

A SYNTACTIC APPROACH TO THE ANALYSIS OF SPATIAL AND POSITIONAL TRENDS OF RETAIL ACTIVITY TYPES IN PLANNED RESIDENTIAL AREA OF DHAKA CITY: A STUDY FOR GULSHAN AREA

¹Md. Nazmul Hoque Nayeem, ²Ishtiaque Ahmad and ³Khandoker Swagota Rownak
^{1,2}Lecturer

Department of Architecture, Daffodil International University, Dhaka-1207, Bangladesh
³Teaching Assistant

Department of Architecture, Bangladesh University of Engineering and Technology,
Dhaka-1000, Bangladesh

Email: ¹nayeem.arch@diu.edu.bd, ²ishtiaque@daffodilvarsity.edu.bd
³swaro47@hotmail.com

Abstract: Dhaka city has significant portray of quick change inland use even in planned residential zones through minor spatial intervention. Retail activities in residential area have certain characteristics compare to core retail markets in term of shopper types and city accessibility. Ease of access enhances sales potential as well as contributes to retail activity growth inviting either local or global scale shoppers. In Gulshan, one of the planned residential zones in early 60's of Dhaka, retail activity growth in terms of local and global economic contribution was encouraged due to overall rapid growth of Dhaka city. In this paper, typology of spontaneous retail activities in residential community was searched for and correlation with spatial structure in terms of city grid configuration was analyzed. It is seen that the plots besides high spatial value roads attracts global shoppers, while low spatial value roads offer less intervention, allowing few local unit shops or keeping plots only for residential use. Catchment area of retail typologies within Gulshan area was also analyzed in general.

Keywords: Retail activities, Spatial configuration, Space Syntax, Connectivity, Choice, Integration, Control value.

Introduction

Gulshan, according to 1959 Master plan of Dhaka city, evolved as a planned residential area for high-ranking government and non-government officers and diplomats (Nilufar & Zereen, 2012). The main arterial road, 90–100ft. wide Gulshan Avenue, divided the whole area into two parts, intersected by two commercial hubs, Gulshan Circle-1 and Gulshan Circle-2.). Street layout of Gulshan, follows grid-iron pattern with semi-circular arcs.

Before '71 only few buildings were constructed, after that the area was expanded to north for increased demand for plot (RAJUK 2002). It is found that planned residential areas were located at periphery of the then city center and followed by main arterial roads or highways of

*Received Mar 22, 2016 * Published April 2, 2016 * www.ijset.net*

Dhaka (Khan & Nilufar, 2009). Rapid City growth, allowed Gulshan residential area come closer to city's global core from 1987 (Khan & Nilufar, 2009). In 2007, city structure expands further towards east making Progoti Sharani Road globally important which is located at the east side of Gulshan area. Hence, Gulshan residential area got new spatial dimension contributing to global economy of Dhaka city.

Being more integrated within the whole urban structure, Gulshan Avenue gained higher accessibility in city aspect, leading to an embedded system where Gulshan area lose its distinct residential characters, gradually allowing non-residential function invasion (Nilufar & Zereen, 2012). It is also found that, being globally accessible, Gulshan Avenue enhances global city functions i.e. corporate offices & administrative functions (69% of total transformed land use) along artery road, rather than retail activities. Hence retail development acts as supportive to the global user categories, encouraging growth of certain retail typology.

Literature review:

Retail activity types in residential zone mostly contain low order goods, which are frequently needed with close proximity of shopper. Hence transformation of land use brings new dimension of retail activity to residential zone. A basic categorization of retail business is Generative, Shared and Susceptive type business (Nelson 1958). Generative shops produce business itself around it, Shared business share the attractive factors of generative shops for product sell and suscipient business provides impulsive product options to the shoppers in business zone.

Another typology of Retail stores was defined by West et al (1985), as Multipurpose, Comparison, Multi-comparison and Single isolated retail. Multipurpose are establishments that cluster together to attract multipurpose shopping, i.e. drug store, groceries, gasoline stations, book stores etc. (Sarma 2007). Comparison shops are devoted to single purpose comparison shoppers and Single isolated shops provides unique services to shoppers.

General store concept, basically a western concept derived as hub for multiple products in one roof with no bargaining choice for shopper. Flavor of multipurpose shops area Informal retail in city caused by surplus population, migrated to city, having less formal choice for employment (Hossain 2001).

Configurational analysis: A set of techniques for representing space in a building or city by – Axial lines, Convex space, Isovist space.

Axial line: longest & fewest lines of sight & access

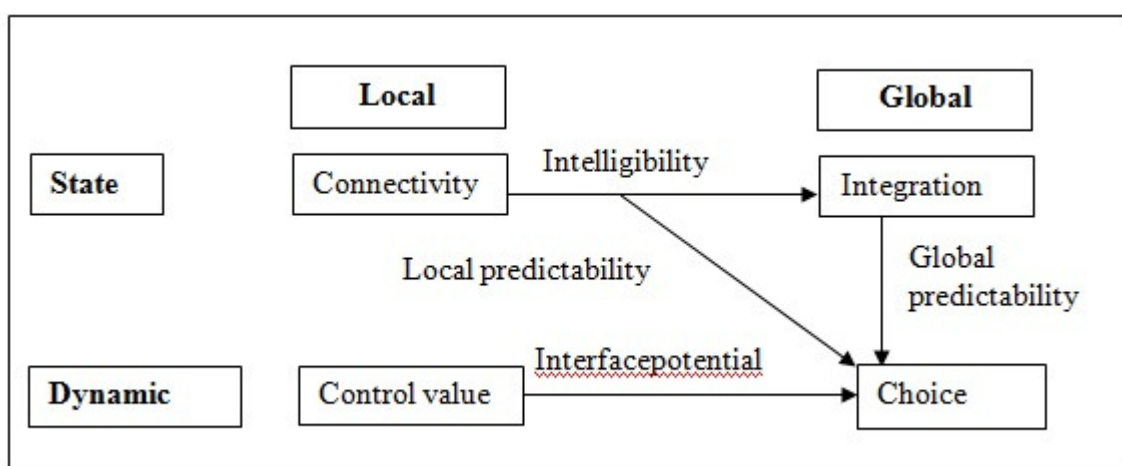
Convex space: all points being visible to each other like a group of people gathered in a circle

Isovist space: field of vision, which are visible & accessible space which we might move to from a point, or particular set of points.

Integration: Syntactic accessibility, function of mean number of lines & changes in direction to go all other spaces in the system; Static measure; Fewer intervening lines which need to be passed through to go from a line to every other line.

Connectivity: Permeability of a space; Local measure; the number of axial lines which connect to or intersect with each line in the system.

Intelligibility: Key property of the spatial structure of town; quality of being easily navigable (Hillier et al. 1997).



A model of relationship between syntactic measures (Hossain 2001).

As a system becomes more intelligible, the predictability of movement from integration (or choice) will become more powerful, through a strong movement interface.

The degree to which what can be seen and experienced locally in the system allows the large-scale system to be learnt without conscious efforts.

Methodology:

Retail shops typology in Gulshan area was observed by traveling through road to find major typology in this zone. A map was formed showing retail type locations. Space syntax method was conducted upon overall spatial configuration of Gulshan area by creating an axial map in 'UCL Depthmap X'. Spatial values of the roads such as Integration, Choice, Connectivity and Control value formed by natural grid configuration were analyzed for retail type location understanding. Average values for each type of Retail shops were put to generalize spatial values for each type of retail activities.

In terms of intelligibility the retail types are analyzed by scatter plot. Catchment area of a shop is generally defined by its capacity for range of goods and store size with spatial value within city grid. Shoppers of specific group compare to residing location and destination responds to shop types in this case.

Retail shops typology in Gulshan area:

Departmental store/General store: The shops follows western concept of providing various types of good beneath one roof, with fixed price, i.e. Shwapno, Meena Bazaar. These types of shops are like one stop shop service which is highly preferred by local residents. Shoppers move inside the store to choose their priority goods. Range of goods variety allows good catchment area within residential zone. Generative, susceptible and shared types of business products are kept together.



Fig 1: Overall Land Use Map of Gulshan with flanking Banani and Bashundhara residential area (RAJUK)

Single Product shops: These types of shops were dedicated for similar types of goods, i.e. shoe store, boutique shops, cloth store, electronics shops etc. these are mostly generative business type shops.

Single Service shops: Restaurant, Beauty parlors, Saloon are included this group.

Unit Shops: It's a single unit grocer shop where shopper has few scopes to choose options. These types of shops merely seen as a single retail inside neighborhood, rather most of them are located as a part of multipurpose shops clustered together.

Multiple retail shop: The multiple retail shops follows clustering pattern of variety of unit shops or single service/product shops. This often acts as generative type business purpose with multiple shared and susceptible businesses. Usually multi-storied, also invites wholesale facilities of various products.

Informal retailers: This type of retail activity is seen in a new dimension within Gulshan area than other part of Dhaka city. Most of the hawkers have their own cart or van, sell beside footpath, sort of static type retailing. Food selling carts have high demand in this area. Creative approaches are seen in selling their product.

Analysis & findings:

Connectivity of departmental stores is much greater than others, while single service and informal economy has much less connectivity.

Control value of Departmental store within neighborhood is more dominating than others. Second highest control value possesses multiple retail shops.

These 2 types of retail activities dominate retail pattern in Gulshan area.

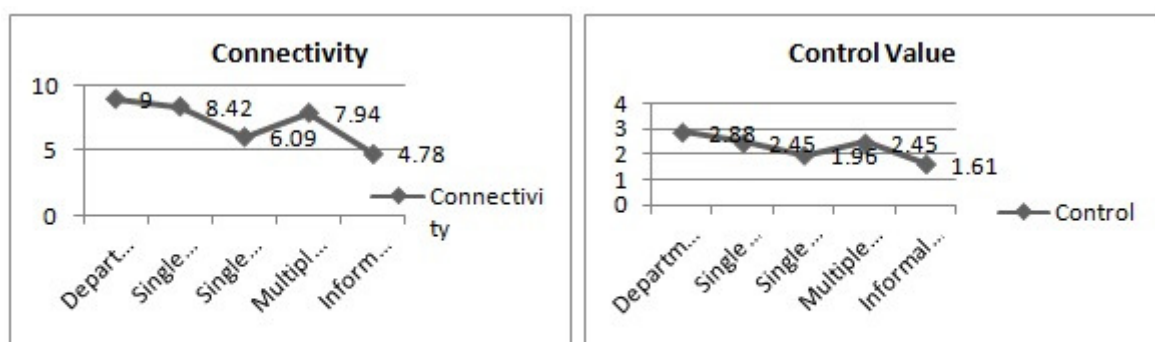


Fig 2: Connectivity and Control value of different types of retail shops in Gulshan area



Fig 3: Retail typology Map of Gulshan upon city grid



Fig4: Local integration [R=2] Map



Fig 5: Global integration map

Local choice value is high for single product, which means local people those having cognitive idea of these shops is the consumer group of these category. These shops have local

catchment area for small neighborhoods than others. Local integration value is higher for departmental store which means it covers a mid-level catchment area to serve local people.

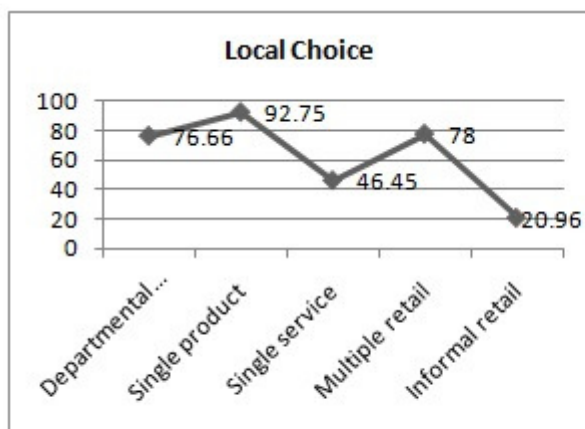


Fig 6: Local choice value for 5 types of retail activities

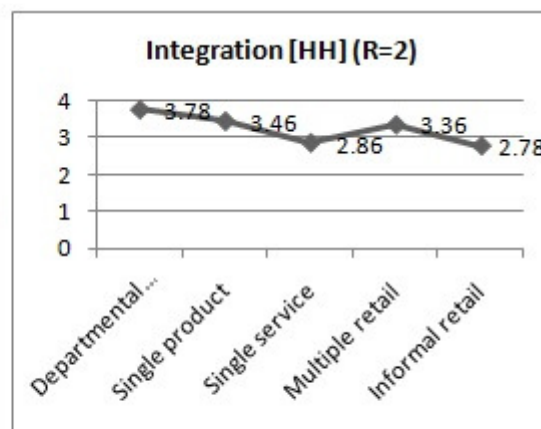


Fig 7: Local Integration value for 5 types of retail activities

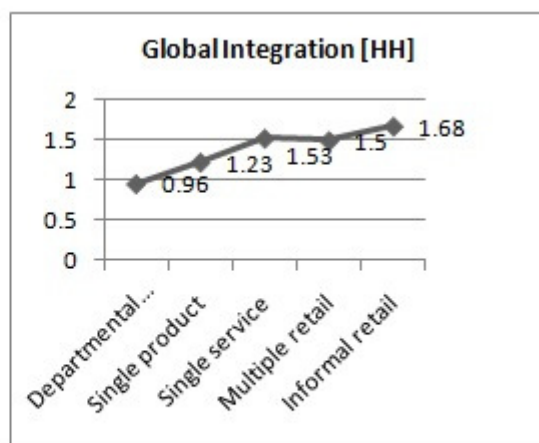
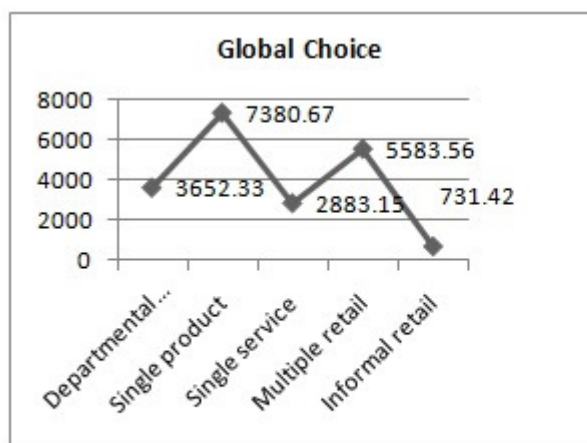


Fig 8: Global choice and Global Integration for 5 types of retail activities

Global choice value for departmental store is less in graph shown in fig 7, means global intervention is less in Departmental stores of Gulshan area, which invites more shoppers to shop casually. Informal economy has most integration value as these cart or van seats beside office zone to capture consumers. Most of the office workers or visitors impulsively have some food near to their destination.

Multiple retail types have more global importance as they provide more types of product and being nearer to arterial road, it's easy to adopt wholesale business function in this area.

Single services shops, i.e. restaurants are more dominant in Gulshan area in terms of global catchment. Many diplomats meeting are often held in this type of fine dining restaurant, which is quite sufficient in number in Gulshan.

Intelligibility of different Store types:

Departmental stores are locally 82.44% intelligible where, globally 56.35% (figure) that means globally it bears mid-level importance and locally it is has accessibility to inhabitants.

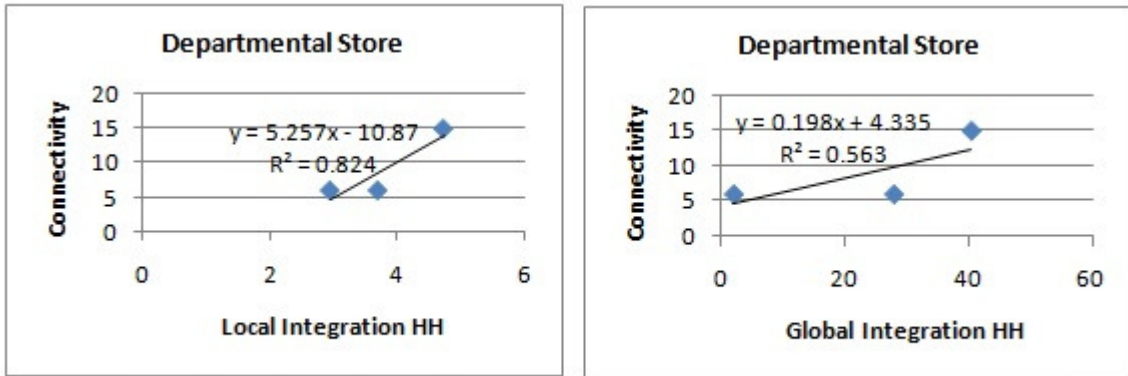


Fig 9: Global and Local intelligibility of Departmental store shop type

Single product shops are poorly correlated with global integration core where, locally it is very much intelligible. These shops are not clustered rather scattered individually along with neighborhood clusters.

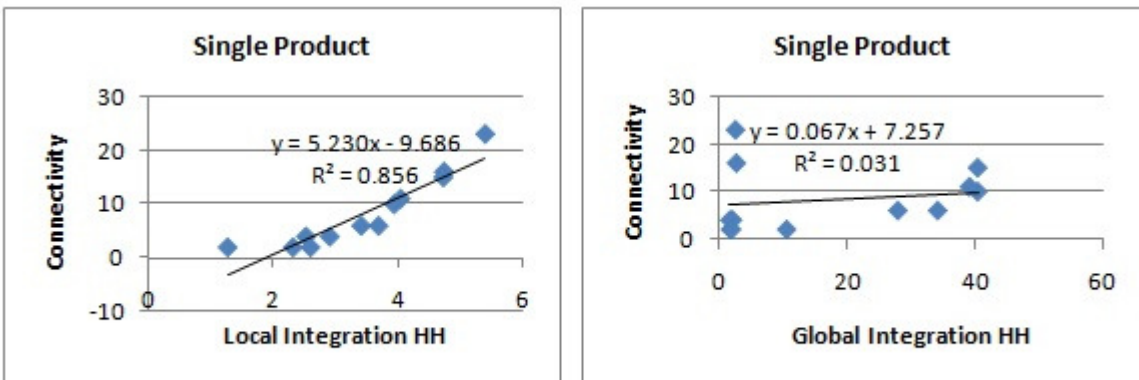


Fig 10: Global and Local intelligibility of Single product shop type

Single Service are locally intelligible as 85.13% while globally it is not that much intelligible (2.3%) as discussed earlier.

Multiple types of shopping have good correlation with local and global integration in terms of connectivity.

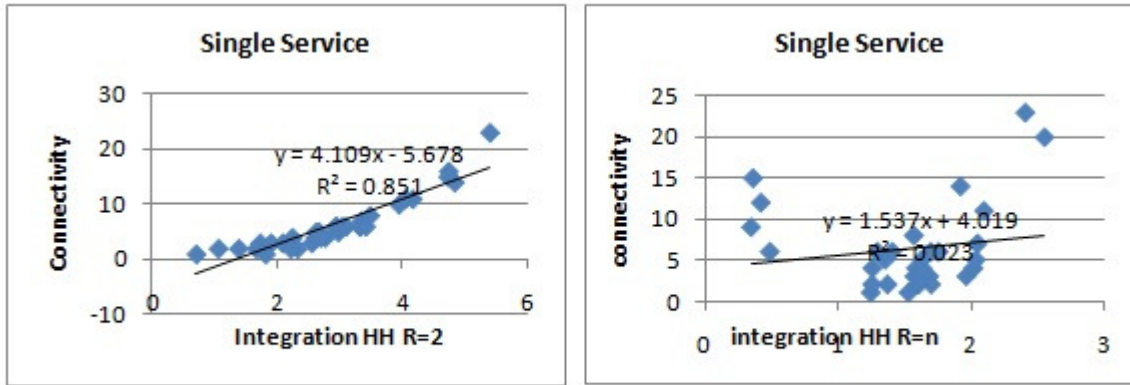


Fig 11: Global and Local intelligibility of Single Service shop type

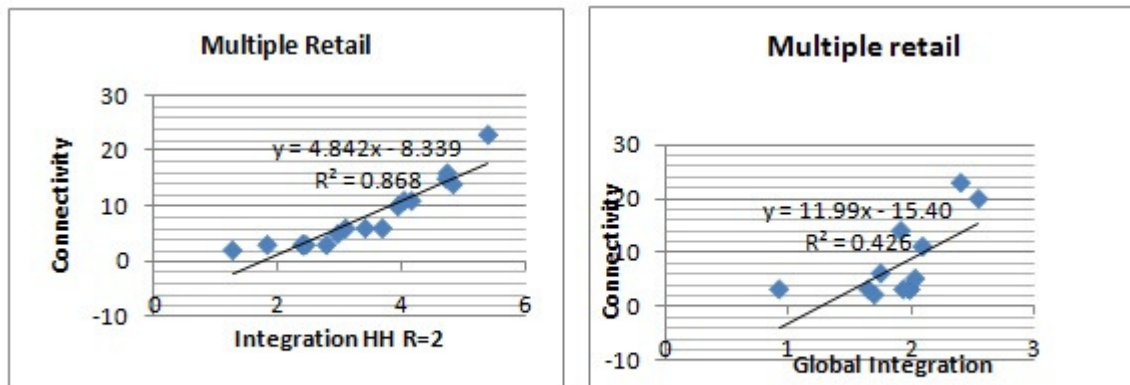


Fig 12: Global and Local intelligibility of Multiple Retail shop type

Informal economy is highly integrated in local and global scale but choice for this type of shops is not very much good. It is impulsive sort of retail activity seeking always a shared platform to sell products.

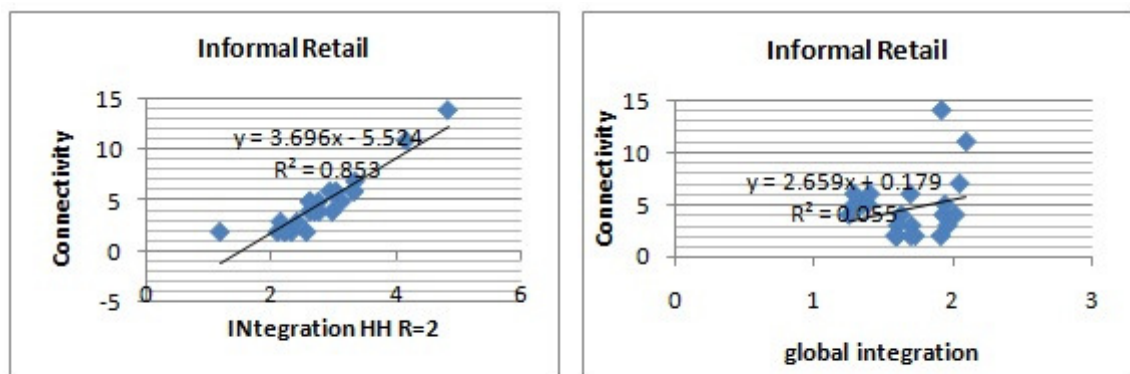


Fig 13: Global and Local intelligibility of Informal shop type

Conclusion

In the above mentioned analysis, it can be said that catchment area of the retail types considered in this paper has variety of coverage for consumers. The departmental stores fully

serve local inhabitants, where multiple type shops contribute to both global and local shopping. Single product shops have small catchment for local neighborhood although single service shops have wide range of global value. As informal economy in Dhaka is common picture to deal a large portion of retail activities, further research can be taken in this area to standardize this sector.

It can be concluded that, Gulshan residential area possess a hierarchy type of retail pattern merged with existing landuse and transformed landuse. Being a diplomatic sub-center it provides variety of retail service to both community people and short –time consumers, which is now in quite balance. Further development in this area should be monitored in terms of global access and resultant congestion in this area.

References

- [1] NILUFAR, F., ZEREEN, N. 2012. “Process of Morphological Transformation and the Emerging Pattern of Built-Form along Gulshan Avenue in Dhaka”, International Conference on Architectural Research, Politecnico di Milao, Italy, 7-10 June 2012.
- [2] KHAN, N., NILUFAR, F. 2009. “Spatial Logic of Morphological Transformation”, Proceedings of the 7th International Space Syntax Symposium, Stockholm [Online] 2009.
- [3] NELSON, R. L. 1958. “The selection of retail locations”, Dodge. New York.
- [4] West, D.S., Hohenbalken, B.V., Kroner, K., 1985, “Tests of Central Place Theory”, Economic Journal, Vol. 95 No. 377 pp 101-117.
- [5] SARMA, A. K. 2007. “The Social Logic of Shopping”, Proceedings of 6th International Space Syntax Symposium, Istanbul [Online] 2007
- [6] HOSSAIN, N. 2001. “The Socio-spatial Structure of 'Spontaneous' Retail Development in Dhaka City”, PhD Dissertation; Faculty of the built Environment; Bartlett School of Graduate Studies, UCL; London, UK.
- [7] MAJOR, M.D., STONOR, T. PENN, A. and HILLIER, B. 1997. “Housing Design and The Virtual Community” 19th International making cities livable conference- Child and Youth in The City Proceedings, USA.
- [8] RAJDHANI UNNAYAN KARTIPAKKHA (RAJUK). 2002. “Dhaka Metropolitan Development Plan (DMDP). Detail area plan for Begunbari Khal and its influenced area, Location 4, Ministry of Housing & Public works, Government of Peoples Republic of Bangladesh.