

Accessibility Analysis of Parks at Urban Neighborhood: The Case of Dhaka

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ABSTRACT

The city and urban environment will become extremely important in the daily lives of the increasing number of people. Parks and open spaces are one aspect of urban environment that is of great importance in daily life as well as social life for people who live in urban areas. Often their importance is forgotten in the debate about architecture and built form. Parks and open spaces might be considered as non-essential in the less developed countries - but their importance lies in many different benefits and opportunities that they can provide. Urban parks if properly accessible and well connected with its surrounding area can improve urban environment by enhancing community development and social bondage. This paper focused on the accessibility of urban parks many ways as we know that without adequate accessibility the provision of good quality or quantity of open spaces would be of very limited value. Therefore It investigates the current situation of accessibility of urban parks at planned and unplanned neighborhood of the city. This study examines different variables affecting the accessibility of the urban parks. The paper also suggested some recommendation to enhance further quality of accessibility. From the detail discussion of this paper it is concluded that parks of Dhaka city should be immediately restored maintained and preserves to enhance the image of the capital.

Keywords: urban park, accessibility, planned and unplanned neighborhoods

1 INTRODUCTION

The era of pavement and concrete is an era of the past. We want to grow smart. We want to grow green and we want to enhance the quality of life for our citizens. (Antonio Villaraigosa, Los Angeles, California Mayor, March 7, 2006).

Due to rapid urbanization, there is huge encroachment upon open spaces which contributes towards deforestation, water logging, flooding, and pollution of water, soil and air. This is particularly evident in the developing countries where cities sprawl extensively. Like any other sustainable city, Dhaka needs a huge stock of open spaces for urban services or utilities and circulation and for environmental stability.

Parks and open spaces are one of the most significant components of urban environment that is of great importance for the people who live in urban areas. Parks and open spaces if properly more accessible can improve social cohesion and interaction as more people patronize them. Better accessibility to facilities also ensures economic efficiency in the use of such facilities because when they service more people, they would be more cost effective. Open green spaces, playgrounds, parks in the city acts like its lungs besides being used as active recreational and leisure areas for its citizens. Accordingly this paper rationalize the accessibility issues of our open space to make most successful open space respondent to people and its effect in our built environment and intends to examine the present conditions of some parks at Dhaka city studying some selected samples to get an overview.

The paper focuses on the development of open space that is successful and public responsive in urban area. Accessibility, as a key attribute to ensure responsiveness, it is also the main issue of our study. The scope of the study is limited within the framework of fact finding towards identifying the characteristics of accessibility of responsive open space. And it evaluates the accessibility of some open areas of Dhaka city, not all of the category of open space.

2 ACCESSIBILITY OF URBAN PARKS

Good neighbourhoods offer a sense of coherence and identity for those living in the cities to make urban life more manageable and meaningful. Parks are one of the important components of neighbourhood landscape, which provide relief from the chaos of the built environment for residents. They may offer a range of facilities (passive or active) with various opportunities for interaction with nature. According to the National Recreation and Park Association (NRPA), Standard, Neighbourhood Park should be linked to community pathways and sidewalks, uninterrupted by non-residential roads or other physical barriers, providing easy access, especially for children and senior adults, within at least $\frac{1}{4}$ - $\frac{1}{2}$ mile service radius from residences (Mirsch, N.1995). Neighbourhood parks will be successful and responsive when they are characterized by the presence of people, in an often-self reinforcing process. That is why accessibility, regardless of, if it is measured in time, cost, distance, or population, is the most important variable that one must consider in the early stages of neighbourhood planning. Accessibility is derived from the transportation system (distance, cost or time) and the attractiveness of the activity centre (Abubakar *et al.* 2006). Inclusive access to high quality public spaces is therefore a cornerstone of democracy and social equity and a central issue to make a space responsive (Carmona *et al.* 2003).

Various forces in society purposefully influence the accessibility order to preserve particular environments. The people who live in nearby neighbourhoods play a critical role in how those parks are perceived and used as well as how well they are maintained depending on their cultural, social and economic status and overall living standard (Gobster, 2001). Beside this, managers and owners of quasi-public space have various motives for controlling activity, such as their responsibility for maintenance, liability for what may happen within the space, and concern for marketability. While design strategies can enable and enhance both exclusion and inclusion. Therefore some attributes (comfort and image, access and linkage, uses and activity and sociability) (Carmona *et al.* 2003) also strengthen the access and responsiveness of parks depending on the neighbourhood (planned and unplanned) (Fig 01). This study is concerned with those issues that influence the accessibility and success of neighbourhood parks in terms of the key physical

attributes. The respondent behaviour (pedestrianised, social interaction) and perceived meanings (identity, accessibility) is also important to clarify the relationship among the variables i.e. the dependent and independent variables (Groat *et al.* 2002).

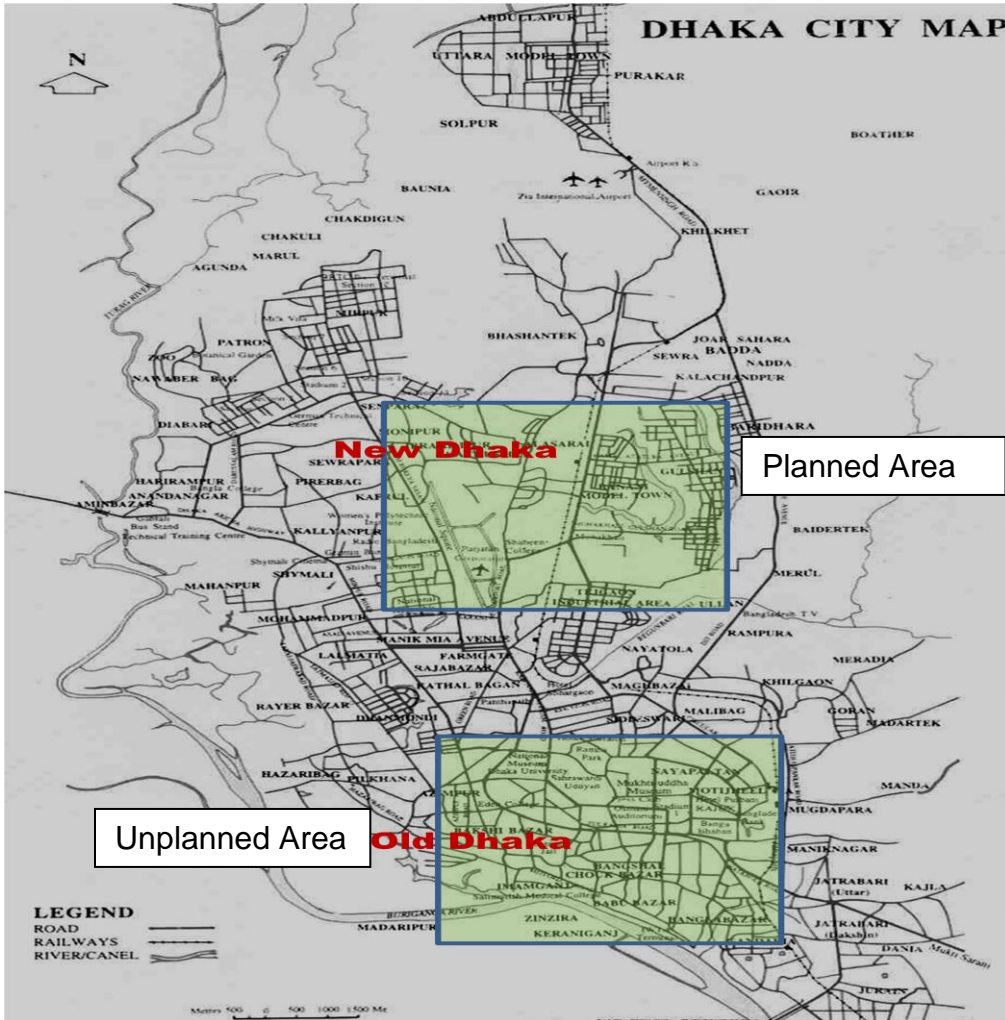


Fig 01: Planned and unplanned area of Dhaka City

3 OPEN SPACE SCENARIO AT DHAKA CITY

In order to create natural balanced and sustainable urban environment, up to 75% of urban area needs to be retained for open spaces. Ideally this should be about 40-50%, of the total area, but in a dense situation like Dhaka recommended lower margin is about 25% of urban space. Dhaka structure plan suggests that, open space should be at least 20%. But in Dhaka urban greenery, park greenery or tree-covered spaces constitutes less than 15% of the city landscape. According to the Dhaka Metropolitan Development Plan 1995, old Dhaka (unplanned development that grow organically without following any pattern.) has only 5% and new Dhaka (which has some planned development, that followed a

gridiron pattern with a land use as prescribed in the master plan) has about 12% open space (Mowla, 2005).

There is also no uniformity in open space standards between old and new Dhaka and even within two ends of the same area. With the continued growth in population and housing, the disparity between the amount of open space required for a healthy living and the amount available, continues to increase. So the practical circumstances of parks and open areas in Dhaka city are truly in very deprived condition. It poses a threat to our environment at many ways. This paper carries out survey on some parks of Dhaka city in planned and unplanned residential areas, identifying their potentiality and accessibility (Fig 02 & Fig 03).



Fig 02: Selected Parks at Planned Area of Dhaka City

Gulshan-Baridhara Residential Area (Planned)

Gulshan Baridhara Residential area (Gulshan Developed as model town and Baridhara as diplomatic zone) has been chosen as planned development for high-class society of the city. The area originally built with the purpose of being solely residential, but by observing the overall layout we find insufficient open space comparing the standard. In this area only three parks are identified,

01. Lake Park beside a main road [LP]
02. Shahabuddin Park within neighbourhood, surrounded by roads at three sides [SHP]
03. Baridhara Park surrounded by residences [BP]



Fig 03: Selected Parks at Unplanned Area of Dhaka City

Residential Area of Old Dhaka (Unplanned)

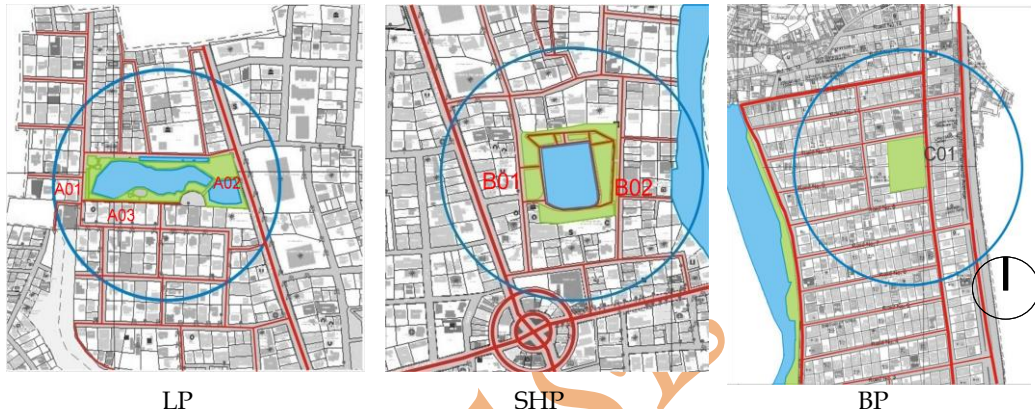
As unplanned development older part of Dhaka city has been selected. Here the existing stock of open space is not enough to sustain the need of urbanity. Here three parks of similar category of planned area are identified which are,

04. Nabab Sirajoddoula Park, beside a main road [NSP]
05. Sikkatuli Park surrounded by residences [SKP]
06. Victoria Park surrounded by roads at all side [VP]

4 Accessibility Analysis

Location, Road Network and Accessibility

In planned residential area park are easily accessible because of regular road layout (Fig 03). As we know that land is subdivided into plot and infrastructure according to the master plan in planned area, therefore parks can be easily accessible from their nearby or surrounding household. But in case of LP, there is a main road at one side of the park reduces accessibility from opposite side of the road. On the other hand it is used by various group of user because of its prominent location.



LP
Location: North-west of Gulshan Circle -2, Ward 19
Entry: A01: west (road 63) and A02: Main Road, A03: Pocket gate (road 62).

SHP
Location: north-east of Gulshan circle-2, Ward 19
Entry: B01: west (road 83) and B02: east side (road 89).

BP
Location: Park Road, Baridhara Ward 18
Entry: C01: Park Road

Fig 04: Location and Road Network and Entry of Parks at Planned Area

In contrast, unplanned area of the city has been developed indigenously to serve neighbourhood need without any approved plan. Here road grows organically without proper zoning, road network and footpath (Fig 04). VP and NSP facing towards the main road. Therefore it has good visual connection which attracts various groups of people at different times of the day. At three cases of old Dhaka overall connection to the residents to the park are very poor. All the roads are dirty, have no footpath and suffer traffic jam almost all the time. Entries are also hidden and occupied by the vendors, which reduce accessibility of people.

Lake Park (LP): The Park is surrounded by Residence, at three sides; there are few commercial development and main road at one side. The park has a walkway surrounded by a lake. Beside this bridge on the lake, nursery at one side, different types sitting (shaded and open), trees and overall good maintenance attracts the users most and some amount of visitors comes here for different purpose (Fig 06).

Shahabuddin Park (SHP) is designed with a pond, walkway, sitting and trees of various size and shape. The park is surrounded by mostly residences; there are some schools in this area and Ladies Club beside the park (fig 07).

Baridhara Park (BP) is a pocket park within residential plots and designed with walkway, sitting, play & exercise equipment trees of medium canopy, shrub and grass.



Front Road of LP

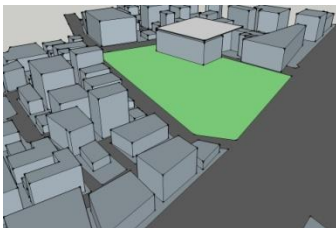


Front Road of SHP

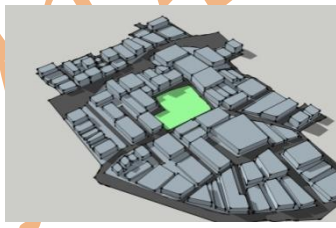


Front Road of BP

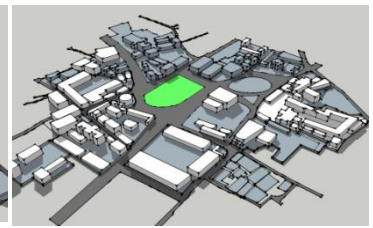
Fig 07: Surrounding Road of Parks at Planned Area



NSP



SKP



VP

Fig 08: Park and their surroundings at Unplanned Area



Front Road of SHP



Front Road of SHP



Front Road of SKP

Fig 09: Surrounding Road of Parks at Unplanned Area

Nabab Sirajoddoula Park (NSP) is located at the junction point of commercial and residential area and surrounded by residence, commercial development, bus stoppage, mosque, shops. Vendors, street hawkers occupied the surrounding footpath and obstruct visual accessibility. There are various trees of wide and medium canopy, grass and shrubs, walkway sitting a fountain and some play equipment in damaged condition. City Corporation occupies a corner of the park for community water tank. The surrounding context of the park is not suitable for children and students to use the park all the day long.

Sikkatuli Park (SKP) is also pocket park at residential neighbourhood. The park has some Sitting, Play equipment water fountain and a walkway in deplorable condition. Because of its context the park is used as play area for local young and children as there is no play field in nearby location. Therefore the design is more suitable as a field rather than a park and its maintenance as a park is hard.

Victoria Park (VP) is a green island surrounded by roads at all sides. There is residential are at one side and many institutions like schools, college, university, church, Court Bldg at other three sides. The park is well designed with Walkway, Sitting, Play & Exercise equipment, Monument, prayer space and public Toilet at corner. The park offer better opportunity that is why people of different age group and people from a distance come here for a short informal break

Activity at the Parks

Lake Park is widely used by the local people particularly at morning and evening for jogging and exercise purpose of health conscious community. Almost 120~150 people daily attend the park only for morning exercise purpose. The park is mostly used from 5.00 am to 9.30 pm. But its accessibility is controlled by the authority, i.e. at morning and evening it is restricted for normal people who want to come here for recreational purpose.

The **Baridhara Park** is widely responsive to the local people. Like other parks in those areas, it is also famous for the health conscious community. Children also use the park for their evening play. As it occupy some play equipments for children.

SHP is mostly used by the community people for daily exercise purpose at morning and evening. Some guardians of school going children use this park for waiting purpose.



Evening Walk at SHP



Children play Equipment
at BP



Park Shelter and Lake at LP

Fig 10: Activity of Parks at Planned Area



Morning Exercise at VP

Gathering at NSP

People takes rest at SKP

Fig 11: Activity of Parks at Unplanned Area

People from different institutions come to visit the **VP** as it is surrounded by different types of institutions [College, University]. Therefore the park remain busy all the time. In spite of this it is also a good space for morning and evening exercise as it is the only park for nearby neighborhood.

NSP used for exercise purpose by the nearby residents. Park remains close all the daylong for maintenance purpose by the order of local management authority. This decision restricts the use of park at day time. In spite of this some local vendors, beggars or street people use the park for sleeping or resting purpose.

SKP located within the neighborhood is used by young and adults for exercise, walking and as a play area.

Park Name	Exercise	Visit	Children play	Meeting place for young and adults
LP	370	180	20	60
SHP	250	60	40	60
BP	320	0	60	50
VP	400	80	70	150
NSP	230	40	0	80
SKP	100	20	80	80

Table 02: Average activity within parks at different times of the day

This study shows only the presence of health conscious people in the park (Table 02). In the planned area although the parks are comparatively better located and maintained but somehow social structure of these high-class residential areas do not allow their children to play in those parks, rather they encourage indoor play facilities. The scenario of socialization at old Dhaka is comparatively better. VP and SP remain lively all day long by the presence of local children, young and adults. Because of social conservative pattern and also due to the location and poor maintenance, participation of the female member of the community is low at old Dhaka.

Accessibility Mode

Accessibility may be discussed in terms of transport- means of communication. Environments are inaccessible if their use depends on private mode [usually car] (Carmona *et al.* 2003). In case of any neighborhood open space if it is easily accessible by walking, without crossing any main road, it will be more useable.

The park whether it located in planned or unplanned area, if it's location is within neighborhood, without crossing main street, most of the people like to come by walking. We see that in case of BP, SKP almost all people come to the park by walking. LP, NSP serve the population of three sides [walking], but from one side people have to cross one main road and therefore some people use car or rickshaw to reach park. The situation of VP is different as it is surrounded by thoroughfare at all sides. People use different mode of transports to access this park.

Location		Walk	Cycle	Car	Rickshaw	Bus
Planned R/A	LP	50%	-	40%	8%	2%
	SHP	80%	-	15%	5%	-
	BP	100%	-	-	-	-
Unplanned R/A	NSP	86%	2%	-	10%	2%
	SP	95%	5%	-	-	-
	VP	75%	5%	-	20%	-

Table 04: Daily average use of transportation to access the selected parks

Frequency of Use

Parks create a sense of place by connecting residents of different age group and background to one another. It is this diverse mix of people who also makes a park successful (Mark, 2006).

Park Name	Avg no of user at 6.00-9.00 am	Avg no of user at 10am-4.00 pm	Avg no of user at 4.00 pm- 9 pm	Daily avg. no. of user	Response level
LP	250	180	200	630	21%
SHP	200	100	150	450	09%
BP	200	10	230	440	12%
VP	200	250	250	700	20%
NSP	160	30	130	320	10%
SKP	60	100	120	280	06%

Table 05: Average uses of parks at different times of the day

- LP:** According to the variable analysis this park works better and its response level is 21%. Here presence of some visitors is observed at day long due to its better design quality, visual accessibility and easy mode of transport. But the main road at one side and lack of play and recreation facilities, restricted time for visitors reduce its response level at some aspect.
- SHP:** The daily average response level of this park is 09%, although the park is in a good position according to zoning, size, and physical accessibility. Location of some schools surrounding the park, lack of recreation facilities, poor visual accessibility may be the cause to reduce its response.
- BP:** This park is in a better position among all the parks of planned area, yet its response level is only 12%. It is the decision of park authority, (park remain closed from 10.00am to 4.00 pm) and social character that reduces the use of the park at daylong.

VP: The daily average response level of the park is 20%, which is comparatively higher than others of that area. Only because of its different site surroundings, better design quality and maintenance, people from a greater distance come here.

NSP: Although there is a main road and commercial development at one side but it is the only park, which serves huge population beyond catchment area. But due to lack of design quality, ill maintenance, poor accessibility, the daily average response level is only 10%.

SKP: In terms of zoning and road layout the park is in a better position like BP at planned area. But its response level is very poor (only 06%) because of poor maintenance, absence of walkway, sitting even proper greenery. But here children and teenagers gather all the daylong, which prove that by improving the situation its response can be increased many more.

5 OVERALL FINDINGS

In the planned area overall situation in terms of their size, location and accessibility and safety measure are quite suitable but other attributes like comfort, uses and sociability are not satisfactory because of their lacking in amenities (absence of recreation facilities, restaurant, and children play area) and sociocultural background.

In **LP** the average no of users is satisfactory at day long due to its better design quality, visual accessibility, and easy mode of transport, scenic beauty and security. Its response level is 21%. But the main road at one side and lack of play and recreation facilities, restricted time for visitors reduce its response level at some aspect. That's why for any recreational purpose some people of that area used to go another spaces neglecting this beautiful park.

The daily average response level of **SHP** is 09%. According to zoning, size, and physical accessibility the park is in a good position. But location of some schools like Scholastica, Green dale, Crescent School in the surrounding road of the park, lack of recreation facilities, poor visual accessibility may be the cause to reduce its response level.

Among all the parks of planned area **BP** is in a better position, yet its response level is only 12%. The park remains close from 10.00am to 4.00 pm due to the decision of the park authority and social character of the surroundings reduces the use of the park at daylong. Mostly local children use the park for their evening play as it occupy some play equipments for children.

In case of Old Dhaka, the main issue of accessibility is in a threatening condition, due to its unplanned and ill-maintained vehicular and pedestrian layout. All types of vehicle move around the **VP and NSP**. Thus there ease of accessibility is questionable in some aspect.

NSP serves huge population although there is a main road and commercial development at one side. But due to lack of design quality, ill maintenance, poor accessibility, the daily average response level is only 10%.

In terms of zoning and road layout **SP** is in a better position like BP at planned area. But from survey it is found that the response level is very poor (only 06%), because of poor maintenance, absence of walkway, sitting, even proper greenery. But here children and teenagers gather all the daylong, which prove that by improving the situation its response can be increased many more.

The daily average response level of **VP** is comparatively higher than others of that area which is 20%. People from a greater distance visit here because of its different site surroundings, better design quality and maintenance.

From the surveys we find that, although the parks in the community are not designed properly, but they have a good social impact on people of nearby locality. People come here to make a short break from their city life. These are extensively used for morning and evening exercise of neighborhood people. In spite of all these, average response level of parks at both area is almost same, which proves that, in a city like ours where there is extreme shortage of parks and open spaces, the accessibility issue is determined not only by the distance but also on many other related issues like zoning, access mode, activity, sociability, security, etc.

6 RECOMMENDATIONS AND CONCLUSION

Parks and open spaces are one aspect of urban environment that is of great importance in daily life as well as social life for people who live in urban areas like Dhaka. At dense urban area parks should be the most vibrant and accessible space. But somehow their importance is often forgotten in the debate about architecture and built form. In Dhaka rapid growth of urban population has caused the huge encroachment of open space due to increasing demand on land for housing and other urbanization need. But still there is enough scope, to rectify the wrongs with planning and design, and thus enhance the accessibility and use of the parks. Few parks that exist within different neighborhoods of Dhaka city have a good social and environmental impact on the neighborhood sustainability. To make the parks successful and more accessible some recommendations have been suggested below:

- Enhance the security and maintenance of the park to increase their use. To maintain livability proper maintenance and security is obvious. Vandalism can contribute to perceptions of fear because litter, graffiti and broken furniture all that suggest a place is uncared for and is possibly unsafe. Therefore enhance the security and maintenance of the park to increase their use.
- Development of the quality of approach way or route, environment of surroundings and within the park area is necessary in all case. Presence of litter, graffiti and broken furniture all that suggest a place is uncared for. The improvements of quality will enhance number of park user.
- Variety in the form, color, and texture of landscape elements as well as a range of activities contributes to an interesting environment that attracts users. Some children play equipment, gathering or sitting spaces for younger and adult person, restaurant or cafeteria should be kept within the park and must be conscious that maximum amount of open space is to be preserved within the park area. In this way, activity can be generated in the park which will attract more users.

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