

## Changing Perspectives in Urban Park Use and Management in Dhaka City, Bangladesh

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**Abstract:** In a developing country like Bangladesh where cities are rapidly growing, urban park can play a vital role in urban sustainability by promoting social, economic, and environmental well-being. On the contrary, urban parks are being demolished due to urban development. Anwara Park was one of the oldest parks in Dhaka City, located in Farmgate which has been heavily affected due to the construction work of Dhaka Metro Rail Project. This study evaluates land use/cover changes in the park, between 2001, 2011, and 2021 using satellite images and Google Earth Pro as well as socio-economic data. Spatial and temporal dynamics of land use/cover changes were quantified using three Landsat images, a supervised classification algorithm and the post-classification change detection technique in GIS and Remote Sensing. Accuracy of the Landsat-derived land use/cover maps ranged from 85 to 90%. The analysis revealed that substantial growth of built-up areas in the park over the study period resulted significant decrease in vegetation density. In 2001, vegetation density was more compared than to the years of 2011 and 2021 in Anwara Park. In 2011, vegetation covers, grasslands, mixed plants had decreased than before. Rapid construction expansion through infilling of park areas resulted in a wide range of environmental impacts. Findings from this study provide useful information. People's perception regarding use and management of Anwara Park where were several misuse and mismanagement from both end of users and managers. Destruction of previous park also provides the opportunity to build back better the park in the perspective of better use and management. Moreover, these findings also provide a source of comparison, and perhaps inspiration for urban green space authorities in other cities.

**Keywords:** Urban Park, Land Use Change, Urban Sustainability.

### 1. Introduction

Due to increased population in Bangladesh green space is decreasing day by day, especially urban green space (Byomkesh et. Al., 2011). Busy cities like Dhaka must have inherited more urban green spaces. Urban green space is the area which is consists of urban parks, playgrounds, community gardens, restaurants with big gardens, historical heritages etc. Urban parks and other green spaces are especially important because they improve the quality of life for city dwellers and offer considerable social, economic,

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environmental, and health advantages (Tzoulas et al., 2007). Successful urban parks in cities are good for the general health of the populace. Many well-known developed nations, including New York, Boston, Paris, and London, have private urban parks that are quite popular and draw tourists from all around the city (Mona, 2018). Lack of awareness, lack of initiative, public and private sectors' insensitivity to ecology and the environmental, sociological elements have caused greater loss of open spaces (khan, 2014). These days, it is advised to have 25% of a perfect city's land open (Nilufar, 1999). Only 5% of the land here in old Dhaka and 12% in new Dhaka is green and open (DMDP 1995). However, the Dhaka Structure Plan includes for 20% of Dhaka to be left as open space for the city's future generation (DMDP 1995). At least 0.5 hectares at a linear distance of no more than 300 meters should have a green space access from every house, WHO suggests.

Urban Park is an asset of our community. Parks are very essential in our Dhaka city and there are many benefits of urban parks like health, environment, built up community, also economic benefit.

Urban parks play a vital role in improving mental health. Spending more time in parks or green spaces can fight against depression, anxiety or other mental disorders. Parks are a fantastic place to promote exercise and uphold healthy lifestyles. According to a study of RAND Corporation (An American nonprofit global policy) found that 50 percent of intense, heart-healthy activity and 14 percent of moderate exercise are both performed in close-by local parks. Even a small park can make a vital impact.

People from all ages can go to parks for jogging or other physical activities. Park can make positive impacts on many lives, for all ages. Specially it is benefitted for our elderly persons. They rarely go outside. So when they visit parks. They get an opportunity to take some fresh air, explore a relaxing environment and also beneficial for physical movement. Teenagers are fond of playing various sports. But they rarely get playgrounds in cities like Dhaka. So they can use those parks for their playing. Elderly people and young people visit parks more than middle aged people.

Urban parks help in improving air quality of any environment. Micro Climate surrounding the urban park is cooler than the distant areas. Trees or plants of any park keep the air fresh and cool. Trees and vegetation can help to reduce air pollution directly or indirectly by removing pollutants.

Due to the constructed environment of cities, as well as a city's geography and nearby environment, solar radiation, air temperature, wind speed, and therefore relative humidity, cloud cover, and precipitation, can vary dramatically (Sukopp and Wittig, 1998). Compared to the countryside, urban climate is generally characterized by higher temperatures, weaker winds and solar radiation inputs that vary according to the degree of pollution (Gilbert, 1991). Maintaining and restoring an urban green space system is crucial to provide high-density cities with adequate quality of life. Additionally, a suitable urban climate and urban green space can have positive social and economic effects.

Parks can help in building up a strong community. People going to these urban parks, meet people and make a community amongst themselves. Urban Park also gives the opportunity to the lower-class people or who can't easily earn money. Sometimes in Dhaka city, little girls or middle-aged women are seen selling flowers, masks, handkerchiefs or other necessary stuffs.

Despite the numerous advantages of green areas that have already been discussed, most regional development and spatial planning programs either disregard or ignore their crucial role in urban sustainability (Sandstrom et al., 2006).

People from rural areas move to big cities for the purpose of jobs, better living and other facilities. Increasing number of people prefers to live in big cities where there are more economic opportunities. As a result it causes more people to commute by different transportation systems which leads to increased traffic jam. Carbon emission originated from the vehicles pollute our environment very badly. Building up an ecological city by expanding green space is one of the tectics for sustainable development. It is essential to reintroduce the natural elements or green spaces into these insipid urban spaces.

For those who live in metropolitan cities like Dhaka, urban parks are the initial components of an environment that are crucial to daily life as well as social life. But for some reason, their significant is overlooked in the discussion of architecture and built form. Over the last 40 years, due to increasing numbers of urban people and other urbanization needs, built up areas has grown up significantly. And our environment is badly affected ecologically and socially by these infrastructure constructions. Just as growing infrastructure works, green infrastructure also need to upgrade to keep the environment in a balanced way and urban park can be a great support system for our green environment. In accordance with Western experts, both large and small cities should have 70%–80% of open space and vegetation. A perfect city should also have 40%–50% open space. The City state of Singapore has still 60% open space. But this perception is different in Dhaka. Residents of Dhaka City currently have very limited access to green spaces (Alam,1999). According to any per capital measurement, Dhaka is poorly provided in terms of open spaces. The population distribution and the distribution of green space are not the same. In fact, there is less available green space in densely populated regions.

Anwara Uddan Park was the only urban green space for the nearby people. There are 21 parks and 6 playgrounds under the ownership of Dhaka North City Corporation (Dhaka North City Corporation 2015) and Anwara Uddan park also belongs to Dhaka North City Corporation. For a variety of reasons, Anwara park is immensely vital to the community. In the morning, a lot of people used to go there to jog and exercise, and in the afternoon, kids and teens used to play there. Some folks used to visit the park to hang out with friends or family. But despite all of these, Anwara Park is temporarily closed at present. Park has gone through massive negative impacts. Authority have chosen this site for the purpose of construction works. Now, this park is being used for metro rail construction work. But the battle to maintain and expand the park is essential for the environment, the welfare of people, and the economy. As a major ecological component of the built environment, green space has numerous recognized economic and ecological advantages, such as better air quality, reducing the urban heat island effect, expanding recreational opportunities, enhancing aesthetic value, promoting physical and mental health, and fostering a sense of spiritual well-being in people. A lot of health benefits are associated with having access to public parks and open space. Parks, open spaces, and playgrounds are examples of green spaces that have been associated to a variety of positive health outcomes, including reduced stress and sadness. Additionally, parks contribute to the creation of habitable, environmentally responsible cities that can lower global warming. Defining the justification of the study, investigation of the site is the most important

issue. Investigation of my site is Anwara park which is located in Farmgate. The scope of this research is dynamic. This research covers a specific boundary. This research generate some practical indicators for urban park management and park use in Dhaka City.

The study aims to generate a list of practical indicators for urban park management in Dhaka city, including the views from park managers and park users. Here's the objective of this study:

- i. To evaluate the land use changes from 2001, 2011 and 2021 using Landsat based satellite images (case study park).
- ii. To assess at the perception of urban park users and managers on the importance and restoration of case study park.
- iii. To identify the presence of any change in the perspective of the management of urban parks in Dhaka City based on a comparison among the findings from 2001, 2011, 2021.

### **1.1 Literature Review**

Numerous studies have previously demonstrated the numerous social benefits of urban parks and green spaces. The majority of people on earth are moving towards cities, particularly in emerging nations, as urbanization is a natural tendency. At the expense of the world's already finite green places, urban expansion has grown quickly. Urban green spaces are important elements of urban sustainability and are essential for raising our standard of living. In a city like Dhaka, urban parks have played a special and crucial role in offering urban inhabitants recreational possibilities. Urban parks cannot simply be replaced by domestic country parks or foreign national parks (Jim, 2000). Leisure and recreation contribute to the health and well-being of urban dwellers (Nilsson, Baines, & Konijnendijk, 2007). Parks provide green space, which is an essential component of every city. Parks enhance community health and boost property values by providing opportunities for relaxation, reflection, and recreation. Through transpiration and evaporation, they cool the air in cities and provide as habitat for a wide variety of animals and plants. With the rises in lifespan, mobility, and leisure of the growing percentage of people who live in urban areas, the need for parks in cities is expanding. In addition, cities exhibit a rising number of environmental stress indicators, such as noise and air pollution, traffic congestion, etc. For the city's environmental and ecological balance in this case, parks and other green areas are crucial. Furthermore, there are a variety of urban environmental issues as a result of population expansion and urbanization. So, at the end of the day, people locate a place where they may relax, wander, and enjoy the gentle nature (Chowdhury, 2004). Urban nature is a promising instrument for increasing the physical, psychological, and social well-being of the world's expanding urban population, according to more than 30 years of study.

However, little is understood about the kind and quantity of nature people need to experience various health advantages, making it difficult to suggest minimal exposure levels and design tailored city planning guidelines for public health outcomes (Chan et al., 2019). By consuming urban green space like parks and playgrounds, many Bangladeshi cities are rapidly urbanizing and changing (Dewan and Yamaguchi, 2008). The open spaces are a town or city's lungs. They are utilized by city dwellers at various times for various purposes. Green open spaces are essential for maintaining the ecological and environmental balance in cities of emerging nations. Middle-class metropolitan areas make recreational use of the large open spaces. Such places are frequently seen to be mistreated by antisocial activities, creating dehumanized places

(Nilufar 1999). The deterioration of urban green spaces is consistently related to a single, dominant factor: urbanization. In consequence of this, there is a knowledge gap and little focus on other critical issues that affect urban green areas differently (Menshah, 2014). Around the world, numerous green places are being turned into impermeable surfaces as a result of growing urbanization, which has many negative implications on the environment (Mabuhay et al. 2005; Nakagoshi et al. 2006; Kong and Nakagoshi 2006; Phan and Nakagoshi 2007).

The demand for such development is typically met by the development of natural lands, cultivated lands, open spaces, water bodies, etc.), which ultimately leads to a significant reduction in the open and green areas of that region as urbanization requires more and more infrastructure for housing, businesses, and transportation networks (Kong and Nakagoshi 2006; Swanwick et al. 2003). In developing countries rather than developed ones, this trend is more urgent (Shi, 2002). Greater Dhaka, or the Dhaka Metropolitan Area, is no exception to this in Bangladesh. Since Bangladesh's independence, Dhaka has continuously lost its parks, open spaces, and green spaces as a result of the city's fast urban growth (Chowdhury and Faruqui 1989; Islam 1996).

## 1.2 Methodology and Study Area

Both qualitative and quantitative research methods have been applied using a case study in this research. Required data related to the case study were collected both from primary data sources and secondary data sources. For primary data collection, a sample of 40 park users and key depth interviews of park managers were conducted. Secondary data sources were collected from relevant books, journals, papers and reports. Current population of Dhaka City is 22,47,000 (Bangladesh Bureau of Statistics, 2022) which increases 3.39% than last year. There are two city corporations existing in Dhaka city. One is Dhaka North City Corporation (DNCC) and another one is Dhaka South City Corporation (DSCC).

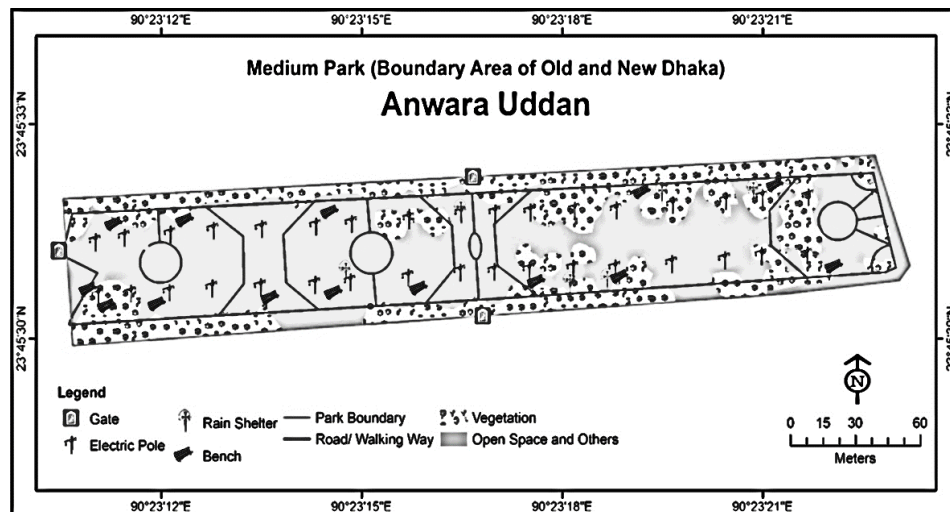


Figure 1: Anwara Park Map (modified by authors 2022)

It has been found out that out of 50 parks, at least 10 parks were replaced for expanding more infrastructures like community centers, restaurants, mosques, kitchen markets, parking lot etc. (Daily Star, 2021). According to experts, 93 parks are necessary in Dhaka city, one each for the 93 wards. The Dhaka City Corporation had 54 parks on its official list before being split into two parts in 2011. (Daily Star, 2021). There are 33 parks under Dhaka South City Corporation and 21 parks under Dhaka North City Corporation (DCC, 2015). Anwara Uddan Park has been selected as the study site. 'Anwara Uddan Park' mainly belongs to Dhaka North City Corporation which is located at one of the busiest intersections of Dhaka City, Farmgate. At present, this site is being used temporarily for metro rail construction work.

This park area is surrounded by a variety of land uses. The Islami Eye Hospital lies to the west of the BARC complex, which is next to the south road. A bus and tempo stand, as well as a daily mart of perishable items, are located on the opposite side of Indira Road. The Tejgaon College, a few business buildings, Coaching Centers, and residential neighborhoods are all located to the south. (Nilufar, 1999). So it shows that this park is situated at the center of Farmgate and Anwara park is very crucial to that area. But it was handed over to the authority of metro rail construction work and temporarily closed at present. For this research, a questionnaire field survey was conducted among park users. To finish the investigation, used a few different techniques. The systematic working procedure of my study is briefly mentioned below:-

Table 1: Flowchart of the research

<b>Objectives</b>	<b>Data</b>	<b>Data Collection Methods</b>	<b>Methods of Data Analysis</b>	<b>Outcome</b>
To assess at the perception of urban park users and managers on the importance and restoration of case study park.	Primary data sources, secondary data sources	Field visit, questionnaire survey, key depth interviews	Exploratory statistical analysis	Recommendations for the authority on how to build back better.
To identify the presence of any change in the perspective of the management of urban parks in Dhaka City based on a comparison among the findings from 2001, 2011, 2021.	Primary data sources	Field visit, questionnaire survey, key depth interviews	Qualitative Analysis	Recommendations for future management of the part.
To evaluate the land use changes from 2001, 2011 and 2021 using Landsat based satellite images (case study park).	Satellite imagery, GIS mapping	Landsat imageries	Time series analysis	Evaluation of land use changes from 2001, 2011, 2021.

### Data Sources

There are various ways of interpreting data. There are mainly two types of data sources. (1) Primary data source (2) Secondary data source. For this research, sources have been collected from both primary and secondary data sources. For primary data, a questionnaire survey and key depth interviews were conducted. Sources collected from relevant books, journals, reports and papers as secondary data collection.

### Satellite Images

Satellite image is the precondition of GIS and RS based study. Satellite images have been captured from Google earth pro. We have got three satellite images on my study area of three different times and helped us to identify the chronological changes of the study area.

### Mapping

Using Google earth pro and satellites images, produced some maps showing land use changes from various years.

### Questionnaire Field Survey

A sample of 40 respondents were taken for this research. A questionnaire survey had been carried out to gather information from the park users. They provided information on the necessity for Anwara Park, the purpose of using the park, the difficulties encountered by users and non-users, their suggestions for improvement, their thoughts on the effects of having no green space in their locality etc. It was also helpful in determining the demand for parks in the city and their value in an urban environment.

### Key Informative Interview

Key depth interviews were conducted, visiting Dhaka North City Corporation and Anwara park belonged to Dhaka North City Corporation. The purpose of these interviews was to gather information about the current state of this hypothetical park, its problems and the solutions that would be necessary, as well as their plans to develop the park and their responsibilities and restrictions.

### Previous condition of the park

Just like other regular parks, Anwara park also had proper vegetation cover. Although there were a number of huge trees with some small plants or grasslands. It had some benches or sheds too. But sheds were being used by homeless people.

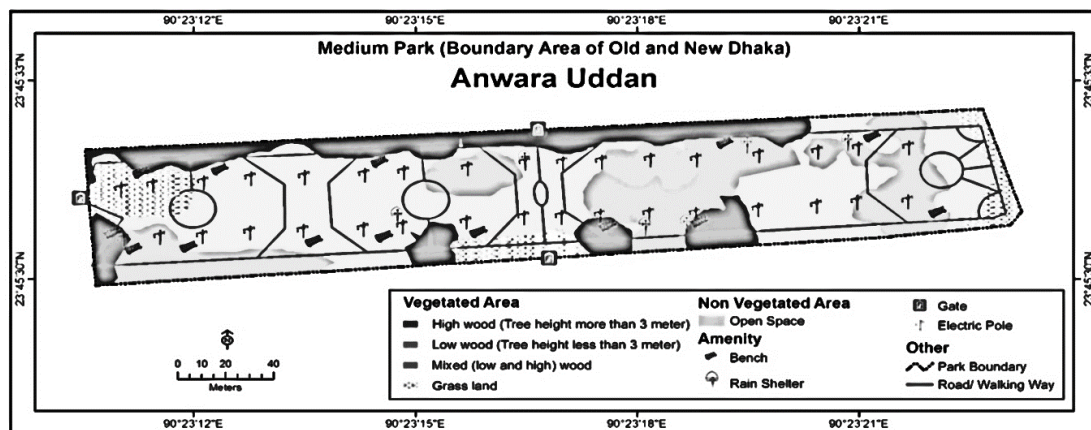


Figure 2: Anwara Park Map (modified by authors 2022)

People used to pass their leisure time with family and friends, some used to visit the park to do physical exercises, children or teenagers used to play there at afternoon. Later the park was using for different illegal activities. (need to add more)

## 2. Result and Discussion

Although there are several groups, organizations, and specialists who approach data analysis in various ways, the majority of them may be condensed into a universal description. Data analysis is the process of modifying, processing, and cleaning raw data in order to obtain useful, pertinent information that supports commercial decision-making. The process offers helpful insights and statistics, frequently presented in charts, graphics, tables, and graphs, which lessen the risks associated with decision-making.

### 2.1 Land use changes

These are the three stages of mapping of land use change of Anwara Park. (1984, 2000, 2010)

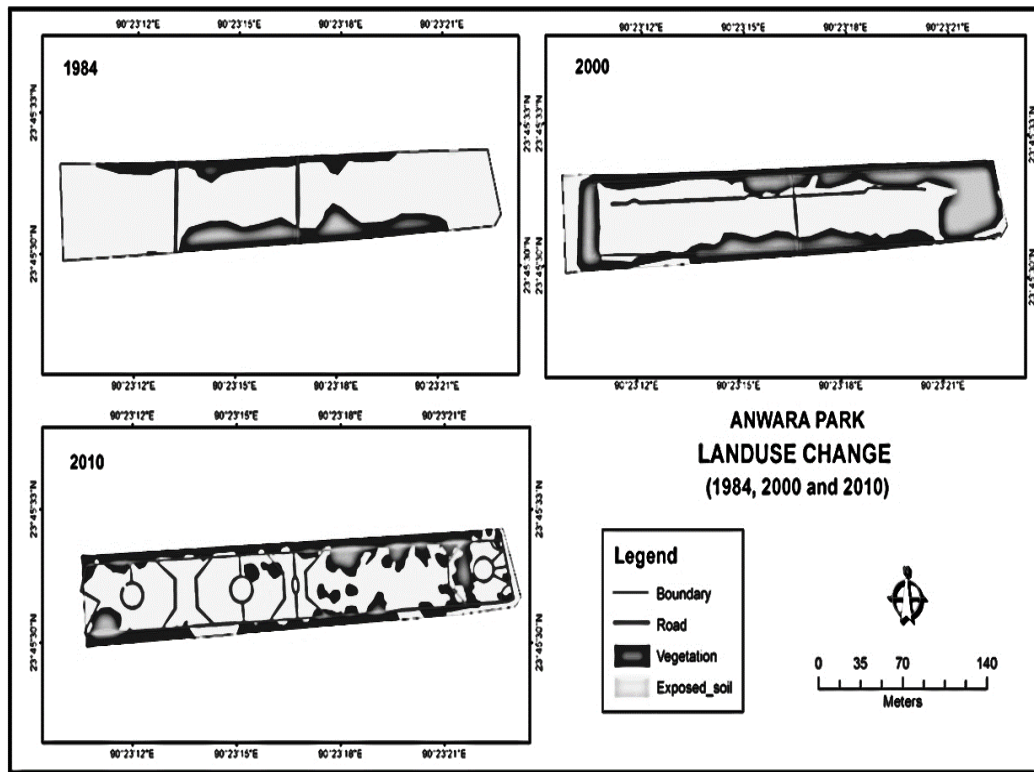


Figure 3: Land Use Change Map (modified by authors)

Some maps has been produced to show land use changes vary from years to years using satellite images. Above map easily reveals the land use changes from the year 1984 to 2010. In 1984, the park was not full of vegetation cover. But later in 2000, 2010 a change in vegetation cover can be seen with some more arrangements.



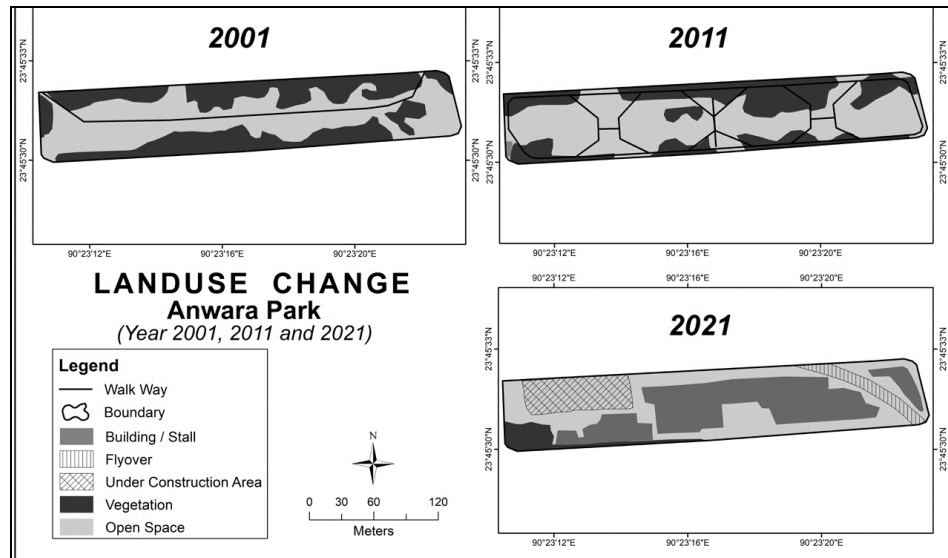


Figure 4: Land Use Change (Authors 2022)

In 2001, study area map shows that vegetation density was more compared to the years of 2011, 2021 in Anwara Park. In 2011, vegetation covers, grasslands, mixed plants had decreased than before. There is no existence of the park in the year of 2021. This is temporary closed for the construction works of metro rail.

## 2.2 People's perception

While the perceptions of people who used to visit the park, people who used to visit the park, most of them were male (70%). And rest of them were female, who were less in number (30%).

Respondents between (16-30 years) visited the park most and less were 51-65 years in figure 5.

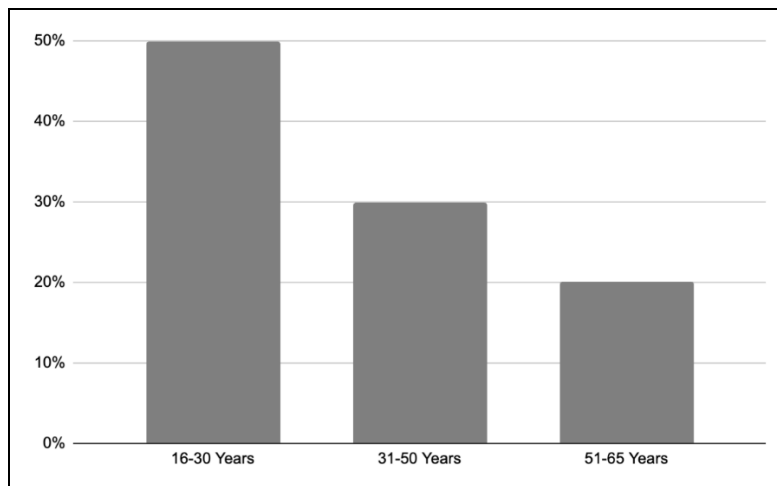


Figure 5: Count of age (field survey 2022)

After conducting the survey, among the respondents, it came to know that 77.8% people live near to the park and 22.2% live in the distant places.

It was easier to collect the data from the local people who lives near Anwara Park. Nearby people were heavily impacted due to the destruction of the park. In a busy area like Farmgate, Anwara Uddan Park was their main urban green space. Local people not only describe the positive sides of Anwara Park but also the negative sides. They informed that the park was used to be a regular park like other ones at day time. Anwara Park in the capital has become an area where people no longer wanted to visit voluntarily due to a lack of upkeep. This area, also became a free-for-all for drug dealers and floating sex workers.

In figure 6, Maximum people used to visit the park for spending their leisure time or hangout purposes with friends and family.

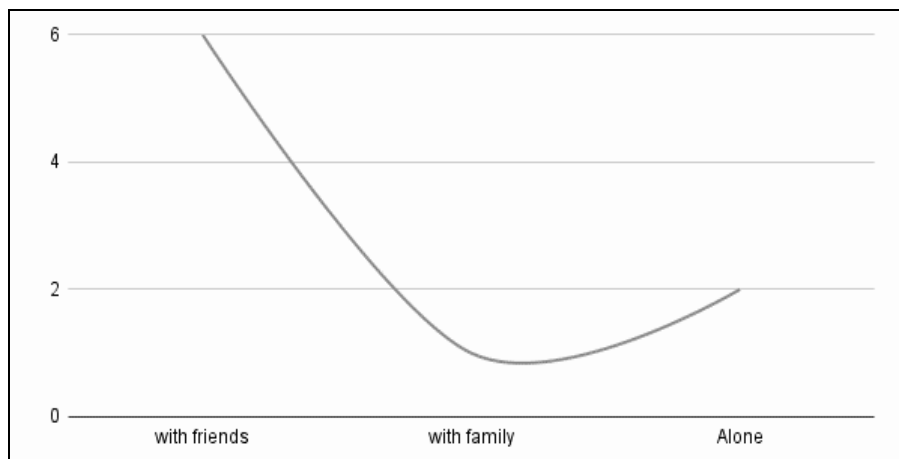


Figure 6: With whom people visited (field survey 2022)

In figure 7, Among the respondents, maximum number of people used to visit the park almost every day for their own purposes.

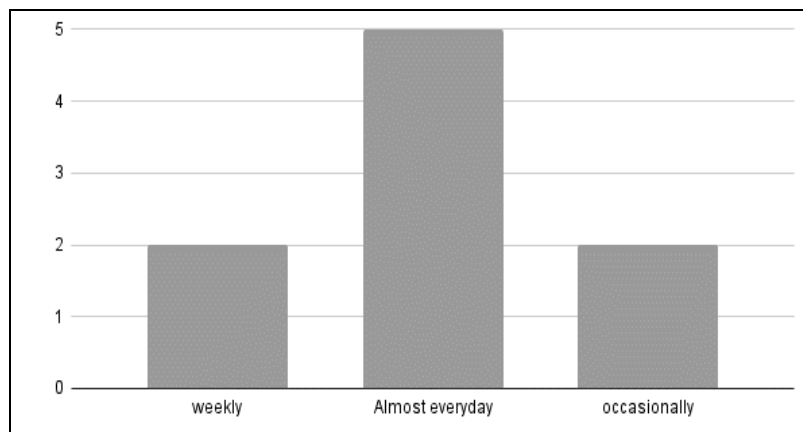


Figure 7: How frequently they visited (field survey 2022)

Maximum people visited the park for hangout or physical exercises mentioned in figure 8.

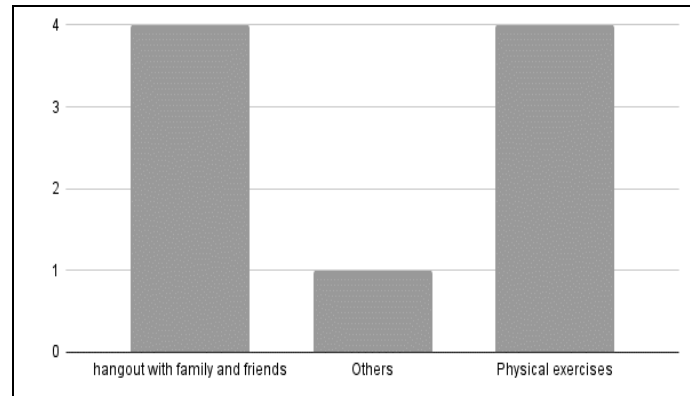


Figure 8: Type of recreations (Field Survey 2022)

Identifying the presence of any change in the perspective of management of urban parks from the years (2001, 2011, 2021). Park management was moderately maintained in 2011. Though there were less vegetation cover than the year of 2001.

Due to construction works of metro rail, Anwara Park is temporary closed. Dhaka metro rail is an approved mass rapid transit system under construction in Dhaka city. Construction work began from the year 2016. At present there are 6 Mass Rapid Transit lines and 17 stations across Dhaka city which are under construction. Serial number of Farmgate is 11 and MRT line is 6 (Dhaka Mass Rapid Transit Development Project, 2022). Phase which starts from Agargaon and ends at Motijheel ; 85.76% work is done in this phase. Anwara park is belonged to this phase areas and land of Anwara Park had been handed over to the authority since 2016.

After visiting Dhaka North City Corporation, it has been informed that Anwara park will be given back to the authority of city corporation. Abu Kashem who is a Super Engineer of environment circle, Dhaka North City Corporation informed that park will be given back to them by the next year after completing construction work. He also mentioned that park will be renovated again which will be better than before. After renovating park, a committee of 11 members will be formed who will be in charge of managing the park. CCTV cameras will be there for security issues.

For the research, a questionnaire field survey which was conducted near Anwara Park. Visiting there we gathered some information from the local people and old park users. Noted their perception regarding the park. A boy named Azad who is twenty years old. Azad manages his father's business and took his help for conducting questionnaire. Azad informed that he used to visit the park almost every day. Azad along with his all friends used to play there at early morning time or afternoon. He could spend his leisure time by playing in the park. At present he manages his father's business. There were some other old park users and all were private job holders. According to their point of view, Anwara Park was the only urban green space in their locality. They used to spend their spare time there with friends or colleagues.

There are 21 parks, 4 children parks, 6 playgrounds and 3 eidgah fields under the supervision of Dhaka North City Corporation.

Table 2: Number of urban spaces

Area	Parks	Children Parks	Playgrounds	Eidgah Fields
1	1	0	0	0
2	1	2	0	1
3	8	1	2	0
4	0	0	0	0
5	11	1	4	2
Total	21	4	6	3

Information also collected from DNCC that steps are being taken for the establishment of new 18 urban parks and 4 playgrounds. They also informed that every park will be formed with a committee of 11 members who will manage the parks. Each park will be enhanced by full of security. There will be CCTV cameras. DCC office will control these cameras and supervise.

### 2.3 Similar Conditions of other parks

Not only Anwara Udyan Park but also there are other parks too which has been grabbed by different threats. Usmani Udyan Park, Khilgaon Children Park, Park in Mirpur Section 2 are the examples.

#### i) Usmani Udyan Park

The Osmani Udyan has already weathered challenges to its vegetation. Approximately 11,000 trees were to be cut down in order to build an international conference center there in 1999, according to reports from the local media at the time. Residents applauded Dhaka South City Corporation for starting the renovation work on Osmani Udyan in January 2018 and promising to finish it in 10 months. Due to several plan revisions and the sluggish pace of the construction, the rehabilitation work has not yet been finished three years later, according to experts (Daily Star, 2022)

#### ii) Children Park at Khilgaon

The place which was shown as the land of Children park but occupied 0.6584 acre of land by Bangladesh Ansar and VDP. In 1961, this place was designed for children's park (Daily Star, 2007)

#### iii) Park at Mirpur Section 2

This place was marked was a greenery open space. But later in 2007, National Housing Authority had cut off several hundreds of trees of the only park of Mirpur section to establish a market. (Daily Prothom Alo, 2007)

## 3. Recommendation and Conclusion

From the field survey and interviews few recommendations are identified to reconstruct and manage the park better than before or to build back better. First of all, there should be strong policy initiatives to reconstruct the park, which can be applicable to any of the parks in Dhaka city. Security was a major issue in Anwara Park, it can be strengthened by taking many steps like installing CCTV cameras and by monitoring regularly. After reconstruction of the park, a committee should be formed to manage the park well, because many initiatives did not bring any good due to lack of proper management. There

should be more improved facilities like benches and more trees around the park. Also, when in reconstruction phase, alternative recreational facilities should be ensured for the local people as many of them visited the park regularly.

Therefore, a variety of planning and decision-making techniques are required for sustainable open spaces and urban parks, especially when models from one location are used in another with a completely different culture. Cities are expanding without enough planning for public green areas in many rising nations, which diminishes the quality of life. Urban parks' level of usage, range of activities, maintenance requirements, symptoms of anti-social behavior, or demographic make-up of their catchment have not yet been adequately investigated, information that is required for effective park development. Overpopulation (more than 18 million residents) and migrants are searching for employment and better jobs into the city are driving Dhaka's municipal infrastructure to the crisis point. As a result, additional urban areas are created by encroaching on green spaces and converting them into buildings and other infrastructures. The green spaces of Dhaka are rapidly shrinking based on spatiotemporal green space dynamics (Byomkesh et. Al., 2011). This study reveals the changing perspectives in park use and management of Dhaka City. Anwara Uddan Park which has been selected as the study site. The rate of change in Anwara Park's vegetation cover was continually altering, according to estimates made using satellite photos from the years 1984 to 2021. Over the past 37 years, a significant loss of vegetation cover was seen in comparison to the base year of 1984. But mainly in 2016, the park was fully devastated due to construction works of metro rail. By this destruction, old users of the park and local people is more affected. The park had been handed over to Dhaka Mass Transit Company Limited which is being used in purpose of completing work of metro rail since 2016. After completing their work, the park will be given back to the authority of Dhaka North City Corporation by the next year. Therefore, some strategies should be implemented for the new look of Anwara Park. Hopefully, the park will again attain its natural beauty with many more facilities.

## References

- Alam H. (February 9, 2019). Osmani Udyan: A saga of neverending renovation. The Daily Star. <https://www.thedailystar.net/city/news/osmani-udyan-saga-neverending-renovation-2041677>
- Bhuiyan, M. S. I. (2010). Reduction of open space in Urban planning: a case study of Osmani Udyan (Doctoral dissertation, BRAC University).
- Byomkesh, T., Nakagoshi, N., & Dewan, A. M. (2012). Urbanization and green space dynamics in Greater Dhaka, Bangladesh. *Landscape and Ecological Engineering*, 8(1), 45-58.
- Chan, C. S., Marafa, L. M., & Van Den Bosch, C. C. K. (2015). Changing perspectives in urban park management: a longitudinal study of Hong Kong. *Managing sport and leisure*, 20(1), 56-76.
- Chan, K. M., & Vu, T. T. (2017). A landscape ecological perspective of the impacts of urbanization on urban green spaces in the Klang Valley. *Applied Geography*, 85, 89-100.
- Editorial. (July 5, 2018). Renovate Farmgate Anwar Park. The Daily Star <https://www.thedailystar.net/letters/renovate-farmgate-anwar-park-1599946>
- Heidt, V., & Neef, M. (2008). Benefits of urban green space for improving urban climate. In *Ecology, planning, and management of urban forests* (pp. 84-96). Springer, New York, NY.

- Khan, M. (2014). Study of open spaces in the context of Dhaka city for sustainable use: A syntactic approach. *International Journal of Engineering and Technology*, 6(3), 238-243.
- Latinopoulos, D., Mallios, Z., & Latinopoulos, P. (2016). Valuing the benefits of an urban park project: A contingent valuation study in Thessaloniki, Greece. *Land Use Policy*, 55, 130-141.
- Loures, L., Santos, R., & Panagopoulos, T. (2007). Urban parks and sustainable city planning-The case of Portimão, Portugal. *population*, 15(10), 171-180.
- Mahmud A. h.,(May 14, 2018), 'Farmgate Park turning into a squatters' den, The Daily Star. <https://archive.dhakatribune.com/uncategorized/2014/03/20/farmgate-park-turning-into-a-squatters-den>
- Mensah, C. A. (2014). Destruction of urban green spaces: A problem beyond urbanization in Kumasi city (Ghana).
- Rakhshandehroo, M., Mohd Yusof, M. J., Arabi, R., Parva, M., & Nochian, A. (2017). The environmental benefits of urban open green spaces. *Alam Cipta*, 10(1), 10-16.
- Shanahan, D. F., Fuller, R. A., Bush, R., Lin, B. B., & Gaston, K. J. (2015). The health benefits of urban nature: how much do we need?. *BioScience*, 65(5), 476-485.
- Ummeh, S., & Toshio, K. Classification of Urban Parks and their Regional Characteristics in Dhaka City, Bangladesh.