Effects of Real Estate Development on the Built Environment: A Study on Banani Residential Area in Dhaka City

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Introduction

Urbanization more or less depends on mechanization. Mechanization due to industrial revolution as well as transport and communication enhancement has drastically changed the formation of cities, the important place, where modern man wants to live. People have the tendency to migrate to urban areas, where better standard of living can be achieved. As a result, developing countries have been becoming urbanized since the late 19th century due to increasing migration to urban centers of these countries. Therefore, more developed skill and arrangement will be necessary in the urban areas and real estate is one of the necessary arrangements (William, 1966).

Bangladesh is a developing country. Dhaka is its capital city and the center of all main activities of the country providing civic utilities. The real estate and housing sector of Dhaka City illustrates the scenario of the real estate and housing situation of Bangladesh. Establishment of real estate market in Bangladesh is hundred years old but now it has matured significantly (Seraj, 2004). Real estate companies take initiatives to fulfill the housing demands of different income groups of people. In late 1990s, multistoried shopping centers began to be built through real estate project. Now a day, construction of apartments only for residential use, construction of apartments for shopping cum office and commercial cum residential uses are mostly seen (Seraj, 2004).

The population explosion of Dhaka leads to rapid expansion of the city in order to provide accommodation to the growing number of urban dwellers. This expansion took place both horizontally and vertically. Vertical expansion includes the demolishing of the low-rise structures in the existing residential neighborhoods and converting them into high-rise structures, whereas the development of peripheral areas in the north and southeast of the city for new residential areas covers the horizontal expansion (Nancy, 2004). Private sector plays a dominant role in providing accommodation by building high rise apartment blocks with necessary services and infrastructure facilities (Nancy, 2004). Profit making has been the prime motive of the private sector to initiate real estate business. Another form of profit earning campaign initiated by the developers is the transformation of residential plots as well as flats into commercial and business utilization which in turn putting pressure on the infrastructure, services, road network and creating greater impacts on the built environment as well as on the overall environmental condition.

To study the effects of real estate and housing development on the built environment, Banani, a high class residential area in Dhaka city was chosen as a case study. Similar to other parts of the capital city, the population of the high-income residential area, Banani has been increasing rapidly. As a result, development of housing and other civic facilities was needed for a huge number of inhabitants of the area. But before 1990, there was no housing project in the area. Up until that period, people particularly the elite and the rich used to build their houses as per their aspirations without properly following any rules and regulations and as well as in scattered pattern acquiring a wider milieu. Since 1990 after the independence, the foreigners in Bangladesh started living in Banani Residential Area (R/A) influencing its High Class Residential recognition. Consequently, since 1995-1996, the real estate sector took up a huge

development program in the Banani R/A for both apartments and residential housing development. But the stride did not confer fruitful outcome, because the housing demand of the area was being decreased from 1998-2002 and the result was that the flat price fell sharply, say from 40 lac/flat to 30-32 lac/flat. This played a role in converting residential flats for commercial purposes, although the present flat price rate is increasing (Nancy, 2004). For this reason, a great number of residential houses and flats are being altered for different sorts of commercial offices and the land use pattern of the study area is being changed with time, increasing the demographic volume which collectively effects the built environment of the Area.
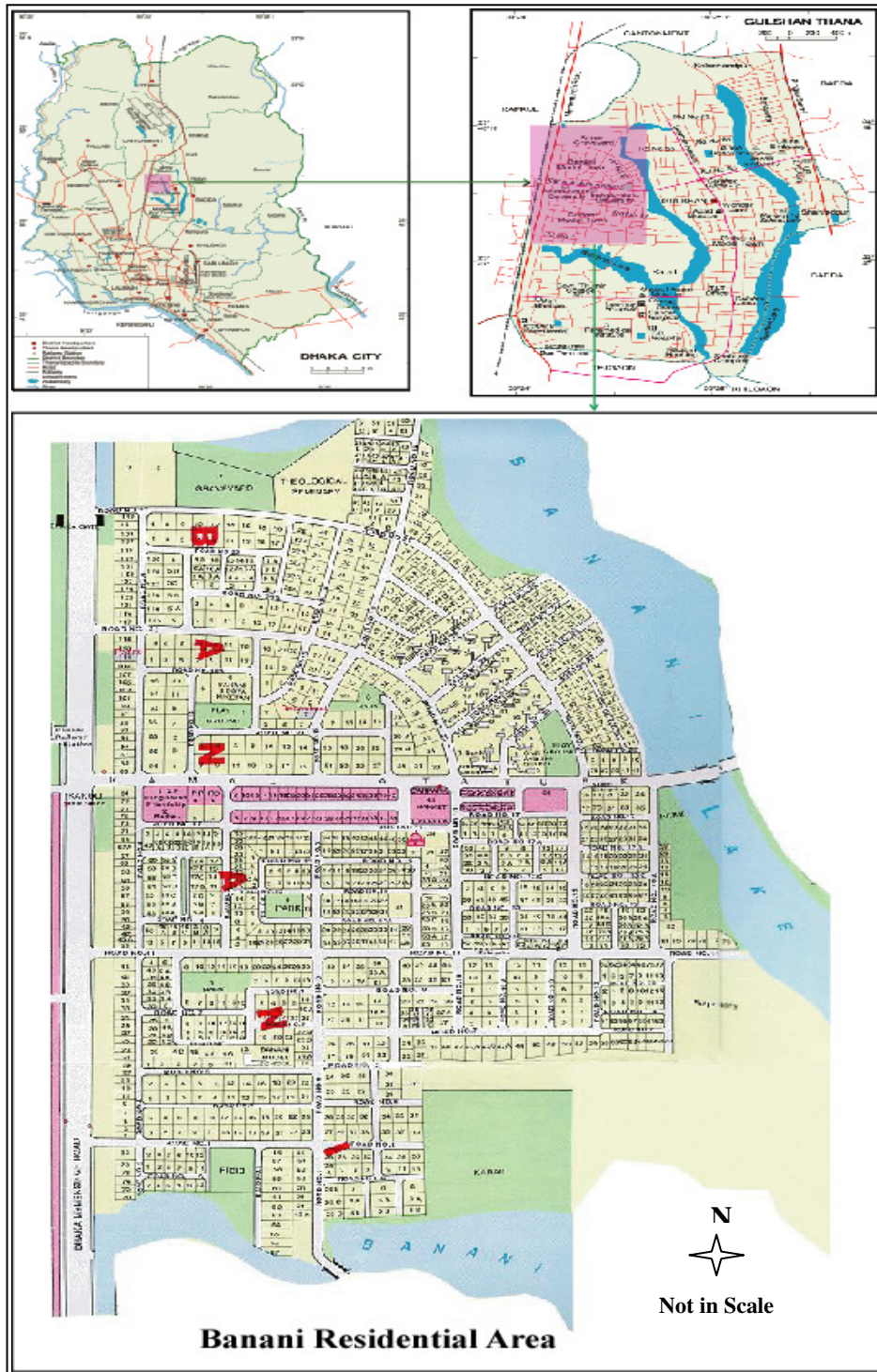
Objective and Methodology

The main objective of the study is to explore the present status of real estate sector in Banani Residential Area and review the different aspects of housing demand and supply as well as the effects of current real estate development on the built environment. Therefore, the study has the scope to observe how the real estate sector of the area has contributed to dislodge the housing problems, its effects on the built environment and the ways to overcome these housing problems as well as negative effects on the built environment.

The study has been conceived and subsequently conducted by following a pre-designed methodology composed of a series of tasks. It has been perceived as a composition of three phases and each of these phases contain a series of tasks designed to deliver specific output. At the first stage of development of fundamental concepts, the objectives of the study have been identified through the cross examination of some theoretical concepts and initial field survey, which states the ways of collecting data (Questionnaire Survey and Interview of the Citizens, Public representatives and Officials of the existing Real Estate & Housing Companies) and taking field observations. The second phase includes data collection, analysis and tabulation of field data and their interpretation in shaping level of participation. Finally, the third stage of analysis and interpretation has been conceived as analyzing the collected information through both primary and secondary investigations, and as well as suggesting some mechanism to overcome or minimize the negative effects of the real estate development on the built environment and also enhancing sustainable development of the real estate sector to meet future needs of the area.

Study Area

Banani was developed as a High Class Residential Area and was planned in the style of a regular system of roads to provide residential accommodation for high income groups after independence. The area is about 10 kilometers far from Motijheel, Central Business District (CBD) of the Dhaka Metropolitan City. The area lies in $23^{0}47^{|}$ to $23^{0}48^{|}$ N, Latitude and $90^{0}24^{|}$ to $90^{0}24^{|}29^{||}$ E, Longitude (Nancy, 2004) by the side of Banani Lake. It has grid iron pattern road network and the major thoroughfare (Dhaka-Mymensingh Road) is about 100 feet width while the secondary roads are of 45 feet and access roads of 25 feet width (Nancy, 2004). The Mymensingh Road provides linkage to the northern part of the country.

Kamal Ataturk Avenue passing through Banani Residental Area joining with Gulshan plays important roles for providing smooth access facilities of the locality and also real estate sector development. Figure 1 shows the Location of Study Area and the jurisdiction of Banani Residential Area.

Source: Geo-Consult, 2006.
Figure 1: Location Map of the Study Area (Banani R/A).

Physical Profile

RAJUK started its residential development program through Gulshan and Banani in 1961 based on site and service approach. On the other hand, Banani was developed as a high-class residential area after the independence in 1971. In Banani till 1987, the total number of plots of various sizes allotted for residential use stands at 1239 (Jahan, 2002). In 2006, the total number of plots allocated for residential use stands at 1418 and the total population 1, 10,764 (estimated) in 1.41 sq. km. of the Banani Residential Area (Geo-Consult, 2006). In the whole ward 19 (Banani and Gulshan) with an area of 4.62 sq. km., the population was 50,859 (estimated in 1998) in 1998 (Geo-Consult, 2006). Due to acute shortage of land regarding residential accommodation to cope with the tremendous population growth in the study area, especially after 1990, the real estate sector started playing important role to meet this housing need for high class residents by providing apartment provision at a great number (Nancy, 2004).

A number of diversified uses have been developed so far both along the major thoroughfare (Dhaka-Mymensingh Road) and the secondary road (Kamal Ataturk Avenue) as well as access roads of the study area. In the study area, in addition to residential land use, some important commercial land uses have been developed such as school, colleges, private universities, shops, banks, clinics and other public services.

Land Value in Banani Residential Area

With the excessive increase of population and shortage of residential area, there is gradual increase in the price of land for habitation in the study area. While between 1969 and 1979, the cost of living in Dhaka had increased four folds, the price of high-class residential land like Banani and Gulshan had increased approximately 25 times (Jahan, 2002). In the absence of any proper land value records of the study area, it is very difficult to compare the land value over the past decades. Table 1 provides an idea regarding the increase of land value of the Banani Residential Area from 1974 to 2000.

Table 1: Land Value increase in Banani Residential Area (1974 - 2000).

Year	Taka per Katha
1974	25,000
1990	6,00,000
2000	13,00,000

Source: Jahan, A. 2002.

Land Use Pattern in the Study Area

Once a scenic and peaceful residential neighborhood, Banani Residential Area is one of the fast becoming ugly commercial hubs. Private universities, colleges, schools, IT training centers, Clinics, coaching centers, medical labs, hospitals, shopping centers, shopping malls, commercial banks and other government and semi government institutions have reduced one of the planned high class residential areas in Dhaka to shambles. Land use pattern of the study area has been shown in Table 2.

Table 2: Land Use Pattern in the Study Area.

Type of Land Use	No. of Holdings
Residential	1250
Commercial	325
Semi Government	400
Mosque	4
Private University	5
Play Field	2

Source: Nancy, 2004.

Real Estate Sector in Banani Residential Area

Real Estate Sector has been playing an important role through private formal developers in providing housing to the residents of the high-class residential area, Banani. In recent days, it is also providing plots and flats and also apartment for commercial uses beside residential use. Private formal developer refers to all the individuals or organizations that do business in the construction of apartment buildings and selling of flats. On the other hand, high-rise is a popular term that people use to identify buildings above general height of buildings. High rises are built because they fulfill certain important social and economic needs (Jahan, 2002). Other factors which account for high rises in this high class residential area are the uneven distribution of population, rising land costs, and the need to counteract the waste in land, water and energy which results from urban sprawl. Given their huge size and the number of people they accommodate, high-rises put great stress on the built environment of the study area.

Demand and Supply Aspects of Real Estate Housing Sector

There are both demand and supply sides of the housing in the study area. These are discussed below:

Demand for Housing

Excessive population, high population growth and rapid urbanization are the main instigators towards rising demand for real estate housing in Banani R/A. Other factors, which are responsible for housing demand are as follows:

High Class Residential Area

Due to Banani is well known as high class residential area, the high income group people is intended to get housing accommodation in this area influencing by social values and customs, and the result is higher demand of real estate housing provision in this area because of scarce of land.

Foreign Remittance

Foreign remittance from the people who are working abroad is safely invested in the purchase of plot, flat and houses especially in the high class residential areas like Banani. It is estimated that about one third of all remittance goes into the purchase of urban land and houses. Investment in land and especially urban land and houses are considered the best protection against inflation (Mowla, Q. A. 2004).

Commercialization

Excessive commercialization such as school, colleges, universities, shopping malls, shopping centers and other institutions increase the number of its residents and make huge demand for real estate housing in the study area.

Transport Provision

Absence of cheap and easily available mass transport forces people to live within the city and put pressure on urban land. People very often feel reluctant to commute to Dhaka from neighboring urban centers due to the lack of sufficient commuter rail or bus services. Although Banani R/A is about 10 kilometers far from the CBD (Motijheel), due to sufficient transport facilities such as bus services increased the value of this high class residential area.

Supply for Housing

Supply of real estate for housing in the study area is very limited and the major reasons are the scarcity of land and high land value. The specific reasons for the lower supply of real estate for housing provision in Banani R/A have been identified below:

Low Land- Man Ratio

The supply of land for housing is limited, especially in the context of the low land- man ratio in the study area. As the study area is one of the highest population density areas of Dhaka, the supply of serviced land or land suitable for the housing as well as real estate housing sector development is limited for such a high population density.

High Land Value

The present land value in Dhaka is very high (Rahman and Mowla, 2003). Location, types and shapes of land, accessibility, provision of infrastructure, land use in neighboring areas, environmental quality, social and economic conditions of the inhabitants of the study area and availability of public transport are the factors that are involved for the increase of land value and the result is the shortage of real estate housing provision in Banani Residential Area.

Large Amount of Buildable Land under Governmental Jurisdiction

A large amount of land beside the WAPDA colony is vacant and under the jurisdiction of RAJUK and is not released for use. This under utilization reduces the total supply of land for housing as well as apartment building in the study area.

High House Rent and low Rent- Income Ratio

House rent and rent-income ratio are two very explicit indicators of demand and supply in real estate housing market mechanism in the study area, as rent is supposed to increase with shortfall in supply, and eventually people have to leave a significant portion of their income for the purpose of rent and vice-versa.

Incoherent Land Ownership Pattern

The distribution of land ownership pattern in the study area is extremely unequal and skewed which creates the shortage supply of real estate housing provision in Banani Residential Area.

Faulty Public Intervention

Land acquired by government agencies and later distributed for private housing have become low-density areas but not in the high density areas like Banani as the cost for acquiring housing in such areas are so high that only high income group of people can afford such.

Land Speculation

The speculators in urban land markets hold significant amount of land and this is also seen in the study area and thereby create a pressure on the supply of such land for further development.

Effects of Real Estate Development on the Built Environment in Banani R/A

The effects of real estate development on the built environment in Banani Residential Area can be described by – a number of apartments are being increased and excessive commercialization in the study area.

Rapid Growth of High-Rise Apartments in Banani R/A

Rapid growth trend of apartments to cope with the accommodation need of residents have both beneficial as well as adverse impacts on the built environment. These impacts are as follows:

Beneficial impacts of high-rise apartments in the Study area

The beneficial impacts of high-rise apartments are:

o Economies of Scale: Refinement of design e.g. repetitive floor plans can offer major savings in materials.

o Standardization: Procurement of large quantities can lead to more efficient production and cheaper unit cost.

o Selection of Materials: Choosing environmentally friendly materials in facades can reduce impact.

o Land use: High-rise buildings may occupy part of a plot allowing more public space at ground level. Retail developments are becoming more viable at street level. There are greater potential for mixed use.

o Depth of Plan: Narrow floor area per square meter allows better use of daylight and thermal mass.

o Horizontal Access: Efficient access per floor from the center outwards and services routing from core outwards.

o Community Space: A community space is generally provided in the large apartments in the study area. This community space has a wide impact on the interaction among the apartment dwellers.

Adverse impacts of High-rise Apartments in the Study Area

The adverse impacts of high-rise apartments in the study area are discussed below:

o *Physical Impacts:* High-rise apartments have various types of adverse impacts on the built environment such as sunlight, airflow, odor, temperature, noise, dust etc.

o *Impacts on Urban Utility Services:* In the study area, high-rise apartments are creating tremendous pressure on the urban utility services like water supply system, electricity supply, streets or communication channels, solid waste management system and sewerage disposal etc. Wherever a high-rise apartment is constructed, it has an adverse effect on the adjoining locality.

o *Impacts of Miscellaneous Internal Factors:* Impacts of miscellaneous internal factors include need of alternative power supply generating enormous sound pollution, pressure on sufficient parking lot, lack of outdoor children play area etc.

- *Impacts on Health:* Too much noise of under construction projects and excessive vehicular movements of completed projects, intolerable level of dust, blighted living condition induced by lack of sunlight and air flow in and adjacent to high-rise apartments, together are responsible for a lot health problems of the inhabitants of Banani R/A.
- *Socio-Cultural Impacts:* Lack of social interaction, lack of privacy and various psychological problems such as claustrophobia etc are the major socio-cultural impacts of high-rise apartments.
- *Hazards:* Hazards are two types, namely natural and man-made. The common natural hazards in Dhaka are flood and tornado. The earthquake hazard is not duly considered in most of the high-rise structures. On the other hand, the main man-made hazard related to high-rise apartments is fire hazard.

Problems and Impacts Due to Commercialization

The problems and their impacts due to excessive commercialization in the study area are identified below:

Problems due to close placement of Built Forms

Although the plots of Banani Residential Area were primarily allocated for residential buildings with a maximum height limitation of 6 stories, now most of the single houses are turning into high rise residential cum commercial apartments which in most of the cases do not follow the set back rules and in other cases violet the height restriction rules too. As a result, the increasing numbers of high rise commercial buildings are making the area as a high class slum which in turn is arising the problems such as dampness, shadow, disruption of air flow, turbulence of air flow, chillness etc.

Other Physical Problems

Other physical problems which are commonly experienced among the residents of the study area due to excessive commercialization are hampering of privacy, stress on water supply, and stress on gas supply, power failure, visual obstruction, and heat zone and traffic congestion.

Solar Access

Due to the close spacing of the high-rise commercial building blocks, a significant number of buildings falls into the shadow zone of the adjacent bocks which result is the inadequate supply of sunlight for the adjoining residential apartments which is not a healthy condition for occupants of these apartments.

Health Hazard

A number of health problems such as asthama, hypertension dizziness and respiratory problems as well as Dengu fever have also been found due to the degradation of the living resulting from the excessive commercialization in the study area.

Garbage Disposal Problem

Solid wastes that are generated by both residential and commercial activities are dumped at roadside pit. The main problem of garbage disposal in the study area is insufficient number of open garbage bins. The garbage accumulated here usually exceeds the capacity of the bins due to excessive commercial activities.

Plot Sub-division

Most of the present plot owners of Banani are the second or third generation of original owners. In most cases, numbers of successors are more than one. About one fifth of the original plots are now physically subdivided (PWD, 2003). These subdivisions are due to transfer by selling of land or due to multiple numbers of successors. Increase in the number of subdivisions increases the intensity of built structure.

Major Findings

Major findings of the study are as follows:

Lack of Proper Guideline to Control the Development

Absence of proper guideline is one of the major reasons for the uncontrolled real estate development in the study area. Present regulation does not provide the detail standards that should be followed by the developers. As a result, private developers are not providing the recreational and community facilities to the residents.

Lack of Regular Monitoring by the Government Departments

Lack of monitoring by the Government Authorities has encouraged the private developers to deviate from the initial lay out plan that they submitted to RAJUK for approval.

Corruption of the Government Officials in the Plan Approval Process

The plan approval process for private residential projects is not always fair. Corruption of the Government officials sometimes helps to get the approval of private residential projects with marked difference from the existing standard. Sometimes, the permission is given without examining the clearance papers from all the concerned departments.

Plot Owners have no Legal Backup to Protest the Developers

Plot owners have no legal backup to protest for inadequate supply of services and facilities by the developers. They always fear that if any type of legal dispute occurs, they may lose the ownership of their rights.

No Control over the Private Residential Project by Government

Government has failed to regulate the development of private residential projects, because it has no proper control over the residential area development by the private sector.

The Developers do not consider Future Demands

Developer does not plan for the future demand of services and facilities of the residential area. As a result, the services and facilities provided by the developers fail to meet the demands of the residents in the future.

Lack of Implementation of the Existing Laws, Rules and Regulations

Although the Real Estate sector is now playing a vital role in removing housing problems in the study area, this sector is suffering from scarcity of buildable land, high land value, lack of suitable and acceptable policies, lack of implementation of existing laws, rules and regulations such as – setback rules, FAR limits, the Earth Resistant Building code, the Wind Force and provision of Linear services related rules of BNBC' 1993, and other rules of Building Construction Act'1996 and inadequate financing for the sector.

Recommendations

Some recommendations are provided in this research, which are discussed below:

Recommendations regarding Existing Laws, Rules, and Regulations

The National Housing poilcy'1993, Bangladesh National Building code'1993, Building construction Act' 1996 and Setback rules of RAJUK should be properly implemented by the real estate developers engaged in the study area to ensure the residents' safety. A modern, efficient and effective taxation policy for urban land of Dhaka should be formulated to discourage land speculation.

Recommendations for Government and other related Organizations

RAJUK should play its role as an efficient monitoring and regulatory authority in the housing sector. On the other hand, Government, non-government and private financial organizations should provide easy finance at low interest rate both for the developers and apartment buyers. Infrastructure organizations, like WASA, DESA, TITAS and T&T should increase their existing level of service to support housing sector in the residential areas like Banani R/A.

Recommendations for the Private Developers

High-rise buildings should be developed through a well thought out physical planning process. Microclimate arising due to the presence of high-rise building has to be considered at the design stage to avoid ill effects on housing and living environment. Landscape planning should also be considered in an integral part and existing as well as on-going high-rise buildings should have adequate provision for community spaces, children play areas, gardens etc. for its dwellers.

Recommendations for discouraging Excessive Commercial Establishments

Heavy tax can be imposed on the commercial establishments to discourage commercial invasion in this residential area. Only a handful of small scale commercial activities such as fast food shops, restaurants etc. can be allowed in the arterial roads which will not hamper the quality of livability within the neighborhood.

Designing Eco-houses

The high rise apartments could be designed in a more eco-friendly way by introducing courtyards among a group of buildings. The surface of the building can be broken into a set of recessed surfaces in order to increases more area for receiving sunlight and ensuring natural ventilation.

Recommendations for Minimizing Traffic Congestion

The huge traffic caused by the educational institutions can be better handled and reduced by time staggering of the schools, colleges and universities. Staggering an hour of ahead or backward among different sets of educational institutions can help much in managing the academic institutional traffic with the peak hour traffic. Time segregation for different types of vehicles can also be helpful.

Recommendations for Minimizing Noise Pollution

In Dhaka city, the residential areas with the infiltration of the commercial activities seem to be worst sufferer of noise pollution (Nancy, S.J.2004). No person should cause or permit noise or sound(s) to intrude into the property of another person, which noise or sound(s) exceeds the maximum permissible noise levels set forth by the EPA.

Conclusion

After the independence to cope with the increasing population, Dhaka city extended towards north-east and Banani was developed as a high-class residential area. To meet the accommodation needs of its huge inhabitants, real estate housing sector started its business with a goal of solving the basic need of its residents. But now-a- days, the real estate sector is dealing with high-rise apartments and shopping malls building in the study area completely with only profit gaining manner. The houses and plots owners are also more interested to sell or share with the developers to construct apartments or commercial establishments, beside the residential flats to gain more profit. This personal profit gaining tendency is being made the residential area as a commercial hub and leading it towards absolute deteriorating condition creating tremendous impacts on the built environment. As the real estate sector is increasing the number of high-rise apartments and shopping malls in the study area, there is immediate need of building up the infrastructure capacity to provide proper linear services for the huge residential and commercial establishments. Therefore, to ensure sustainable real estate development, RAJUK should follow the recommended guidelines as well as enforce the zoning control rules to control rapid population growth and excessive commercial development in the study area.

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