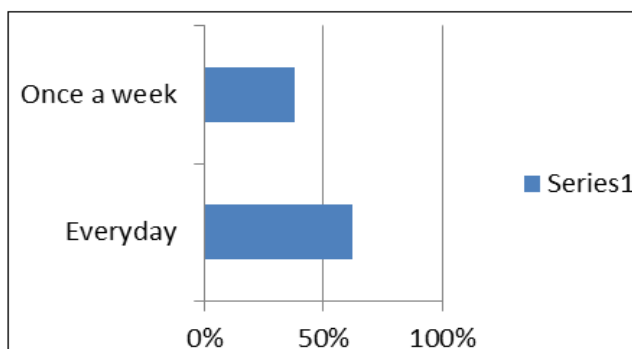
- 100 % people have been living in Gulshan for more than 10 years

General Opinion about Gulshan Lake-Side Development and Activities

Frequency of Using Gulshan Lake

Table 7

Percentage (%)	
Everyday	Once a Week
62	38

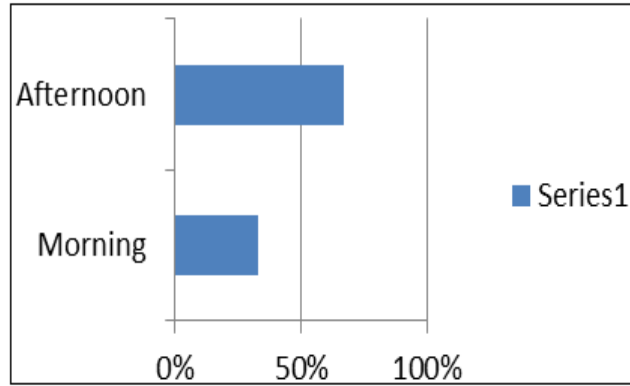


Note: Once a month = 0, every three/ four months = 0, Once a year = 0

Preferable Time for Going to Lake-Side Area

Table 8

Percentage (%)	
Morning	Afternoon
33	67

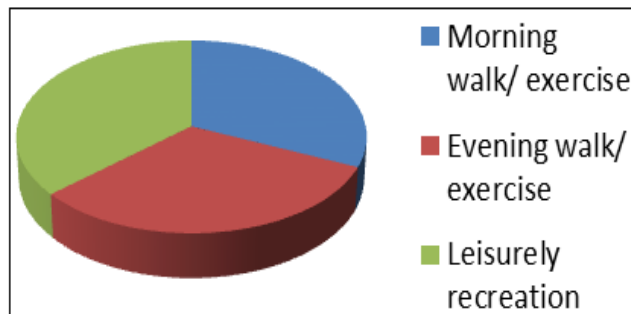


Note: Afternoon = 0,

Use of the Lake Side Premise

Table 9

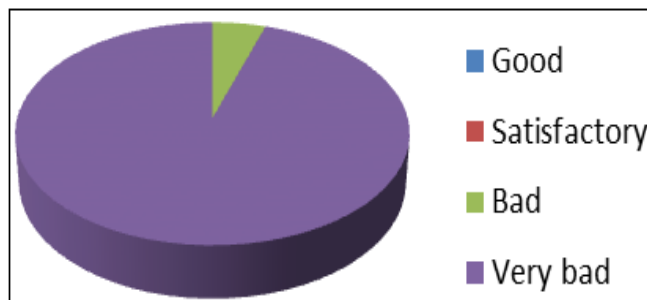
Percentage (%)		
Morning Walk/ Exercise	Evening Walk/ Exercise	Leisurely Recreation
33	33	38



Present Condition of Gulshan Lake

Table 10

	Good	Satisfactory	Bad	Very Bad
Percentage (%)	0	0	5	95



Identification of the most alarming factors about the situation (ranking highest to lowest) according to the residents of Gulshan area.

- Water pollution (81)
- Bad smell due to pollution and waste dumping water logging in surrounding areas due to decreased depth of the lake. (79)
- Illegal encroachment (77)
- Unsociable activities in surrounding areas (76)

Note: Waste water discharge from lake side residence (Came from the respondents’ point of view)

SUGGESTIONS

- 100 % residents have visited Dhanmondi lake.
- 100 % resident’s impression about Dhanmondi lake is positive.
- 100 % residents think that Gulshan- Baridhara lake development can do positive impacts on their community environment.
- 100 % residents think that the following initiatives can be done to conserve the lake and improve the surrounding areas.
 - Protect the land from encroachment by land grabber.
 - Avoid dumping solid waste in the lake water.
 - Fixation of the boundary.
 - Restore the water holding capacity of the lake.
 - Allowing other amusing activities in the lake.

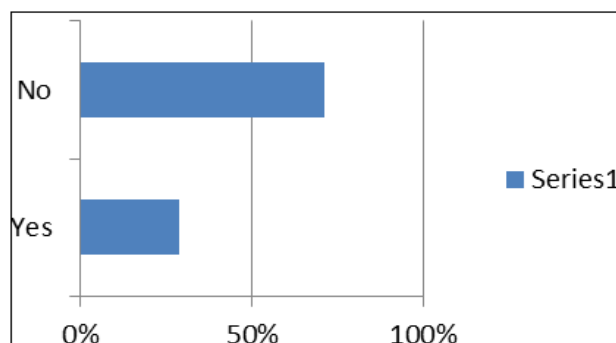
Note: Lake should be demarcated by removing all unauthorized structures, water to be purified by oxygenation and lake maintenance.

- 100 % residents think that private initiative will be the source of income generation to maintain the lake side premises.

Demand of More Bridge to Connect Lake-Side Areas

Table 11

Percentage (%)	
Yes	No
29	71



Note

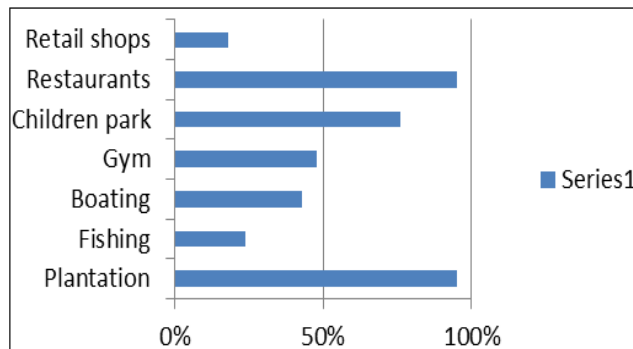
- All the 29 % residents want pedestrian bridge, no vehicular bridge.
- 71% residents do not want any kind of bridge connection for the following reasons:
 - Increases commercial activities.
 - Increases traffic jam
 - Hamper privacy
 - Hamper security
 - Noise pollution in the neighborhood.

Note: Social clash. (Came from the respondents’ point of view)

Facilities Would Revive and Enrich the Surrounding Area of the Lake

Table 12

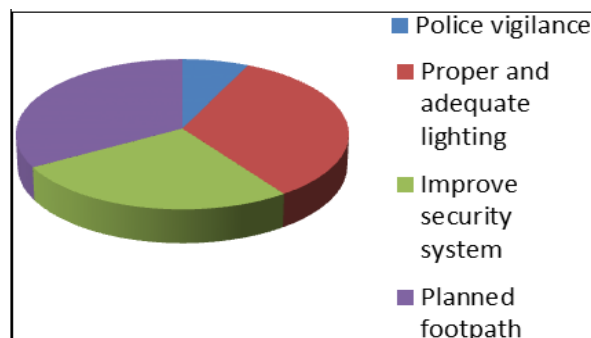
Name of the Area	Percentage (%)						
	Plantation	Fishing	Boating	Gym	Children Park	Restaurants	Retail Shops
Gulshan	95	24	43	48	76	95	18



Monitoring and Maintenance

Table 13

	Police Vigilance	Proper and Adequate Lighting	Improve Security System	Planned Footpath
Percentage (%)	5	24	19	24



Note: Other kind of facilities came from their point of view which can revive and enrich the surrounding area of the lake.

Note: Planned footpath:

- Circular footpath
- Metal led pavement
- Adequate no. of benches and lampposts.

Recommendations and Policy

Physical Facility

- Facilitating and encouraging different physical and recreational use such as jogging track, exercise space, cycling track, paddle boating, fishing, restaurants serving pre-cooked items, souvenir kiosks, , pottery stalls etc. to increase user's activity.
- Improve the Lake shore line with a smooth curve by landscape maintaining in an intimate scale.
- Develop a continuous route of walking and cycling track which connect both sides of the water body. Proper infrastructure facilities should be included such as public toilets, sitting arrangement, drinking water fountains, small exercise space, garbage bins, light post and toilets at every alternate point to improve the walking track.
- Water connectivity of the lake with other water channels should be improved and maintained through various channels and no development plan should impede such continuity.
- Define and demarcation of the lake area is necessary for fixing the lake boundary.
- Developments should in no way pose any threat to the existing privacy, safety and security of the residents by penetrating public activity facilities deep into the remote intimate ranges of the neighborhood.
- Landscaping of the lake shore should integrate proper set back from road and residential plot boundary by greens. Screening from pollution and noise can be done by planting appropriate kind of trees. In landscaping elements proper drainage system for surface runoffs should be a major concern.

Maintenance and Management

- Strictly implement the laws and regulation for preventing the lake encroachment.
- Increase the water holding capacity by excavation of sludge from the water-bed.
- Improve the water quality by preventing dumping of garbage and industrial waste directly in the lake. Dissolved oxygen in the water should be increased by means of biological, chemical and mechanical ways.
- The lake development project should be a self-sustainable project. The potentiality and feasibility of a solar aquatic water treatment plant can be examined.
- Agencies involved in the project should involve the local community in every stage of planning, implementation, operation and maintenance.
- Lake management requires involvement of multiple govt. departments and co-ordination among these departments are often lacking, therefore an integrated high power management is needed.
- A stakeholders' forum should be related to the management and maintenance responsibility.

CONCLUSIONS

It is now widely recognized that successful management cannot, in fact, be separated from the ways in which human societies, as a whole, function. Technology alone, while an indispensable tool, is unable to address the root causes of unsustainable lake management since these are bound up in a complex mix of social, political, historical and economic factors. This recognition has led to calls for a holistic, socially inclusive and cross-sectoral response at all levels - from local to global.

ACKNOWLEDGEMENTS

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