Journal of Bangladesh Institute of Planners ISSN 2075-9363
Vol. 3, December 2010, pp. 113-127, © Bangladesh Institute of Planners

Planned Development for Urban Growth Management: A Case Study on two Wards of Dhaka City

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Abstract

Dhaka city is growing fast, which requires a growth management strategy for its orderly development in future. Urban growth rate is high and its impacts are long lasting. Dhaka is going to acquire its place in top ten cities of the world in terms of its population size in the near future that should make the people of the country proud of their capital city. But this pride cannot be pleasant because of its present state and its unplanned growth. There are fears that in the future though Dhaka may become a megalopolis, it will be full of slums or shanty-towns, short of infrastructures matching its size and status. Moreover, there would also be a maze of unplanned urbanization with its spill-over effects on all sections of the city's population. Different parts of the city have to be brought under a well-planned system of growth with necessary reforms. The study began with the conceptualization of identifying the necessity of growth management for an orderly urban development in Dhaka. It tries to find out the causes and impacts of haphazard growth in the Wards of 43 and 46 in DCC area. It is expected that the recommendations made in this study in the form of guidelines will be useful to the relevant authorities and as well as for the developers for proper development of the study area and as well as for other similar areas of the city.

Introduction

Growth management can be defined as a strategy, tailored by each community, to guide growth within that community (Hare, 2001). It entails a collection of policies, regulations and incentives that support growth objectives of the community. Nelson et al. (2002) defines urban growth management as the deliberate and integrated use of the planning, regulatory, and fiscal authority of state and local governments to influence the pattern of growth and development in order to meet projected needs. Urban growth management aims at better use of land and balanced consideration of land economics, environmental value, urban form and deployment of infrastructure investment. It involves public and private collaboration that must be responsive to both community goals and market interests. There are a number of planning and development control initiatives which are used as tools or instruments for urban growth management, such as comprehensive planning, zoning, subdivision regulations, property taxes, development fees, infrastructure investments, and other policy instruments that significantly influence the development of land and the provision of housing. The strategic and skillful use of these tools or instruments determines their effectiveness in managing the urban growth.

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Dhaka is the 20th mega city in the world having 13,100,000 population with current annual growth rate of 4.10% (http://en.wikipedia.org/wiki/Megacity, retrieved on 20 March, 2010) within an area of 590 sq. mile. In 1991, the population of the city was estimated to be around 6 million and now it has a population of over 13 million, which is alarming for urban management. The Population density is 20,000-135,000 persons per sq. km and the average occupancy per dwelling unit is 7.5 persons. The city is now accommodating 40% of the national urban population. About 40% of the city dwellers are said to be poor, 50% of is of middle income and the remaining 10% are of higher income group (Haque, 2008).

A number of planning and development control initiatives have been formulated for managing the growth of Dhaka. These initiatives include Master Plan, Development Plan, Municipal Acts, Environmental Regulations, Building Construction Act and Rules, Building Code and so on. Although these are aimed at directing the growth of the city in a deliberate and well-managed way, the city has been sprawling outwards in an unrestricted fashion. By 2025, according to the Far Eastern Economic Review, Asia alone will have at least 10 mega cities; including Dhaka, Bangladesh with 26 million (http://en.wikipedia.org/wiki/Megacity, retrieved on 20 March, 2010). For growth management of Dhaka city, Dhaka Metropolitan Development Plan (DMDP, 1995-2015) has been prepared with integrated development plans and priority sectoral plans for Dhaka city. DMDP is comprised of three components, namely Structure Plan, Urban Area Plan and Detailed Area Plan (DAP). The DMDP Structure Plan provides a long term strategy for 20 years upto 2015 for the development of the greater Dhaka sub- region. DMDP suggests future growth direction for Metro-Dhaka and proposes that the major new urban areas are likely to be developed during the planned period ending in 2015 in DND triangle, Eastern Fringe, Western Suburbs, Uttara–Zia International Airport Area, Tongi-Gazipur, and Savar-Dhamsona. DMDP recommended for accelerated development in newly urbanized areas but suggested for limited peripheral new land development. For effective growth management, DMDP declares four Special Incentive Zones for urban growth and suggests a strategy of northern expansion but proposes for limited land development on main Flood Flow Zones of DMDP area. DMDP states that this Structure plan will not be successfully implemented and urban growth will not be managed unless and until this growth is supplemented by good accessibility and proper transport system. DMDP considers that growth limitation of Dhaka is not a feasible option for future planning and hence unrestricted growth is assumed for Dhaka. This is a planning dilemma whether to limit the growth of Dhaka for effective growth management or not to restrict the growth.

However, DMDP acknowledges that formulation of a national urban policy is necessary to reduce the primacy of Dhaka, which would include incentives for industry and some decentralization of Government institutions aimed at winning a greater share of economic development to the selected secondary cities. Regular review of growth management policies and proposal of DMDP will be very much helpful for reducing the enormous pressure on the city promoting decentralization of planned development of Metro-Dhaka (Khan, 2007).

Dhaka Metropolitan city has now been turned into the busiest and densely populated city. Millions of people reside permanently in Dhaka city, the capital of Bangladesh for

service, business and other purposes. The dwelling places required for these large number of people are very inadequate. As a result, the residential areas of Dhaka city are turning into overcrowded, dirty localities day by day creating unhealthy environment and causing damage to the beauty of the city. So to avoid this situation, Dhaka should undertake some strategic programs towards its growth management on area basis.

The Study Area

Ward 43 and 46 of Dhaka city have been selected as case study. These two Wards are located in the western part of Dhaka city (Figure 1). In Detailed Area Plan, this area is demarcated as Detailed Planning Zone (DPZ) 9. The area is surrounded by Ring road, Kallyanpur canal and embankment (*Beribadh*). Here population density is moderate, unlike other parts of Dhaka (http://www.weatherbase.com/weather..., 14 May, 2010).

After the construction of embankment, which is known as FAP 8B, this area become flood free since 1991. After that a large number of land and real state development companies started to purchase land in this area. Land use of this area is mainly residential. At least 11 such companies are active now in this area. Kallyanpur canal is very important for rainwater as well as household water runoff. Most of the area is low lying. Haphazard development is prominent in this area. For middle and low income people this area is very important for housing, though rents of the houses are increasing day by day. Land price is also increasing at a high rate. Various educational, religious, institutional and health facilities are available in this area.

Source: http// www. Google earth. Com, retrieved on August 20, 2010

Fig.1: Arial View of the Study Area

One of the objectives of this research is to focus and review various rules and regulations related to growth management in Bangladesh and focus on different types of growth management techniques. This study also tries to identify the causes of haphazard development and its impacts on the study area and finally recommends some policy guidelines from planning perspective to manage the unplanned development process of the study area, as well as for Dhaka city.

This study is based on both the primary and secondary data and information. An empirical field level observation was conducted to know the existing land use status, provision of different services, growth scenario and problems associated with unplanned growth and to collect photographs of these existing situation. The secondary data, information and maps were collected from RAJUK, DCC, IWFM, and Gani Bangla (a private consulting firm). Besides, literature review and internet search were conducted.

Conceptual Issues Related to Growth Management

Urban Growth: 'Urbanization' and 'urban growth' are two different and also independent concepts such that there may be urban growth with or without urbanization; likewise urbanization may occur without urban growth. But the latter is an exceptional phenomenon. However, urban growth refers to an increase in total urban population, whereas urbanization refers to an increase in the percentage of urban population to total population. That is why urban growth may sometimes take place without urbanization. As for example, between 1901 and 1911, the urban population of Dhaka division increased from 269 thousand to 293 thousand, indicating an annual urban growth rate of 0.86 percent; but the proportion of urban population declined from 3.16 percent to 3.05 percent of the total population. Thus, during the decade 1901-1911, Dhaka division had experienced an urban growth with negative urbanization. (Jahan et al. 2007).

Urban Growth Management: We define urban growth management as the deliberate and integrated use of the planning, regulatory, and fiscal authority of state and local governments to influence the pattern of growth and development in order to meet projected needs. Included in this definition, are such tools as comprehensive planning, zoning, subdivision regulations, property taxes and development fees, infrastructure investments, and other policy instruments that significantly influence the development of land and the construction of housing. Growth management is often distinguished from growth control. Where growth management accommodates projected development in a manner that achieves broad public goals, growth controls limit or ration development. It is not always possible, however, to tell the difference between a growth control and a growth management tool simply on the basis of a label or the presence of an Ordinance; a particular growth management tool can have vastly different impacts in different municipalities (http://www.urbansim.org/papers..., May 12, 2010).

Necessity of Urban Growth Management: The problem is not urban growth itself. Growth is inevitable. The problem is how to manage that growth in ways that both minimize costs and maximize benefits to individuals and to the larger public. Growth management has emerged in response to the unintended and often perverse consequences of restrictive growth controls. Instead of inhibiting market-driven development altogether, growth management tames development to yield environmentally sound, fiscally efficient, and socially just outcomes. Although growth

management certainly leads to plans, what distinguishes it from traditional planning is an emphasis on implementation. Growth management combines regulations and incentives to guide new development in changing land markets. The growth management is composed of three essential goals

(http://www.urbansim.org/papers/Analytical_Tools.pdf retrieved on May 12, 2010):

- **Preservation of public goods,** such as air, water, and significant landscapes. Certain resources are available to everyone (such as air) so no one can be excluded, and adding one more person does not deprive another of its enjoyment. Yet, polluting the air does deprive people of its enjoyment. Growth management should preserve if not enhance the provision of public goods
- **Minimization of negative externalities** in certain land uses have adverse effects on others, such as landfills near areas planned for new community development. Growth management should minimize, if not prevent adverse land use impacts. Related to this, but not advanced by Ervin et al. is that growth management should also maximize positive land use impacts.
- **Minimization of public fiscal costs.** Finally, growth management should minimize cost per unit of development to provide public facilities and services. In recent years, two other goals can be considered to have been added (Nelson et al. 2002).
- **Maximization of social equity.** Growth management should maximize jobs-housing balances within small areas which provide equal accessibility to work, shopping, services, and leisure and at the same time, ensures life-cycle housing opportunities within neighborhoods and offer socioeconomic balance within neighborhoods.
- **Elevation of quality of life.** Ultimately, growth management should elevate the quality of life relative to alternative planning regimes. Elements of quality of life may be housing and neighborhood satisfaction, security from crime and natural or man-made catastrophic events, and flexibility in housing and location choices.

Related Rules and Regulations for Growth Management in Bangladesh

The Building construction Rules 1984: It requires a great deal of information from the applicant but impose very few conditions. They appear primarily designed to be a simple check of ownership and location, rather than a means of controlling development, while they further serve the purpose of generating quite substantial revenues for the authorities and are used by applicants as a step towards obtaining bank loans for construction purposes. In essence, the 1984 Rules seek to redevelopment by containing some important provisions concerning: monitoring and enforcement, mixed use, set-backs, preparation of new plans, plot-size, out-line approval, site coverage, land use, and building heights (Mahmud, 2007).

Building Construction Rules 1996: These rules superseded the previous Building Construction Rules of 1984. These rules seek to control development plot-by- plot and case-by-case. According to Mahmud (2007), it controls the development by imposing conditions on: set- backs, site coverage, construction of garage, access to plot, provision of lift, land use of that particular plot, and height of building. Restricting the height of a building in BC Rules 1996 helps to control the density of an area and above all manage the growth of the city in some way.

Building Construction Act 2006: It provides more authority to RAJUK (Rajdhani Unnayan Kartripakkha), with clear-cut responsibilities to monitor the development of Dhaka city. The Act spreads out the responsibilities to various actors, spell out the responsibilities of building designers, structural engineers, site supervisor and the penalties if they fail. Most interesting part of this rule is introduction of *Floor Area Ratio (FAR)*, to manage the growth of the city. It provides rules of building coverage area, allowable floor space and relation among building height, road width and plot size. Success depends on how these rules are being implemented by RAJUK in a transparent way.

Floor Area Ratio (FAR): FAR is the ratio of the floor area of a building to the area of the lot on which the building is located. The diagram below illustrates three simple ways that a 1:1 FAR might be reached with one story covering the entire lot, 2 stories covering half of the lot, or 4 stories covering a quarter of the lot all resulting in the same FAR.

Bangladesh Environment Conservation Act, 1995: The Environment Conservation Act (Act No. 1 of 1995) was enacted to repeal the Environment Pollution Control Act, 1977 to "provide for the conservation, improvement of environmental standard and control and mitigate pollution of the environment" (GoB, 1995). Although this legislation deals specifically with environment, it does not, however, explicitly recognize the right to a sound environment. Experts view that the legislation contains certain drawbacks that may interfere with its smooth and effective application. The law lacks in necessary direction for the conservation and development of resources and biodiversity (Nahrin, 2009).

The Environment Conservation Rules, 1997: The Environment Conservation Rules (ECR) had been promulgated in August 1997 with immediate effect. Some vital provisions of the Environment Conservation Act have now become fully operative by the promulgation of ECR. The Environmental Quality Standard (EQS) for air, water, soil, etc. have been set up. Categorization of Industries and projects for the purpose of Environmental Impact Assessment (EIA) has been done although the EIA procedure is required to be further detailed (GoB, 1997). Some degree of ambiguity still exists regarding management in ecologically critical areas. The procedure for public hearing is yet to be laid by a separate by-law. Thus the ECR is not exhaustive but a positive step forward (Nahrin, 2009).

The Natural Water Body, Open space, Park, Play Ground Protection Law, 2000: This law is a landmark for the private residential land development in Dhaka city. The major features of the law are given below:

- The unidentified river, khal, beel, lake,natural water body, flood flow and sub-flood flow zones in the master plan must be protected.
- These areas must be published under gazette notification.
- The character of the areas can not be changed to protect the environment.

This legal instrument can protect environmentally sensitive areas of Dhaka by preventing land filling for development of residential areas. But the application of the law become difficult, because the natural water bodies, the low lying and the retention pond, khal etc within the DMDP are not marked on Mouza map (Nahrin, 2009).

Private Residential Land Development Rule, 2004: It is the benchmark, which is applicable for residential land development by private companies. This contains the applicable rules for approval of land projects, area limit, and the maximum areas applicable for sale, land use, preserving the interest of the customers (GoB, 2004). The summary of the rules that are responsible to conserve the environment is given here:

- 30 percent land of the project should be conserved for provision of utility and civic amenities.
- The layout plan should be prepared such that the surrounding environment, beauty, transportation, water logging, water and sewerage drainage and other concerning matters should be considered with proper care.
- The following community facilities should be provided in the land project regarding the standard population size and handover to the responsible authority:
  - Kutcha bazaar, market, community center, religious center, graveyard
  - Health center, clinic, hospital
  - Play ground, park, open space
  - Nursery school, primary school, high school, college
- Space for provision for utility services.

Mohanagar Imarat Nirman Bidhimala, 2007: Mahanagar Imarat Nirman Bidhimala (MINB) 2007 amended in 2008 importantly introduced Floor Area Ratio (FAR) to manage the building coverage area, allowable floor space and relation among building height, road width and plot size etc. It eliminates mandatory height limitations of buildings and enables design of more livable and creation of open space through design flexibility, provision of lighting and ventilation of built spaces (GoB, 2007).

Impacts of FAP 8B on the Study Area and Associated Growth Trend

The major impacts of FAP 8B on the study area are as follows:

- The construction of the embankment under FAP 8B has brought a sense of safety and security to the people. In two studies, it has been reported that 74 to 76 percent of the people living nearer to the embankment feel that they are able to live in the area without any risk of flood (Khan, 1993). Displacement of people and in-migration took place during and after the construction of the embankment. The growth of slums on the toe of the embankment is positive evidence of in-migration. One study thus reports that 16 percent of the households surveyed have migrated into the surrounding areas after the construction of the embankment/flood wall (Ahmed, 1993). In another study, it has been reported that 22.3 percent of the people who moved into the fringe areas traversed by the embankment from outside the city area (Khan, 1993).
- Land use in the adjacent areas of the embankment has been reported to have undergone changes; an increase in residential use and a decrease in agricultural land. This implies that agricultural land is decreasing, part of which are converted to residential use and part of which has become unsuitable for cultivation due to water

logging. The conversion of agricultural land to residential use is an indication of densification in the areas as well. In one housing cooperative nearer to Mohammadpur, only three to four houses were built before the embankment (Khan, 1993).

- After the construction of embankment, impacts on employment have become evident by the various economic activities taking place within the protected areas. The embankment has led to an increase of land values in the inner areas of the embankment due to being flood-free and easily accessible. In one study, it has been reported that 91 percent of the people surveyed in the embankment area are of the opinion that land value has appreciated due to the embankment (Khan, 1993).
- The construction of the embankment has led to interventions in the existing drainage channels resulting in the formation of stagnant ponds nearer to the embankment. These stagnant ponds can easily become the breeding ground for disease vectors. In view of the number of stagnant ponds already in existence, some used for defecation, the risks of public health hazard are present in surrounding areas of the embankment and such risks may spread like an epidemic following a breach in the embankment in such surrounding areas (Field Survey, July 2010).

From the DAP draft report, which is prepared by Gonibangla Ltd., it is observed that- in Ward 43, total area of land in acres is approximately 411. In the year 2001 and 2007 population was 78006 and 108479 respectively. By their forecast in the year 2011 and 2015 population will be increased at 135152 and 168384 respectively. In the year 2001 and 2007, density was 190 and 264 respectively. In the year 2011 and 2015, it will be 329 and 410 respectively. On the other hand, Ward 46 contains 1195 acres of land. In the year 2001 and 2007, population was 63549 and 88374 respectively. In the year 2011 and 2015, population will be increased to 110104 and 137177respectively. In the year 2001 and 2007 density was 53 and 74 respectively. In the year 2011 and 2015, it will be 92 and 115 respectively. In Ward 43 and 46, there were 16777 and 13009 households respectively.

Land Developers in the Study Area

From the field survey, it has been found that at least 11 housing developers are active in the study area. Beside this, a large number of real estate developers are working in the area. Most of the housing companies have no approval from the RAJUK. During 1987-1990 most of the housing companies started their projects. At that time, there were no active rules to control or manage their activities. Housing companies sold their plots to buyers and then buyers develop his or her own land. At this moment, they do not want to give their detailed information. Most of them have no sight offices. The activities of some major active land developers in the study area are provided here.

Japan Garden City: Japan garden city is a private high rise apartment housing complex on a chunk of land measuring approximately 9.78 acres at 24/A Tajmahal road (Ring road), Block 'C', Mohammadpur, Dhaka. Now-a-days, people say that Japan Garden City (Figure-2) is nothing but a high class urban slum. Practically, it has no recreational areas, and natural air and light is unavailable to those who are living in the buildings in the middle of the project. There is little spaces between buildings, and recreational spaces which are shown in their brochure, now being used for high rise buildings. As the company claims in its brochure, only 43 percent of the area is used for residential and commercial purposes and the rest 57 percent for beautifying the environment with a host of recreational facilities. In reality, it is a congested, extremely high rise residential complex of 27 buildings, each of them are 16-storied in monumental scale. About 1,803 flats are there for residential use and an ancillary service building with hospital, commercial and other services are part of the complex. The company estimates that this complex will have about 2,490 cars. The flats will be inhabited by more than 9,000 people and ancillary services will attract another 1,000 people, leading to a population of 10,000 in an area of 9.78 acres. The gross density will be around 1,020 persons per acre, which is more than three times of the UNCHS[1] standard (Mahmud, 2007).

Source: Field Survey, July 2010
Fig. 2: Little space between buildings in Japan garden city

Baitul Aman Housing Society: During the period of 1987-1990, Baitul Aman Housing Society started to develop their land project. During the discussion, with an employee in Town Planning Section of RAJUK, it was known that this housing society has partial approval as a land development project. In the field survey, it was found that there was no open space in this housing project. Most of the roads were found broken. Water logging in the road is a common phenomenon now. During the dry or monsoon season, most of the drain water overflows the roads. Most of the cover of manholes was found open, otherwise stolen (Field Survey, July 2010).

Other Active Land Developers and Housing Companies: Other active land developers in the area are Monsurabad Housing, PC Culture Housing, Prominent Housing, Mohammadi Housing Ltd., Latif Real Estate, Shayamoli Housing, Mohammadpur Housing Society, Chan Housing, Aninda Housing, and Noor Real Estate (Field Survey, July 2010).

[1] The standard of United Nations Centre for Human Settlement (UNCHS) is 300 populations per acre for a livable area

All of the above land developers and housing societies have already violated and are still violating the rules and regulations of land development, which is mainly responsible for haphazard development in the area and it creates different types of adverse impacts.

Present Issues and Problems in the Study Area

The problems and issues related to land development of the study area are as follows:

- Private Developers are operating full scale encroachment of Kallyanpur canal for housing schemes, and rampant land filling is affecting the sub flood flow zone.
- Developers are found to be encroached towards Kallyanpur retention pond area too, which is reducing the effectiveness of the pumping station resulting in water logging in the area.
- Parts of ward 43 and 46 are located on the western edge of Dhaka city near the mid point of low-lying western embankment.
- Ward 43 and 46 suffers from serious water logging during rainy season.
- There are slums along the Shaymoli Ring Road with temporary *katcha* structures and these are densely populated. The *Beribadh* area is concentrated with a huge number of slum dwellers.

Source: Field Survey, July 2010

Fig. 3: Haphazard growth of buildings towards Kallyanpur canal

Source: Field Survey, November 2009

Fig. 4: Plots and buildings in Kallyanpur canal area

- On the western side of embankment, there are a few developers, who have developed the lands of Sub-Flood Flow Zone and have created residential plots for middle income group by filling the land.
- There has been a considerable development of squatter's settlements occupying the base of the Western Embankment, thereby threatening the stability of embankment.
- Solid waste management is a big health hazard, especially in sweepers' lane of Ward 43. Obnoxious smell and piling of solid waste on roads is a regular feature.
- Major access roads of ward 43 and 46 are damaged without repair. All the covers of the manholes are regularly gone missing.
- The most of the sewerage lines are clogged and do not work.
- The heavy load shedding of electricity is a regular occurrence.

Causes behind Haphazard Growth

- The Government has framed the Natural Water Bodies, Open Space, Playground and Park Protection Law, 2000 to protect the natural water bodies, canals, rivers, and depressed low laying areas and open spaces within metropolitan areas of Bangladesh. It provides power to the concerned authorities to protect water bodies and avoid environmental hazards. But in reality from the field survey, it has been found that most of the buildings and housing companies are developing land by violating this Act.
- For lack of law enforcement and strong monitoring, people violated the plans during the construction of their buildings and structures. They build their structures in their own way. They do not follow the instructions, which has described in the Building Construction Act, 2008.
- For the shortage of building inspectors in RAJUK, negligence of their duties and above all their corruption, people take opportunity of violating plan.
- With the growth of Dhaka, RAJUK has failed to prepare the Detail Area Plan on time as per the guidelines of DMDP that has created an opportunity to violate some important proposals of DMDP.
- Proposals of Structure Plan and Urban Area Plan of DMDP are being violated in many cases and RAJUK failed to take action against the responsible person and land developing companies.
- RAJUK failed to implement the planning standards of DMDP and planning rules of DAP.
- Lack of coordination among various public and private organizations, who work to provide urban services and manage the city growth.

Associated Problems for Haphazard Growth

- **Loss of Wetlands:** For high price of highlands, the developers enlarge their hands to the low cost wetlands. As a result, the wetlands are lost in the study area.
- **Lack of Open Space**: In reality, there is no open space in the study area for the dwellers. They only stay in their houses but they do not get any recreational facilities. For children, there is no playfield/playground for their better mental growth.

Source: Field Survey, July 2010

Fig. 5: Permanent water logging in road

Source: Field Survey, November 2009

Fig. 6: Broken roads

- **Traffic Congestion**: Conflicting land uses, unplanned and haphazard construction, inadequate road network, and inefficient transport management are creating severe traffic congestion during peak commuting periods in the study area.
- **Water logging**: It is a matter of fact that in Dhaka City the situation of rain water drainage system is not satisfactory at all. By encroaching the natural *khals* and low lands, development activities are going on. The private land development companies are filling the low lands in the fringe areas of the city and developing residential areas without permission of the concerned authority. As a result, it occurs water logging immediately after rainfall at a number of residential areas and create huge suffering for the city dwellers (Nahrin, 2009). Sometimes, stagnant water enters into houses and floor and wall remain wetted for a long period and it damages the household goods, stored food grains etc. Water logging hampers traffic movements, therefore, creates an obstacle for communication and timely supply of goods, which means loss of time, reduced production and economic losses. The scenario is the same for both Ward 43 and 46 of Dhaka city.
- **Pressure on Utility Services and Community Facilities**: The rapid population growth and urbanization due to the migration of people to ward 43 and 46 from different parts of the country has increased demand for housing, water, electricity, drainage, road and other utilities.
- **Land Speculation**: Due to the absence of the provision of social housing or the housing for the economically weak sector/society, there is a great demand of land especially for the construction of houses. There is no alternative option other than to buy a piece of land and build houses. As a consequence, the demand and the cost of land in study area is very high. Land speculation is a characteristic of urban development and this trend is detrimental to the planned growth of the city and proper expansion of basic services to the people. Land brokers and housing development companies hold huge parcels of land in ward 43 and 46 areas for speculative purposes.
- **Loss of Habitat of Fauna-Flora and Biodiversity**: Most of the developer companies in the study area were established during 1987-1990. After the completion of FAP 8B, the study area developed rapidly. The habitat for fauna and wildlife has already been lost in the study area. With urbanization and industrialization, agriculture has been demised, water bodies are filled up, ponds and khals are being polluted and plants or trees have been cut down for new settlements. Birds, mammals, fishes and other animals have permanently lost their habitat hampering biodiversity of the study area.
- **Loss of Productive Agricultural Land**: After the completion of FAP 8B, ward 43 and 46 are growing rapidly. Most of the housing authorities or owners choose this area for their housing project, because the area was low lying earlier, and land price was very cheap initially after the finishing of FAP 8B. But after implementation of FAP 8B, the area along the embankment up to Rayer Bazaar have become flood free. As a result, the area earlier used to be for agriculture and fisheries, later the housing companies have used it for housing plots and apartments.
- **Lack of Air and Sunlight**: Mahmud (2007) has pointed out that about 94 percent of buildings of the city someway have violated the Building Construction Rules (BCR),

1996 (GoB, 2006) or deviated from the approved plan. In the study area, it has been found that most of the buildings do not follow the proper building construction rules and regulation. Japan Garden City specially did not follow such rules and regulation creating an environment that has been suffering from inadequate air and sunlight.

- **Noise and Air Pollution**: The haphazard growth in the study area creates serious noise and air pollution in the locality.
- **Problem of Fire Hazard**: With the increase of population density and expansion of housing, the probability of fire hazard has been increased n the area. The Japan Garden City has already experienced such fire hazard. The area also lacks in fire fighting facilities. Mohammadpur fire station is responsible for providing the service in the study area, but it has lack of capacity making the area vulnerable for fire safety.
- **Slum and Substandard Housing Conditions:** There are a large number of slums and substandard houses in this locality.

Recommendations

- A separate Research and Monitoring Cell should be set up entrusting the following tasks:
  - Monitoring of urban growth and development, implementation of development plans, control of illegal development and improvement of role and capacity of RAJUK;
  - Conducting research and undertaking action research projects on infrastructure development guiding the planned development as per the approved plan, with innovation in cost recovery and participatory area development method;
- Planning, implementation of development and development control are the three prime activities of RAJUK. In future, RAJUK should give more emphasis on planned development and development of infrastructure as an enabler, rather than as a facilitator. It should carry on regular monitoring and research of urban growth and emerging urban problems.
- Planning standards and planning laws should be enforced and practiced properly. RAJUK's planning permission process should be more simple and transparent. Adequate database, cross checking of data, frequent field supervision, provision of accountability, provision of strong penalty in case of default etc. should be regularized and compulsory.
- Provision of mandatory height limitation of buildings, enabling design of better livable housing, creation of open spaces through design flexibility and provision of lighting and ventilation of built spaces in ward 43 and 46.
- The use of taxation policy is a very potent and versatile instrument in controlling the undesirable growth of any area. A burdensome penalty tax can be imposed on both the owners and the tenants for making and living in an unapproved building.
- Developed mechanisms to more effectively manage dynamic growth, control annual population growth rates. Strict control on in-migration of population.

- Strict implementation of Private Residential Land Development Rules (PRLDR) 2004. Housing companies should follow the rules prescribed for them.

Conclusion

Dhaka is regarded as one of the largest growing mega cities in the world. To meet the demand of land of the growing population, the city has spread outwards in an apparently uncontrolled manner. In the process of land development in the fringe areas of Dhaka, both private (individuals or households and commercial firms) and public sectors are involved. Dhaka city is continuing the same growth trend even though reports of undertaking decentralized planning approach is noticed too often. In migration in Dhaka city is still high due to the lack of national urban policy. Besides its natural growth, Dhaka has to accommodate about 40% of the rural to urban migrants every year. In one side, pressure of demand for growth is high and on the other hand, lack of institutional capacity of RAJUK is causing failure in the implementation of planned development and urban growth management. Lack of law enforcement and control of corruption in development also contributed to unplanned growth of the city. There is no other alternative than maintaining the planning standards and managing the city as per the plan to make the city habitable. Success of any law depends on its proper implementation.

The areas beyond RAJUK and within Master Plan area are being developed haphazardly. Though, there are few planned residential areas in Dhaka city. The private housing schemes are developing without concern or permission of the respective authorities. It was also found that the respective authorities did not stop the unauthorized development activities of the developers. Obviously, the city will be expanded and if the city doesn't expand in planned way, then it will be impossible to provide the basic needs of the people. So, it is the time to stop the unplanned private housing schemes in the study area. RAJUK may take initiatives to control the unauthorized development activities in the study area. It is expected that the concerned authorities will make a better plan for an orderly development of the study area and make its strict implementation for achieving a sustainable city for better living.

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