

**Living Condition:**

**A Case from Developing Country (Bangladesh)**

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**Abstract:**

In the recent years, research and development on liveable cities has gained attention because of the complexity and diversity of liveability standards. Cities all over the world are growing day by day. Developed countries are trying hard to reach to a level where the liveable conditions can be achieved and they are managing this ongoing challenged with a certain standard. Liveable condition means ensuring every aspect of living elements. Fast growing countries like Bangladesh, India, Vietnam, Pakistan etc are developing but unfortunately they can not be considered as the desired liveable condition till now. In this paper, the author will focus on the liveable conditions of one fast growing city of developing countries, which is the capital city of Bangladesh, Dhaka. It is one of the city which is dealing with many challenges are far away from reaching to a level where people can live in a liveable situation. It will be done by analysing current challenges and opportunities. On the other hand, the author will also discuss about the management and co-ordination challenges between multilevel planning authorities. Because relation between different authorities is necessary to reach the desire liveable condition of a city. This will be done by researching existing planning models which are proposed by these authorities. Author will discuss his own proposal for some of these problems which can be used to reach the desire level of living condition.

*Keywords: liveable, city, Dhaka, Developing, Housing, Traffic, Fast-growing*

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## **1. Chapter One: Introduction**

### **1.1. Background of Research**

Though the term 'liveability' has not been used in urban planning until mid 1970s, it was a major concern in the physical reform movements associated with public works and public health that took place in the early 1900s (Larice, 2005). The decade of 1980s has witnessed the rising of popular and professional interest in the notion of liveability (Myers, 1987; Jacobs, 1987). Concurrently, with the introduction of the concept of sustainable development in 1980s, cities were considered as the focus of urban sustainability (Chiu, 2008; Elander & Lidskog, 2000; Newman & Kenworthy, 1999). Improving the liveability and socio-spatial equity condition of the inhabitants and reducing the environmental toll of urban activities thus became the major motto of urban sustainability (Newman & Kenworthy, 1999; Chiu, 2008). Several advocacy groups, practitioners and policy-makers have suggested sustainable urban form models for the promotion of sustainability (Howley, et. al., 2009; Jabareen, 2006) which also focused on place-based liveability. Increased density from the current level or high density is advocated in most of the urban form models (Tregoning et. al., 2002; Churchman, 1999, Chiu, 2008, 2012; Jenk, et. al. 2005; Williams, 2000). The rapidly growing cities which are growing unplanned of developing countries already have very high density which has been posing problems for liveability. The liveability condition in these high density cities has yet to be explored. Dhaka, the capital of Bangladesh is a case in point. (ADB, 1993) This dissertation aims to investigate the liveability of the highly dense neighbourhoods of Dhaka for the purpose of formulating recommendations to improve the planning system and policy to enhance liveability.

## **1.2. Research Problem**

Cities all over the world are experiencing a faster urbanization growth. Now, about 400 cities have more than a million people or more where almost seventy percent of them are located in the developing world. More surprisingly, it is estimated that by few years the developing world is going to become more urban in character than rural (Cowly, 2015). The increasing rate of urbanization is good for economy; however, it poses challenges to ensure more sustainable use of space (Torres, 2008).

Liveability is referred to as the aspects of the person-environment relationship that in its broadest sense encompasses many characteristics that make a place comfortable to live in (Kamp et. al., 2003). It is argued that while sustainability is a condition in which economic, social and environmental factors are optimized, taking into account indirect and long-term impacts, liveability is the subset of sustainability impacts that directly affect people in a community (De Roo & Miller, 2000; Litman, 2011). Liveability is considered as the “community’s quality of life which is constructed of the shared characteristics the residents experience in the places and the subjective evaluations residents make of those conditions” (Myers, 1987, p. 108-09). The numbers of population of these countries are more than the available lands. The capital city is the major hub of economic development, that is why, the density of these cities are more than the other parts of the country (Ashraf, K. 2012).

Bangladesh, a small South-Asian country, is also experiencing the common challenges faced by other developing countries. It has followed a faster urbanization rate in current days than government have imagined it would be in today’s time. The recent statistical report states that about 23.30% of total country population is now living in dense urban areas (Bangladesh Bureau of Statistics, 2014). The most alarming fact is that almost a quarter of these people fall under poverty line where about 62% lives in slums (Ellis and Roberts, 2016). Liveable condition of these places are far bellow than the average standard.

Many authorities of a city are form to make a city reach to a liveable condition. It is necessary to have a proper co-ordination between different departments of the city with a common goal of making a city liveable for its inhabitants. But, lack of co-ordinations are visible between these departments.

## **1.3. Research Gap**

Since liveability does not have any single definition, different studies in the international context emphasize different liveability issues. In many instances, liveability is studied under the social dimensions of sustainability (Dempsey et. al.,2012). Access to facilities and services and the quality of a place are considered for evaluation of liveability from the

sustainability perspective. Most of the empirical studies carried out to evaluate liveability in dense areas are in the developed countries where strong planning controls exist. Larice (2005) conducted an extensive study on the liveability of the dense neighbourhoods in urban North America from the morphological perspective. He selected 12 dense neighbourhoods to assess the local liveability based on eight selected dimensions. The eight dimensions include walkability, balanced transport modes, mixed land use, affordable housing, leisure space and amenities, a sense of place and sufficient density to support services. Based on the findings derived from the traditional and planning-era neighbourhoods, the study concluded that different neighbourhoods have their own strength in meeting greater number of liveability dimensions and become more liveable. Howley et al. (2009) evaluated the relationship between high density living and neighbourhood satisfaction in Dublin's central city. In terms of neighbourhood attributes, they selected five different types of variables, namely, accessibility factors, perception of safety, satisfaction with the apartment, perception of the level of litter and neighborly attachment to monitor the satisfaction of the residents about liveability. The findings of the study suggested that the residents living in the denser areas showed a higher degree of neighbourhood dissatisfaction. Though liveable condition has always been an important issue of a city in its growth, it never gets the research focus in developing cities that how it is actually been going on and planned particularly. That's why, the liveable condition of the city is decreasing day by day and it is turning out to be unliveable condition. Definition of liveable condition is also very vague in the managements documents. In this paper, an in depth analysis of liveable condition will be performed to know what aspects need to be fulfilled to achieve liveable condition.

#### **1.4. Justification of Research**

Urban population and scarcity of land get high concentration in the developing countries government. But they always struggles to balance between these two. Same tragedy of not able to prove liveable condition is happened because Bangladesh has same challenge of economic and urbanization. As a small country like Bangladesh, cities are growing at a tremendous rate where high population are being flown toward dense cities. It is making city life unliveable in true sense (ADB, 1993). Planners and different departments of government are working hard to ensure basic civic services where still it is enough to reach to a average level of liveable condition. Authorities responsible for creating and managing are not cooperating between themselves. So, Bangladesh is in a long way behind to think on this crucial element which is important for liveable city life (Ashraf, K. 2012). This study hence aims to analyse what is being done wrong which is causing to reach to the desirable living condition. The interplay of these different departments are also important in this case to critically oversee the management functions to understand existing challenges and what can

be done for future planning. Time and fund limitation makes this study to confine only in one city in Bangladesh.

#### **1.5. Research Question**

What is the role of Developing Plans (previous and present) for upgrading the liveable conditions of Dhaka?

#### **1.6. Description of Study Area**

Dhaka is the capital and largest city of Bangladesh. It is one of the world's largest cities, with a population of 18.89 million people in the Greater Dhaka Area. It is also the 4th most densely populated city in the world (ADB, 1993). Dhaka is the chief economic, political and cultural center of Bangladesh. The city is bounded by the Buriganga River, Turag River, Dhaleshwari River and Shitalakshya River. The city is located in an eponymous district and division (Ashraf, K. 2012).

The city was once called the Venice of the East. Under the British Empire, the city saw the introduction of electricity, railways, cinemas, Western-style universities and colleges and a modern water supply. It became an important administrative and educational center in Eastern Bengal and Assam after 1905. In 1947, after ending of British rule, it became the administrative capital of the East Pakistan. It was declared as the legislative capital of Pakistan in 1962. In 1971, it became the capital of an independent Bangladesh. Article 5 of the constitution of Bangladesh declares Dhaka as the capital of the republic.

Dhaka is a major financial center in the region, being home to many local and international companies. Its stock exchange has over 750 listed companies. The city hosts over 50 diplomatic missions and the headquarters of BIMSTEC. The city's culture is known for its cycle-rickshaws, cuisine, art festivals and religious diversity. The old city is home to around 2000 buildings from the Mughal and British periods, including notable structures such as the Bara Katra and Choto Katra. The city's modernist national assembly is one of the largest parliaments in the world (Ashraf, K. 2012).

Since its establishment as a modern capital city, the population, area, and social and economic diversity of Dhaka have grown tremendously. Dhaka is now one of the most densely industrialized regions in the country.

#### **1.7. Development Control of Dhaka City Corporation area**

1. Dhaka City Corporation is a self-governing corporation which runs the affairs of the city. Dhaka municipality was founded on 1 August 1864, and upgraded to "Metropolitan" status in 1978. In 1983 City Corporation was created to govern Dhaka (Government of Bangladesh,

1953). Under new act in 1993, election was held in 1994 for the first elected Mayor of Dhaka. In 2011, Dhaka City Corporation was split into two separate corporations – Dhaka North City Corporation and Dhaka South City Corporation for ensuring better civic facilities. These two corporations are headed by two mayor, who are elected by direct vote of the citizen for a 5-year period (Government of Bangladesh.,2009). Area within city corporations divided into several wards, which each have an elected commissioner. In total the city has 130 wards and 725 mohallas (section of area zoin) (Ashraf, K. 2012).

2. RAJUK is responsible for coordinating urban development in Greater Dhaka area (Government of Bangladesh,2010).

RAJUK – literally the Capital Development Authority of the Government of Bangladesh – is a Bangladeshi public agency responsible for coordinating urban development in Dhaka. (Islam, Md Asraful. "Rajdhani Unnayan Kartripakkha". Banglapedia. Retrieved 26 July 2015). RAJUK has taken initiative to make it liveable through solving housing, transportation problems and creation of large scale water based public space/open space a-a planned, liveable and environment friendly city. To fulfill the goal of achieving a planned city

Dhaka is serviced by over two dozen government organizations under different ministries. Lack of co-ordination among them and centralization of all powers by the Government of Bangladesh, keeps the development and maintenance of the city in a chaotic situation which is leading to unliveable condition (Ashraf, K. 2012).

Table: Development Control in Dhaka City Corporation Area:

Agency	Service	Parent Agency
Dhaka North City Corporation Dhaka South City Corporation	Public service	Ministry of Local Government, Rural Development and Co-operatives
Dhaka Metropolitan Police	Law enforcement	Ministry of Home Affairs Bangladesh Police

RAJUK	Urban planning	Ministry of Housing and Public Works
Dhaka Electric Supply Company Limited Dhaka Power Distribution Company Limited	Power distribution	Ministry of Power, Energy and Mineral Resources - Power Division

\* Table: Development Control in Dhaka City Corporation Area (Own Work).

## 2. Chapter Two: Literature Review

### 2.1. Liveable city

Liveable city concept has been widely used in the 1980's and 1990's in North America as a response to the continuing problems of urban sprawl and car-dependent land use patterns (Auckland City - 2000). Using the 'liveable city' concept is one way of recognizing the sustainability of the city, though according to Girardet (2004) liveability and sustainability are intimately connected, they are not always representing the same thing (Girardet 2004, Creating a sustainable Adelaide). There is a very useful working definition of urban liveability which is from Vuchic (1999, p.7) who has described it as "generally understood to encompass those elements of home, neighbourhood, and metropolitan area that contribute to safety, economic opportunities and welfare, health, convenience, mobility, and recreation". So we can see that the core concept of liveability is clearly more than a qualitative construct representation of a set of characters which are related to the basis of an area as a 'desirable' place to live, invest, work and conduct business (Tan, 2014).

In many ways liveability could be seen as encompassing of a widely ranged of issues which are related to overall 'quality of well-being and life'. It is instinctive to understand this as a 'place-based' concept, because generally it refers to those basic fundamental of a home, neighbourhood or city which can contribute more to a better quality of life and well-being. Quality of life and well-being are so close in terms and also related concepts which is related to the extents on which an individual's living condition can be measured and can analyse. They can be ranging from more objective indicators of economic wellbeing, such as human capital, to the more subjective quality of life indicators that include social capital, qualitative expressions of personal satisfaction and the like (Ley and Newton, 2010).

From Woolcock (2009), we can see that the linkage between liveability and sustainable development is not very clear either. In some of the cases these two terms are being used interchangeably while in some other contexts, liveability is being considered as a subset of a

sustainable city (Tan, 2014). Even the definition for 'sustainable cities' is still vague to many people (Eastaway & Stoa 2004; White 1994), especially with respect to the issue of what is to be sustainable. One way to come to grip with the sustainable city is to ground it on the life and activities of the people, hence the use of 'liveable city' to capture the serene but rewarding life of city people.

'Liveable' city nonetheless is a very subjective word also. What more if it concerns a liveable city. It is very much similar to a old proverb 'beauty lies in the eyes of its beholder'. Different people have different opinion to what they call a liveable city. Shortell (2005) however, points out that whether it is meaningful or not depends very much on the status of the country, whether it's a developed or developing country. This view coincides with Timmer & Seymoar's (2004) description of a liveable city where according to them it reflects the 'quality of life' (wealth and beyond) experienced by the city residents.

In comparing a liveable city to a sustainable city concept, Douglass et al. (2004) maintain that a liveable city concept is to be more human centred; a liveable city should be 'healthy, convivial and socially just living, being shaped by the conditions of their natural and built environments'. In turn these are contributed by three interconnected dimensions, namely, environmental well being, personal well-being and lifeworld. While Metcalf (2002) and Girardet (2004) described the liveable city as having strong neighbourhoods and sufficient supporting facilities required within walking distance, a network of attractive public spaces and buildings, affordability, clean, vibrant with diverse street culture.

## **2.2. Liveable condition of developed countries**

It is seen that the top cities are mostly mid-sized, in wealthier countries and with a population density which is relatively in lower side, the report states. "These can foster a range of recreational activities without leading to high crime levels or overburdened infrastructure," it also adds. "Six of the 10 top-scoring cities are in Australia and Canada, which have, respectively, population densities of 2.9 and 3.7 people per square kilometre. But in the top 10, Finland and New Zealand both have densities ranging between 15 and 18 people per square km of land area. On the other hand global average density is 57 people/sq km.

"Though Austria has a density of 106 people per square km, but comparing with megacities like New York, London, Paris and Tokyo, Vienna's population of nearly 1.8m (2.6m in the metropolitan area) is comparatively small. New York, London, Paris and Tokyo are all prestigious hubs with a wealth of recreational activities and other cooperative things for the people of their country, but all these cities are suffered from higher levels of crime, congestion and public transport problems"(Oliver, 2017).

Australian cities are doing well in the known international liveability rankings of cities all over the world, because of comparatively lower crime rates, high amounts of public open space for its inhabitants, fairly good transport systems, and the accessibility of good educational opportunity (Melanie,2013).

Vienna has excellent infrastructure which has been designed to fulfil the changing needs of the city. Vienna scores largely in terms of its public transport and public housing. The city has provided its inhabitants affordable housing and also has made great bicycle route map which is helping to keep the traffic on the lower side and also discouraging people from using private cars as it is a better way to improve the air quality.

### **2.3. Liveable Condition of Developing countries**

Population growth is clearly visible in the fast-growing cities of developing countries (Kolkata, Dhaka, Mumbai, Delhi, Pune, Bangalore, Karachi, Islamabad etc.). A sense of the population growth rate can be found by observing the population of the growing cities of Asian developing countries. In 1950, the population of these cities was 306 million, which could be around 3500 million in 2030. As per percentage, it could be about 57 percent of the total population of these countries (Cohen, 2006). For the fast-growing population, these cities have to face many adverse conditions in the process of increasing the living standard. And for dealing with this situation, the living standard of these cities is declining. As a result, the quality of civic facilities in these cities are extremely low (Douglass, 2002). According to the World Bank report (2013), developing countries must prepare to house an additional 2.7 billion people between now and 2050, as migrants are moving in unprecedented numbers from rural areas to chase their hopes and aspirations in cities(ADB, 1993).

Most of the big cities are making plan which can lead them to reach to the liveable condition. Like Karachi is planning to transform into a Liveable and Competitive Megacity, it was prepared at the request of the government of Sindh, Pakistan, which requested analysis by the World Bank Group for strategic advice in improving the liveability and competitiveness of Karachi (ADB, 1993). To reach this possible outcome which is for city transformation the World Bank has done a few rapid assessments which were conducted between 2014 to 2016 as part of a broader technical assistance which can lead to develop a multisector approach.

Ho Chi Minh City's rapid urbanization has resulted in slums and environmental dilapidation. Some introductory projects were planned in Tan Hoa Lo Gom, which is also the most polluted canal of the city. The projects were not thought out from the city's approved master plan but from the documentation of interconnected problems of the city. This one project

concurrently has addressed the main problems of the central city which are canal pollution, flood management, slum eviction and rehabilitation. While considering the canal as the main spine for the renewal of the area. Giving provision of some of the lacking infrastructure was the sole objective of the other project. It includes to structure the part of the border area that was undergoing fast and chaotic urbanization. Both projects were included by socio-economic and community participation of its initiatives. This approach has been now applied in the larger Vietnam Urban Upgrading project which is funded by the World Bank (UPAT, 2010).

### **2.3.1. Liveable condition related basic Challenges of developing countries**

There are some barriers for the fast-growing cities of developing countries, these barriers are the reasons the cities are not reaching to liveable level. Due to these challenges, the standard of living of these cities is increasingly interrupted (Cohen, 2006). Among urban related challenges of these cities, increase in traffic due to population growth, the impact of infrastructural unplanned establishment, lack of proper vehicle parking's in the city, balanced distribution challenges of the civic facilities and community services, effects from massive environmental pollution, lack of effective and planned housing areas, and the extreme co-ordination with mismanagements of such authorities that can work on city master plan (Ashraf,2012).

The disadvantage of unorganized and mismanaged open space within the city is considered one of the main challenges in increasing the city's living standards of the fast-growing cities of the developing countries. These challenges related to open spaces are, lack of proper maintaining of open spaces and uncontrolled construction of unplanned infrastructures by some individuals (Kadi, 2012). In most of these cities, it is seen that these open spaces are losing the character of urban oriented social open space due to the absence of maintain in these spaces and in some open spaces has facing challenges by the construction of illegal and unoccupied structures (Ashraf,2012). Due to environmental pollution, the natural elements of these cities are inefficient in most cases. Because of environmental pollution, these cities are experiencing a lot of challenges in increasing their standard of living (Cohen, 2006). Due to air pollution and water pollution, standard for the liveable quality of these cities are being interrupted in many ways. Polluted gas from the excess vehicles in these cities and the contaminated smoke of the factories is the reasons for air pollution. On the other hand, the reasons for water pollution are, garbage throwing in the natural waterbodies of the city and occupying these waterbody by illegal settlements (Ashraf,2012). City municipalities in each city can make a real contribution to improve the living standard of cities. But it is a matter of regret that, due to the lack of co-ordination and control of municipal authorities on

city oriented urban planning of the fast-growing cities of most developing countries, the growth of living standard of these cities are being hampered. One of the reason for this problem is the absence of centrifugal masterplan of urban infrastructural framework and lack of implementation of the master plan for some cities (Cohen, 2006). The urban indifference of sustainable urbanization has diminished the living standards of the city. In some countries, the city's municipal authorities have made extensive infrastructural development without considering the masterplans based on future (Ashraf,2012). To solve the rapidly growing population, these cities are increasingly developing infrastructures which can accommodate the future population. Although these structures provide opportunities for employment and housing in some areas, in many cases it is creating obstacles in increasing the standard of living (Kadi, 2012). These infrastructures include schools, offices, business hub, social gathering spaces and some more. Due to unplanned development, these infrastructures cause downgrading of the city's core quality and destroying the normal urban character of the city. These establishments not only cause environmental challenges but also the reasons of a huge number of challenges such as traffic congestion (ADB, 1993). In countries where decentralization of state infrastructures has not yet been made, one of the challenges in these countries is the use of these cities as the center of all state administrative activities (Ashraf,2012). The water related challenges (lack of adequate water supply for homesteading and pure drinking water crisis) and sanitation challenges are some known challenges for these cities. Due to unplanned employment opportunities, in these developing countries, these fast-growing cities is facing obstacles in making cities more liveable (Kadi, 2012). Another basic challenge in making these cities as liveable is, not distributing the urban facilities and services (community services) in the country through proper planning (Ashraf,2012).

### **2.3.2. Current Housing related challenges of developing countries.**

For example, a house is the most expensive and inevitable requirement in a city. In search of employment people migrate from rural areas to cities which has resulted in increasement in population amount. The other reason of scarcity of housing is coupled with increase in nuclear families. By the end of 21st century the government of India has constructed 53,882 houses in 1994 and has decided to complete 69,002 house (ADB, 1993).

Without taking permission from the city or town planning authorities many of the houses are built. In Karnataka alone, such illegally constructed houses are built all over the cities. To legalize these houses the government of Karnataka is now developing a procedure that is a similar trend which has been observed in other towns in different States. With the growth of cities living facilities also differs. As from a survey which was conducted during 1990-91 on

migrants of Mumbai city, it is found that around 49 percent of the migrants are living in only one room house, 44 percent are dwelling in kutcha houses or semi pacca houses (Mukherji, 2006). Gunny bags, straw, tin or mud as the partition and structure material were used in thirty two percent of them, gunny bags, straw, tin or mud as roof materials were used in 45 percent of them. The living condition of these houses are not safe and unhygienic for its users. In rural India there are only 18.5 percent of houses have attached bathroom facility, while in the cities, it is three times higher than the rural part. Sseparated bathrooms are less in urban areas to rural areas.

### **2.3.3. Current Traffic Conjunction Related Challenges of developing countries.**

Increasing the quality of living of the cities depends on the city's traffic congestion (World Bank) (Anthony, 2004). The problem of traffic congestion is increasing day by day and visible as one of the obstacles toward the liveable standards. And the main reason for this traffic problem is the lack of control in the number of vehicles, the lack of adequate space for the parking and the lack of public transportation and mismanagement of roads (Kadi, 2012). In order to deal with the rapidly growing populations of cities, the opportunities in the transport sector that were meant to be created in these cities are not yet reached to that level. In total, these cities could not implement any effective alternative options, which can result into the downsizing of the liveable standards of these cities (Ashraf,2012).

Congestion is most often related with road transport and happens when the capacity of traffic approaches the available capacity. This leads to queuing and this resulting in journey times becoming more longer and more unpredictable. Congestion also exists on the rail network lines with overcrowding rising when the demand for a service approaches more than its capacity. The main impact is on the journey quality rather than delay in time. But this still employs an contrary impact on the economy. According to time of day congestion varies, and it become more crowded during the morning and afternoon time as a result of travel to and from work or school. It is most severe in bigger urban areas and on the strategic routes connecting them together. Road overcrowding is a complex phenomenon. It is also difficult to define and measure exactly. (Royal, 2015)

### **2.3.4. Liveable condition related basic opportunities of developing countries.**

There are some possibility or can find some way out of these problems, many prospects are also visible in the way of increasing the living standards. In these cities, it can be a possibility to increase the living standard of the city proportionately with economic progress through realistic and environment friendly urban planning (Douglass, 2002). Liveable city means that citizens of the city are getting all types of civic amenities like Affordable housing, better neighbourhood, better transportation system etc (Ashraf,2012). Increasing the quality of

living of the fast growing cities of developing countries depends on, the pollution free natural environment, the distribution of employment according to the area, the alternative projects for speeding up the city's transport sector, ensuring all types of civic facilities for all citizens, better planning in the surrounding areas for arrangement of housing, ensuring management of open spaces and social gathering spaces in better way, accepting and implementing the city masterplan with respect for economic and social growth (Stähle, 2016).

Since environmental pollution serves as a hindrance to create a better standard of these cities as a liveable city, there is no alternative without taking measures to prevent environmental pollution in such a city. In that case, the water bodies within these cities can be used, by taking necessary steps to rescue these water bodies from illegal establishment and clean the garbage (ADB, 1993). Air pollution can be prevented by controlling of such vehicles these produce harmful gases and shifting unplanned and unprotected factories of the cities. Planned greenery projects can be adopted in the open spaces within these cities for solving the environmental losses (Ashraf,2012). The fast-growing cities of developing countries can be made more liveable by proper distribution of area-based civic services and facilities (Stähle, 2016). The social gathering spaces within the cities can be organized and accessible to the public, such as parks, theaters, galleries, museums, entertainment venues, cultural venues etc. Historical sites within such a city can be turned into a place for public gathering (Ashraf,2012). Projects to implement proper urban oriented sustainable masterplan. It need to be follow and implemented with strict rules (Douglass, 2002). Through implementing the masterplan of these cities, a better urban environment for trading and business, proper civic facilities and services, nature friendly better social environment, workable speedy public transport system and proper distributed housing areas could be ensured (Ashraf,2012). Bus terminals, launch terminals which creating traffic congestion within these cities, can be relocated elsewhere nearby. Sustainable projects (hydroelectricity, bio-gas, etc.) can be taken to ensure the energy and power supply of these cities (Ashraf,2012).

#### **2.3.5. Housing related opportunities of developing countries.**

Resolving all the challenges related to housing, area for the buildings that will be constructed in the future, may be distributed based on the proper statistics. Through a workable plan for housing challenges, urban areas may be able to handle the burden of the additional population by arranging housing projects with all types of civic facilities in the surrounding areas (Ashraf,2012). On the other hand, newly-built buildings can be built as an environmentally friendly building. Along with this, locally available construction materials can be used to build these buildings. Enhanced open spaces, well organized community spaces

and playgrounds within the areas that will be built in future as housing area, can be ensured (Stähle, 2016). These areas can be a solution to the housing problem, the satellite city to be built in the surrounding area of the city.

#### **2.3.6. Traffic Related opportunities of developing countries.**

In the big cities, the skeleton of the transportation is formed by public transportation. In the developing countries the rate of depending on public transport is quite high among the general population (ADB, 1993). The condition and system of public transport in the cities of the developing countries differs extensively from those of the developed countries. This difference brings different struggles to the situation (UN, 2013). Public transport system in the developed countries can be considered as adequate. At least when compared with the developing countries it is really in the lower side. However, this adequacy is not sufficient enough to attract the car-users to public transport. If we see In the developing countries, the public transport demand is higher amount the people. Yet, there is no existent public transport capacity that will attract the car-users. In this situation, congestion created by the relatively low car ownership comes to forefront and the unfair and illogical sharing of the transport facilities establish the main conflict (ADB, 1993). For example, the cars that use 70% of the roads carry only 20% of the travels, while the buses, which use 4% of the roads can serve as many as almost 35%. Since public transport is weak in structure, this conflict is abided to. Busways are also necessary on certain areas and at certain steps of the demand. However, the priority is given to the cars and the share of the road that are necessary for them are determined first; the remaining portion is then allocated to buses. The problem cannot be solved at all with this approach. On the other hand, at demand values, where rail systems become compulsory, feasibility studies mostly turn out to give negative results not only financially but also economically. The value of time is the reason for this, which has weights of up to 80% among the utilities and it stays at low levels as a source of national income. The main conflict in the developing countries and their cities is that the capacities of busways or especially rail systems which are necessitated by the demand cannot be created over sooner time as there is always delay in this process. Two expected results of this are: - the required and planned transportation support is not given for a strong urban development; The delay compensation resulting from the delay in constructing the high-capacity transportation system rises rapidly and surpasses the investment cost (Evan, 2014).

### **3. Chapter Three: Research Method**

#### **3.1. research design**

In the absence of any established theoretical framework or uniform definition of liveability (VCEC, 2008), the concept is understood and applied in many ways. For example, liveability is broadly defined by van Kamp et al. (2003) as the aspects of the person–environment relationships that make a place comfortable to live in. More specifically, Myers (1987, pp. 108–9) considers liveability as ‘the community’s quality of life which is constructed of the shared characteristics the residents experience in places and the subjective evaluations residents make of those conditions’. Methodologically, the social indicators approach measures and compares quantitatively various objective notions of the quality of life (Sun, 2005). In contrast, the satisfaction approach investigates the individuals’ subjective perceptions about their lives and home environments. The place-based approaches to liveability, nonetheless overcome the constraints of the above two approaches and focus on the shared understanding of the residential environment (Larice, 2005). Place-based approaches incorporate the geographical contexts and fix liveability to locations rather than probing the quality of life in abstract, giving rise to terms such as ‘community’s quality of life’ and ‘urban quality of life’ (Myers, 1987, 1988; Cutter, 1985). As elaborated by Cutter (1985, pp. 1–2), liveability is ‘the measurement of the conditions of the place, how these conditions are experienced and evaluated by individuals and the relative importance of each of these to the individual’. In this context, liveability is argued to be derived from internal housing conditions together with the amenities provided in the associated NGD, plus the lived experience of belonging to an immediate community. For this reason, housing satisfaction measures are extended beyond the dwelling units to include the NGD context (Fincher & Gooder, 2007; Haarhoff et al., 2013). Therefore, Yang (2008, p. 309) sees housing units, NGDs and communities as a ‘nested hierarchy’, which is consistent with Marans & Couper (2000) who express that liveability is experienced at different scales. Thus, in urban form and liveability studies, the experience and views of residents are important, particularly at the NGD level (Bramley & Power, 2009; Dempsey et al., 2012; Larice, 2005). Taking into account of all the above approaches, this study collects three types of information on the liveability of Dhaka’s NGDs, namely: (i) the objective conditions; (ii) how the conditions are experienced by the residents; and (iii) how they are evaluated by the individual residents. Data are subsequently analysed with reference to the benefits and disbenefits of high-density living in sustainability terms. This paper initially collects and analyses the objective and subjective data on the liveability of Dhaka’s NGDs. Although the provision of public transport, community facilities and open spaces is subject to the planning authority’s standards, socio-spatial equity in terms of accessibility to these facilities, sense of community and safety need to be assessed from the residents’ perspectives. Although air quality and environmental sanitation are important aspects of liveability especially in high-

density development, as residents' responses on these issues may be ambiguous, they are not included in this investigation. Also, while the provision of public infrastructure, such as water supply, gas and electricity is important for assessing liveability in developing countries and Dhaka does suffer from the shortage of such provisions, this study does not address these issues because these problems are prevalent throughout the whole city, not only in specific NGDs. For better understanding of liveability, five NGDs of varying density were selected as case study areas. The selection criteria included location, housing form (in terms of high-rise or low-rise buildings, and single-block or cluster form), and most importantly, the influence of planning, that is, whether the NGDs were located in the planned or unplanned areas. The selected NGDs were: Agamasi Lane, Khilgaon Taltola, Monipuripara, Dhanmondi and Sector 6 of Uttara. The latter two are located in planned residential areas and the other three are in the unplanned areas.

### **3.2. Overall view of research method**

In this paper, the author initially wants to introduce the case studies as a method of research. Case study is an explanatory and analytical method for researches on topics with practical and deep observation (Flyvbjerg, 2006). The case study is that research method, which led to gather a research description, through an approach based on topic, area, time, and social situations. By the case study method, it is possible to conclude the research, by deeply analyzing all of the related topics, associated with the particular phenomena in a critical way (Birch, 2012). Every city is surrounded by economic, social and political atmosphere. These elements of city, plays an important role in cities way to urbanization. For that reason, case study methods have become valuable and important process for the research of urbanization in cities from the last few years. Because, through case studies, it is possible to get a deeper analytical description of the context of the city, including proof of present urban condition and life style of citizens (ADB, 1993). When a planner goes to think about urban condition of a city, he has to face many adverse situations in developing schematic idea. He has to work through a deep inspection of the city's overall economic, social and political situation and complex matters related to the place and context. The case study method plays a more workable role than other methods to do such urban-based research (Flyvbjerg, 2006). The case study method can do a lot of analytical and realistic motion, in such kind of research on cities living condition (Birch, 2012).

The purpose of this section is to highlight the challenges and opportunities of the fast-growing city of developing countries. The author wants to introduce the case study as the most workable and effective method of research for this article under the topic of cities liveable condition. In this article, the author has taken Bangladesh's capital Dhaka as an

example of a rapidly expanding city of developing countries and will try to highlight the challenges and prospects in the context of Dhaka through analytical research. The author's intention is that, by deeper analysis on the environment, society, economy and politics of Dhaka, create a real and effective conclusion in making Dhaka more liveable city.

### **3.3. Limitation of research method**

The goal of the study is to formulate recommendations for improving Dhaka's planning system and policy in order to enhance the liveability of Dhaka, by investigating the liveability of the dense urban neighbourhoods. To achieve the goal of this study, three research questions are posed. In order to analyze the density attributes of Dhaka, the research question that needs to be asked first is: "What are the density attributes of Dhaka?" The unique density attributes of Dhaka need to be explored through examining the spatial organization and trends in the distribution of population density and growth, population density in urban area, housing form mix and distance between buildings. The cultural dimension of the residents also requires investigation for understanding their perceptions and acceptability of density. The planning system and policy are examined to identify their role in influencing the high density and liveability of Dhaka. Thus the third research question is: "How have the planning system and policy influenced the density of Dhaka?" The land policy in terms of land tenure system and subdivision law and inheritance law needs to be initially investigated as they are related to development control. Subsequently, the planning system in terms of planning policy, land use planning and planning regulations are to be critically examined. The malpractices in the planning system which deters the implementation of the plans and regulations and leading to uncontrolled densification also have to be ascertained and discussed. A limitation of this research method is that, time shortness and distance. If deep insights are considered on the symmetry of this research method, it is seen that, the authors want to focus on the challenges and prospects of a specific city. Because of using case study method, it may happen that, sometime some part of the challenges and opportunities will depend on assumptions.

### **3.4. Data**

The documents, that the authors want to analyze for a planned and practical research on this topic are:

- Document based data-
- 1. D.A.P - (Detail Area Plan) The master plan of Dhaka City, which is prepared by the Rajdhani Unnoyon Katripokkho (capital development authority) (RAJUK). Currently urban

development of Dhaka city depends on this master plan. Author will collect this document from the website of RAJUK.

- Structure Plans of Dhaka city
- Content Based data-

Observe the living standard of Dhaka, its contextual environment and arrangement civic facilities through

1. statistic data- statistic data of population, area, density, economic condition will collect from the website of statistics bureau of people's republic of Bangladesh and other private organizations (World Bank, Asian Development Bank).
2. Other contents- Photographs, Video graphs, Google Satellite Images will collect from internet-based sources and previous personal collections.

#### **4. Chapter Four: Case Study.**

##### **4.1. General overview of Dhaka.**

Dhaka is the largest city in Bangladesh and enjoys distinct primacy in the national urban hierarchy. The primacy of the city in terms of economic, finance, administrative, health, educational and cultural sphere attracts migrants at the rate of 0.3 to 0.4 million people each year (Khan, 2009; World Bank, 2007) which makes the deteriorating urban environment and liveability more vulnerable. As the core of high economic power, it has always received the greatest share of country's resources. Dhaka's economic importance achieved prominence from the "disproportionately large concentration of industries and various private sector investments" (Islam, 1999; p. 12) with the decline of the role of industry and other non-agricultural activities in the national economy. Administrative headquarters and civil employments, financial and banking services, national and international commerce and business, except port functions, are all largely concentrated in Dhaka. Moreover, health institutions, educational, cultural and research activities are also highly centralized in the capital. In addition, Dhaka being the commercial hub of the city accommodates offices of the large multinational companies as well as corporate offices of local conglomerates. The unique position of being at once the oldest, historically largest, most centrally located, as well as the Capital city, Dhaka has the strongest linkages with its immediate rural hinterland and the rest of the country. In addition to being a permanent destination of migrants, Dhaka also attracts hundreds and thousands of daily commuters and circular migrants from the neighboring rural districts. Between 1996 and 2000, Dhaka's labor force grew by 15 percent compared with seven percent for the country as a whole. The share of formal employment in

Dhaka SMA is much higher than the rest of the country at 51 percent including 14 percent in the public sector and 37 percent in the private sector. For the country as a whole, formal sector employment only reaches 20 percent (World Bank, 2007b). However, many unskilled people who migrate to Dhaka from rural areas for socio-economic opportunities become engaged in informal economic activities.

#### **4.1.1. social, cultural & economical character of Dhaka city.**

According to TIME magazine in 2011, "the newly minted megacity of Dhaka stands as the country's political and business center. The city has increasingly enveloped the surrounding rural towns as each year more than half a million laborers relocate from elsewhere in Bangladesh to the capital. The good news is foreign and domestic investment is bustling, but scientists fear that the city will not be able to support such a population explosion. Dhaka is three times larger than Bangladesh's second largest urban area of Chittagong and is already bursting at the seams. Additionally, the city's precarious location in the low-lying Ganges delta, coupled with a poor drainage system, makes the area prone to flooding during the monsoon. But despite its problems, the city is undeniably where the majority of job opportunities in the country reside — including 75% of the nation's factory jobs. In an attempt to curb the rapid urbanization, the government is in the process of implementing a tax holiday for new constructions outside the city". The Globalization and World Cities Research Network ranks Dhaka as a beta world city. The city is home to the country's monetary authority, the Bangladesh Bank, and the largest stock market, the Dhaka Stock Exchange. The central business district in Motijheel & Dilkusha is the largest in Bangladesh. Other emerging CBDs include Kawran Bazar, Paltan, Mohakhali, Gulshan, Bashundhara, Uttara and Banani. The city has a growing middle class, driving the market for modern consumer and luxury goods. Restaurants, shopping malls and luxury hotels continue to serve as vital elements in the city's economy. The city has historically attracted numerous migrant workers. Hawkers, peddlers, small shops, rickshaw transport, roadside vendors and stalls employ a large segment of the population – rickshaw-drivers alone number as many as 400,000. Half the workforce is employed in household and unorganised labour, while about 800,000 work in the textile industry. The unemployment rate in Dhaka was 23% in 2013. Dhaka has rising congestion and inadequate infrastructure; the national government has recently implemented a policy for rapid urbanization of surrounding areas and beyond by the introduction of a ten-year relief on income tax for new construction of facilities and buildings outside Dhaka. Education, healthcare, engineering and consultancy services are major sectors of city's economy. Administrative and security services are also concentrated in the city. The technologically advanced Bangladeshi pharmaceutical industry is based in Dhaka. Textile manufacturing is the principal export generator, with billions of dollars in revenue

made by factories within and around the city. Leather goods, vegetable oils, electronics and consumer goods are other manufacturing sectors found in Dhaka. The Bangladesh Export Processing Zone Authority's Dhaka EPZ in Savar is an important hub for foreign and local manufacturers. Bangladeshi conglomerates like Beximco operate many industrial parks near the city. The city is home to Bangladeshi banks, telecom companies, media companies and many of its largest conglomerates, including Rahimafrooz, the Pran-RFL Group, Bashundhara Group, Transcom Group, Jamuna Group and Akij Group among others. The Dhaka-based Grameen Bank won the Nobel Peace Prize in 2006. The Metropolitan Chamber of Commerce & Industry is the oldest chamber of commerce in Dhaka, having been established in 1904 in the Port of Narayanganj. The Dhaka Chamber of Commerce & Industry was established in 1958. The Federation of Bangladesh Chambers of Commerce & Industries (FBCCI) is the apex chamber of commerce in both Dhaka and Bangladesh. The Bangladesh International Arbitration Center handles commercial disputes. The Port of Dhaka is one of the busiest river ports in the world. The Port of Pangaon has been developed to cater to ocean-going vessels from the Bay of Bengal. Dhaka hosts the headquarters of the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation.

Tony Bennett & Mike Savage (Bennett and Savage, 2004) has described that the concept of cultural capital has been identified as a crucial axis of social inequality, especially in the internationally renowned work of Bourdieu et.al. (1999). Interest in the significance of cultural capital has proliferated in recent years. It was pronounced that cultural capital was the single most important factor generating the transmission of inherited social position in all western societies. Yet although these debates about the concept of cultural capital have raged for decades in studies of education and social stratification, there remains a surprising lacuna in considering the significance of cultural capital for understanding the nature of cultural citizenship and cultural policy. Whereas an ethnic community as characterized by the emotions and sentiments that bind members together as a collective, and culture as the store of knowledge, practices and experiences held by the ethnic group, which serves as a powerful symbol of its identity. Similarly, identity is a composite of attitudes, feelings and perceptions of the degree of affiliation and belonging to one's own group and/or the larger culture. While a group may possess a core of cultural values, whether or not all members subscribe to these values in the same manner and to the same degree is a different matter; cultural values and actual behaviour are mediated by constraints, opportunities, institutions and socio-economic background. Accordingly, social exclusion involves not only the lack of material resources but also a multidimensional process in which various forms of exclusion are combined: participation in decision making and the political process, access to employment and material resources, and integration into common cultural processes (Byrne,

1999). It means much more than poverty because many exclusions and inequalities are embedded in everyday social interactions, social practices and social discourse (Atkinson, 2000). Socio-cultural interactions are referred as the meetings of people of a community in a certain time, at a certain place and in a certain occasion. Possible reflections of these interactions are religious festivals, family programs, cultural festivals, various national days etc. Whatever the types are the main thing is the interaction and communication among the people. At past in Dhaka it was explicitly reflected by the nature of festivals and the ways in which they are observed. In one hand the number of population was low and intimation of kith-and-keen in a certain place was more. It was resulted as more interactions among them. The major festivals of Dhaka were Eid (the biggest religious festival of Muslims), Muharram (the first day of Arabic Calendar), Durgapuja (the biggest religious festival of Hindus) and Janmashtami (the date of birth of Krishna-Hindu God) at 150 or 200 years ago (Mamun, 1989). These were pervasive in nature. The most attractive part of Janmashtami was the procession with colourful masks, statues and posters. It was so high in pomp and prestige that even people from west Bengal came and joined the parade and fair, arranged in the occasion of Janmashtami (Mamun, 1989). Durgapuja was the most colourful and important religious festival of Dhaka at past. Due to the religious enthusiasm, people went for outing who could afford, the servicemen came back to their home, the zamindars (the land lord) visited their countrymen, there were jatra (local play) and kabigan (poet's face to face competition) arranged in the community. People from all level of the society would participate in the festival. A special interaction was available for the women of the families in the community of old Dhaka in the place of well, where they came for taking water and interact with other women of the society. They exchanged their feelings and various information relating to the families and of their own. Here housing form had an important role in terms of accessibility of women. There was an inner way of communication among the houses. Moreover, Vistee (Rahman, 1991) served drinking water to the each and every houses of the then old Dhaka. There was also an option lies of interacting with each other and outer world of the ambient periphery of the people, particularly women. Pond/river ghats (stoppages) were also important locations of interacting with the people. Besides yearly calendar of festivals, Marriage has always been a useful way of interacting with each other. In Indian sub-continent, marriage is great meeting occasion for the relatives of bride and groom. So far found in Dhaka at past the program is used to be staged in front of houses where an open space named kholan or khuli located. Pennel (Tent) was decorated with colorful clothes; gate was arranged with preferably banana trees etc. This place was the meeting place of the guests, hosts and relatives concerned. When a social problem arises, the honorable persons are responsible for settling this dispute. At past, there were

Panchayats (Hollander and K. M. Azam, 1990) in Dhaka. Mahalla (community) head and some other aged persons constituted the panchayat. It was also a place where interaction occurs among the people of the community. The system was abolished now in Dhaka.

## **4.2. Development History of Dhaka**

### **4.2.1. Basic Challenges**

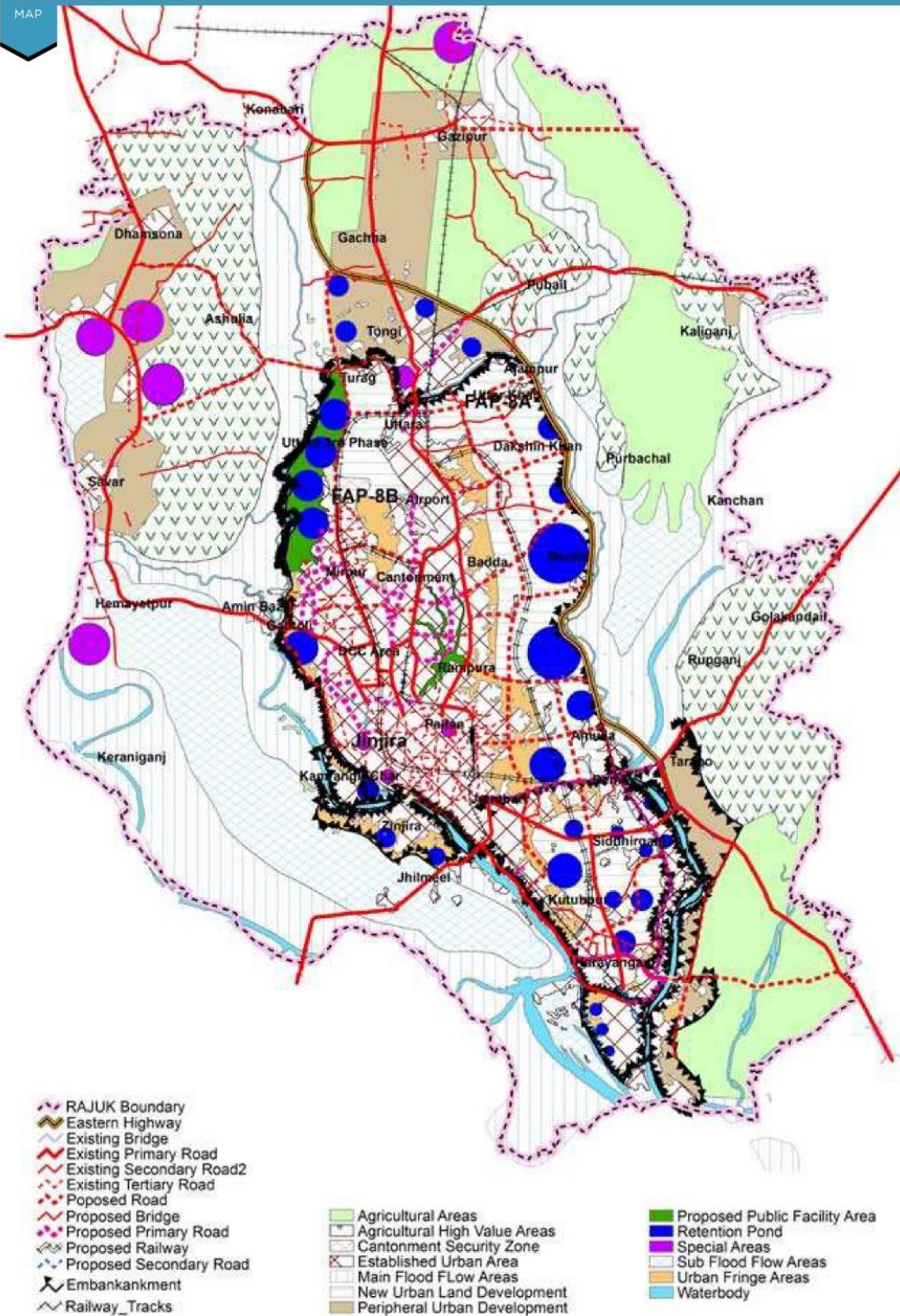
#### **4.2.1.1. Structure Plan 1995-2015**

The plan provides a long-term strategy for the 20 years for the development of the greater Dhaka sub-zone with a population target of 15 million. The plan consists of a written report and policy documents with support maps of appropriate scale. It identifies the order of magnitude and direction of anticipated urban growth and defines a broad set of policies considered necessary to achieve overall plan objectives (Ali, 2013). It considers the micro environmental aspects of Dhaka, both in its existing urban form as well as for future development to keep the city free from all sorts of natural and manmade hazards (BIP, 2016). The plan recognizes the positive and sustainable role of green belts, preservation of high quality wet and agricultural lands and existing rivers in and around the city limits and their continuous upgrading and evaluation and thus recommends for building a circular waterways round the city. The plan also earmarks a number of retention ponds around the city limits for retaining rain water as well as for maintains an ecological balance too and a healthy environment.( GOB, 1995)

The general objectives for the preparation of the Detailed Area Plan

were envisaged as:

- Implement the Structure Plan and the Urban Area Plan policies.
- Guide and control urban development in an orderly manner in preferred areas.
- Create an urban environment where citizens enjoy the services that suit urban living.



DMDP STRUCTURE PLAN (1995-2015)  
**STRATEGIC ZONNING OF DHAKA METROPOLITAN REGION (DMR)**

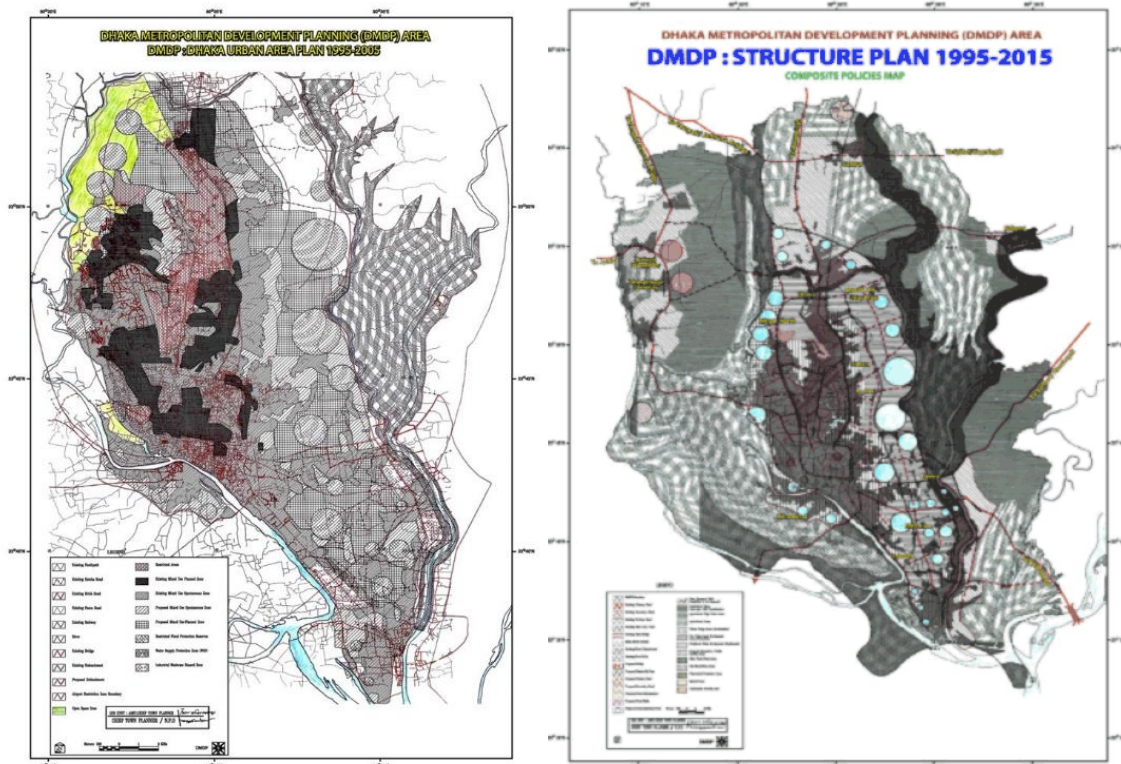
Fig: Dhaka structure plan 1995-2015, Source : GOB,1995

<b>&lt;Plan of a major metropolitan region&gt;</b>	
Name	Dhaka Metropolitan Development Plan and relevant plans (Planning system of Bangladesh is basically three-tiered; Structure Plan, Urban Area Plan and Detailed Area Plan (DAP). These three plans and Dhaka Metropolitan Development Plan are the plans for Dhaka metropolitan area.)
Planning horizon	<ul style="list-style-type: none"> <li>• Dhaka Metropolitan Development Plan: 1995-2015</li> <li>• Dhaka Structure Plan: 1995-2015</li> <li>• Urban Area Plan: 1995-2005</li> <li>• Detailed Area Plan: not being designated</li> </ul>
Establishing body	Capital Development Authority of Bangladesh (Rajdhani Unnayan Kartripakkha: RAJUK) (Establishment process will progress with the support of UNDP)
Legal Placement	Legal base of RAJUK itself are Dhaka Improvement Trust (Allotment of Land) Rule of 1969 and The Town Improvement Act of 1953.
Objectives and development strategies of the plan	<b>&lt;Objectives of Detailed Area Plan&gt;</b> <ul style="list-style-type: none"> <li>• Provision of basic infrastructure and services through systematic plans</li> <li>• Creation of comfortable environment which will enhance economic activities</li> <li>• Improvement of drainage system to protect the area from flood and erosion</li> <li>• Creation of service center(s) that enables urban growth</li> </ul>
Key features of the plan	Through the establishment of Detailed Area Plan, implementation of Structure Plan and others was stimulated by the following measures; <ul style="list-style-type: none"> <li>— Management and dispersion of data in small area-level</li> <li>— Formulation of programs for multidiscipline investment plan</li> <li>— Development control in private sector and clear identification of such control toward inhabitants and investors</li> <li>— Guideline of opportunities and restrictions among development</li> <li>— Environmental protection</li> </ul>

\*Source : GOB,1995

#### 4.3.1.2. Urban Area Plan 1995-2005

The plan provides a long-term strategy for the 20 years for the development of the greater Dhaka sub-zone with a population target of 15 million. The plan consists of a written report and policy documents with support maps of appropriate scale (BIP, 2016). It identifies the order of magnitude and direction of anticipated urban growth and defines a broad set of policies considered necessary to achieve overall plan objectives. It considers the micro environmental aspects of Dhaka, both in its existing urban form as well as for future development to keep the city free from all sorts of natural and manmade hazards (Ali, 2013). The plan recognizes the positive and sustainable role of green belts, preservation of high quality wet and agricultural lands and existing rivers in and around the city limits and their continuous upgrading and evaluation and thus recommends for building a circular waterways round the city. The plan also earmarks a number of retention ponds around the city limits for retaining rain water as well as for maintains an ecological balance too and a healthy environment.



\*Urban Area Plan 1995-2005, Source: GOB, 1995

#### Objectives of Detailed Area Plan

- Provision of basic infrastructure and services through systematic plans
- Creation of comfortable environment which will enhance economic activities
- Improvement of drainage system to protect the area from flood and erosion
- Creation of service center(s) that enables urban growth

The importance of getting the DAP planning process right is underscored by serious environmental problems already affecting Dhaka and its surrounds. The growth within the already developed areas has taken place in a random manner, sometimes in contravention of existin development control legislation or by using loopholes in the legislation. As a result, land resources within the city have been put under stress, wetlands within the city have become filled up and drainage channels have been obstructed in favour of unplanned development. This skewed development pattern has put the urban services under severe stress resulting in significant strain on environmental resources (Ali, 2013). With decreasing scope for inner city growth, large areas in the environmentally sensitive fringe zone are being targeted as they have been marked for development in the Structure Plan. Such areas have also seen an increase in land prices as a result of speculation and land grabbing, making it difficult to accommodate poor and vulnerable sections of the society in these areas. Indiscriminate landfilling is already leading to loss of natural drainage channels and

sink areas that increase the vulnerability to flooding. Also the river systems and the water bodies in the Dhaka Watershed are so contaminated by discharge of industrial effluents and untreated sewage that it cannot be treated to potable standards. The role of the DAP lies in initiating a dialogue with industry and a process to identify locations for future industries. As surface water cannot be used to supply drinking water, DWASA has become increasingly reliant on abstracting groundwater (Ali, 2013) . As the supply is unable to meet the growing demand, there has been an increase in number of privately owned tube wells. Local authorities outside DWASA area are also dependent on groundwater. Continued abstraction over a long period could lead to contamination of groundwater. RAJUK and DAP have no say in DWASA's Master Plan. Furthermore, DWASA has made no provisions in its plan to supply the slums areas. At present the sewage network infrastructure being planned by DWASA only takes into account the existing urbanised areas. There are no systematic plans to set up a network in the developing and fringe areas which are marked for future development. In addition, the five new Sewage Treatment Plants that are being proposed as part of DWASA's Master Plan do not consider additional sewage coming in from developing or fringe areas. As a result, with new areas becoming urbanized, there will be continued discharge of untreated sewage resulting in continued pollution of the surface water resources in and around the city (Star, 2015).

#### **4.2.2. Housing related Challenges.**

##### **4.2.2.1. Structure Plan 1995-2015.**

Dhaka is one of the most densely populated mega city in the world. Now it has more than 1.7 crore people are living in this city. Housing problem is the acute problem of this city. Though there is no lack of problem like traffic jam, mosquito, frequent electricity distraction, polluted water, irregularity in charges of services like electricity and gas. A crowded people rush to the city every day from different place of the country. They think if it would get a work opportunity in there. In a report it shows that 70% of the total people of this city have to squeeze in 20% of its land. They are mostly belongs to the lower income bracket (Ali, 2013). The upper income people constitute only 2% of total population and occupied 15% of its area. Who lives hand to mouth they have to take shelter in slum. Because poor people cannot provide their housing cost. So, they meet their demand living as a slum dweller. Some private real estate company are trying to meet the demand of people. But those are not enough. Sometimes they are not reliable to the people. By selling land it might be caused lots of deception. On the other hand living is very costly here. Land owner impose high rent. After paying for daily necessary it is tough to pay hugely for house rent. Job is limited but people are increasing leaps and bounds. Times to times we see government

takes lots of plan but implementation of this plans are slightly visible. But we can see the light of hope that the mayor of two City Corporation has taken some steps. They both are very cordial to implement the steps. Though these steps are not so adequate. We hope government would take necessary steps to remove this problem. Formal housing is constructed following the building codes and standards enforced by the national housing authorities, whereas informal housing is built defying minimum standards of housing regulations. Lack of tenure security is a key characteristic of informal settlements. According to UN-Habitat (2007), the total urban population in the world exceeded the rural population, indicating that we have passed a significant threshold into an 'urban age'. However, the future growth of the urban population continues to be mainly located in developing countries, or more precisely in their slums. It is estimated that by 2020 the world slum population will reach 1.4 billion (UN, 2006, 2007). An estimated 20–40 per cent of all urban HHs in developing countries are living on land to which neither they nor their landlords have legal title (Malpezzi, 1990). Due to such tenure problem, property transactions are slow or stalled; incentives for new construction and upgrading are depressed; lenders are unwilling to extend credit for property holders without clear title; and property taxation is impeded. These are one of the reasons why the lands occupied by slums are not easy to be upgraded. Many cities have master plans prescribing directions of urban growth, but these plans rarely are realized and languish in metropolitan planning office as irrelevant document (Brennan and Harry, 1989). The problem with these rules is that their implementation is time-consuming and gives opportunities for corruption. Large disparities have emerged as poverty has urbanized. Over 200 million people live in poverty in Asian cities and many more are vulnerable to economic and environmental shocks (Lindfield, 2010). According to Pugh (2000), developing countries have three types of housing development systems; formal, informal and organic. Formal developments have the legal basis of the planning agency. These are developed within the structure of government rules, controls and regulations. Informal housing development is illegal and consisted of unauthorized 'colonies and squatter settlements'. These types of developments happen mostly because of unaffordability or sometimes unavailability of housing in legal housing market. The significant characteristics of informal development are insecurity of tenure and low standard of facilities and infrastructure. Natural gas and electric connection for HH use (90 per cent) in slums possess potential fire hazards (6.1 per cent) and each year over hundreds of people in slums are dislodged by fires (Centre for Urban Studies, 2006). These slums often become a safe heaven for criminals and results in violence centering from uses of drugs. Dhaka's rapid growth, large size, topography, environmental conditions and problems of governance exacerbate already complex land and housing issues for the

disadvantaged poor (Ali, 2013). The number of slum dwellers is projected to grow to 8 million over the next decade. With this growth, policymakers including central and local government officials will need to address land and housing as a top priority.

The ever-increasing urban migration and industrial expansion including garments factories within the Dhaka city has created a serious housing shortage. The imbalance between the total number of HHs and the total housing stock is often referred to as the great housing shortage in Dhaka. The growth of dwelling stock was inadequate to cope with the increasing population and the intensifying housing need in Dhaka. The Bangladesh Bureau of Statistics (BBS) has categorized urban housing types into cement/brick, cor-rugated iron/metal sheet, mud/unburnt brick, straw/bamboo (Ali, 2013). Eightynine per cent of poor HHs in Dhaka live in one-roomed homes of the latter types. In the densely populated slums of Dhaka, the floor area per person is as small as 1.2 m<sup>2</sup>.

#### **4.2.2.2. Urban Area Plan 1995-2005.**

The size and organization of the dwelling space and internal dwelling condition and residents' satisfaction in this regard are argued to influence the perception of liveability especially in a dense urban environment (Chiu, 2003). Due to the high population growth, densification occurred throughout Dhaka. Unsurprisingly, the survey found that the respondent of the unplanned NGDs were more dissatisfied with the internal usable space than those living in the planned areas. The survey data revealed that in terms of dwelling size, more than 90% of the flats in both Dhanmondi and Uttara, NGDs in the planned areas, were over 92 sq. m. The planned residential areas of Dhaka were developed by the Public Works Department (PWD) in the 1950s and later by the Capital Development Authority (RAJUK). Although initially the plots were bigger in size, they were gradually subdivided into smaller plots. To limit further subdivision of the plots in the planned residential areas, restrictions were imposed. Nonetheless, in the unplanned areas, no such restriction was applied to confine the subdivision of plots (Interview with a planning official of RAJUK; July 5 2011). However, as a response to market demand, the buildings became higher and dwelling units had become smaller. Consequently, more than 60% of the flats in Agamasi Lane and Khilgaon Taltola and 40% of the flats in Monipuripara of the unplanned area had size below 92 sq. m. In terms of housing tenure, more than 50% of the respondents own their flats in Dhanmondi and Agamasi Lane which were contrary to the rest of the NGDs. When asked about the problems regarding internal dwelling conditions, about one-third of the respondents of Dhanmondi and Uttara replied that the design was poor. In Khilgaon Taltola, due to its location in the suburban area, most of the buildings were constructed by the landowners resulting in poor housing design and small dwelling unit. Unlike Khilgaon

Taltola, however, the buildings of Monipuripara, a NGD in central city with good connectivity; were developed and redeveloped by both the landowners and the private developers. The comparatively better design of the dwellings resulted in residents' higher satisfaction (61%) in Monipuripara with the internal usable space than those of Khilgaon Taltola (Ali, 2013). In general, the residents of Dhanmondi and Uttara were more satisfied about the dwelling space than the NGDs of the unplanned areas. Owners and the respondents with the shorter residency were more satisfied than their counterparts. The satisfaction with the dwelling space varied according to gender and occupation pattern. Among all the NGDs in the study, the lowest satisfaction score (2.7 out of 5) related to dwelling space was observed in Agamasi Lane, the mixed use NGD with extremely high density, small dwelling sizes and shortage of facilities (BIP, 2016). The very small flats with poor quality of design and the average size of the household (five persons) higher than the district average (4.2 persons) (BBS, 2011) worsened the situation inside the flat and provoked a strong feeling of crowdedness. In terms of tenancy, the owners were more satisfied than the tenants. The high rent in Dhaka, indicated by a rent-to-income ratio of 69% among the middle income families (Sadeque, 2013) might be the reason for renters to live in lower quality houses than their aspiration. However, it is surprising to find that the longer the residency period of the respondents, the less satisfied they became. The lack of modern facilities in older dwelling units and the general neglect of building refurbishment might be the reasons. In fact, in Dhaka, it has not been a practice to refurbish older buildings (Ali, 2013). In terms of occupation, the persons involved in full-time employment showed the highest mean value of satisfaction followed by that of the housewives. Female respondents, about 40% of them were women, generally showed higher satisfaction (62%) than males (57%). Overall, although densification leads to smaller dwelling sizes, better design and arrangement of facilities inside the dwellings could have improved liveability.

#### **4.2.3. Traffic related Challenges**

##### **4.2.3.1. Structure Plan 1995-2015**

Dhaka city had its first Master Plan when it was a province of Pakistan in 1959. But besides 3 or 4 exceptions, nothing was implemented from that master plan because of the political instability. Later after the independence, there were couples of Structure Plans, 2 year to 5-year plans. But it is a very common incident that people and also the authority do not follow those plans always (Amin, 1982). New developments are always taking place in Dhaka City without any coherent road system. More than 3000 big and small shopping centers have mushroomed on the main roads from the last 8/10 years. Lack of minimum required road structure and disproportionate road width comparing to the traffic load. Dhaka City has very

inadequate road networks, which are only 8 or 10 percent of the total city area, whereas the acceptable ratio is 25 percent (Ali, 2013). Greater Dhaka has a total road network of approximately 2230km of which 25% are primary roads. The width of the roads varies from 6 to 40 m. The main roads are 15 to 25 m wide, newly built roads are 40 m wide while the roads in the older part of Dhaka are less than 6 m wide. Dhaka Metropolitan Development Plan (DMDP) has shown that the road hierarchy of Dhaka city is incomplete and in some major developed areas there is no road hierarchy. Old Dhaka and some other places of the city have major access problems and it will likely worsen as development intensifies. One of the main problems of Dhaka city is its very limited Public Transport System. Bangladesh Road Transport Corporation [BRTC] is no more subsidized as it became private in 1993. Now, 90% of this corporation is in private sector and 10% in government sector (Ali, 2013). Before being privatized, the yearly loss of BRTC in the year 1991, '92 and '93, was almost Tk100000 – 200000 [US\$ 1960 – 3920]. Now, in private sector the yearly turnover is Tk50000000 [US\$ 980392].(modern-civilization/report-on-traffic-congestion-in-dhaka-city) Moreover The existing “intercity rail line” passes through the four important Central Business Districts and a number of important and busy roads of Dhaka City. When a train passes, lots of vehicles have to wait near the rail crossing, which causes serious traffic congestion at the interval of every 15 minutes as an average (BIP, 2016). Most of the new shopping centers or commercial buildings do not have adequate parking facilities. People have to park on the roads, which ultimately narrow down the effective width of the roads to a great extent. Before the approval, many building projects show that they will provide parking facility in the basement. But after getting the authorization to construct a project, the builders or owners usually do not follow the proposed plan properly (star, 2015). Everyday at least one or two street processions or protests occur in Dhaka because of the all-time political instability of Bangladesh. These processions slow down the traffic flow of the important streets during the peak hour. As it was said before, the people of Dhaka City usually do not follow the traffic rules if there is no police on the roads. The existing number of policemen of Dhaka City is only 1561 [1999 data]. If we compare this data with that of Delhi, which has almost the same volume of population, we will see that Delhi has more efficient force with 12000 policemen. ((Amin, 1982))

#### **4.2.3.2. Urban Area Plan 1995-2005**

Dhaka city experiences the rise of scattered development without appropriate monitoring within a glimpse of last few decades which resulted in huge urban transport system difficulties. Weak transportation system has noticeably affecting the physical form and functional performance of the city. Only 9% of roadways and 6% of pavement area are available, in which 62 km functional primary, 108 km secondary and 221 km connector road

serve the city road network (Mahmud et. al., 2008). Meanwhile road is 16% of total city area in Tokyo and 25% of total area in majority of other developed cities. Therefore, in Dhaka, poor infrastructure is progressively worsening the roadway environment, reducing mobility and deteriorating performance of overall traffic system. Dhaka, being the hub of political, commercial and cultural activities of Bangladesh and the nation's gateway, has now been announced as 26th Mega City and 10th most populous city of the world (Habib et. al., 2005). The population is expected to further grow to about 20 million by 2020 and to 25 million by 2025 (STP, 2005). With ever increasing travel demand, it is now an uphill task to balance the present travel demand and make the transport network sustainable. Vehicles plying on the road are one of the worst sufferers of current situation. Prevailing hostile roadway environment is a consequence of recent surprising growth rate of fragmented ownership of vehicle. Public transport system has failed to offer most of its lucrative features for presence of higher volumetric share of small vehicles. In the year 2012, according to statistical report of Bangladesh Road Transport Authority (BRTA), 73.33% of the total number of registered vehicle in Dhaka is small private vehicles (private car and motor cycle), while public vehicle (bus, minibus) is only 1.65% of the total newly registered vehicle. Undoubtedly, due to the excess presence of small vehicle and serious scarcity of resources, traffic stop-and-go situation dominates in Dhaka city. Here traffic phenomena are far complex with excessive interruptions than other developed or developing cities (Ali, 2013). The objective of this research was to glean information on the causes of interruption of traffic flow during peak hours in Dhaka city (BIP, 2016). This research also includes specified quantification of total number of interruptions. Based on the research outcome, justification of the possibility of attaining traffic smooth flow in Dhaka city is performed later. (Lecturer, Department of Civil Engineering, Azimur Rahman School of Engineering Presidency University, Dhaka, Bangladesh.) In Dhaka, traffic stop-and-go situation predominates on road (BIP, 2016). The research was conducted mainly to investigate the possibility of achieving smooth flow in Dhaka city. Hence, number of interruption along the study routes was quantified to verify the extent of traffic stop-and-go situation. To make the estimates consistent for a particular vehicle during one week, studies were commenced at both week-days and week-ends. Thus the number of interruption data are collected for three categories of vehicle and presented in Table 1.

Table 1: Total number of interruptions of vehicle flow for study route

<i>Vehicle Category</i>	<i>Travel Distance</i>	<i>Free Flow</i>	<i>Peak Hour Flow Condition</i>						
			<i>Typical Working Day</i>					<i>Typical off-day</i>	
			<i>Sunday</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>	<i>Saturday</i>
Local bus	7.2 km (4.47 mile)	24	113	110	121	88	118	55	73
Human hauler	5.6 km (3.49 mile)	33	201	101	139	113	143	86	106
Passenger car	7.2 km (4.47 mile)	10	110	99	67	138	65	33	49

From the above Table 1, weekly pattern of the total number of interruptions for three different number of vehicle categories can be viewed explicitly. It is observed that day by day variations of interruption number do not follow any linear or regular pattern throughout the week. It depends on the complex variables of both geometric and operational conditions prevailing on road, driver behaviour, road side non-motor activities, random pedestrian movements etc. During morning free flow condition, minimum number of interruption was observed. For personalized passenger car, brake application was lowest among three vehicle categories for almost every day (BIP, 2016). Disruption of flow was only 10 during free flow for private car. Significant increase of application of brake for car was enlisted during weekly peak hour flow, up to 13 times of interruptions during free flow condition. Wednesday is the closing day for local shopping malls; hence number of interruption was relatively lower for local bus and human haulers. Significant observation in the study is the noticeable number of interruptions during off-days. Moreover among the two off days, interruption occurred higher in Saturday. This signifies the increase of road user activity in Saturday than Friday. Only factors causing minimum 2% of total average interruptions of vehicular flow along a week was considered (Ali, 2013).

#### 4.2.4. Opportunities of Structure Plans

##### 4.2.4.1. Housing Related Opportunities

Bangladesh needs reforms in the field of housing finance to cope with the growing demand. Reforms should improve regulatory enforcement and property registration, prudential norms customized to housing finance, legal framework for safeguarding customers, improved availability of housing and mortgage information. In addition, policy interventions are needed as shown in Figure 1:

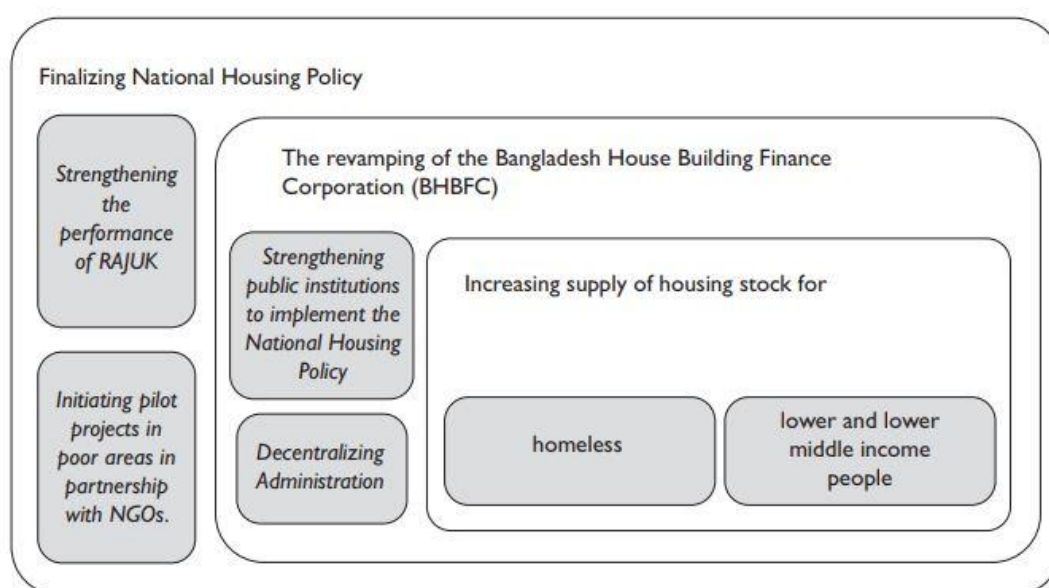


Figure 1. Policy Interventions for Finalizing National Housing

\*Source: GOB,1995

This is a priority for any sustainable improvements for the urban poor. Destruction of squatter settlements should be limited to necessary actions of redevelopment or infrastructure building and should be accompanied by relocation plans for evicted squatters. If the National Housing Authority continues to be the overseer of the National Housing Strategy, it would be more effective if they focus on a policy and regulatory role rather than implementing housing projects (BIP, 2016). The promotion of long-term financing facility and a national savings scheme for housing should be introduced. There should be a coordination between DCC, RAJUK—the planning authority, concerned ministries and utility agencies in urban projects, while administrative procedures should be decentralized to ensure transparency in the implementation of the housing projects (BIP, 2016). Private sector should be given responsibility to construct housing units for medium or high income HHs while low-income housing projects could be done by a specific entity, as RAJUK failed to

focus on the housing for the poor. (Environment and Urbanization Asia, 5, 1 (2014): 175–184)

#### **4.2.4.2. Traffic Related Opportunities.**

It is very tough to build new roads or to expand the width of the existing roads, as the city is too much congested. At this moment if we think about the supply of new roads or to improve them, we probably have to think to go vertically. We can build highways and over bridges to face the land constraint problem. As it is described earlier that the existing rail line makes a great impact on traffic congestion. We can change the location of Kamalapur Railway Station from Kamalapur to somewhere near the Zia International Airport. If we can do this, we can avoid the traffic congestion it creates every day at the interval of every 10/ 15 minutes. We have to think that building Subway is not the ultimate solution. In many developed cities [ex-New York City] or undeveloped cities [ex-Calcutta City] have subway system, but they also have severe traffic congestion problem. Still, a subway can attract many people of Dhaka City to use the public transport. The most important or crucial thing is to decide a suitable route for Subway. A proposal can be provided for the Subway route (Star, 2015). If we can shift the Dhaka Railway Station from Kamalapur to somewhere near Uttara, we can combine the above two design strategies and make an effective plan. The map shows that the existing rail line passes through or near the main four CBDs of Dhaka City: Motijheel, Kawran Bazar, Mohakhali and Uttara. It could be the most appropriate Subway route also. As we have already got the land [under the Railway Authority], we will not need to acquire any new land or demolish any legal structure. We can build the subway track under the ground and can use the ground level as a main road or a highway, which will be solely for the motorized vehicles. It will work as a parallel road to the Kazi Nazrul Islam Road [Old Airport road] and can share the traffic load. One very important question may arise about the Subway (BIP, 2016). Is it feasible both economically and technically to build a Subway system in Dhaka? Although Bangladesh Government will hopefully receive both types of help from different countries, we have to think about the future impact of the loan we will take from the other countries. Which one will be more feasible? A underground rail track or an elevated rail track? We have to do an in-depth feasibility study about this issue.( star, 2015)

#### **4.2.5. Detailed Area Plan**

The general objectives of DAP are to implement the provisions of the DMDP Structure Plan (SP) and Urban Area Plan (UAP) policies and recommendations. The preparation of DAP is to be based on detailed surveys, studies and analysis of the study area. The DAP process

are to be prepared and implemented through community participation to make the planning more people oriented. The provision of DAP is inherent in the Structure Plan with some specific purposes. These are:

- Provide basic infrastructure and services in the study area through systematic planning.
- Create congenial environment to promote economic activities.
- Improve drainage system of the area and protect flood flow from encroachment.
- Create service centers to enable urban growth.

The detailed area map of Dhaka 2010 is given below-



The Detailed Area Plan is the outcome of last several years of extensive activities related to the preparation of physical plan of Dhaka, marks the completion of the process undertaken in early nineties by the Rajdhani Unnayan Kartripakkha with the assistance of UNDP and UNCHS. Preparation of Dhaka Metropolitan Development Plan (DMDP) under the project 'Preparation of Structure Plan (SP), Urban Area Plan (UAP) and Detailed Area Plan (DAP)- Metropolitan Development Plan Preparation and Management in Dhaka' (UNDP No. BGD/88/052 and TAPP No. TA/BGD/88-052) was started in 1992. DMDP is a three-tier plan package of which first two tiers (Structure Plan and Urban Area Plan) were completed during 1992-1995 by the joint team of Consultants from home and abroad and counterpart experts employed by the RAJUK. RAJUK's jurisdiction covers an area of approximately 590 sq. miles comprising of 26 Strategic Planning Zones (SPZ). For the preparation of Detailed Area Plan (DAP), the total area of RAJUK jurisdiction has been divided into five separate Groups and several locations. Group-A is a part of that distribution. The project area of Group-A is situated on the north east part of the Dhaka City with a gross area of 1,10,052 acres, consisting of four SPZs (SPZ 14, SPZ 14.5, SPZ 15, SPZ 19) including two Pourashavas named Tongi and Gazipur and surrounding rural settlement including flood plain areas of Balu, Sitalakkhya and Brahmaputra Rivers. A planned neighbourhood named Purbachal New Town is being established by RAJUK which is also located in Group-A (BIP, 2016). The Report contains seven Chapters describing sequentially the Background of the project, Critical Planning Issues influences the plan preparation process, Development Plan Proposals, Plan Implementation Procedures and Follow-up Actions required for the implementation of the plan, and lastly, Conclusion. The Background section (Chapter-1) presented a brief description of the project objectives, brief background and purpose of the project as per the prescribed Terms of Reference. It is stated that the Plan has been prepared on the basis of Section 73 of the Town Improvement Act (TI Act), 1953 which empowers RAJUK to prepare Landuse Plan for areas within its jurisdictions and it also designates RAJUK as the custodian of the Plan. Chapter-1 also describes the salient features of the higher level plans: Dacca Master Plan of 1959, Dhaka Metropolitan Area Integrated Urban Development Project, DMDP Structure Plan and Urban Area Plan. It also presents a brief description of the study area. The 1st chapter ends with an analysis of the outcome of the Public Hearing on the Draft Final Plan. From the analysis, it has been observed that most of the respondents are against wider roads. It has been observed that the affected people do not want to be evicted even against compensation but prefers resettlement. Chapter-2 describes critical issues that have direct bearing on the plan preparation process. It provides an analysis of the existing urbanization process and its in-built problems, utility provisions, description of infrastructure, geo-physical condition and the

problems of the area. This chapter ends with a list of projects undertaken for the study area by different line agencies of the government as well as those wished by the stakeholders. Development Plan Proposals are explained in Chapter-3 and describes the policy framework as provided in the higher level plans. Again, the chapter deals with the planning principles, standards and general development strategies adopted in the plan. Strategies are described under broad heads like drainage, residential development, industrial development, mixed use development, transport and connectivity, Flood Flow Zone, water body and open spaces, amenities and community facilities, environmental management and support to hinterland. Infrastructure proposals are grouped into proposals for Transport facilities, Utility Services and Drainage. Transportation proposals provide a network of road system ensuring sustainable development for the plan period and beyond (BIP, 2016). About 215 new roads are proposed so that they will be able to adequately handle the trips projected to be generated in the study area. The roads of various widths were proposed to maintain hierarchy and corresponding road sections are also provided. Road section includes adequate space for pedestrian use and utility provision. For convenience of description, the study area has divided into ten Detailed Planning Zones (DPZ), each of which has elaborated with a map. According to Detailed Planning Zone, landuse has been proposed in Chapter-3. At the end of this chapter, an Integrated Plan has been presented. Chapter-4 deals with priorities and phasing of the plan implementation. DMDP Structure Plan phasing was adopted for such design. The DMDP phases are: (i) Short-term, (ii) Medium-term and (iii) Long-term. In DAP, short-term considered as Phase-I, likewise Medium-term as Phase-II and Long-term as Phase-III. As such the Phase-I covers 2007- 2010 period, Phase-II covers 2011-2015 and Phase-III extends beyond the plan period. In prioritizing various uses, stakeholders' desire has been taken into account. Road priority fixed on the basis of need. Then landuse classification, their special functions, principal use and accessory uses have been defined in this chapter. The proposed Landuse Zones are: Urban Residential Zone, Rural Settlement Zone, Commercial Zone, Industrial Zone, Mixed use Zone, Flood Flow Zone, etc. This chapter also describes the landuse control procedures. Three-tier permit procedure has been proposed in this chapter. In the first tier, it will be the function of Landuse Permit Planner (LPP), at the mid level Landuse Permit Committee (LPC) and at the top level Nagar Unnayan Committee. Landuse permit procedure has explained through a flow diagram. For each category of landuse zone, there are certain uses which are their permitted uses and clearance for those uses can be obtained at the first-tier. For uses under conditional use, it will be the function of second tier. If anyone wants approval for new use or conditional use of that zone, it will be the function of third-tier. However, if anyone is not satisfied with the decision of any tier, he can approach to the next tier for mitigation and

finally up to the Court. Chapter-5 deals with the project plan. The specific projects needed as an Action Area plan and prescribed by the Consultants are incorporated here. Approximate project cost has been calculated according to the project. The foremost of the actions is strengthening of RAJUK's capacity to perform its development control functions properly all over its jurisdiction. Plan implementation needs people's participation, especially in land development projects. The Consultants strongly feel that successful implementation of the DAP depends on the Action Area Plans to be undertaken by RAJUK after the Detailed Area Plan comes in force. In the Detailed Area Plan, Group-A area was considered as the extension of Dhaka's core area within the year 2015. The outlined area has been planned as Growth Center concept prescribed in the DMDP Structure Plan. Those Growth Centers are Tongi, Gazipur, Kaliganj, Rupganj, Pubail, Purbachal and Sitalakkha. It is considered that, within the year 2015, some of those Growth Centers will be developed as industrial center. At present, the Rupganj, part of Kaliganj and Pubail are in agriculturally developed and industrial developments are concentrated in Tongi, centre of Kaliganj and eastern part of Sitalakkha River. The Gazipur is known as restricted area and educational centers. The concept presented in the DMDP Structure Plan is also considered for the preparation of Detailed Area Plan.

### **4.3. Challenges of Dhaka**

#### **4.3.1. Basic Challenges**

The importance of getting the DAP planning process right is underscored by serious environmental problems already affecting Dhaka and its surrounds. The growth within the already developed areas has taken place in a random manner, sometimes in contravention of existing development control legislation or by using loopholes in the legislation. As a result, land resources within the city have been put under stress, wetlands within the city have become filled up and drainage channels have been obstructed in favour of unplanned development. This skewed development pattern has put the urban services under severe stress resulting in significant strain on environmental resources. With decreasing scope for inner city growth, large areas in the environmentally sensitive fringe zone are being targeted as they have been marked for development in the Structure Plan. Such areas have also seen an increase in land prices as a result of speculation and land grabbing, making it difficult to accommodate poor and vulnerable sections of the society in these areas. Indiscriminate landfilling is already leading to loss of natural drainage channels and sink areas that increase the vulnerability to flooding. Also the river systems and the water bodies in the Dhaka Watershed are so contaminated by discharge of industrial effluents and untreated sewage that it cannot be treated to potable standards. The role of the DAP lies in

initiating a dialogue with industry and a process to identify locations for future industries. As surface water cannot be used to supply drinking water, DWASA has become increasingly reliant on abstracting groundwater. As the supply is unable to meet the growing demand, there has been an increase in number of privately owned tube wells. Local authorities outside DWASA area are also dependent on groundwater. Continued abstraction over a long period could lead to contamination of groundwater. RAJUK and DAP have no say in DWASA's Master Plan. Furthermore, DWASA has made no provisions in its plan to supply the slums areas. At present the sewage network infrastructure being planned by DWASA only takes into account the existing urbanised areas. There are no systematic plans to set up a network in the developing and fringe areas which are marked for future development. In addition, the five new Sewage Treatment Plants that are being proposed as part of DWASA's Master Plan do not consider additional sewage coming in from developing or fringe areas. As a result, with new areas becoming urbanized, there will be continued discharge of untreated sewage resulting in continued pollution of the surface water resources in and around the city.( SENES Consultants Limited 34445 –Final – Aug 2007) . More than 4 million people in Dhaka live in slums and squatter settlements without secure tenure and under frequent threat of eviction. Almost 80% of the households in these settlements pay rent (Islam et al 2006). Additionally several hundred thousand are homeless, or 'floating' - dwelling on the streets, railway and bus stations, under bridges, etc. Given the minimal efforts by the government to provide even the most basic infrastructure and services, let alone enforce policies to protect basic rights of residents, these settlements are managed by local 'mafia' thugs (mastaans). These mastaans act as informal landlords – collecting rents and exorbitant fees for basic services. Even though the land belongs to the government or private owners, they receive very little if any of this substantial 'informal revenue' since the mastaans rely on political patronage and camaraderie with police, often through bribes, to protect their 'business' of exacting 'rents' and 'fees' for basic services and pocketing the proceeds. This informal structure of extortion and crime is widespread and maintains the status quo in Dhaka's slums. The mastaans also maintain close relationships with political and party leaders and help them to extort votes from the urban poor. Government interventions in Dhaka's slums have focused on evictions to clear government or private land for 'development' purposes, offering little if any recourse to those evicted. For example, in April 2012, a major slum eviction was carried out in Korail, one of the largest slums in Dhaka, where more than 2,000 houses were demolished (Subramanian and May 2012). This highly politicised and conflictladen manipulation of Dhaka's slum population, combined with the overall absence of secure tenure, not only deters investments by the slum dwellers to improve their housing and living conditions, but also limits NGO investments in

slum upgrading, since such investments run a risk of being destroyed in slum 'clearance' drives. The result is that the urban poor live under a constant threat of eviction, left to fend for themselves in an environment of crime, violence and anarchy controlled by the mastaans. Even in the few areas where poor households have legal landownership, since their rights are seldom protected and they are increasingly under pressure from real estate developers, they fear loss of property because of complications in land administration and hence do not feel motivated to invest in housing improvements (Shafi and Payne 2007). As a result the housing in Dhaka's slums consist of poor quality structures and are densely crowded with more than 95% of the houses (one room dwellings) less than 14 square metres. In some slums there are more than 250,000 persons per square kilometre (Islam et al 2006). Even the most basic public infrastructure is often non-existent, lacking clean water, sanitation and drainage, and subject to frequent flooding and water-logging. These factors, combined with high densities and inadequate healthcare, create serious health risks for slum dwellers, often impacting on their livelihoods, as well as posing risks for the wider urban community. Water and sanitation are key issues in informal settlements. The main provider is the governmental Dhaka Water Supply and Sanitation Authority (DWASA), but it does not supply water directly to slum settlements because of 'illegal' tenure. Nonetheless the dwellers of these settlements often rely on DWASA's piped water supply from remote public standpipes, where mainly women queue from very early in the morning to collect water for household use. There are also some private hand-pumps charging high rates. A large proportion of the urban poor obtain water from illegal connections to DWASA supply, often controlled by mastaans who charge extortionate amounts. Electricity connections in most slum settlements similarly consist of illegal pirate hook-ups from the main grid of the governmental Dhaka Electric Supply Authority (DESA). Most of the urban poor tend to use unhygienic latrines or shared sanitary latrines, resulting in a public health hazard. Dhaka City Corporation (DCC) is responsible for surface drainage, non-sewered sanitation and solid waste disposal throughout the city, but its role in slums is minimal. It is common to find garbage heaps on the periphery of slums, ignored by DCC, and posing a health hazard. (Procedia Economics and Finance 18 ( 2014 ) 745 – 753)

#### **4.3.2. Housing related challenges**

The high price of land in Dhaka acts as a prohibitive factor in the supply of housing to all but the highest-income groups. On account of high price of land, lower middle-class HHs, who are actually majority in cities, are virtually kept out of the land market. The public sector's contribution is too insignificant and government's policy is to act as an enabler in order to increase access to land and other supporting facilities especially for low and middle-income groups. Therefore, the construction of housing will generally be left to the private sector and

the people themselves. The private housing market is dominated by small scale, self built housing. In the absence of well-established formal land and housing markets in Dhaka city, informal sector has been playing the major role to cater the housing needs. Small-scale builders and developers, owner-builders operating in the informal private sector are the largest suppliers of land and shelters in Dhaka. The informal sector holds the role of largest housing supplier in Dhaka, both in the rental and ownership sector. Existing housing finance system including fast growing private banking sector is also not supportive to access housing loan. Private developers are the active housing provider in Dhaka city. But no more than 5 per cent of the city dwellers are getting access to these housing due to poor affordability. Two major constraints for the housing development in Dhaka's are: scarcity of land and high construction cost. The rise in construction cost with the building height is prominent where construction is labour-intensive. The inclusion of the costs of developed land, render such housing solutions inaccessible even for HHs well above the median income. The Government of Bangladesh cannot cater to the housing needs of its citizens alone due to paltry fiscal capacity. Thus, the formal private developers and entrepreneurs are being popular to the upper and middle class as housing provider and growing rapidly. High land prices have excluded the poor from ownership of land and housing. Residential land values in prime locations of Dhaka range between US \$30 and \$60 per sq ft, similar to prices reported in other regional cities such as Hyderabad, Kuala Lumpur or New Delhi. Nevertheless, land prices are high compared to those found in developed countries. For example, areas in the US where land prices exceed \$60 per sq ft are rare. These prices make it impossible for the poor to purchase land in the open market within the DCC area. The cheapest ready-to-build plot within the DCC is priced at Tk. 700,000 per katha (i.e., 720 sq ft lot) or US \$12 per sq ft. Normally RAJUK1 (Capital Development Authority) does not grant building permission on lots smaller than 1,050 sq ft. This would cost Tk. 1,000,000 (US \$12,600), which is equivalent to nearly 20 years of income for an average poor HH (Tk. 3,000 per month). The cost of housing would be additional. In any case, such small lots are hardly available in the open market and only rarely supplied by the government in a subsidized market. Consequently, it is estimated that 97 per cent of the urban poor in the city do not own any land (publication/261615201).

#### **4.3.3. Traffic Related challenges**

Traffic congestion in Dhaka city is considered to be one of the most chaotic in the world. Dhaka residents go through immense physical stress and incur monetary losses in terms of man-hours due to the large amount of time spent on the road on working days. The local media has constantly been highlighting these issues and has identified many other reasons behind Dhaka's notorious traffic jam. Unfortunately, road infrastructures in Dhaka city have

not flourished in tandem with its population growth and modern needs. Some of the primary causes of Dhaka's traffic jam are: (i) infrastructural issues; (ii) overpopulation; (iii) weak implementation of traffic rules; (iv) poor knowledge of traffic laws; (v) flouting traffic laws; and (vi) other issues. The category “other issues” includes escorting VIPs, street processions, strikes, etc. It also includes the irresponsible, dangerous and unlawful behaviour of some security personnel who stop the traffic flow for their own interests on a daily basis. This piece takes on the manmade causes, especially escorting VIPs during peak traffic hours and the way in which law enforcement personnel disrupt traffic flow in Dhaka city. Our political leaders violate traffic laws and cause the loss of other road-users' valuable man-hours on a regular basis. It is contradictory to the oaths these VIPs have taken, which raises the question: How do they do that? To answer this question, we have to look at the daily life of the average Dhaka resident who faces tailbacks to go from point A to point B. For example, traffic is stopped in the middle of the road, regardless of whether it is an emergency, traffic signs are mounted, and police personnel are appointed every two metres on the road whenever the lucky ones, the VIPs, happen to be in movement. An example of such a traffic route is Sher-e-Bangla area to the PMO or to Bangladesh Secretariat. We also witness on a daily basis security force personnel stopping the traffic flow during peak hours in order to make way for one of its own vehicles. These scenarios can usually be seen on the route from Bijoy Shoroni to Shahjalal International Airport. A reasonable protocol for VIPs is always understandable. The monetary cost incurred from escorting VIPs is fully covered by tax revenues. But when it comes to dozens of jeeps filled with security officials for every VIP, traffic becomes unbearable for the rest of us—armoured vehicles, government convoys, police here and there, and on top of it all, extremely rude law enforcement officials shoving vehicles aside for a single person. Nothing has been done to question such outrageous waste of public money and loss of man-hours. All this despite the general people diligently paying their fair share of taxes. Traffic jam caused by the aforementioned category of “other issues” can be analysed through the lens of roads as a common property resource, which is restricted to a number of agents and the use by one agent can affect the use by others. Here, all travellers face the same average journey time where VIPs are entitled to be protected with tax revenue, but not by imposing extra cost to ordinary road-users. Therefore, the current scenario in Dhaka city is not economically efficient and it causes a negative externality. Economists Pigou (1920) and Coase (1960) laid the foundation of this argument in the early 20th century. The kind of traffic jam we are experiencing causes market price mechanism to fail in achieving efficiency. It creates deadweight loss and undermines social welfare, which is contradictory to the pledges these VIPs have taken. Unplanned road excavating on the same road by Water and Sewer Authority (WASA), Dhaka Electric Supply Authority (DESA), telephone and telegraph agencies without any integration among them is

responsible for intolerable traffic jams. Besides, In any roundabout in Dhaka the plying CNG, rickshaw, bus, etc. form multiple lines. They do this to grab a tiny space out of sheer desperation. The rickshaw pullers, CNG drivers, van pullers, and bus/truck drivers all vie for tiny spaces with noticeable aggression and utter disregard for others' right of way. These obviously create serious problems such as unnecessary traffic holdup and minor fender bender incidences. Most of time, I see that during jam traffic police just let one side go for like 5 minutes or more which increase the jam more. They should manage it more professionally; they could let go each side 1 minute. Above all, vigilance on the part of the law enforcing agencies with an urge to save work hours of members of the traveling public can help ease the problem. Dhaka has limited road space. Till such time when road space will be increased, this limited space should be best utilized by strictly enforcing traffic rules and punishing rules violators ( ADB, 2013).

#### **4.4. Opportunities of Dhaka**

A global city in its bid has to perform many important activities in both national and international contexts. A city must offer an efficient system of socio-economic development supported by required physical infrastructures and environmental qualities. Political and administrative importance helps better positioning of a city at the national, regional and world stages. A functionally dynamic, aesthetically beautiful and economically efficient city is capable of attracting investments and businesses from national and international sources. National capital of a country can certainly play a major role in this respect. A city plan offering economic opportunities is an important factor to strengthen a city in all dimensions. Financially, a city should be competitive for investment in industrialization, trade and commerce. Cities of global stature require accelerating their economic growth for improving quality of life both in cities and their regions. Dhaka as a capital city has not received due planning attention since the beginning of Bangladesh as an independent country in 1971. Planning and development actions so far have received a little consideration to utilize the potential of the national capital as a centre for multi-faceted development. Over time, the city has grown with a huge population amidst continuous lack of quality services in most aspects of city life, such as transportation and utilities, housing and community facilities, social and recreational amenities, administrative infrastructures, central business district (CBD), industrial facilities and business services, parks and open spaces, and so on. The national and local leaderships have paid a little attention to utilize the potential of the national capital as a global city. There has been continuous negligence in developing our cities and towns in planned manner. For Dhaka, and also for other urban centers of different scales in Bangladesh, the plans that were made in different times wasted considerable time in the

approval and implementation processes. Implementation of plans in most instances had generally been delayed and in some cases in past, not implemented at all. This has been a common phenomenon during the past political regimes of any identity. In such a situation, there has been a sheer negligence in the preparation of detailed plan for the capital city and strategic plan for its region. The developers and stakeholders are generally known to be utilizing political means and patronization in matters of building permission. Though city's planning and development authorities have sometimes expressed their concerns in respect of planned development of the city, their voices were not paid due attention by the higher authorities and the national government. Besides, RAJUK as a planning and development authority seriously lacks in technical manpower and logistics support. A few town planners employed in RAJUK is simply a drop in the ocean of the capital city's actual requirement. Again, without an appropriate decision making authority, these town planners can do a little for designing the mega city as political and bureaucratic environments are not conducive for them to play a key role. RAJUK has utterly failed to deliver its planning services to the planned development of capital Dhaka. The civic society is continuously expressing their concerns on different planning and development problems of the city. Over time, problems of the city have been accumulated and reached a point of serious concern. Such concerns are many faceted, and without a permanent solution of these problems, Dhaka may soon fail to function as a capital city. Already, a large section of Dhaka's population is poor whose quality of life is undermined in the planning and development processes, which must be improved to create a better image of the city. Implementation of plans is a slow and steady process. Considering this, certain policy interventions are immediately necessary to preserve and protect resources of the areas beyond the current land use plan area. Actions are required to determine the future uses of such areas. For example, Dhaka requires large quantity of land for its future development, as roads and utilities, parks and greeneries, industrial and commercial complexes, social and cultural facilities, and many other community purposes. The road provisions should include major utility lines as well, and it is imperative that such provisions are made immediately to bring ease in community life. At present, the lands that are vacant are mainly low-lying. Some of these lands may require to be earmarked as urban open spaces, parks and greeneries along with major roads and utility lines. Major investments on land are required for such purposes, and it is certain that without any major policy intervention and investment, Dhaka cannot grow as an efficient and liveable mega city for tomorrow. The sooner the national government, RAJUK, Dhaka City Corporation and other agencies for different city development services, realize the need for some serious interventions backed by planning enforcement, it is better for the future of the city. Dhaka faces a critical problem in transportation and communication to establish it as a

vibrant city supporting economic growth and quality life. The road network and associated infrastructures are very poor in Dhaka. We may need a multi-layer transportation system for some destinations and routes in the city. Before that we need to explore the possibilities for recirculation of the present traffic to examine how much congestion we may reduce and efficiency we may achieve. The existing ring road has not been fully planned and utilized in this respect (UN, 2013). There are examples of ring roads in solving city traffic in western cities. In the provisions of road infrastructures, emphasis must be placed on the creation of more alternative routes to redistribute major traffic flows of the existing roads and ease traffic congestion of different city locations. Moreover, Dhaka being a mega city and capital of the nation, its transportation and traffic problem should not be considered within city limits only, rather it has to be strategically integrated with national transportation system designed for the future. City planning must consider transport network of the city region in the national context. The present government has taken some moves to bring city planning issues into development policy. It may utilize this opportunity to work prudently utilizing the knowledge and experience of the relevant experts, in particular, the professional urban planners and transport engineers. Dhaka has a lot to do to become a planned modern city. It requires a detailed plan to modernize the city. A continuous monitoring is necessary for the city area following a detailed area plan. The already built up areas require improvement in services and utilities. We must not forget that city has now grown beyond its legal boundaries to include surrounding lower-order municipalities and towns. So planned development is required for capital Dhaka, considering it as a city region, in which a two-tier municipal system may work with specific functional responsibilities. Some services can be integrated and others may function separately. This might be a pragmatic solution for the future management of urban area centering the capital. Besides, it is necessary to improve the existing city infrastructures as much as possible. Some infrastructures may be integrated with surrounding urban authorities. While modernity and modernist town planning in its various forms have come to dominate the world, many countries and cities have not performed well in the hegemonic circumstances of globalization. The changes that are occurring under globalization are directly or indirectly related to technological changes leading to dynamic transformation of landscapes in major cities of the world. As Solomon (2009) argues in this context, the concerns of a global city is about the dogged and occasionally successful struggle of many to work in the conditions of the present to create places that satisfy the deepest longings that people have for the places they live. Solomon maintains that this struggle is by no means the first reform movement directed at architecture and town planning in the last two hundred years of rapid technological change, population growth, and urbanization; but unlike earlier reform movement, this one is directed at

particular conditions and threats presented by the dominant economies and technologies at the beginning of twenty-first century. As he argues, in making a global city, it involves the efforts of all sorts of people from farmers, grocers, and cooks to politicians and bureaucrats. The city and regional planners have an important role to play in this ever changing global dynamics. Consequently, this new urbanism is to embrace new ideas about large cities and city regions in the global context, as a reversal of some aspects of orthodox modern architecture, but more particularly of modernist town planning. (journal\_book/20130721)

## **5. Chapter Five: Result & Analysis**

### **5.1. Basic Result & Analysis**

Dhaka with its many planning and development problems, have so far made a significant contribution in socio-economic development of the country. Cheap labor has been an important factor for the growth of industries, especially factories of ready made garments in and around Dhaka city. As a capital city with its strategic geographical location in the middle of the national territory, it offers a good communication and transportation network with all important places of the country including the sea ports of Chittagong and Mongla. Besides, being the capital city of the nation, it has the favorable factors for encouraging growth and development in the capital region, which includes a much larger area than the City Corporation area comprising several surrounding towns. In fact, the Detailed Area Plan (DAP) of Dhaka Metropolitan Area (DMDP) currently under preparation by RAJUK is much bigger than the area under Dhaka City Corporation (DCC). The Structure Plan of DMDP envisages principles and guidelines for developing Dhaka Metropolitan Region as a viable city region for physical and socio-economic development that ensures quality living, economic growth and development (RAJUK, 1997). The DAP under preparation should focus on the potentials of Dhaka to grow as a global city attracting businesses and investments. As a mega city, it should focus strongly on tourism development. The planning principles and standards require guiding the city in that direction. The capital city and its region offer the largest employment in industries, commerce and services, typical for a Capital City. It enjoys the highest concentration of labor, financial institutions and business services. The city also enjoys a concentration of infrastructures in administration, health, education, and professional services. The market sector of Dhaka is, however, not yet well-developed and products other than a few exportable items including readymade garments, are consumed mainly locally. The city has not yet tapped the benefits of high-tech industries, which it should consider in its main economic agenda. The dynamic growth of financial and service sector is a clear indication that the city region of Dhaka has potential to grow as a global city transacting its products and services around the world. Dhaka's city development

and economic growth management plans, therefore, should focus on exploiting its potential in global market. The knowledge-based business services have potential for growth as the city houses a large number of universities producing technical and business graduates. The plans require meeting the criteria of attracting investments from both domestic and international sources. A global city must also be capable of making large investment in tourism development for attracting domestic and international tourists (UN, 2013). Not much attention has so far been paid in the city planning of Dhaka city to exploit its tourism potential. This research is not aimed to prepare an exhaustive list of potentials of Dhaka city or its region, but to highlight some major areas of potentials in order to illuminate the ideas citing some cases that Dhaka's capital region may exploit in great deal in future. Future moves on development of the city should, therefore, consider its economic potentials, while actions for physical development of the city or its region are undertaken for improvement. Dhaka has loosely followed a strategic plan under DMDP for promoting planned land uses and controlling growth of the city. It requires a strategic plan with serious considerations for competing in the global market as a dynamic player. It should set its own pathway for attracting investments in new businesses and expanding the existing ones. Along with the economic growth and development, Dhaka should aspire for enlarging its economic base for increasing population. The objective of this strategy should be to achieve higher economic growth through increased industrial and commercial activities, and strengthening of real estate and housing, development of transport network for city region connecting major centers of importance, and provision of utilities and community services. Dhaka's desire for becoming a stronghold in industrial agglomerations and commercial concentrations may receive a positive response by the international investors, if the city could adopt and implement a strategic plan suitable for such actions. Through such actions, Dhaka's clients and customers across national and international boundaries will benefit from its global pursuits. Its continued efforts should be directed to provide opportunities for all who are willing to contribute to Dhaka's journey towards a prosperous economic future. The success of the plan has to be evaluated periodically to see the progress. The city needs an effective development plan to achieve success in economic growth and development. The city should create an image of a modern liveable city, before it becomes a global city attractive to international entrepreneurs, investors, business visitors and tourists.

## **5.2. Housing related Result & Analysis**

The size and organization of the dwelling space and internal dwelling condition and residents satisfaction in this regard are argued to influence the perception of liveability especially in a dense urban environment (Chiu, 2003). Due to the high population growth, densification occurred throughout Dhaka. Unsurprisingly, the survey found that the respondents of the

unplanned NGDs were more dissatisfied with the internal usable space than those living in the planned areas. The survey data revealed that in terms of dwelling size, more than 90% of the flats in both Dhanmondi and Uttara, NGDs in the planned areas, were over 92 sq. m. The planned residential areas of Dhaka were developed by the Public Works Department (PWD) in the 1950s and later by the Capital Development Authority (RAJUK). Although initially the plots were bigger in size, they were gradually subdivided into smaller plots. To limit further subdivision of the plots in the planned residential areas, restrictions were imposed. Nonetheless, in the unplanned areas, no such restriction was applied to confine the subdivision of plots (Interview with a planning official of RAJUK; July 5 2011). However, as a response to market demand, the buildings became higher and dwelling units had become smaller. Consequently, more than 60% of the flats in Agamasi Lane and Khilgaon Taltola and 40% of the flats in Monipuripara of the unplanned area had size below 92 sq. m. In terms of housing tenure, more than 50% of the respondents own their flats in Dhanmondi and Agamasi Lane which were contrary to the rest of the NGDs. When asked about the problems regarding internal dwelling conditions, about one-third of the respondents of Dhanmondi and Uttara replied that the design was poor. In Khilgaon Taltola, due to its location in the suburban area, most of the buildings were constructed by the landowners resulting in poor housing design and small dwelling unit. Unlike Khilgaon Taltola, however, the buildings of Monipuripara, a NGD in central city with good connectivity; were developed and redeveloped by both the landowners and the private developers. The comparatively better design of the dwellings resulted in residents' higher satisfaction (61%) in Monipuripara with the internal usable space than those of Khilgaon Taltola. Table 5 presents the respondents' satisfaction rate about the dwelling space. In general, the residents of Dhanmondi and Uttara were more satisfied about the dwelling space than the NGDs of the unplanned areas. Owners and the respondents with the shorter residency were more satisfied than their counterparts. The satisfaction with the dwelling space varied according to gender and occupation pattern. Among all the NGDs in the study, the lowest satisfaction score (2.7 out of 5) related to dwelling space was observed in Agamasi Lane, the mixed use NGD with extremely high density, small dwelling sizes and shortage of facilities. The very small flats with poor quality of design and the average size of the household (five persons) higher than the district average (4.2 persons) (BBS, 2011) worsened the situation inside the flat and provoked a strong feeling of crowdedness. In terms of tenancy, the owners were more satisfied than the tenants. The high rent in Dhaka, indicated by a rent-to-income ratio of 69% among the middle income families (Sadeque, 2013) might be the reason for renters to live in lower quality houses than their aspiration. However, it is surprising to find that the longer the residency period of the respondents, the less satisfied they became. The lack of

modern facilities in older dwelling units and the general neglect of building refurbishment might be the reasons. In fact, in Dhaka, it has not been a practice to refurbish older buildings. In terms of occupation, the persons involved in full-time employment showed the highest mean value of satisfaction followed by that of the housewives. Female respondents, about 40% of them were women, generally showed higher satisfaction (62%) than males (57%). Overall, although densification leads to smaller dwelling sizes, better design and arrangement of facilities inside the dwellings could have improved liveability. The population increase and the physical configuration of the city led to the construction of multi-storied compact apartments to meet housing needs. Multistoried building blocks are constructed in the planned residential areas and in the neighborhoods of unplanned areas as well. The housing societies and developers became the suppliers of the multistoried housing stock for various groups of people. About two decades back, the city dwellers were reluctant to live in apartments but this situation has changed within last ten years (Hossain; 2010). During late 1990s, the concept of living in apartments was largely accepted because of the acute shortage of land, the gradual increase in land price and the cost of construction (Seraj, 2012). The apartment dwellers mostly maintain their relationships with relatives, friends and immediate neighbors and participate in family and social events, but which is different in form from the low-rise communities. High-rise culture is a new characteristic in the city life (Field survey, 2013). After the start of the apartment culture, with the influence of globalization and change in lifestyle, many joint families broke apart and shifted to the apartments. The distinctive feature of the social life of high-rise apartments consists of the substitution of secondary contacts for primary contacts (family), such as the weakening of the bonds of kinship and the declining social significance of the extended family, and the disappearance of the neighbourhood interaction in the true sense (UN, 2013). However, many clusters of fellow groups are formed among the residents of the building blocks based on age, education, occupation, origin (home district), political identity, regular religious practices etc. (Hussain,2010).

### **5.3. Traffic Related Result & Analysis**

Lately Dhaka's transport scenario has been deteriorating visibly under fast growing urbanisation, despite a number of transport projects and infrastructures being implemented since 2009. What has been gained in some areas is being eroded by some other factors. It seems that many sidewalks have become a regular place of business and these are encroaching on to the main road pavement areas; parking vehicles occupy a large part of the roads and buses stop anywhere and everywhere they please, causing even deaths sometimes and traffic chaos. Traffic signals either do not work at many intersections, or are overridden manually by traffic police and very importantly mindset of many pedestrians who

cross busy roads anywhere and everywhere despite pleadings from the traffic police to cross at designated places and by using foot over bridges wherever available. It seems that the discipline in traffic and transport management is gradually breaking down. This is not to say that a number of transport infrastructural projects that have been implemented in the last four, five years have not been beneficial. Some of these projects are the Banana Rail Crossing Flyover, Kuril Flyover, Mirpur-Airport Link Road and President Zillur Rahman Flyover, Hatirjheel Multipurpose Project, Mayor Hanif Flyover and a number of link roads. All these projects since 2009 have brought more open recreational spaces (Hatirjheel) and greater mobility to motorised traffic and transport system in Dhaka. More projects are in the works for the future. For the sake of a better understanding we should go back a few years to the proposal and development of a (long range) Strategic Transport Plan (STP) for Dhaka from 2004 to 2024. The present government adopted this Plan formally in 2009 and started some of its projects. The above noted projects, with the exception of Mayor Hanif Flyover were a part of the STP document. Presently, Metro line 6, BRT Line 3, and an extension to Gazipur and a number of other transit projects are in the design stages and are due for implementation. Some of these other projects including RAJUK proposed flyover from Dhaka City South to south of River Buriganga and Dhaka Elevated Express Way (DEE) in its current alignment were not a part of the original STP plan. In fact the present DEE alignment has taken over the alignment assigned to the future proposed Metro Line 4. It should be understood that from traffic and transport system development point, an expressway cannot and should not replace a Metro line alignment. A two plus two elevated expressway has a capacity of carrying a maximum of 80,000 motorised vehicles daily. An elevated Metro on the other hand can carry a daily equivalent of 500,000 commuters. The number of daily commuters in the city will increase from 4.5 million in 2004 to over 16 million in 2024. The main aim of future transport system should thus be to increase dramatically the capacity and quality of urban mass transit systems. More Highways and Expressways for cars will not do that. In the STP documents, a well thought out mass transport plan including three (3) Bus Rapid Transit (BRT) and three (3) Metro lines (MRT) and a development of 54 arterial roads and improvement of public bus services were proposed as part of overall traffic and transport development for Greater Dhaka Area (GDA) (as defined in STP comprising of DNCC, DSCC and its immediate environs). While lagging in time scale, the STP plan should be still being followed carefully. Any project that is in contradiction or are in conflict with the proposals of STP program should be carefully evaluated or avoided a proper analysis of its benefits and conflicts with established STP sanctioned projects. Mayor Hanif Flyover and DEE in present alignment are contradictions of STP plan document and in conflict with several STP sanctioned projects. As an example,

Mayor Hanif Flyover has displaced Metro line 6 from part of the original route from BUET to Saidabad along the Zahir Raihan Sharani and has been realigned from Shahbag to Bangladesh Bank. The upper part of route from Uttara North to Shahbag remained basically unchanged. Likewise the DEE will displace the future Metro line 4 planned from Hajrat Shah Jalal International Airport (HSJIA) along the BR (Bangladesh Railway) alignment. The future of proposed Metro Line 4 on this alignment becomes uncertain. It should be understood that the three Metro Lines jointly forms an integrated mass rapid transport system for Greater Dhaka Area (GDA ) and would combindley carry more than 1.5 million commuters daily. The DEE which will have maximum capacity of 80,000 private vehicles daily can in no way replace Metro line 4, which alone could carry more than 500,000 commuters daily. I will step back a little and present an emerging picture of Dhaka's traffic scenario. Currently, GDA has an estimated population of 15 million, the Dhaka Metropolitan Area (DMA) comprising of Gazipur, Savar, and Naryanganj. Munishiganj, Manikganj, Narshindi (according to STP document) has an estimated population of 26.35 million in 2014. This population is increasing at an average rate of 3.7 percent per year. Each year GDA is adding in excess of 550,000 persons (including natural birth/death and immigration). By 2024, according to the STP document GDA will have 19.8 million and DMA 35 million people. Commuter traffic likewise continues to increase. By estimates in 2004, the total motorized commuters were in excess of 4.5 million. Bulk (70 percent) of the motorised commuters was carried by fragmented public buses . Private cars carried only eight percent of commuters. Buses occupied less than 30 percent of the road surface. By 2014, the number of Buses have not increased , the private cars have doubled from under 97,000 to a staggering 192,000. More importantly motor cycles now number in excess of 275,000. The fragmented and competitive buses have not increased in numbers nor in quality, and carry almost double the commuters and occupy less road space because of private cars . Buses now occupy no more than 20 percent of road space and private cars in excess of 60 percent. The trend continues with new personal affluence of the upper economic classes. The solution for future Dhaka transport system lies not in building more exclusive expressways but in improving: 1) A pavement recovery & traffic lane streamlining program; 2) Better general and higher capacity public bus system; 3) Implementing the STP's BRT three line program; 4) Implementing the three line Metro line program; and 5) Implementing a major part of the STP Roads program. By 2024, the daily commuters will have increased to over 16 million daily. The public buses, BRTs and Metro's are the only mass transport systems capable of coping with this growth. The expressways will only add to the further congestions with more cars, traffic jams and total breakdown in traffic and transport discipline.

Three BRT Lines proposed in the STP document should be implemented as soon as possible, as each of these potentially can carry more than 350,000 commuters daily and can be implemented in less than two years from start to finish and each can cost much less than a Metro system. As an interim mass transit carrier BRT system has gained much acceptance in many major urban centers worldwide including, Curitiba, Jakarta, New Delhi, and Ahmadabad, India, in the last two decades. The program continues to flourish in major urban centers as a suitable mean for mass urban transportation. Implementation time is also reasonable. BRT line 2 as shown in an STP document displayed a BRT line from Gabtali to Saidabad via Azimpur. However, since the construction of Mayor Hanif Flyover, this route became partly unavailable. In 2012 a private initiative proposed to design the BRT route from Gabtali to Azimpur in combination with an elevated expressway that linked up with Mayor Hanif Flyover. This proposal was presented as a Public Private partnership (PPP) project to the Hon. Prime minister in 2014, who gave an in principle consent to proceed with the process. This was thus a positive step to link up the motorized traffic from Mayor Hanif Flyover for a through access to both end at Gabtali and Saidabad. The proposed project also provided a BRT commuter travel opportunity for about 500,000 passengers daily and an opportunity to link up with Metro 6 line at Farm Gate in future. The three line Metro system proposed in the STP as an integrated mass transit system must be protected from corruption and conflicts, because it can carry in excess of 1.5 million commuters daily. Metro line 6 is in the works presently, but will remain incomplete without the implementation of Metro Lines 4 and 5 as an integrated system. Metro line 4 must be reviewed and given a viable alignment and work on it's planning and design must start without further delay. Likewise, to connect between Metro line 4 and 6, metro line alignment 5 must be protected and not usurped by any other projects. Planning on Metro line 4 and 5 must start without delay. Adopted STP document 2 (b) program proposed a development of 54 new arterial and connector roads and three expressways in Dhaka City. Of these, 12 major arterial program lies on the eastern part of Dhaka. The eastern fringes of Dhaka from Tongi to Saidabad is an unplanned growing area with little access. Further, the area is prone to flooding and flood water stagnation. If left to itself the area could become an area of extreme urban disaster. This paper does not have space for a full discussion on it. It should suffice to say that the area

has a potential for 5 to 10 million inhabitants in future. For that the Right of way (ROW) for all these roads should be secured as soon as possible and the embankment road along the Balu River built without delay. I want to add a further point here before concluding. The present STP document is currently being reviewed and upgraded by an outside consultant for future long term transport planning in Dhaka. However, there is no outside and independent oversight to this process as was done in the original STP process. To be accepted as a viable long term strategic transport plan document, this process and not the final document must be over sighted , monitored and advised by a competent committee of independent experts. Otherwise this plan could be very controversial and might not be acceptable ( star, 2015).

## **6. conclusion**

Despite the important findings on the liveability in the dense urban neighbourhoods of Dhaka and the significant contribution to the existing literature and policy implications, this study has some limitations. The constraints and limitations of the study can be categorized into three different aspects; namely data and time constraints, research scope and methodological limitations. Regarding the evaluation of liveability, the indicators were developed based on the literature on the sustainable urban form models which are developed mainly in the Western countries. This paper recommends that apart from considering housing as the core component for improving liveability, density zones for the main urban areas of Dhaka metro need to be established to guide the intensity of development from a broader perspective. Dhaka can be divided into several density zones for residential development, such as high-density-, medium-density- and low-density zones depending on the infrastructure capacity, and different standards of neighbourhood services and facilities should be adjusted accordingly. In addition, density zoning as a non-statutory planning tool can impart a broader guideline about development intensity, namely, building volume, plot ratios and facility provision to ensure better liveability in the residential's when they are constructed and occupied. Therefore, the Western perspective of looking at liveability might have been embedded in the liveability indicators used in this study. However, in designing the assessment criteria attempts were taken to calibrate them with the local context. Chiu's work (2012) on Chinese cities was instrumental for developing the analytical framework of this study. This chapter summarizes the major findings of this study, presents the overall conclusions, suggests recommendations based on the major findings and highlights the contributions and limitations of this study. This dissertation evaluates liveability in relation to the dense urban neighbourhoods in the context of a developing

country with weak planning system and confirms that the strengths and weaknesses of liveability vary across the neighbourhoods. The study contributes significantly in fulfilling the gaps in the density and liveability literature and the urban form literature related to densification in developing countries. It also provides useful policy recommendations for improving Dhaka's planning system with the purpose of enhancing liveability in the dense neighbourhoods of this city.

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