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Exploring the Hidden Functionality of the Underneath Space of Moghbazar Flyover, Dhaka

Aneeka Habib¹, Anika Amzad Rachi²,

¹Department of Architecture, Bangladesh University (aneekahabib@gmail.com)

²Department of Architecture, Bangladesh University (rachi20072@bu.edu.bd)

Abstract

Flyover, as a mobility component, has been an urban design solution to minimize traffic congestion in recent decades. The underneath spaces of flyovers are significant urban spaces with the potential of holding diverse public functions. In a densely populated area like Moghbazar, flyover underneath spaces have been observed to be indiscriminately used in unplanned manner occupying various functions like parking, garbage dumping, etc. These informal occupancies require assessment for efficient utilization of these spaces. This study encompasses two prime inquiries - functional analysis of Moghbazar area which led to finding the insufficiency of public functions and study of functions prevailing in the underneath spaces of Moghbazar flyover aided in determining the additional functional need that triggers the overflow of public functions. This research is based on a qualitative approach using primary data (semi-structured interview, field survey, photographic survey) and secondary data (maps) which explored the potential functions. The finding suggests the underneath spaces of the flyover are potential to hold diverse functions that provide realm for public. The findings and conceptual framework are visioned to contribute to the effective planning and further research of public functions and appropriate approaches for flyover underneath spaces based on first-hand analysis.

Keywords: *Functionality; Flyover underneath Space; Urban space; Public Functions.*

1. Introduction

Due to population expansion, Dhaka city is facing rapid urbanization at an average annual rate of 3.21%. the growing population has increased. The amount of traffic produced by the population due to the massive number of vehicles is an everyday phenomenon on the road (Amanina Mohd Kassim et al., 2019). In recent years a lot of flyovers have been constructed throughout the city to decrease traffic congestion. These flyovers link different places and neighborhoods. The construction of these flyovers results in socio-economically unproductive spaces underneath them (Srivastava et al.,2023). Though the leftover space beneath the flyovers is visually accessible but frequently underutilized and disregarded by the city planners as well as the residents of the cities. Urban planners around the world are recently discovering these underneath spaces to have the potential to be transformed into neighborhood gathering places and activity hubs, small-scale public spaces that will render environmental, social, and economic benefits to both the city and citizens (Ahmed et al.,2020). As a result, diverse functions and various forms of utilization are found in the underneath spaces of flyovers as these usages occur spontaneously and without planning (Jamila et al., 2022). These functionalities impact in both positive and negative ways. If these underneath spaces are not brought under planned usability, these spaces to some extent may consequently become hubs for unsocial or unhealthy activities.

At present, the spaces under the Moghbazar flyover are being misused as encroachment, parking areas, waste dumping areas, etc. There is no clear function in these spaces hence it is also creating visual discomfort for the surrounding community and users. But if these residual spaces are converted to open urban parks, community berthing spaces with some public functions it can be beneficial for the community in socio-economic as well as environmental aspects. Also, these spaces can enliven the community ensuring a healthy urban gathering space and make these valuable urban spaces vibrant. Also, urban space in this densely populated area might incorporate utilization through interventions relevant to the neighborhood.

This paper attempts to review the activities that naturally take place in the surrounding neighborhood of Moghbazar as well as activities that occur spontaneously under the residual spaces of Moghbazar flyover free from the designer's ordered, and structured assumptions. The findings are anticipated to assist in the efficient

planning of community spaces in the flyover beneath spaces so that those could contribute to the city's development.

2. Flyover Underneath Space in the Literature

Utilizing the underneath space of a flyover has been addressed in many research and practices. The survey and case study-based research and practice used some similar concepts regarding utilizing the underneath space. The concepts are summarized below-

Residual Space Underneath Flyovers

Residual space either open or closed is abandoned, not maintained, and has no clear functions (Azhar et al., 2020). City residual space or residual space is a land that cannot be utilized optimally as a result of planning and development (Heryanto et al., 2019). Flyover construction results in economically and socially unproductive spaces which do not contribute to community life and sometimes render negative effects on social life. These leftover spaces should be turned into productive spaces which will render environmental, social as well as economic benefits (Sabbir et al., 2021). The potential of leftover spaces can be best summarized in terms of achieving self-sufficiency, building adequate social infrastructure, revitalizing neighborhoods, improving visual qualities, personalizing spaces, enhancing diversity, and ensuring security and permeability (Debele et al., 2022).

Functionality and Spatial Organization

The function of residual spaces underneath the flyover may be determined by surrounding uses. In some examples worldwide, these areas with services are mainly used for parking, benches, and street furniture. In other instances, these places can be used as hubs for community usage with public functions (Qamaruz-Zaman et al., 2012).

Public Space and Public Spaces Under the Flyover

A public space is a place that is open and accessible to the general public which may have some public functions according to activities such as roads including the pavement, public squares, parks, memorial, markets, community open space, waterfront and beaches etc. (Stephen Carr, et al., 1995). According to Hariz, the criteria for successful public open spaces are as follows accessibility, pleasant and attractive, safety and comfort, bind the community etc. (Hariz et al., 2013).

Flyover underneath spaces can be used as urban open spaces accommodating different public functions such as open green space, parks, exhibition spaces, cafes, food stalls, leisure, recreational activities, space for vendors, small shops, businesses, and occasional weekly activities for developing these spaces to attract and benefit the surrounding communities (Qamaruz-Zaman et al., 2012). Some of the previous research regarding utilizing the underneath space of a flyover mention utilizing that space as a public space (AbuBakr et al., 2021). Residual spaces for social activities are analyzed in accordance with the philosophy of Henri Lefebvre in Lahore, Pakistan. An observational analysis was done and it was proposed that the unutilized spaces under the flyover can be converted into small-scale public spaces, public pockets, or community gathering and activity spaces in the city, which will be beneficial for both the city and its residents (Ahmed et al., 2020). Potential community-beneficial activities in the underneath spaces of the flyover have improved the quality of life in Heliopolis, Cairo where it tied the neighborhood's urban form, landscape architecture, and socioeconomic elements together while developing flyovers inside the urban fabric (AbuBakr et al., 2021).

A research conducted on the flyover residual space in two cities in West Java, Karawang and Bogor in Indonesia obtained various dimensions and shapes of residual space, community use as well as community behavior in utilizing the residual space under the flyover through descriptive qualitative method. They suggested that this leftover space can be utilized as open public space (Jamila et al., 2022).

3. Present Condition of the Underneath Space of Moghbazar Flyover

The present condition of the Moghbazar flyover has no planned way of utilization rather in some cases the spill of the functions nearby has been observed to occupy the underneath space of the flyover. As a result, most of the underneath space of the Moghbazar flyover is lying as a residual space without any usability or impact on the surrounding neighborhood. In very rare scenarios few functions are found but most of the spaces are left unutilized. The barricade around the underneath spaces of the flyover makes the spaces inaccessible and leads to form vendors nearby the area but not in the underneath space. The functions that already exist under the flyover are mostly not permanent and many of those are changeable with time. Exploration of these functions themselves

leads to finding potential functions for these unutilized urban spaces. On the other hand, the fixed functions in the underneath spaces of the flyover need assessment of whether those should be there in the same way or not.

An intervention has enlivened the underneath space of the flyover in very recent times. The structures have been covered with artwork (graffiti) as an initiative to reduce visual impairment (figure-1 b). This added extra value by creating a visually pleasant roadside for the passers-by and the dwellers/ working people around. Such intervention makes the urban environment live and provides energy to the people within the dense fabric which was impeded by the previous condition (figure 1 A).



a. Previous Condition with Random Posters

b. Current Condition with Graffiti Replacing Posters

Figure 1: Underneath Space of the Moghbazar Flyover (with and without recent intervention).

Source: Internet.

4. Method

Exploration of hidden functionality has been conducted from the existing land use of the area (Moghbazar) and from the current functions occupying the underneath spaces informally. This research is based on a qualitative approach. The study deals with primary data and secondary data sources to explore the potential functions of the underneath space of the Moghbazar flyover. Primary data includes semi-structured interview, field survey, and photographic survey in order to find existing functions prevailing in the underneath space of the flyover under study. On the other hand, secondary data sources like Google map and land use map to understand the complementary uses that are the potential to occupy the underneath spaces of the flyover. This study analyzed and comprehend the existing functions and potential functions for the underneath space under study. Since the study is primarily based on firsthand data, the study raised a few of the considerable facts that need to be taken into account while designing usage for the underneath space of the flyover which has been compiled later in this paper.

5. Exploration of Probable Utilization of the Underneath Spaces of Flyover Under Study

Exploration of the probable utilization of flyover underneath spaces and findings from the methodical steps, interview, and observation of existing functions have been segmented into two parts in this section. The first part (5.1) enables an understanding of the existing land use based on aerial observation of the maps (google earth and land use map). This aids in understanding the existing functions to find relevant functional utilization for the area. The second part (5.2), describes the functions currently prevailing in the underneath space and supports the comprehension of needful functions the study area requires.

5.1. From the Existing Fabric of Moghbazar

This part of the study uses Google Earth map (Figure-2) and land use map (Figure-3, based on field survey data) of Moghbazar to comprehend the fabric of the study area to help the research detect potential functions from the existing land use. The potential functions can better serve if those complement the existing functions existing in the area. This part of the method finds the existing land use and detects few functions that will complement the existing land use. Figure 2 and Figure 3 show dense fabrication with very closely placed buildings and open spaces for public use are extremely rare. The roads are narrow specifically in the local areas. The roads do not offer street life/activities for the dweller of this densely populated urban area. The area has residential functions in most of the buildings and few other retail, educational, and institutional functions in the study area (figure 3). A semi-structured interview among 25 random locals has directions to set up functions like- ward office, public toilet, traffic police control room, tea stall, food zone, seating spaces, plantation, nursery, photocopy & printing

shop in the FUS. These functions are mostly public amenities supplementing the major functions occupying the entire study area.

5.2. From the Functions Occupying the Underneath Spaces Informally

A photographic survey during the availability of daylight has been conducted to observe and documents the functions occupying the FUS informally. Although those functions have grown in very informal manner beyond planning, those depict the need for specific functions for the area which can be considered as potential functions to occupy flyover underneath space. They are mostly set up and run by the locals as a result of the scarcity of

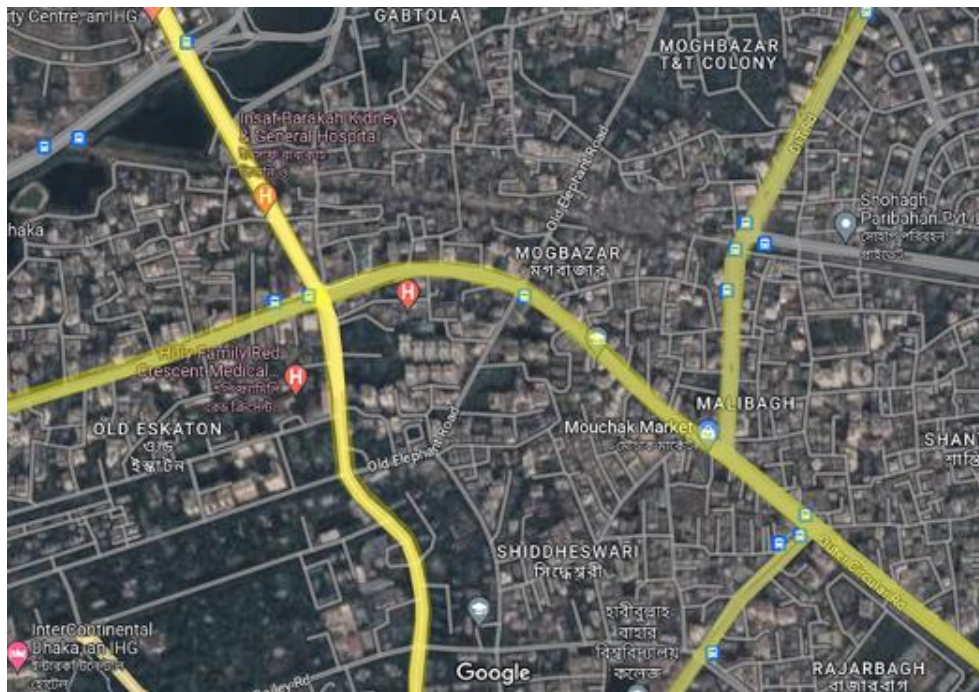


Figure 2: Open Street Map Showing Built and Unbuilt Area.
Source: Open Street Map



Figure 3: Land Use Map of Around Moghbazar Flyover.
Source: Field Survey and Google Map.

those functions in the area. Figure 4 shows there are functions like informal parking, garbage disposal, schooling, vendors, etc. Other functions prevailing in the underneath space of the Moghbazar flyover are ward office, tea stall, public toilet, kacha-bazaar, vendors, and non-motor transport repair. These functions can also be marked as potential functions to be developed in the FUS.



Figure 4: Photographed Functions Prevailing in the Underneath Spaces of the Moghbazar Flyover.
Source: Photographic Survey.

6. Results

From the study of this research, it is found that in a densely populated, compact area like Moghbazar, flyover underneath spaces can be used in various manners such as social interaction spaces with different public functions. If these underneath spaces are used in a planned manner, it can add value to this space and also may enhance the urban fabric of this area. The inclusion of complementary and necessary public functions can create spaces for respite serving as breathing space for the surrounding neighborhood. Furthermore, if area-based research on existing land use, need, and informal functions is conducted, the potential functions for FUS can be better directed. At the same time, this initiative can reduce unsocial activities in those spaces ensuring the safety and security of urban life. But several factors should be considered while incorporating functions in the underneath spaces of flyover such as structural and environmental factors, circulation as well as the surrounding neighborhood. This study shows that there are scopes for utilizing the underneath spaces of flyovers in efficient manner and if it is implemented properly, it may enhance the quality of these underneath spaces as well as the quality of the surrounding urban area in a broader aspect.

7. Considerable issues (spatial) while Designing Utilization of the Underneath space of the Flyover

This study spotlights the necessity of efficient utilization of the underneath space of the Moghbazar flyover. As mentioned in the methodology part, along with digging out potential functionality, this study revealed a few of the issues that need to be taken into account while working on and planning for the underneath space of the flyover under study and in similar contexts.

Environmental Forces

Since allocation and placement of functions in the underneath spaces will drag more people in and around those spaces, environmental forces like thermal comfort, indoor lighting conditions, and need assessment in order to ensure comfort of the users.

Airflow Change Due to Structures

To locate functions within the underneath spaces of the flyover, some structures are needed. These structures might impact the existing airflow pattern of the area. Articulation of structures should consider airflow pattern for both the structure itself and the surrounding areas.

Acoustic Condition

The underneath space of the flyover has noise conditions from 3 sides (both sides and up). Thus, it produces very unfavorable conditions with layers of noise pollution. To mitigate this emerging issue, acoustic solution would be required.

Height

All the spaces do not have the same or similar height although the underneath space of the flyover. Therefore, height-specific modules are required to be generated in order to ensure efficient utilization of the space.

Circulation Conflicts

The allocated functions and structure will require exposure from the adjacent roads. This brings a challenge and leaves food for thought to make synergy between the existing circulation and the functions within the underneath space of the flyover. Driveways should be generated without interrupting the regular traffic flow in case of placement of parking.

8. Conclusive Remark

Moghbazar is a densely populated area with an extreme scarcity of open spaces for public interactions. On the other hand, flyover underneath spaces are underutilized in most cases. The spaces underneath the flyover are used in some areas but in a very unplanned way. There is no strategy for the efficient and needful utilization of these spaces. These spaces are valuable urban spaces in the dense fabric of Moghbazar. The spaces should be left open rather than completely occupying the whole space. This way the space could break the monotony of everyday work and provide scope for escape from day-to-day chores. Open spaces are much needed to foster public engagement and make those spaces vibrant by the public themselves. The spaces can generate scope for relief with the introduction of complementary and needful functions. This research attempts to explain strategies through which potential functions can be sorted for the specific flyover. This leaves scope for further studies in a similar context in the same way. The research also recommends a number of considerable issues that should be taken into account while planning functions within the underneath spaces of flyovers.

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