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Growth of Urban Retailing in Planned Residential Areas of Dhaka: A Case Study of Banani

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ABSTRACT

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GROWTH OF URBAN RETAILING IN PLANNED RESIDENTIAL AREAS OF DHAKA: A CASE STUDY OF BANANI

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Abstract

Spatial changes of entire Dhaka city have taken an evolutionary character due to its unpredicted alteration of land use and to some extent lack of planning farsightedness. Even planned areas are also experiencing a drastic functional change in the same urban space; and thus modifying the urban fabric. Some highly planned residential areas of Dhaka are of these categories- Banani R/A is one of this kinds. The sole spirit of residential character has masked here with mostly retail and commercial activities. The objective of this paper is thus two fold; Firstly, to reveal how a well planned, sophisticated residential area like Banani is blending with the commercial flavour, specially the retail-led generations and to which extent its present growth has flourished. Secondly, through the syntactic analysis, an attempt has taken to understand whether the retail development which is obviously spontaneous is following any hidden order within the existing road network of the area.

Keywords: *Planned Residential Areas, Urban Retailing, Retail Led-Generations, Spatial Transformation, Dhaka,*

1. Introduction

The history of evolution of cities throughout the world has brought out some undoubted and basic components which act as influencing factors behind generating and operating a city successfully. Trade and commerce is such an important one amongst them. Later on a specific term “Retail Activities” has been administered for specific retail building types in modern urban context. Thus a specialized built environment has come into being with its own functional characteristics and formal expression for physical identity. Though retail development and its related theories are mostly centered with urbanized context of developed countries, modernizing effect¹ has channeled the concept of retail-led built environment in developing countries too. Bangladesh, being a developing

country of South-Asia, has been experiencing urbanization as a late-20th century phenomenon. And Dhaka as a Capital is in the pivotal role of the process. This city has undergone and still going with the urbanization process so rapidly that spatial transformation and land use changes have been unpredictable to some extent. In most cases the transformation and changes are ending up with a physical interpretation of spontaneous² retail

¹ The influence of western retail environments has been considered to be an effect of modernization in studies of retail in developing countries [1]

² The retail environment in Dhaka is characterized by both the planned and unplanned retail developments, developed through private or government initiative. The government retail developments are physically planned but they do not have any control over tenant mix policy, location and clustering of different retail functions. The private developments do not follow any planning regulations in terms of their physical layout or any other aspects of retail planning theories. From these view points, the retail centres developed either through government or private initiative could not be defined as planned shopping developments. In fact, these so-called planned and unplanned retail developments have grown and chanced within a natural growth process with the growing needs of the various retailer and consumer groups. Therefore, this research defines these publicly or privately planned (so-called) and unplanned centres as 'Spontaneous' retail development.

activities [2]. Unlike some other planned residential areas of Dhaka, this phenomenon is unquestionably evident for Banani. Here retail-led generations in built environment are overriding its spatial identity as a residential zone. But the sustainability of retail development and the still flourishing trend of such building type surely denote some underlying equation of equilibrium among the juxtaposition of residential and retail type buildings. Hence objective of the paper is to focus on the present extent of spatial transformation of Banani residential area into a more retail activity oriented urban space and to find out how the transformation of small scale neighbouring built form into a volumetric commercial space is accommodating with its existing road network and road hierarchies.

A huge scope lies in there to go for an in-depth study about the retail clustering pattern and influence of such growth over the sustainability of the whole area as a new identity of urban regeneration.

However syntactic analysis is done for the specific area considering it as an independent system apart from the whole city. But comparisons with the whole context of urban retail development of Dhaka city may draw a new dimension of further investigation.

2. Literature Review

The changing land use pattern and morphological transformation of Banani has undergone with an extensive study, conducted by Khan, N. during 2007. The in depth research outcome showed that the changing land use pattern is not only the resultant factor of the absence of neighbouring support services and facilities in the initial planning, but also road hierarchy has dominated and enhanced the drastic changes. Thus the two fold aspect has made the transformation a sustainable one though the rapid growth

and development of these commercial activities in the Banani Residential Area are deteriorating the livability of the residence [3]. The major road hierarchy of Banani, classified by Khan, N. is as follows:

- Dhaka-Mymansingh road is one of the busiest two-way thoroughfares of the city and act as the **Primary Arterial road**³ for the Banani Residential area.

- It provides access through two secondary road KamalAttaturk and Road #11 in the east west direction to the residential area, which could be, said **Secondary Arterial road**⁴ for the local area.

- In this area, another type of roads, which serve the purpose of collecting traffic from arterial road and distribute the traffic to the local area, which are known as **Collector road**⁵. In Banani Road #1, Road #23, Road #27 act as a **Collector** from the Primary Arterial Road and Road #4, Road #6, Road #8, Road #10 act as a **Collector** from secondary arterial road.

- Some access roads, which are known as **Local road**⁶, provide access to the individual plots or buildings; collect traffic from the collector road.

³ **Arterial Road** are those road in an urban system which carry high proportion of total urban travel on minimum of mileage; interconnect and provide continuity for major rural corridors to accommodate trips entering and leaving urban area and movement through the urban area; serve demand for intra-area travel as between the central business district and outlying residential area [4].

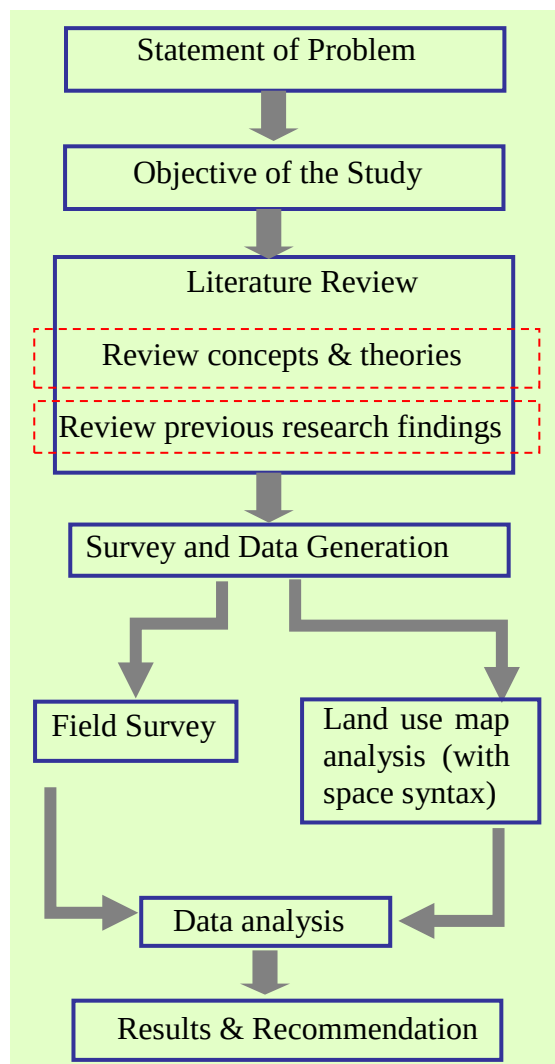
⁴ **Secondary Arterial Road** are those road which interconnect with the principal arterial ;serve trips of moderate length at a somewhat lower level of travel mobility than principal arterials; distribute traffic to smaller geographic areas than those serve by principal arterials; provide more land access than principal arterials without penetrating identifiable neighborhood [4].

⁵ **Collector Road** are those which serve both land access and traffic circulation in residential , commercial and industrial area; penetrate into residential neighborhood ; distribute and channel trips between local streets and arterials [4].

⁶ **Local streets** are those which provide direct access to adjacent land; provide access to higher systems; carry no through traffic movement [4].

3. Research Methods

For the overall study and analysis, Firstly, a field survey has conducted to identify the present trend of retail development in the specific residential area and there by some broad categories of retail types have been generated to classify the development trend ; Secondly, syntactic analysis is done for the Banani residential area as an independent system apart from the whole city of Dhaka using **space syntax** and its different measuring attributes which will be discussed in the data analysis section. All the maps and relevant figures are collected from authentic sources. The overall research framework is shown in the following diagram:



4. Background of the Study Area:

4.1. Location:

Urbanization process of Dhaka has led the city to adapt with continuous changes within its limited spatial organization, as well as expansion where it is necessary. Apart from the spontaneous settlement pattern of the southern region of Dhaka, the most planned residential areas are aligned with the natural growth pattern of the city towards north.

Banani residential area is located in Ward 19 of DCC & SPZ-9 of DMDP and lies in 23 0 47 | to 23 0 48 | N, Latitude and 90 0 24 | to 90 0 24 | 29 | | E, Longitude (Islam 2006).Geographically, Banani Residential areas are bounded by a major arterial road, Dhaka - Mymansingh Road in the west and Banani Lake in the east and south and Banani graveyard in the north [3].

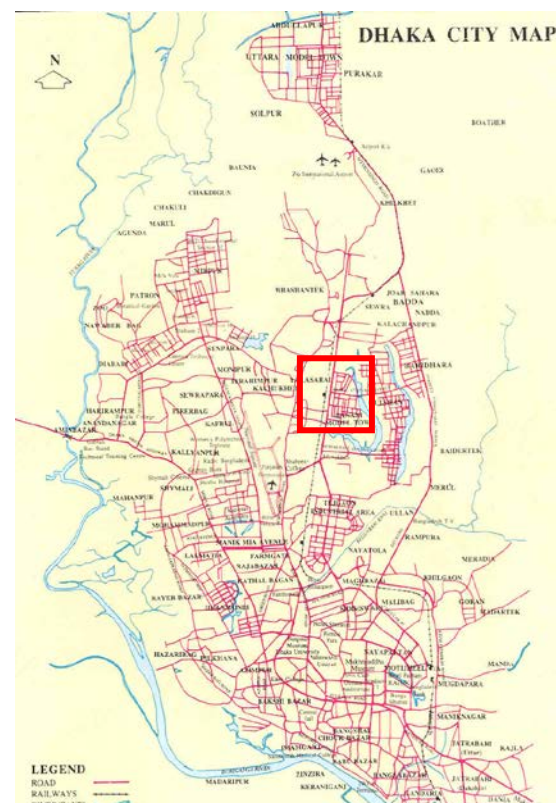


Fig: 1- Location of Banani residential area in Dhaka City Map (Source: Dhaka City Corporation)

4.2. Area Development history of BANANI:

The need for planned residential areas in pre-liberation period enhanced the residential development program of Banani by RAJUK. Banani was developed as a high-class residential area and planned in the style of a regular system of roads to provide residential accommodation for high-income groups after the independence in 1971 [3].

The simplified rectilinear plan in the southern part of Kamal Attaturk Avenue and curvilinear grid in the northern part has integrated the Banani Lake along the eastern side (Fig: 2). Though the physical planning lay out at its initial phase seem worked as it was targeted, the scope of neighbourhood facilities and support services were excluded. As a result, gradually out of necessity, small scale commercial endeavors were building up in a scattered manner within the residential area [3]. Later on the scattered development has taken in some part of the area a huge spatial transformation of clustered development and ribbon like development, among which the recent trend of retail led building type is the most dominating one.

The existing road network and its hierarchy (Fig: 2) has enhanced the adjacent urban mobility to penetrate through the neighbourhood. Consequently the ultimate character of the local roads almost became nearer to the global character of the city context. That's why Banani could not develop as a distinct residential neighbourhood which is important to retain the residential character [3].



Fig:2-Existing ward map of Banani residential area showing the latest development ;New bridge in the east and Peripheral road in the North-east (in red square)

(Source: Dhaka City Corporation, 2011)



Fig: 3- Road network of Banani residential area showing the existing road hierarchy (Source: DCC ward map modified by author, 2012)

5. Analysis & Results

5.1. Existing Retail Features in Banani:

The growth of retail development in last decade has changed Banani from its residential image to a more commercial one. Though all parts of the area are not experiencing the same pace of retail development, the overall image is certainly influenced by the changes in spatial character. Even retail development in this specific area is also governed by the specific socio-economic composition of the catchments area; thus specific categories of retail activities are generating and governing the overall retail character. Banani has now become a posh retail zone for the high-income group of Dhaka City.

To find out the present growth of retail activities in Banani, a field survey has been conducted. Identification process of retail structures has followed a precise division of retail typology under which the sub-categories are specified. The following are the 7 major retail types identified at present in Banani:

- **Shopping Centres-**
 - The multi-storied structures mostly used for shopping
- **Mixed use retail structures-**
 - More than one retail function in a single plot or building
 - Stores can be in ground level or in multi-levels
 - Whole plot used as multiple retail activities by different retailers
 - Building partially used for other purposes (residence/office space/industrial floor) with mixed use retailing on the other floors.
- **Specialized Store-**
 - Any kind of specific retail store in a single plot or building
 - Same type retail can be grouped in a single plot.
- **Service related retail activities-**
 - Tailor/ Parlour/ Saloon/ Dry-cleaning service

- **Restaurant/ Food and beverage related retailing-**
 - Fast food corner/Juice bar/Ice crème parlour/ Restaurant/ Snacks corner/ Coffee shop
- **Kancha Bazar-**
 - Permanent structure
 - Closed or semi open
- **Departmental store-**
 - Meena Bazar, Agora, Shwapno etc
 - Single store on a plot or in the ground floor of a multi-storied residential or commercial building.

The above mentioned retail structures have been identified and marked in the present land use map of Banani (Fig: 4) with a color coding. The map thus depicts a specific image layer of retail development throughout the residential areas.

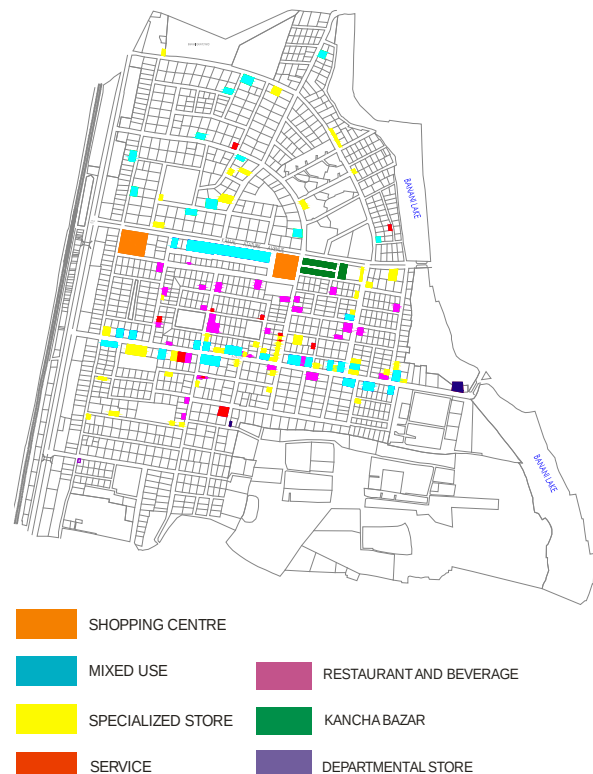


Fig: 4- The current growth of retail development in Banani (Source: DCC modified by Author, 2012)

The concentration of retail activities on both side of Rd No.# 11 shows a ribbon development. Amongst the total no of retail structures identified in the area, the highest are of restaurant and food and

beverage types. The significant no. of specialized stores is also flourished which are mostly the boutique shops. The sole character of independent Shopping mall is limited rather mixed use development is a rushing trend of the changing spatial type.



Fig: 6- Images show the street side linear pattern of specialized retail stores (Source: Author, 2012)

The overall trend of retail growth is following the existing road network hierarchy as most development is along the secondary arterial road and collector road. Local roads are still maintaining the neighboring flavor of the residential character. The major crowd generated by the central retail spine of Rd No.11 is carried away mostly within the northern collector roads and presently dispersing through the Banani Bridge to the eastern part. Thus the equilibrium settlement of residences and retail buildings are not confronting rather blending to accommodate a new urban fabric.

The traditional 4 and 6 storied buildings are now replacing by the mixed use high rise structures; thus a new sky line along the central part of east west direction of the residential area is defining the transformation of the previous neighboring character. The current trend of both mid rise and high rise retail structures in Banani is taking the advantages of the natural setting of enormous green which to some extent is pretending the negative impact of such a drastic commercial fenestration of residential façade.



Fig: 7- The recent trend of high-rise mixed use retail structures mostly along the Rd no.11 (Source: Author, 2012)

5.2. Spatial analysis with syntactic approach

The retail land use of Banani residential area has been examined through the use of space syntax. There are four first order measures in the system; these are- Integration(RA), Choice(CH), Connectivity(CN) and Control(CV). These four may in turn be correlated together to form second order measures.

Integration is the central concept of space syntax. The **integration value** of a line is a mathematical way of expressing the depth of that line from all other line in the system (Hillier & Hanson, 1984). Integration values are the ranked ordered from most integrated to the most segregated lines. In **integration**, the relative depth and shallowness of any spatial system are seen from any particular point within it. These values of well below 1 – of the order of 0.4 to 0.6 indicate more segregation and; while the value ending to and above 1 show strong integration. The analyzed map produced a color map showing the integration value ranging from red (most integrated roads) to blue (Least integrated roads). Integration has now been found empirically to correlate well with observed pattern of space occupancy, use and movement in towns and cities in different parts of the world [5].

Connectivity (CN) is literally the number of immediate neighbours that are connected to a space. It is a local syntactic measure. The **Control (CV)** represents the

amount of choice a space represents to its immediate neighbours as somewhere to go. Thus it acts as a local dynamic measure.

The second order measures even have sociological potential. The correlation between global integration and connectivity is considered as the index of **Intelligibility** of the system which means the degree to which what we can see from the spaces that make up the system. It also leads to a strong sense of readability of the system. In more intelligible system, the people occupancy along the axial line can be predictable from the measure of integration. That means the most integrated lines are the most intensely used by the people and in the non-intelligible system, people occupancy rate along axial line tend to be more random [3].

For the syntactic analysis, the axial map is produced with “Depth map” to reveal the spatial attribute of the specific area. The local integration ($R=4$) map can give us a more detailed illustration about the structure of locally integrated lines ($R=4$)⁷, by computing integration among the spaces up to four steps away from the root [3]. The segmented axial map of Banani is thus analyzed based on the syntactic measures to find out whether there lies any relationship between the Retail land use of the residential areas and its road network along with surrounding spatial structure.

5.3. Detail analysis of the data:

In this section, syntactic analysis of Banani residential area is done to understand the accessibility and connectivity issues about the changing retail land use in the residential area. The numerical measures are compiled in the following chart (Fig:9) to identify the most integrated roads (both

locally and globally) of the locality and their connectivity pattern within the system.

After analyzing the first 3 values of each four syntactic measures, it has been seen that in all four cases of value analysis, the following roads are found holding significant values in most cases:

- Road No# 11
- Road No# 4
- Kamal Attaturk Avenue (KAA)
- Road No# 8
- Road No# 10
- Road No# 18

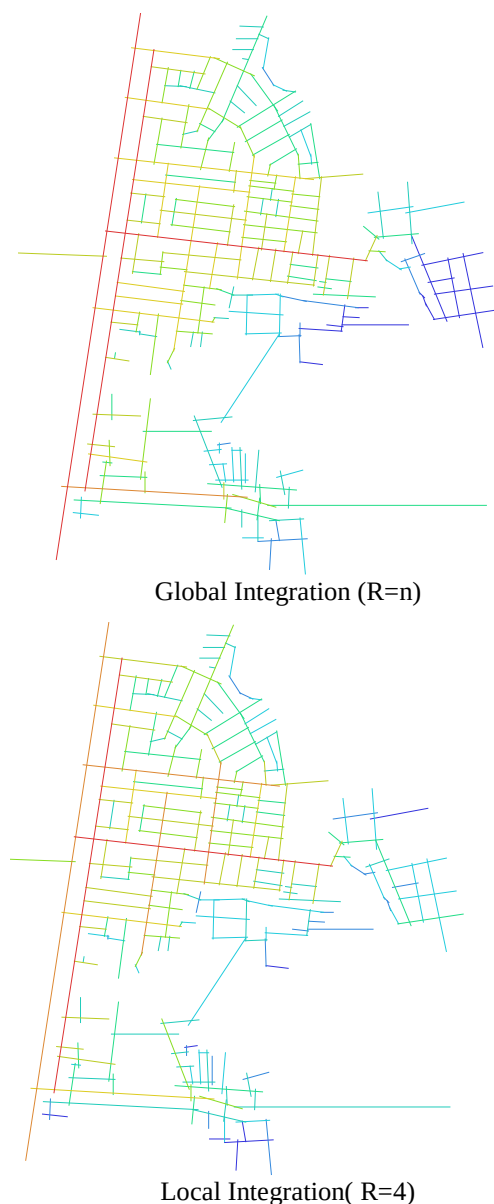
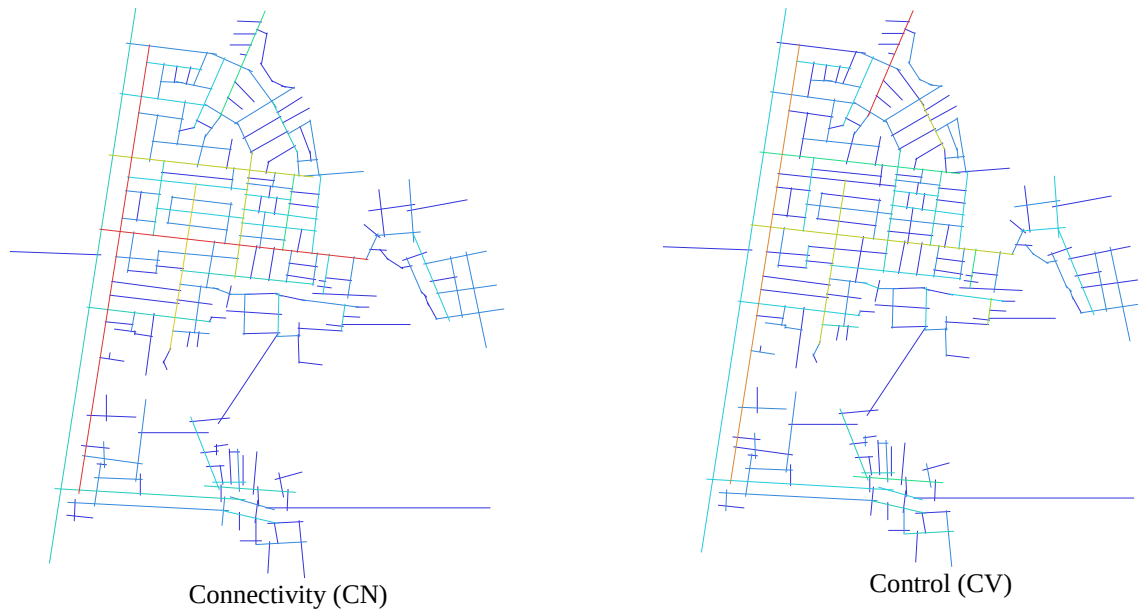


Fig: 8- The axial maps of Banani as an independent system show various values of syntactic measures ($R=n$, $R=4$, CN, CV), Source: [3].

⁷ It is important to note that local integration can be set/fixed according to the spatial character of a city. In this research radius 4 is used to calculate the local integration because in the previous research done by Dr. Farida Nilufar, it has already been proved that new Dhaka represents intensified local area effect at the radius-4, whereas the historic city characterized its localities at the radius-3 [5]



Syntactic measures	Values				
	Maximum value	Next 4 values (excluding the maximum one)			
		2 nd value	3 rd value	4 th value	5 th value
Rn	1.79685	1.73632	1.68472	1.53011	1.5579
Segment no.	119	122	120	1	70
Road No.	Rd#4	Rd#11	Dhaka-Mymensingh Road	Mohakhali-Gulshan:1 Link road	Kamal Attaturk Avenue
R=4	2.91272	2.86384	2.53107	2.48555	2.44106
Segment no.	122	119	70	120	95
Road No.	Rd#11	Rd#4	Kamal Attaturk Avenue	Dhaka-Mymensingh Road	Rd#10
CN	19	15	13	10	9
Segment no.	122	119	148	95	70
Road No.	Rd#11	Rd#4	Rd#8	Rd#10	KAA
CV	7.33333	5.8986	4.65501	4.62638	4.5
Segment no.	74	119	148	122	73
Road No.	Rd#18	Rd#4	Rd#8	Rd#11	Rd#27

Fig: 9- Analysis of syntactic measures, Source: [3] modified by Author

Correlation of Syntactic measures:

Again from the correlation scatter gram of the following figures (Fig: 10 and 11) it is found that the correlation value between global and local integration is very strong (**0.900388**). At the same time the intelligibility of the city is moderate (**0.501075**) comparing to the value of 2007 which was 0.7068 [3]

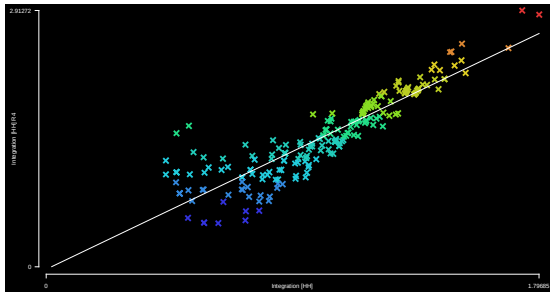


Fig: 10- R^2 of $Rn-R4=0.900388$
 $R^2=0.810699$, $Y=1.49036x-0.0302604$

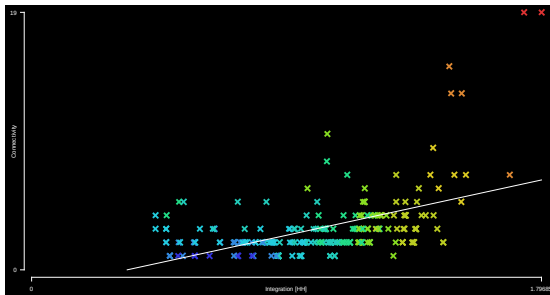


Fig: 11- R^2 of $Rn-CN=0.501075$
 $R^2=0.251077$, $Y=4.52799x-1.53067$

The retail land use findings from the field survey has been superimposed on the local integration ($R=4$) map (Fig: 12) of Banani to identify the relation of the retail development intensity of the area with the most locally integrated roads. And the image shows that the most locally integrated road of Banani (Rd No.11) acts as a retail spine for the continuous retail activities.



Fig: 12- Superimposed retail land use on the local integration map (Source: Author, 2012)

This road is globally also important and thus reveals the significance of having more movement generation. Because integrated spaces will, accordingly to the theory of natural movement [6], play a more central role in the urbanity. These spaces will not only be more frequently visited and used, they will also get better known because they are located in more legible places and at the same time within people's daily movement patterns [7].

Considering the values from the Fig: 6, for the specific roads, the following table (Fig: 13) reveals the relation of retail land use along the respective areas. Here the important findings show that being the most connected road (connectivity value is 19) both the Rd no.11 and Rd no. 4 shows a strong difference in retail generation preferences. The underlying reason behind the difference is the only movement and traffic pattern as Rd no 11 is perpendicular to the primary road of Dhaka-Mymensingh highway and the Rd No.4 is the parallel of the highway, thus bear no vibrant space choice for the retailers.

NAME OF ROADS	Retail Land Use development (%) Along The Road (Considering the usable access road)	Major retail types
Rd#11	31.76 %	Mixed use, Specialized Store, Restaurants
Rd#4	2.35%	Insignificant
Kamal Attaturk Avenue	15.88%	Mixed use, Shopping center, Specialized Store
Rd#8	8.23%	Services and Restaurants
Rd#10	9.42%	Specialized stores, Services and restaurants
Rd#12	5.88%	Specialized stores, Mixed use and restaurants
Rd#16, Rd#18 and Rd#27 and some local roads hold the remaining approx. 30% retail activities		

Fig: 13- Retail Growth analysis considering the road network (Source: Author, 2012)

6. Discussion & Conclusion

The spontaneous retail development in Banani seems sustainable though it's grabbing the residential plots apparently in an unordered manner for nearly the last two decades. The retail led activities and its flourishing character in Banani is an adaptive phenomenon now for the neighboring community. "Urban spaces are created by people, and they draw their character from the people that inhabit them" [8] the statement can be interpreted for planned residential area of Banani in such a manner that the livability of the area has now blended with the commercial activities; specially the variety of retail types. The intensity of such retail-led generations shows extensive variations of its types. The need based service retails grew in less integrated roads where most integrated roads attract the mixed use retail clusters as a strip development. The character thus has drawn for the area is the outcome of modification and alteration process of organic retail growth in an urban scale. Though the impact has so many aspects to analyze from socio-economic point of view, its sustainability to till date surely has a hidden morphology within the locality, consumer pattern and spatial higherarchy of existing road network.

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