RETHINKING COMMERCIAL COMPLEX, SHAPLA CHOTTOR, MOTIJHEEL

A vision to create a flagship project that would demonstrate the economic and social value of building high density structures at major transport nodes

By

Anika Hoque

Submitted in partial fulfillment of the requirements
For the degree of Bachelor of Architecture
Department of Architecture
BRAC University

August, 2014

TABLE OF CONTENT

ABSTRACT

The professional community that deals with urban issues, planning and development studies are thinking seriously about the urban issues in Dhaka city. They all think interventionist and revivalist projects on a massive scale in various aspects is required to rescue Dhaka City from its race to self-destruction. This paper will try to establish a form of invention, in typological, morphological and functional dimensions. The basic idea is to integrate the development projects in specific urban areas and merge it with city scale. These development projects can create a connected edifice of the services in the city. The idea came up with very basic analytical functions of what, why, how, where and when. Dhaka city need a sustainable design solution. Rather creating more new projects or function we need to rearrange all these functions. All urban services should be integrated and blend properly to remove the city chaos. These ideas are implemented in the design proposal for the Motijheel CBD area. Which will detailed to illustrate for an integrated development. Also it will develop guidelines, for future developments.

ACKNOWLEDGMENT

This report could not have been made possible without the help from a lot of persons, institutions and agencies and I would like to take this chance to convey my gratitude.

With utmost appreciation, I note the assistance I have received from the different governmental agencies; international organization.I would like to extend my gratitude to Saidur Rahman from RAJUK and his staff. Md Shirajul Islam from Dhaka city corporation, M Ansar Hossain from BIP,Asif Rahman from Japan International Cooperation Agency (JICA), Md khondokar from DTCA.

I am extremely grateful to Habib Reza,M fuad mallik, Raju sir,Aminul sir from faculty of my department for their guidance and advice. Also design instructor Rubaiya sultana,Nayeem Iqbal Kibria, Md Faruk, Architect Ehsan Khan.

INTRODUCTION

Dhaka is a city of so many problems yet we love it. Dhaka has evolved from a fishing village on the banks of Buriganga to a Fort city of the Moguls, then in the course of time, to a capital of an independent nation. The city, from its humble beginnings has undergone tremendous transformation to become this huge metropolis of about 16 million citizens.

Among these megacities, the World Bank says Dhaka, with its current population of 15 million people, bears the distinction of being the fastest growing city in the world. Between 1990 and 2005, the city doubled in size, from 6 million to 12 million. By 2025, The U.N. predicts Dhaka will be home to more than 20 million people. Larger than Mexico City, Beijing or shanghai. (Pyne, 2010, globalpost)

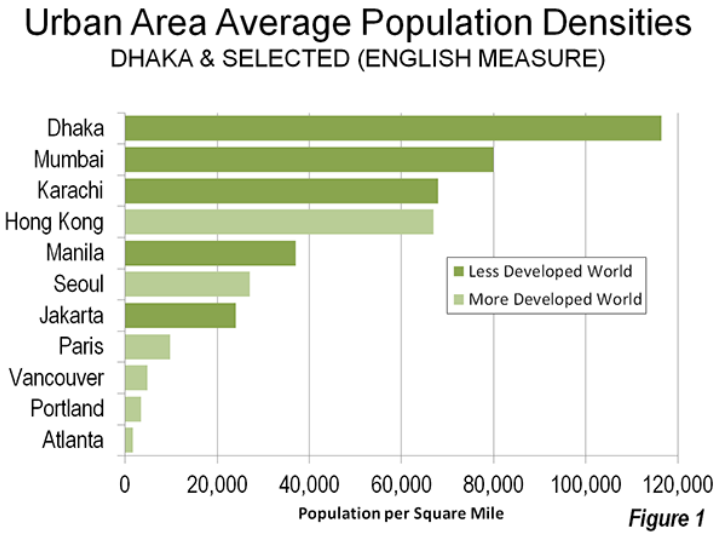


Fig 01: Urban area average population densities. (Source: RISE scocity, 2013)

No city in the world uses land as efficiently as Dhaka. But this comes at a price. With an urban area ranked among the 20 most populous in the world, Dhaka's average income is so low that it does not even place in the top 100 metropolitan area economies as measured by the Brookings Institution. Thus, the world's most dense urban area is among the least economically productive. Brookings rated the principally suburban and exurban Hartford metropolitan area number one, with an urban density approximately 1/100th that of Dhaka, Hartford includes the old core city; but as well as the much more substantial primarily

suburban or even exurban areas.. Hartford is among the least dense urban areas in the world, at half as dense as Portland and one-fourth as dense as Los Angeles. Urban density and productivity are joined at the hip.Despite Dhaka's hyper-density, critics complain about Dhaka's urban sprawl. If Dhaka is "urban sprawl," then the term is meaningless. Perhaps the critics would prefer the rural poor to live in even more crowded shantytowns, or maybe better yet, that they go back home to even more desperate rural poverty. Aspiration is not a bad thing, and if that means cities with more people, covering more land area, so be it
Dhaka has become a symbol of development, an icon of hope that has profoundly dug deep into the peoples' psyche. If we look at the development pattern of the city over time, we shall see the boundary ever expanding. Like an organism that is going through its growth phases. Starting from the Buckland Bund, the city has reached the Turag embankment, along with lateral expansion of similar magnitude as well. This expansion has not been a nucleated one. The city centre of the Gulistan area has become peripheral and the city has developed many centers. Now is has multi-centered sporadic development.

The urban fabric binding the city has torn in places to create segregation in both physical and social bonding. The bonding is between the city and its citizens. Few places are available for city dwellers to converge and interact. The distinction between old Dhaka and New Dhaka has become more pronounced. Both have the pattern of development and in the psychological perception of the city. Once termed "the City of Mosques", the city has associated some negative imagery with itself. Such as power crisis, lack of open spaces, sporadic development, unmitigated traffic jam, social segregation etc.In the post-independent phase, no new structure or development has been able to capture the essence of the city in its entirety, to become the centre of it. The National Assembly, designed by Louis I. Kahn, has a much broader symbolic value on national scale. It is more like an icon of the entire country and thus not specifically particular to Dhaka city. The city lacks icons, visual synonyms. With the passage of time, in the midst of the rush to infuse new technology and under the ever-growing influence of the shift towards western culture, there are many traditional foods and trades, many crafts, many rituals of our culture that are evaporating into the past. There is no attempt to preserve these lost artifacts on a city-scale, let alone attempts to revitalize them and weave them into the development pattern.

Redesigning Commercial Complex in motijheel is such an attempt to explore and develop an approach where even the limited resources available can produce a solution of maximum effect by implementing ideas of sustainability, system optimization and efficiency. In the heart of Dhaka city's commercial zone, designing a commercial building which will address the surrounding urban context. Understand the needs of people who work there and serve those people. The building must co ordinate with the context for a better living.

CHAPTER 01: BACKGROUND OF THE PROJECT

Dhaka is the fastest growing city in this world. More than 16 million people lives here. Many infrastructural and developmental projects have been planned and are going on for Dhaka. For example, in the gulshan area, there will be metro station, possible one water taxi station, parking projects by Rajuk, and commercial developments. One can sense the rather haphazardness of projects where there is serious lack of coordination, in both intention and execution, since each project will generate its own urban impact. The concept of an integrated approach for the developments with the potential to be merged into one is not far-fetched at all.

Individual authorities plan to build their respective projects separately, in design and in implementation. In the motijheel area, the monorail/subway designs place a large station. (Rajuk website) Rajuk plans to develop both commercial projects and a large parking facility. Not far from there, the BIWTA plans to develop a water taxi station. But there is synchronization with all these different kinds of functions. Such unplanned structure creates urban problems in CBD zones. These functions should be planned and work as team for urban people rather creating more chaos.

1.1: PROJECT BRIEF:

The commercial zones in Dhaka are not properly planned. Motijheel , karwan Bazar, farmgate is the most busy and haphazard commercial area. People suffered with many urban problems. These problems are possible to solve with a proper planning. If we don't start to plan this area, and address the urban needs in future it's going to be very difficult to handle. People design only their own building here, ignoring the impact of the surrounding. But in a city like Dhaka we have to deal with the urban issues, there can't be any single building standing out alone neglecting the context. This project comes with these thoughts that we have to start planning. We should design these commercial buildings according to their urban needs.

1.2: PROJECT INTRODUCTION:

In the heart of Dhaka city's commercial zone, design a commercial building which will address the surrounding urban context. Understand the needs of people who lives/works there. And serve those people. The building must co ordinate with the site for a better living.

1.3: AIMS AND OBJECTIVE:

- Understand the urban context of commercial zone in Dhaka city
- Find out the urban problems
- Design a commercial building which will address the urban needs
- Design spaces which is required in such commercial zones
- These spaces should be incorporate with the buildings
- Design a better living place for present and future

1.4: GIVEN PROGRAMS:

- Office spaces
- Shopping complex
- Restaurants
- Parking
- Bus stand
- Park (vertical or horizontal)
- Public gathering spaces
- Recreational activities (auditorium, art gallery, convention center, Cineplex)

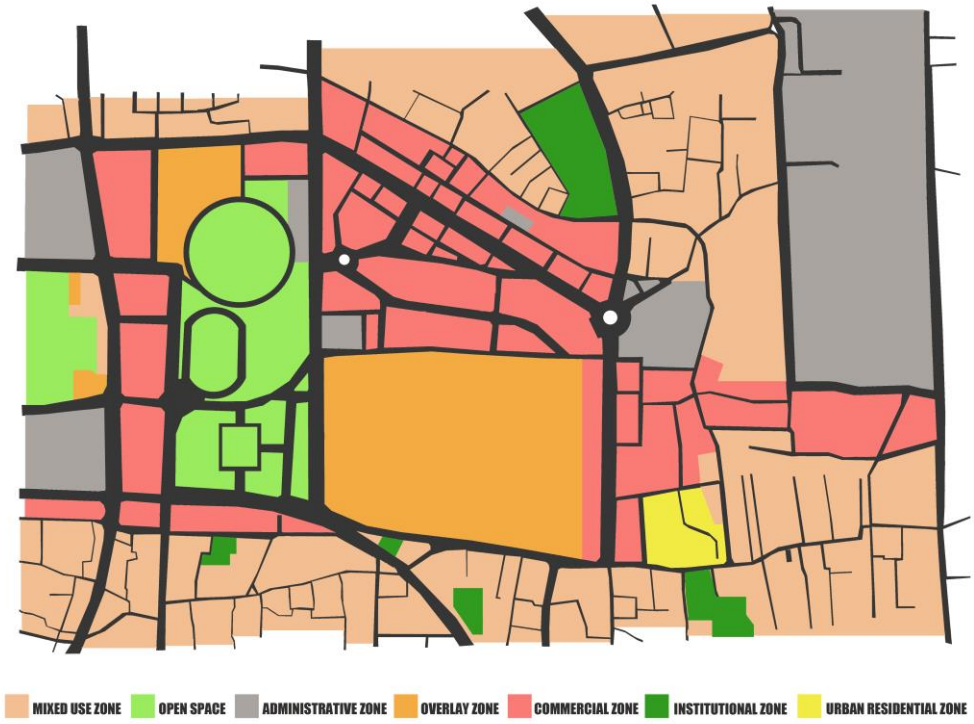


Fig 02: Land use pattern in motijheel.(source: RAJUK website)

CHAPTER 2: SITE APPRISAL

2.1: SITE LOCATION:

The site is situated along with the shapla chottor node,motijheel,Dhaka. Beside of Bangladesh bank and shena kollan bhobon, in the heart of commercial area. Site area is 4.8 acre. There is a bank on government property, dutch bangle bank. a water pump of WASA is present. Internal secondary roads go through the site, rickshaw and tempo runs there. Many vendors, street food shops, cheap restaurants for low income people is present. The roads are mostly used for parking the tempo and buses. In the middle there is pond, residential building situated.4/5 store house along with a slum of 30 families live there.

Fig 03: Motijheel Shapla chottor

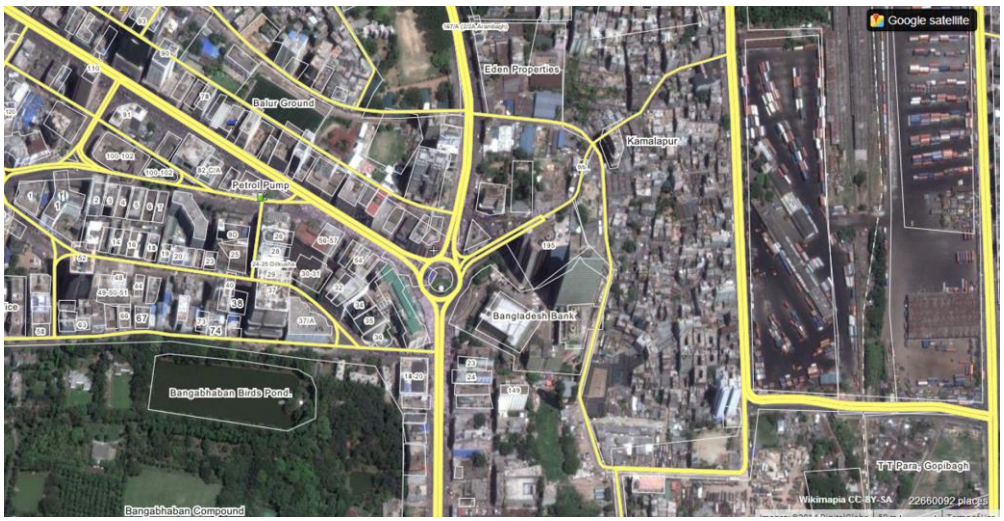


Fig 04: Google earth Map of Motijheel.

2.2: TROPOGRAPHY:

The topography of the site is plain land. The soil condition of the area is good. It is in the low danger zone in the site amplification map of Dhaka City for earthquake. The area is also free from flood affected zones.

2.3: HISTORICAL BACKGROUND:

After Indian subcontinent became independent of British rule in 1947 and Pakistan was created, Dhaka restarted its life as capital of Est Pakistan. Migration of people from India caused 10.3% increase in population. Dhaka's area increased from 6 sq.miles in 1947 to 25 sq.miles in 1962. Population Increased from 2.1 lakh in 1941 to 5.5 lakh in 1961. According to available information.

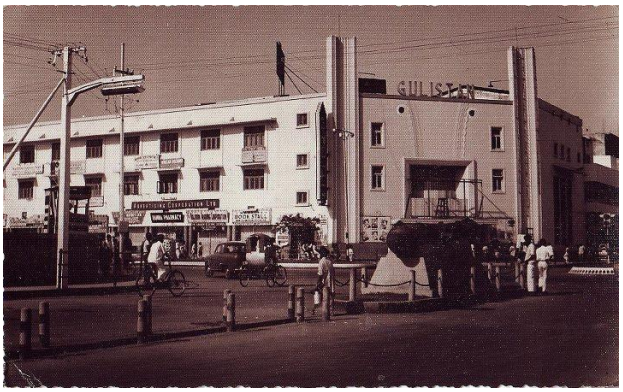
- New industries grew and business expanded.
- Motijheel Commercial area and New Market in Azimpur area developed as shopping centres according to plans.
- Motijheel-Gulistan area became the modern urban core and the CBD.
- The Chawk, Patuatuli and Shadarghat remained the traditional center of the city.

Thus in dhaka, according to Rosie Majid Ahsan.like in other eastern cities, developed two commercial nodes with distinctive characteristics - I)The indigenous center and ii) The modern center.

The landscape of Dhaka city has been undergoing rapid alteration with the economic and political changes in the country since the creation of Bangladesh .The city is developing northward through expansion of the upper class residential area .The retail trade areas are also projecting itself towards the northern part of the city . The retail business centre which had developed in Gulistan area changed its characteristic totally as it become the center for political friction.

As such ,the shopping areas, like olden days ,are growing along the major roads .Some of these are using only the street level frontage forming a ribbon pattern .Others are clustering at nodal points.

Activities of the CBD also had been diffused giving way to the old system of specialized shopping streets along the road front of the buildings.



Dhaka's first AC cinema Hall, now and then (1963)

Dhaka Stadium (1950**)** Bongo vobon and zero point

Golap shah mazar and Baitul Mukarram mosque

Fig 05: Historical spaces in motijheel, Dhaka.

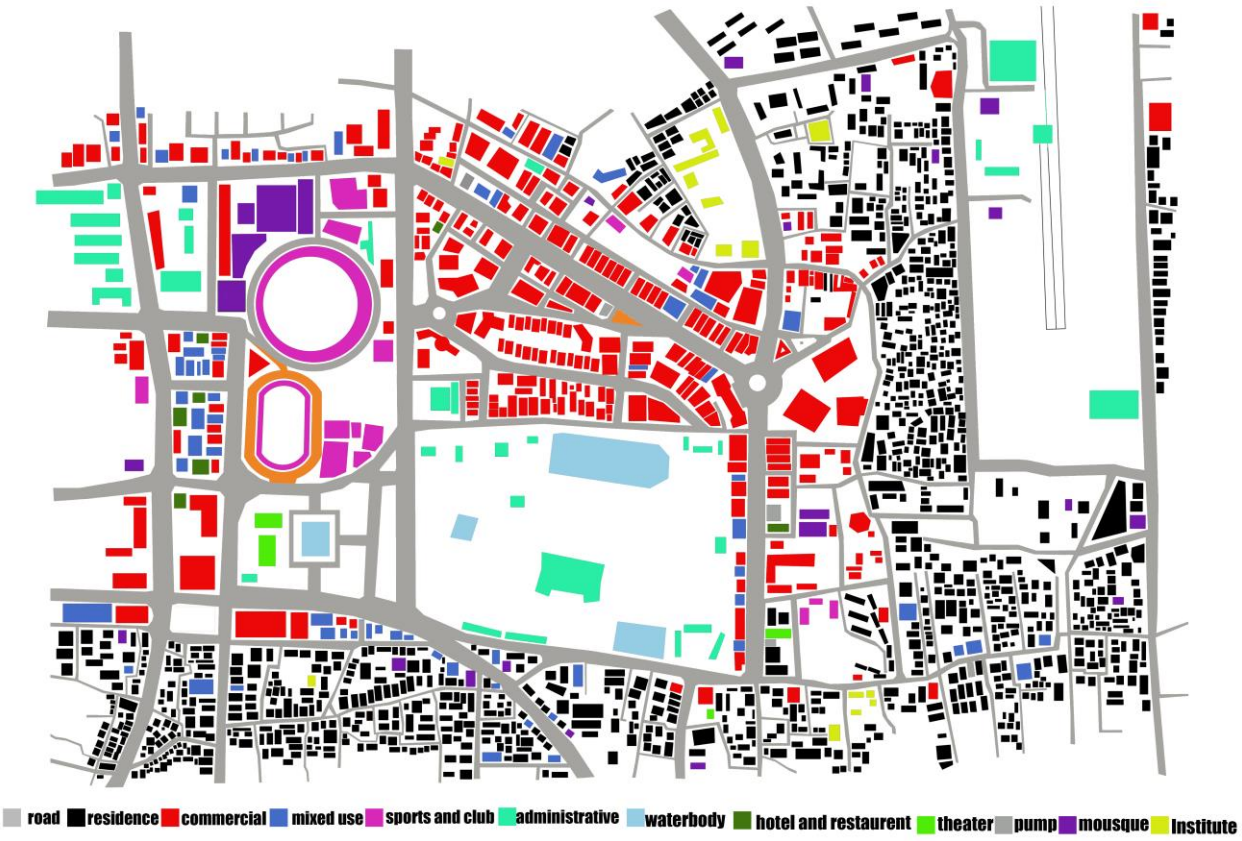


Fig 06: Zonning in motijheel, Dhaka.

Fig 07: Building Morphology in motijheel, Dhaka.

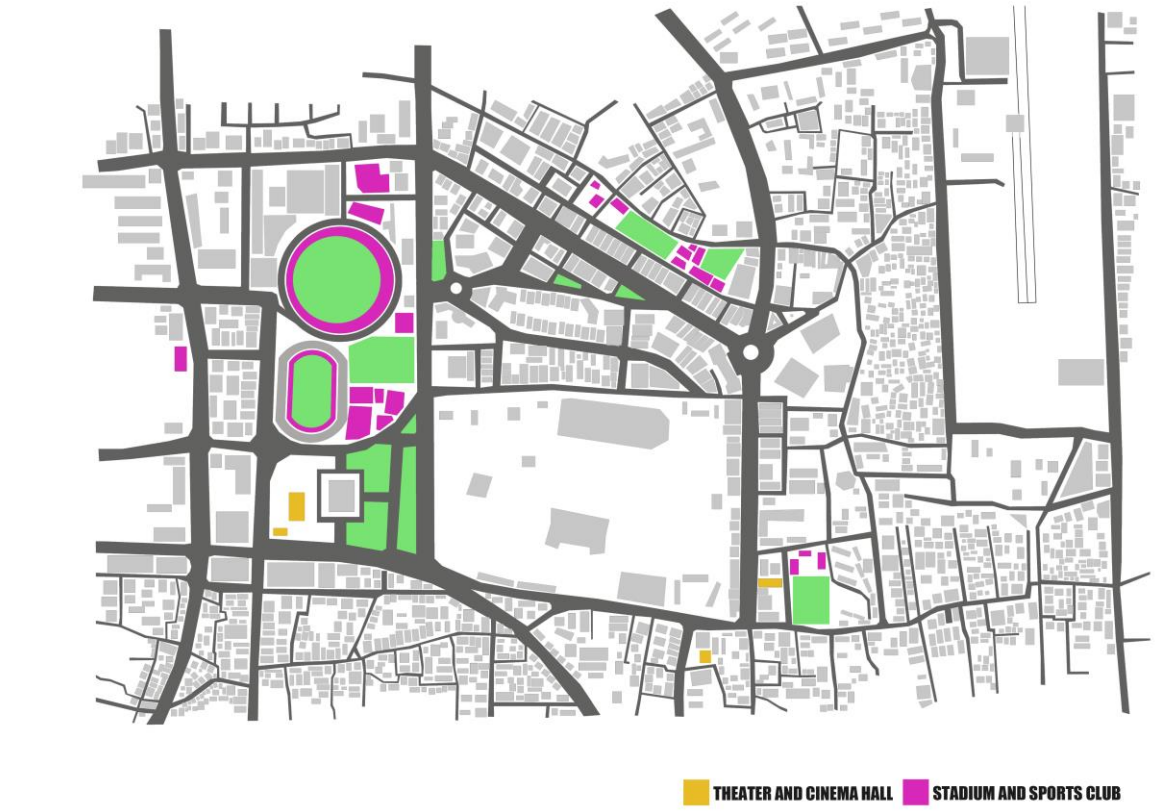
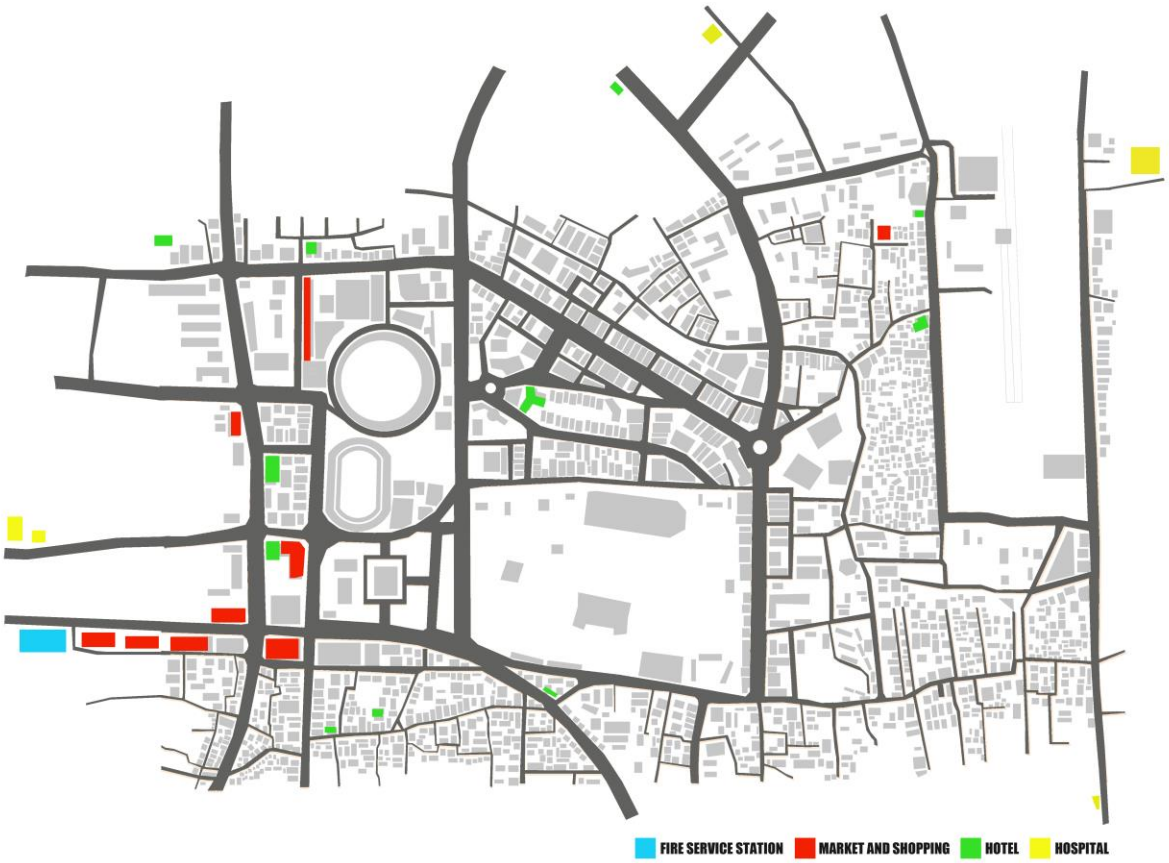


Fig 08: Neighborhood of the site.



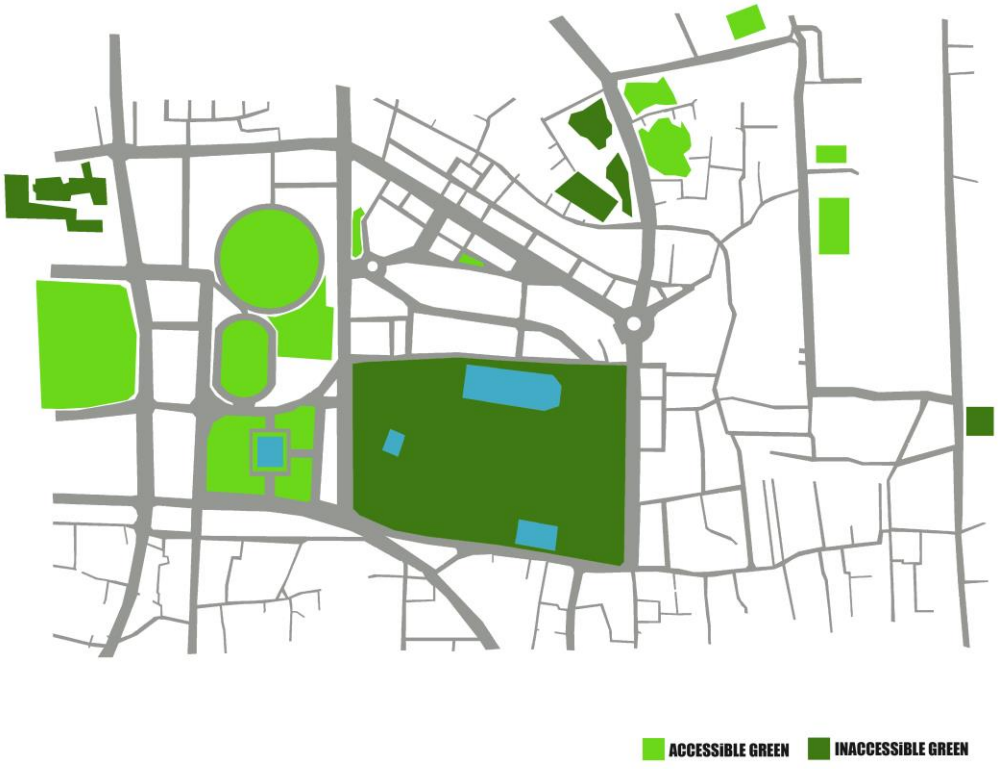


Fig 09: Neighborhood of the site.

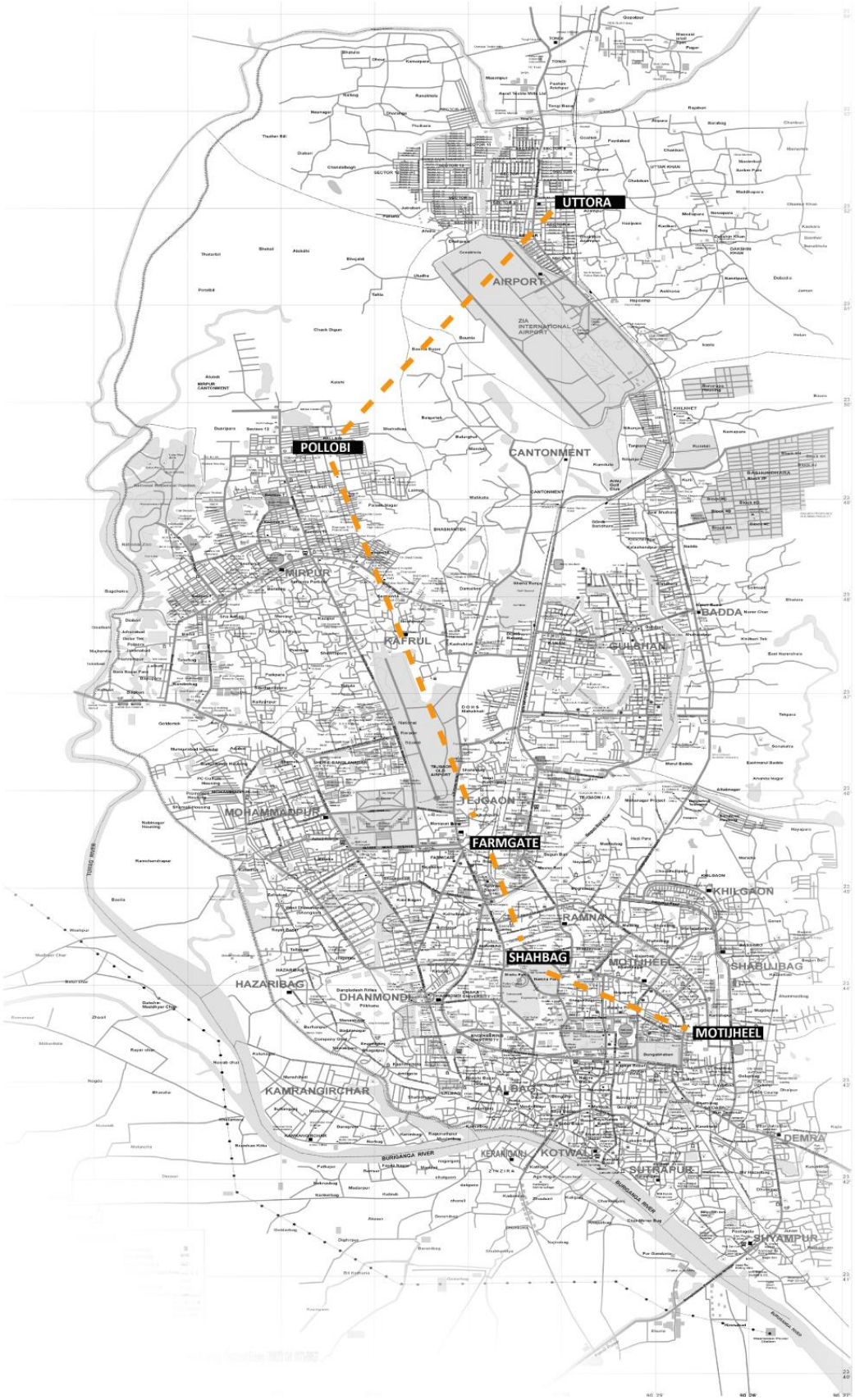


Fig 10: monorail proposal for Dhaka city on 2025. (source DTCA)

2.3: CURRENT SCENARIO:

Increase in population of Dhaka city (10.7 million in 2007) and infrastructural improvement e.g. dual Dhanmondi , Karwan Bazar and Gulshan area influenced a tremendous development of multi-storied shopping plazas with modern escalators ,elevators ,central air conditioning and undergoing parking.

Gulshan avenue has turned inti an area for posh restaurants ,private banks ,offices and specialized shops.

Gausia hawkers market exhibits a unique combination of traditional and modern system ,one storied tin shaded stalls with split level A.c.s in the passage .Demolition of Gulistan ,the famous cinema hall buildings and removal of ‘Mir Zumla cannon’ from the center place of the Gulistan area is another change worth mentioning.

Uttara , a recent planned model town , compromises a shopping area which can be identified as an outlying shopping district with its new glorious shopping plazas.

A typical characteristic of an indigenous commercial center is the mixing of the business and residences at the same place. Survey shows that during pakistan period abour 50% of the shop owners in the Chawk, Patuatuli and Banglabazar area lived along with their shops,whereas Gulistan and Motijheel areas were totally devoid of residential population.

2.4: SWOT ANALYSIS:

2.4.1: STRENGTH:

- One of the most connected place of the city.
- Various transportation system working, thus ease of mass access.
- Close proximity to monorail station project and car parking building project
- Close to landmark and important structures.

2.4.2: WEAKNESS:

- Poor traffic management.
- Poor waste management.
- Undefined public places

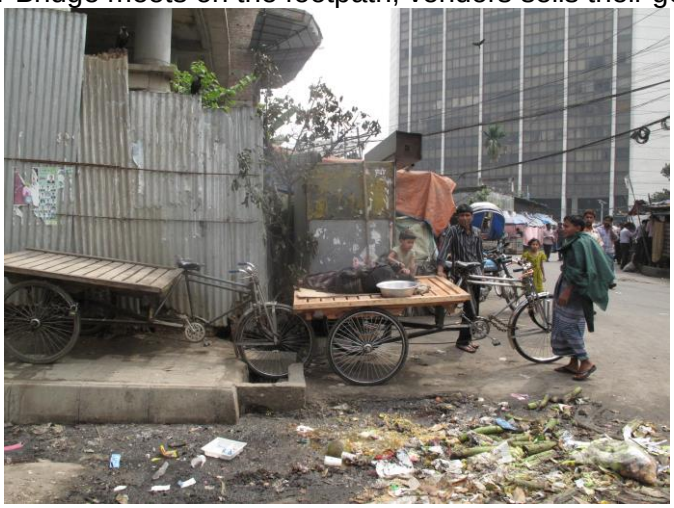
2.4.3: OPPORTUNITY:

- Has the potential to be developed in a vibrant CBD by incorporating diversified use.
- Potential public and civic places can be created.
- Create a transportation hub for monorail, bus station and other public vehicles, which will integrate with the office and commercial space
- Developed a Recreation and breathing space

2.4.4: TREAT:

- Threat of developing unplanned haphazard commercial spaces
- Misuse of government plot, and turn into small industrial zone
- Lack of diversified use as only commercial development is currently planned.
- Can be developed as a commercial dead zone, where no public spaces are allocated.

The foot over Bridge meets on the footpath, vendors sells their goods below it



The internal secondary roads are filled with garbage

WASA water pump

Restaurants for low income people, resting place for the bus/tempo/rickshaw drivers

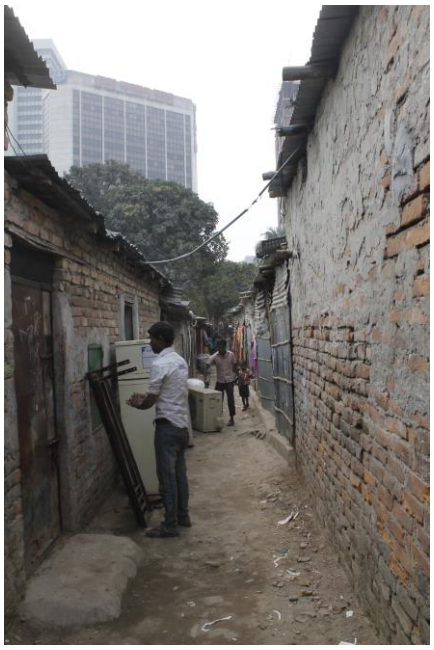
Various kinds of vendors on the footpath

Another Secondary Road filled with garbage collecting shops

Motor Workshop for cars and motorbikes

Police both beside the shapla chottor node

One of the few store house,view from inside and outside of the gate



Slum of 30 families

Road goes to residential building in the middle of the site

Building Under construction for shop

Fig 09: Site pictures.

CHAPTER 03: LITERATURE REVIEW

3.1: DHAKA CITY:

Dhaka city has undergone with massive changes in its social, economical, political, morphological and psychological aspects. Only these three facts are enough to give an impression

- 1947: Capital of Provincial East Pakistan: 336,000 inhabitants
- 1971: Political centre of new Bangladesh: 1 million inhabitants
- 2001: World‘s first megacity in a less developed country: >10 million inhabitant

As made clear in the introduction, this paper aims to show the potential of a designed architectural context in creating a positive impact in the city and ways it can be maximized by integrating it into the ongoing development. By no means is this treatise an attempt of city planning proposals or reformations but rather an analytical view of how the already planned development projects can be integrated, first in an urban scale and then on a city scale into a singly defined entity to achieve maximum efficiency. Since the idea sought after in this paper works with existing proposals of various developments, the planning issues are not scrutinized at all. Yet, it is important to analyze the city from various aspects map that is ever evolving at a rapid pace. No idea for the city should be conceptualized without a sound background of all the issues affecting the city. In this chapter, such an attempt is made to know the city better, not just from the viewpoints of urban issues but rather an overview of an array of perspectives on Dhaka and then arrive at a summary of the problems the city faces and current development proposals.

Dhaka is now a member of the —mega-city‖ family of the world. Dhaka, the fifth largest mega city, comprises Dhaka City Corporation (DCC) and five adjacent municipal areas i.e. Savar, Narayanganj, Gazipur, Kadamrasul and Tongi (BBS, 1991). The area of Dhaka mega city is 1,353 km2 of which DCC occupies 276 km2 (BBS, 2001). According to United Nation Population Fund (UNFPA) the total population of Dhaka mega city is now over 12.3 million of which population of DCC is about 8.4 million. According to Bangladesh Bureau of Statistics, population of Dhaka mega city and DCC is about 9.9 millions and 5.3 million, respectively (BBS, 2001). The population density of DCC is 19,286 per km2 which is more than double of the mega city average of 7,918 per km2.

The city is situated between 23°42' and 23°54' north latitudes and 90°20' and 90°28' east longitudes. It is surrounded by the river Buriganga on the south, Turag on the west, Tongi river on the north and Balu river on the east (Banglapedia, 2003). The geographical location and administrative units of the city is given in Figure 1.1. The city usually experiences characteristics of tropical monsoon climate with an annual average temperature of 25°C and 2000 mm of average annual rainfall (Wikipedia 2011). There are a number of services providing organizations. Of them, the key organizations are Dhaka City Corporation (DCC), Dhaka Metropolitan Police (DMP), Dhaka Water and Sewerage Authority (DWASA), Dhaka Electric Supply Authority (DESA), Titas Gas Limited, Bangladesh Telephone and Telegraph Board (BTTB), Rajdhani Unnyan Kortripakhkha (RAJUK), Dhaka Electricity Supply Company (DESCO) and Department of Environment (DoE) serving city dwellers with specific utilities (Siddique *et al*., 2000). Area under jurisdiction of different authorities serving Dhaka also varies. Dhaka Metropolitan Area (DMA) is somewhat larger than the DCC, and currently holds 21 police Stations. Dhaka Statistical Metropolitan Area (DSMA), which is considered as Dhaka Mega city. Rajdhani Unnayan Kartripakkha (RAJUK) has a Strategic Planning Zone-wise definition of Dhaka city which is known as Dhaka Metropolitan Development Plan (DMDP).

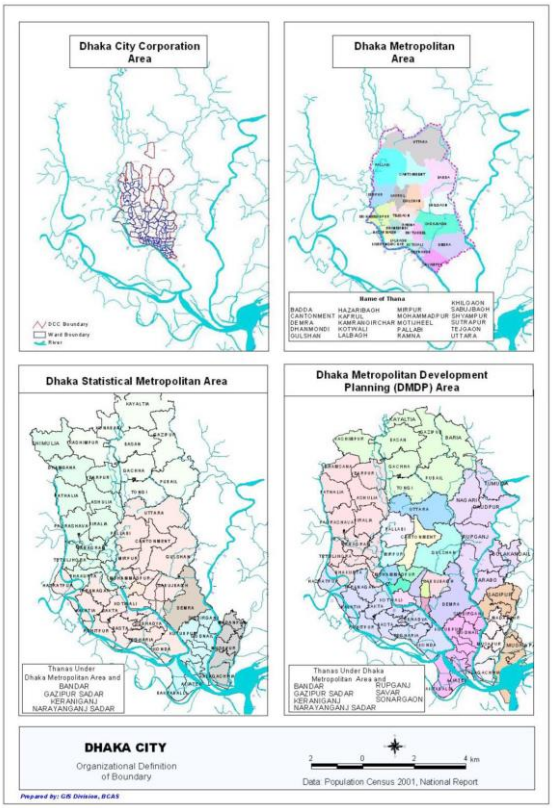


Fig 10: Various Organizational Maps of Dhaka City (Source: Bangladesh Bureau of Statistics 2011)

It currently consists of total 26 zones of which 19 may cover Dhaka Statistical Metropolitan Area, though the total area is about 1528 km2 (DMDP, 1997). Boundary of different authorities, and built up and low-lying areas of Dhaka city respectively. But it is true that most people think that Dhaka means the municipal corporation and few adjoining developed areas.

Historical sites and nature spots such as the Lalbagh Fort, Ahsan Manzil Museum, Bahadur Shah Park, Curzon Hall, Baldha Garden, Ramna Green, Suhrawardy Uddyan (Garden), National Park, Botanical Garden, Dhaka Zoo, Shaheed Minar, National Museum stand as witnesses to the legacy of Dhaka. Figure 1.3 depicts location of historical places of Dhaka city. Most of the government and non-government regulatory and administrative headquarters are situated in Dhaka. The advantage of multi-way communication system with all districts, location of primary international business house, trade and commerce play as the primary pull factor. Rapid and unplanned urbanization, commercial development, along with population pressure have made Dhaka an environmentally polluted city in the world. The surrounding river systems have become badly polluted due to chemical and microbial contamination by the industries situated on the banks of the major rivers and untreated sewerage discharge from large part of the city. The groundwater level of the city is also being affected with a fall of more than 0.75 meter per year (Hasan, 1996).

3.2: HISTORICAL BACKGROUND:

The existence of a settlement in the area that is now Dhaka dates from the 7th century. The city area was ruled by the Buddhist kingdom of Kamarupa and the Pala Empire before passing to the control of the Hindu Sena dynasty in the 9th century. The name of the city may have derived after the establishment of the Goddess Dhakeshwari's temple by Ballal Sena in the 12th century. Dhaka and its surrounding area was identified as Bengalla around that period. The town itself consisted of a few market centers like Lakshmi Bazar, Shankhari Bazar, Tanti Bazar, Patuatuli, Kumartuli, Bania Nagar and Goal Nagar. After the Sena Empire, Dhaka was successively ruled by the Sultanate of Bengal as well as interruption of governors from the Delhi Sultanate before being taken over by the Mughals in 1608.

The development of townships and housing has resulted into a significant growth in population came as the city was proclaimed the capital (Rajmahal) of Bengal under Mughal rule in 1608. Mughal subahdar Islam Khan was the first administrator of the city. Khan named the town "Jahangir Nagar" (জাহাঙ্গীর নগর; City of Jahangir) in honor of the Mughal emperor Jahangir, although this name was dropped soon after Jahangir's death. The main expansion of the city took place under Mughal general Shaista Khan. The city then

measured 19 by 13 kilometers (12 by 8 mi), with a population of nearly one million people. British East India Company in 1765 gained right to collect revenue (Diwani right) and later took over governing in 1793 when Nawabs of Bengal were forced to abdicate all their authority over Bengal, Bihar & Orissa & the city passed on to total British control.The city's population shrank dramatically during this period as the prominence of Calcutta rose, but substantive development and modernisation eventually followed. A modern civic water supply system was introduced in 1874 and electricity supply launched in 1878. The Dhaka Cantonment was established near the city, serving as a base for British and Bengali soldiers. During the abortive Partition of Bengal in 1905, Dhaka was declared to be the capital of the newly established state of East Bengal and Assam, but Bengal was reunited in 1911. Following the Partition of India in 1947, Dhaka became the capital of East Pakistan. The city witnessed major communal violence following the partition of India. A large proportion of the city's Hindupopulation departed for India, while the city received a large influx of Muslims. As the center of regional politics, however, Dhaka saw an increasing number of political strikes and incidents of violence.[15] The adoption of Urdu as the sole official language of Pakistan led to protest marches involving large crowds. Known as the Bengali Language Movement, the protests resulted in Pakistani police firing which killed a number of peaceful student demonstrators.[21] Throughout the 1950s and 1960s, Dhaka remained a hotbed of political activity, and the demands for autonomy for the Bengali population gradually gained momentum.

The 1970 Bhola cyclone devastated much of the region, killing an estimated 500,000 people. More than half the city was flooded and millions of people were marooned. With public anger growing against ethnic discrimination and poor cyclone relief efforts from the central government, Bengali politicianSheikh Mujibur Rahman held a nationalist gathering on March 7, 1971 at the Race Course Ground. An estimated one million people attended the gathering, leading to the March 26 declaration of Bangladesh's independence. In response, the Pakistan Army launched Operation Searchlight, which led to the arrests, torture and killing of thousands of people. After nine months of bloody battle with Indian Army and Mitra Bahini, the Pakistani Army surrendered to the Indian Army on December 16 marking the end of the independence war of Bangladesh. As the nation's capital, Dhaka saw a rapid and massive growth of the city population in the post-independence period, as migrant workers from rural areas across Bangladesh moved to the city. The growth of commerce and industry along with the city's population has created further challenges to services and infrastructure. A real estate boom has followed the expansion of city limits and the development of new settlements such as Uttara, Mohammadpur, Bashundhara, Mirpur and Motijheel.

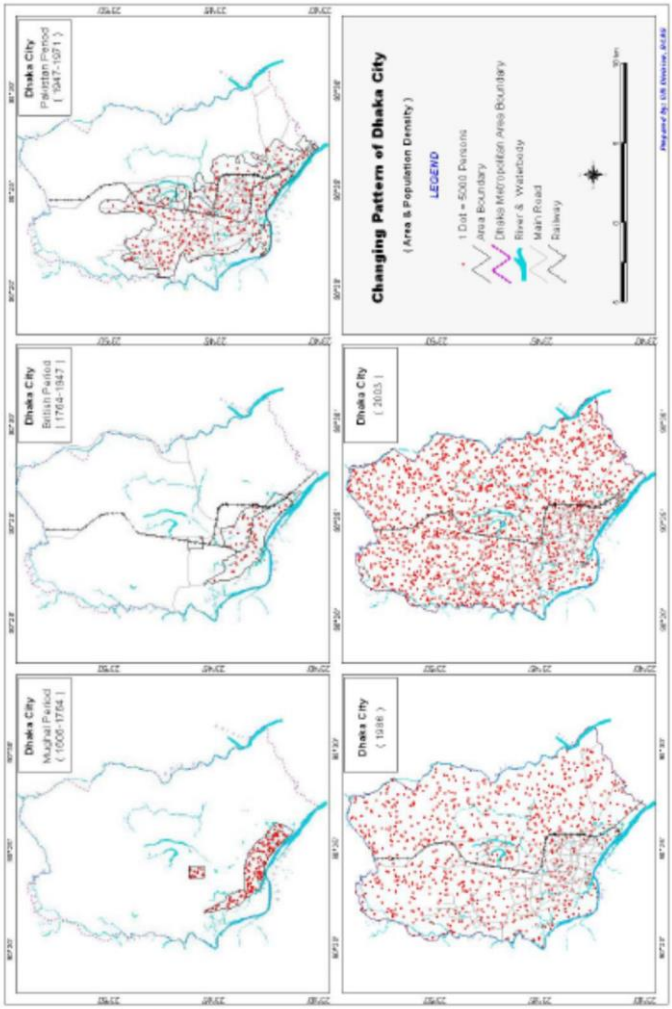


Figure - 1.4. Changing Pattern of Dhaka City and Its Population

Fig 11: Changing Pattern of Dhaka (Source: UNDP 2005)

3.3: LAND USE PATTAERN:

Historically, the use of land for development of city started from the present old town and along the bank of Buriganga River. Later it expanded towards the north, and the flow of expansion was more or less continued in most of the regime though the remarkable growth was observed after the independence. The spatial distribution of land use distribution of Dhaka city is shown in Figure 2.1.

Dhaka City Corporation (DCC), central nerve of the Dhaka Mega City, presently covers more than 25 percent of the total land area of mega city. In fact, after the liberation war, the physical feature of the main city has been changed and covered by rapid development both by the government and private sectors. These include development of commercial, industrial, educational, health, communication and residential sectors. Presently, the city

development including all the above sectors covers approximately 40 km from north to south and 14 km from the east to the west (DCC, 2004). Many areas of the eastern part of the city, being low lying, support agricultural practices, which ultimately meet a major part of the regular vegetables demand of the city dwellers.

Types of Land Use	**Percent of 208** km^2 before 1991 (UNESCAP, 2004)	**Percent of 275** km^2* After 1991 (Nishat and others, 2000)
Agriculture	46.8	46
Residential	25.32	22
Water Bodies	9.94	13
Industrial	2.49	1
Commercial	3.96	2
Institutional	1.63	4
Roads	--	6
Vacant land	3.09	--
Others	6.77	6

Fig 13: Land use distribution of Dhaka city. (Source: JICA, 1992, UNESCAP, 2004)

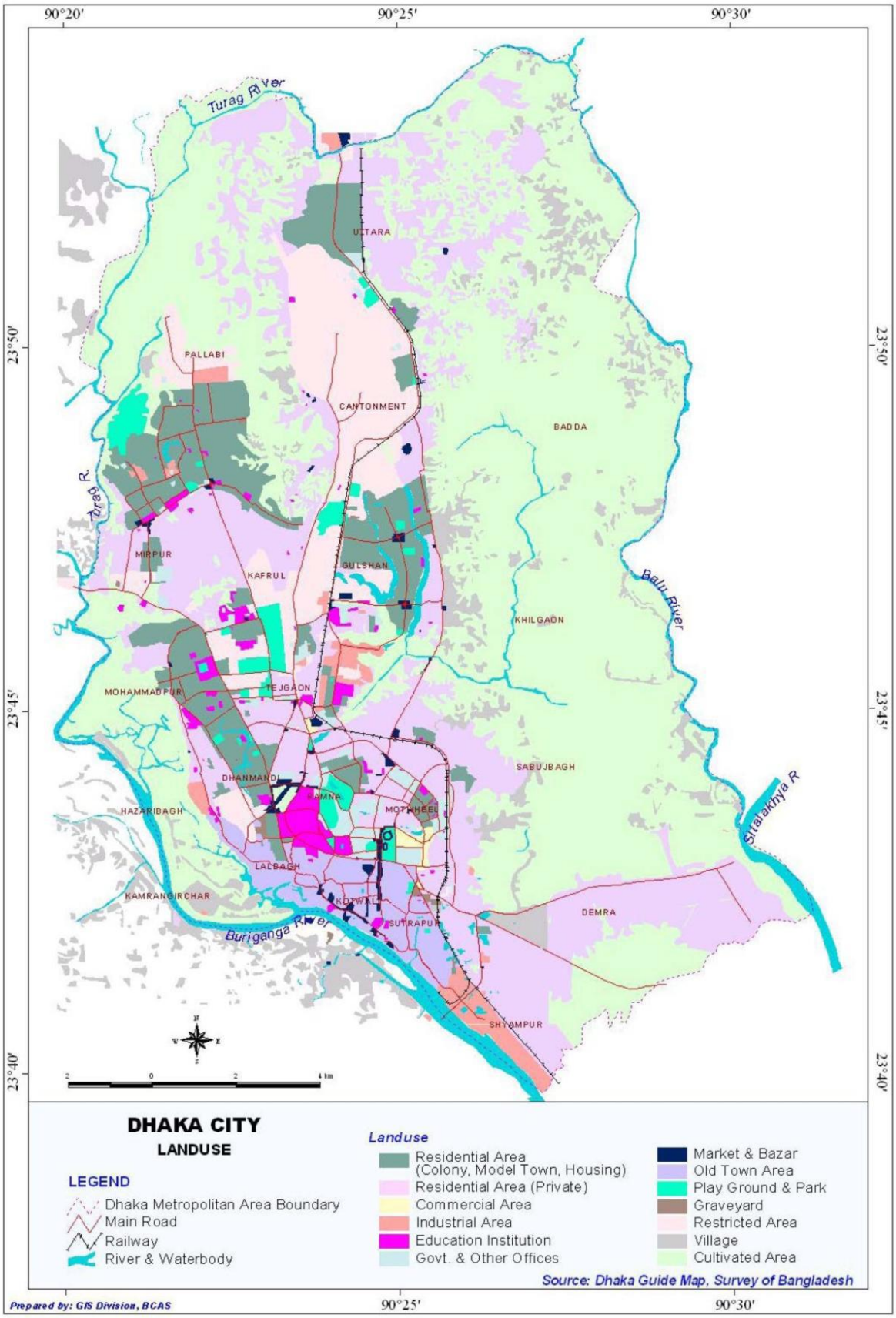


Fig 14: Land use pattern (Source: BCAS 2007)

3.4: TRANSPORTATION SERVICE AND MANAGEMENT:

According to the National Encyclopedia of Bangladesh (Banglapedia), the roads of Dhaka city occupy only 8% (2,230 km) of the total surface area whereas according to standards, at least 25% is required to facilitate a smooth transport system (Banglapedia, 2003). The width of the city roads vary from 6m to 40m, though some of the roads are found to be less than 6m in width in the old town (Meenar, 2000). The total length of the DCC roads in another report is 1,968 km, (Rahman, 1998) but according to DCC officials, the length is 2,300 km, of which 200 km are main thoroughfares, 110 km secondary roads, 152 km feeder roads and the rest are narrow lanes and by-lanes (The daily Star, January 18, 2004). The transport The high concentration of tanneries in the Hazaribagh area is the main source of water, air, soil pollution resulting occupational health problems. 27 Environment and Social Situation network of Dhaka city is shown in Figure 2.5. It is important to note that 300,000 rickshaws of Dhaka city account for 56% of the total vehicles which occupy 73% of its road surface (Ahmed, 1998 in Siddiqui and others, 2000). But the DCC has the registration for only 88,000 rickshaws (The Daily Star, Oct 26, 2003). The total number of registered motor vehicles up to 2002 in Dhaka was 293,973, which accounted for 39% of the total transport mode, whereas walking and rickshaws share 45.8% and 15.2%, respectively (BRTA, 2001). However, the government has taken initiatives to remove unregistered rickshaws and restricting their movement in some of the main roads. With rapid urbanization and excessive growth of population and settlements, the city failed to upgrade its road transport and network system, even though the growth of motor vehicles per year is about 6-7%, which is equal to or may even be more than the average population growth, (Siddiqui and others, 2004; DTCB, 2002). Of the proposed total of 59 electronic traffic signals, a few have already been installed in different parts of the city, particularly, in Gulshan and Dhanmondi. This will be controlled by the DCC as soon as the installation is completed. According to a daily newspaper, nearly 80% of the licenses of taxicabs are illegal though they regularly ply the roads along with the huge number of nonmotorized vehicles (rickshaws) and create severe traffic congestion (The Daily Star, 22 September, 2003). Bangladesh Road Transport Authority (BRTA), with the total manpower of 291, is responsible for the control and management of road transport (BRTA, 2004). The Dhaka Metropolitan Police (DMP) is responsible for traffic management. The DMP comprises a total of 2,008 people including 479 traffic sergeants and 1,406 constables (DMP, 2004). These two organizations work as the supreme authority of controlling the total road transportation and managing the traffic of Dhaka city, with the necessary participation of a few other organizations such as the DoE, DCC, BRTC and the private transport sectors. Bangladesh Inland Water Transport Authority (BIWTA) deals with the development, maintenance and control of inland water transport. The

river port established on the Buriganga River at the extreme south end of the city is used for water transport communication to all over the country. Bangladesh Railway is responsible for railway communication throughout the country. The largest station, the Kamalapur Railway Station, is situated at Kamalapur, close to the Motijheel area. The Civil Aviation Authority of Bangladesh (CAAB), an autonomous body is situated in the northern part of Dhaka. CAAB deals with all the aspects of aviation including airports, runways and air traffic control, control towers, operation and administrative buildings, car parking, air navigation, radio communication system, etc. Both domestic and international flights are handled at this airport.

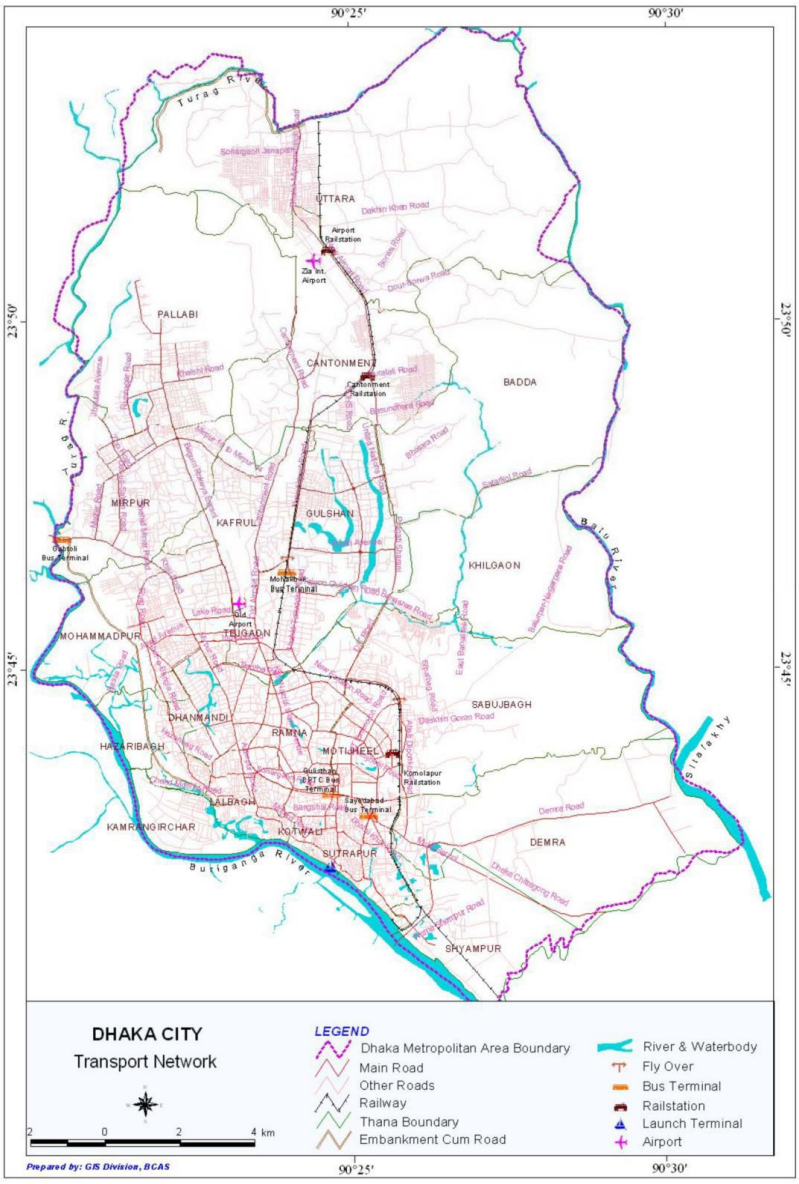


Fig 15: Transport Network (source: Dhaka Transportation Coordination Bureau, 2005)

3.5: SUMMERY OF ISSUES PLAGUING DHAKA:

First, there appears to be no coherent vision for addressing Dhaka's current fractures and impending futures. What passes for a master plan is a jumble of outdated and uninspiring zoning regulations and building by-laws. The destiny of the city has been given over to bursts of ad-hoc and uncoordinated decisions. There is simply nothing in place that guarantees the art, science, and business of city-building.

Second, the institutions entrusted with the planning and management of Dhaka have amplified the crisis. This is Dhaka's dreadful fate. The city's biggest nemesis are those who are entrusted with our destiny. With failures in urban planning and management, development in the last twenty years or so have fallen largely to private interests, which often act without regard to natural processes and resources, urban context, or social obligations.

Third, one can vandalize a city by building it. The very process of building and developing a city, if not undertaken with knowledge of urbanism, can destroy the qualities that are at the heart of urban life. Every day the people of Dhaka negotiate increasing signs of a civic deterioration that is, ironically, amplified in the name of building, development and progress.

Fourth, Dhaka is a traffic catastrophe, a narrative that needs no repeating. The street has become a circus that vividly depicts our general social behavior: self-centered, undisciplined, and life-threatening to others.

Fifth, Dhaka's environmental pollution is calamitous. There are factories in the city, brick kilns in paddy fields, and automobile exhaust everywhere, and yet Dhaka's citizens and authorities carry on with nonchalance -- economic interests dominate life and well-being.

Sixth, open spaces -- urban spaces, water bodies, parks -- are the most important ingredients of a city, like lungs to the body, and yet they are vanishing one by one in an avalanche of greed and manipulation by private interests often in partnership with the authorities. (Ashraf, 1998)

3.6: DEVELOPMENT PROPOSAL FOR DHAKA:

Since the idea of Dhaka Neural Network revolves primarily around the integration of existing development proposals, it is very important to dig out such proposals from all the various agencies employed in such endeavors and bring them to a common platform. Some projects are contradictory to each other and many are yet very controversial. As this paper looks at the idea from a conceptual point of view, it is not necessary to delve too deep into each proposal and fine tune the integration but rather, the following lists of relevant projects are important in providing the context and forming elements of the Dhaka Neural Network.

3.6. a: PROJECTS BY RAJUK:

ONGOING PROJECTS:

- New Township/ Housing Projects:
- Purbachal New Town at Yousufgonj and Rupgonj
- Uttara Residential Model Town (3rd phase)
- Detailed Area Plan (DAP) Project
- Jhilmil Residential Area
- Nam Village/Villa Apartments at Banani and Gulshan

LAKE IMPROVEMENT BEAUTIFICATION:

- Integrated Development of Hatirjheel Area Including Begun Bari Khal Project
- Gulshan-Banani-Baridhara Lake Improvement & Beautification Project
- Uttara Lake Improvement & Beautification Project

CAR PARKING:

Multistoried Car Parking-cum-office Building at Gulshan-1

Road Construction:

- Purbachal Link Road (Debogram to Progoti Sharai)
- Link Road between Bijoy Sharani and Tejgaon Industrial Area
- Internal Roads of Purbachal New Town
- Internal Roads of Uttara Residential Area (3rd phase)

OVERPASS:

Overpass from Bijoysharani to Tejgaon Industrial Area

FLYOVER:

Flyover at Kuril Intersection to connect Purbachal New Town

REHABILITATION APPARTMENT PROJECTS:

Rehabilitation for affected families at Hatirjheel Project Area

FUTURE PROJECTS:
NEW TOWNSHIP DEVELOPMENTS:

- Savar
- Gazipur
- Keraniganj
- East side of Dhaka

MAJOR ROAD PROJECTS:

- Extention of Madani Avenue to the Balu River(Proposed Eastern embankment)
- Widening of link Road from Indira Road to Phanthapath
- Link Road from near Sonargaon Hotel to Mohakhali Rail Crossing (along the railway Track & Behind Primeminister's offices)
- Link Road from Malibagh to Janapath
- Extension of Link Toad from Notre Dame College to Janapath
- Construction of Road from Kadamtali to Monikdee
- Constriction of Road from Bashabo Jame Mosque to Trimohonee to Shekher Bridge via Nandipara
- Construction of different internal Roads at DND Area

APPARTMENT PROJECTS:

- 20,000 Apartments at Purbachal New Town
- 22,000 Apartment at Uttara Residential Area (3rd Phase)
- 10,000 Apartments at Jhilmil Residential Area

CAR PARKING:

Multistoried Car Parking at Dilkusha Commercial Area

FLYOVER:

Flyover at Golapsha Mazar (Gulisthan) to Babu Bazar for connecting Jhilmil Residential Area

3.7: DETAIL AREA PLAN (DAP) (2005-2015):

The Detailed Area Plan which is the outcome of the last several years of extensive activities related to the preparation of physical plan of Dhaka, marks the completion of the process undertaken by the Rajdhani Unnayan Kartripakkha with the assistance of UNDP and UNCHS to prepare 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). DMDP is a three tier plan package of which 1st two tiers, viz. Structure Plan and Urban Area Plan were prepared during 1992-1995 period by the joint team of Consultants from home and abroad and counterpart experts employed by RAJUK. After a long gap, RAJUK initiated the task of preparation of Detailed Area Plan for the entire RAJUK area. In order to complete the task efficiently, RAJUK divided its control area into five groups and several locations and awarded five local consultancy firms with the work. The work was designed to be accomplished in five reports based stages spread over two years. Due to the problems of Mauza map collection and very complicated and time consuming physical feature survey process based on Global Positioning and Geographical Information System, time over run was unavoidable. As such, it took almost four years to complete the task. This is the final output of the process of preparation of the Detailed

Area Plan to guide the development of Dhaka in a planned manner befitting standard urban living of 21st century. This Final Report (Report-V) is the fifth of the series of the reports to be submitted under the Detailed Area Plan (DAP) for Group-C area. The Final Report is the most important report to be submitted as per TOR. The report describes about the Mauza level detailed development proposals on the basis of present situation. It incorporates the survey results, findings of stakeholders'consultations, formulation of planning principles and standards, development activities and proposals of other development agencies, private sectors and NGOs, integrated planning proposals, the broad land use plan and policies for existing and new urban areas and the detailed area plans.

3.8: URBAN DESIGN AND PUBLIC PLACE:

The terms urban space, public space or place, civic space, community, neighborhood are very closely related. They are all both prior and pro concerns of urban design. There is no commonly – agreed definition of urban design.

“ ..... (Urban design)Located in a “gray area between planning and architecture” (Davis, 1982, planning and architecture)

Urban design concerns the arrangement, appearance and functionality of towns and cities. Iin particular the shaping and uses of urban public space. It has traditionally been regarded as a disciplinary subset of urban planning, landscape architecture, or architecture. In more recent times has been linked to emergent disciplines such as landscape urbanism. So, urban design is the tool for shaping urban spaces which includes cities and towns and specially shaping of public spaces. That indicates that a city or town without proper public spaces indicates poor urban.Urban design theory deals primarily with the design and management of public space (i.e. the 'public environment', 'public realm' or 'public domain'), and the way public places are experienced and used. Public space includes the totality of spaces used freely on a day-to-day basis by the general public, such as streets, plazas, parks and public infrastructure.

A civic center is a prominent land area within a community that is constructed to be its focal point or center. The notion of civic center has changed by time and still varies city to city. It usually used to contain one or more dominant public buildings, which may also include a government building. But recently, the term "civic center" has been used in reference to an entire central business district of a community or a major shopping center in the middle of a community. In this type of civic center, special attention is paid to the way public structures are grouped and landscaped.

In some American cities, a multi-purpose arena is named "Civic Center", for example Columbus Civic Center. Such "Civic Centers" combine venues for sporting events, theaters, concerts and similar events.

Though the parameters & design elements of urban design or planning are too vast & immense in area and volume, one thing is obvious that it is the people or the dwellers or users that are the most essential concern of urban design. In a public space it is the behavior of public and using pattern of the place that determines livability, compatibility of the space and denotes how much effect it leaves upon the user as well as the city dwellers.

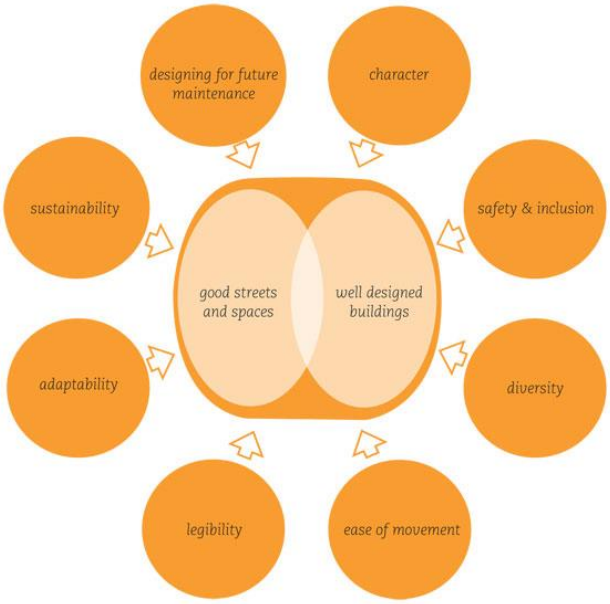


Fig 16: Urban design components. (Source: Davis, Planning and architecture)

3.9: Elements of Urban Structure:

City planners must weave a complex, ever-changing array of elements into a working whole: that is the perennial challenge of city planning. The physical elements of the city can be divided into three categories: networks, buildings, and open spaces. Many alternative arrangements of these components have been tried throughout history, but no ideal city form has ever been agreed upon. Lively debates about the best way to arrange urban anatomies continue to rage, and show no signs of abating.

3.9.1: Networks:

Every modern city contains an amazing array of pathways to carry flows of people, goods, water, energy, and information. Transportation networks are the largest and most visible of these. Ancient cities relied on streets, most of them quite narrow by modern standards, to carry foot traffic and carts. The modern city contains a complex hierarchy of transportation channels, ranging from ten-lane freeways to sidewalks. During the nineteenth century, rapid urban growth and industrialization caused overcrowding, pollution, and disease in urban areas. After the connection between impure water and disease was established, American and European cities began to install adequate sewer and water systems. Since the late nineteenth century, cities have also been laced with wires and conduits carrying electricity, gas, and communications signals.

3.9.2: **Buildings:**

Buildings are the most visible elements of the city, the features that give each city its unique character. Residential structures occupy almost half of all urban land, with the building types ranging from scattered single-family homes to dense high-rise apartments. Commercial buildings are clustered downtown and at various sub centers, with skyscrapers packed into the central business district and low-rise structures prevailing elsewhere, although tall buildings are becoming more common in the suburbs. Industrial buildings come in many forms ranging from large factory complexes in industrial districts to small workshops.

3.9.3: **Open Spaces:**

Open space is sometimes treated as a leftover, but it contributes greatly to the quality of urban life. "Hard" spaces such as plazas, malls, and courtyards provide settings for public activities of all kinds. "Soft" spaces such as parks, gardens, lawns, and nature preserves provide essential relief from harsh urban conditions and serve as space for recreational activities. These "amenities" increasingly influence which cities will be perceived as desirable places to live.

3.9.4: Evolution of Urban Form:

The first true urban settlements appeared around 3,000 B.C. in ancient Mesopotamia, Egypt, and the Indus Valley. Ancient cities displayed both "organic" and "planned" types of urban Since the 1950s, city planners have increasingly paid attention to the economics of urban areas. When many American cities experienced fiscal crises during the 1970s, urban financial management assumed even greater importance. Today, planners routinely assess the economic consequences of all major changes in the form of the city.

Several basic concepts underlie urban and regional economic analysis. First, cities cannot grow if their residents simply provide services for one another. The city must create products which can be sold to an external purchaser, bringing in money which can be reinvested in new production facilities and raw materials. This "economic base" of production for external markets is crucial. Without it, the economic engine of the city grinds to a halt.

Once the economic base is established, an elaborate internal market can evolve. This market includes the production of goods and services for businesses and residents within the city. Obviously, a large part of the city's physical plant is devoted to facilities for internal transactions: retail stores of all kinds, restaurants, local professional services, and so on.

Modern cities are increasingly engaged in competition for economic resources such as

industrial plants, corporate headquarters, high-technology firms, and government facilities. Cities try to lure investment with an array of features: low tax rates, improved transportation and utility infrastructure, cheap land, and skilled labor force. Amenities such as climate, proximity to recreation, parks, elegant architecture, and cultural activities influence the location decisions of businesses and individuals. Many older cities have difficulty surviving in this new economic game. Abandoned by traditional industries, they're now trying to create a new economic base involving growth sectors such as high technology.

3.9.5: Good City Form:

A most useful guide in this enterprise is Kevin Lynch's A Theory of Good City Form (Cambridge, MA, MIT Press, 1981). Lynch offers five basic dimensions of city performance: vitality, sense, fit, access, and control. To these he adds two "meta-criteria," efficiency and justice.

For Lynch, a vital city successfully fulfils the biological needs of its inhabitants, and provides a safe environment for their activities. A sensible city is organized so that its residents can perceive and understand the city's form and function. A city with good fit provides the buildings, spaces, and networks required for its residents to pursue their projects successfully. An accessible city allows people of all ages and background to gain the activities, resources, services, and information that they need. A city with good control is arranged so that its citizens have a say in the management of the spaces in which they work and reside.

3.9.6: Town Squares:

A town square is an open public space[2] commonly found in the heart of a traditional town used for community gatherings. Other names for town square are civic center, city square, urban square, market square, public square, and town green. Most town squares are hardscapes suitable for open markets, music concerts, political rallies, and other events that require firm ground. Being centrally located, town squares are usually surrounded by small shops such as bakeries, meat markets, cheese stores, and clothing stores. At their center is often a fountain, well, monument, or statue.

3.10: Street Vendors:

According to the Dhaka City Corporation there are around 90,000 street vendors in the city.They operate mainly in Motijheel, Baitul Mukarram, Gulistan, Shahbagh and New Market

Areas. Street vending is considered an illegal trade and the street vendors face constant harassment from the authorities. The vendors have to pay a sizeable part of their income as bribes in order to keep plying their trade. According to one report,2 vendors in the New Market area pay Tk 2,00,000 a month to a gang that shares the collection with the law-enforcement agency. Each vendor in this area pays around Tk 200 a month to run their business. In other areas such as Baitul Mukarram, GPO and Purana Paltan vendors pay the police Tk 5 daily to avoid harassment.

According to the Bangladeshi delegates who had attended the Asian Regional Workshop on Street Vendors held on February 10-12, 2002 in Bodh Gaya, India, the street vendors of Bangladesh were more vulnerable than those in the neighbouring countries due to poverty, lack of space for vending and lack of awareness about their rights. The positive aspect is that there is a fair level of unionization among them. There are several unions working among street vendors. The most important is the Bangladesh Hawkers' Federation as it is linked to the trade union federation of the ruling Bangladesh National Party. The federation has been negotiating with the government for a policy on street vendors. The first step towards this direction is of forging alliances with other trade unions of street vendors so that a national alliance emerges. This can in turn pressurize the government to take up the issue of a national policy for street vendors. However till such a consensus emerges, the street vendors in Bangladesh will continue to be regarded as illegal traders and will continue to be harassed by the authorities.

Political parties in Bangladesh continue to render lip service to street vendors, without doing anything concrete to improve their insecurity. For example, a news item in a popular daily in Dhaka newspaper had the following headline: "Huda assures hawkers to protect their rights". The report noted that while addressing a rally organised by Bangladesh Hawkers' Federation at Dhaka, barrister Nazmul Huda, communications minister, assured hawkers that he would provide them all support to protect their rights and continue their profession in the city. He added that the government is 'pledge bound' to protect the human rights of the citizens. After these statements, the minister launched on an attack on the opposition saying that they wanted to disrupt the development efforts of the ruling party and the people (hawkers) should ensure that these people are not voted into power. It hence appears that the hawkers were brought there mainly to support government policies and not for any concrete legal benefits. This approach is not unique to Bangladesh alone. In most countries where the number of street vendors is large, the ruling parties mobilise them for their political purposes. Due to their insecurity, street vendors tend to flock to these parties for protection. These parties use street vendors for their political gains, though the vendors themselves do not get any tangible benefits from this alliance.

3.11: Food Vendors:

Food vendors are an important feature in the cities of Bangladesh. A paper by Qazi Saif Uddin Ahmad, social welfare and cultural officer of Dhaka City Corporation provides interesting information on these vendors. He notes that the street food industry provides employment to women and migrants with low educational background. The prices of street food are low and the urban poor benefit from this. Day labourers, rickshaw pullers, migrants from rural areas and the homeless depend on street food vendors for their nutrition. However, because of poor hygiene people often fall ill after eating street food. They are mainly victims of water borne diseases. Ahmad feels that there must be cooperation between the municipalities and the police for proper management of street food vending. He suggests that municipalities can formulate rules and regulations for the management of street food vending, but these need to be enforced by the police. Hence the need for cooperation between the two authorities. How far this is feasible is anyone's guess. It is the experience in India that such rules only help increase rent-seeking among corrupt officials. They may not help in improving hygiene. A study conducted by the Intermediate Technology Development Group6 on food vendors in Bangladesh and Sri Lanka notes that as street vendors are in the informal sector, there is no systematic documentation of the number of street food vendors.

3.12: Elevated Rail (monorail):

The new Urbanaut Monorail Technology is an environmentally friendly, non-polluting transportation system that can relieve todays congested and unhealthy transportation environments.

The Urbanaut vehicles run on top of a narrow guide way that is approximately one-half the width of the vehicle. They are stabilized and locked to the guide way by a uniquely shaped center guide rail on top of the runway; derailment is virtually impossible.

The center guide rail is the primary guidance, and has many functions. It carries concealed power rails and electronic conduits for operation of vehicle and is also used for switching of the vehicle at all speeds.

For elevated guide ways, a standard, inverted U-Shaped beam way is applied that can bridge long spans between foundations. The cross section is engineered so the beam's inside open space is usable for many functions.

The dynamic forces acting laterally and longitudinally on the Urbanaut vehicle interact very close to its low center of gravity, which also coincides with the shear center of the beam way. Such innovative concepts create minimum rotation and moments on the vehicle bogie and the guide way and simplify, to a large degree, the overall monorail system, resulting in a much lighter and simpler vehicle, considerably less cost to install, manufacture and operate and maintain. At surface, on a bridge deck or in a tunnel, only the top slab of the guide way is needed.

In contrast to the straddle type monorail systems, which envelope and are dependent on a large massive beam, the Urbanaut is considerably smaller and lighter. Its smaller guide way is half or less the width and size of conventional transit and existing maglev systems, a major cost saving in comparison.Since the vehicle is stabilized by two drive wheels the center rail can be removed in enclosed areas and maintenance facilities and the vehicles then moved at will. This feature further effects the costs positively.

The Urbanaut is not dependent on a massive beam way as used in the straddle-type monorail systems, which use numerous wheels along the sides of the beam way to stabilize the very tall vehicle. Urbanaut is designed and engineered so that dynamic forces acting laterally and longitudinally on the vehicle interact very close to its low center of gravity (COG).

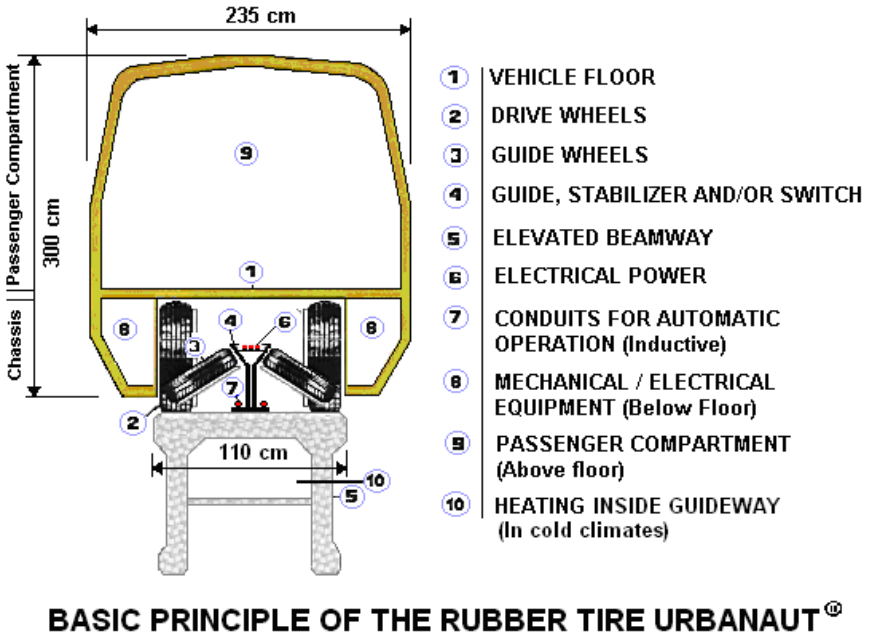


Fig 17: Basic section of monorail. (Source: Wikipedia)

3.13: Mixed-use development:

It is the practice of allowing more than one type of use in a building or set of buildings. In planning zone terms, this can mean some combination of residential, commercial, industrial, office, institutional, or other land uses.

Today's thoughtfully designed and visually striking mixed-use buildings are symbols of modernization and regeneration. Unlike traditional single-use office blocks which draw in commuters during the day and then close at night, these people-centric developments bring a vibrant 24-hr lifestyle to sometimes run-down areas of the city.

Depending on its size a mixed-use building can incorporate offices, flats, retail malls, restaurants, cinemas, health clubs, plazas, galleries and gardens. Designed to complement the urban fabric and reflect the aspirations of the local community, they allow people to live, work and enjoy leisure activities at a single convenient location.

Mixed-use allows developers to tailor the blend of elements in order to make the buildings more economically viable – on the ground floor, for example, shops may provide a better return on investment than offices. Importantly, planners favor them for the social benefits they can provide, such as the potential to include affordable housing in the residential mix.

Usually built on brown field sites, the buildings require complex infrastructure, including transport links, car parking and delivery access. Mixed-use presents many technical challenges: for example, the position of the load bearing structures has to change from level to level, going from the rigid grid of the underground car park to column-free retail space, then to residential room layout. Fire engineering is another key element in creating vibrant, attractive open spaces.

CHAPTER 04: CONTEXTUAL ANALYSIS

“Mixed-use urban complex is established when just two different urban functions are combined (for example shopping facilities with employment facilities in offices), but meaningfulness of multi functionality grows when one succeeds in combining a large number of urban functions within one physical framework.” Victor Grue (Grue, 1973, survival of cities)

The concept of mixed-use can be traced back to the classical Greek period when merchants conducted their trade at the Agoras. But these were open market places and the conventional mix-use that we know today took its root in Medieval Europe when town-squares became the core of any major settlement. These town squares became the trading places for guild of merchants where a number of pubs and lodges would also mushroom to provide lodging and amenities for these people. Through evolution these trading centers have evolved into the modern day mixed-use centers. These centers are usually located at the city centre or the C.B.D s, away from residential area.

In Bangladesh, ten to fifteen years back there was no large scale shopping centers except for the New Market and adjoining Gausia. But these centers are right in the middle of residential areas. The reason is people tend to do shopping in and around their residential areas and most of the shoppers commute by rickshaw. So we see commercial complexes to develop within residential areas.
When residential apartments are built in prime locations they compete with commercial development since the economic return from such schemes are greater than that from housing schemes. As shops run successfully when located near the street, the first few floors are developed as shopping spaces while upper floors are left for residential or office spaces thus evolved the mixed use centers, like Eastern plaza and Shanti nagar twin tower.

If we look at the urban use pattern of Chawk bazaar area at the beginning of the century we will see that the commerce and trading areas were consisted of buildings with shops at street level and the upper two floors were residences. So we see the concept of mixed use here , the only difference is that these would spread horizontally as there was a limitation to vertical circulation while their modern counterpart would rise to higher heights because of efficient and mass vertical circulation (ex. Lifts, escalators. etc.)

Motijhel is one of the major CBD area in our country. Unlike other CBD areas, motijhel do not have any co existing residential zone. This makes this part of this city so busy and rough. People who work here get exhausted. There is no recreational space in this huge area. No one can take a short breath for reenergize himself. Where people of most developing countries, build recreational spaces and working places together.

In any major nodal point of any city, traffic is one of the big problems. Motijhel is one of the busiest transport hubs in Dhaka city. People from all over the city come here and meets. Most of the banks, major corporate head office, insurance office, and shops are situated here. Our national Mosque Baitul mukarram also situated here. The human traffic is huge. To serve this large amount of consumer many street shops, food stall, vendors sits here and there. They block the roads, take the footpaths. There is no place for walking. A place must be designed for hawkers. Hawkers market is one of the solutions to control chaos.

Everything you see here is going through a haphazard manner. There is no system or any kind of urban planning applied. Thousand of cars, parks beside the main road. It makes the roads so narrow, vehicular movement become close to impossible. Buildings need to provide adequate car parking. Big commercial complexes should hold a car parking arrangement for the nearby area. Car parking tower or basement car parking is the only option in a CBD area.

The owner of commercial building never cares about these problems. They don't make their buildings according to the urban needs. The government also neglects these issues. A mega city like Dhaka can never run efficiently, if there is no proper urban planning. Every building, every structure should response to the urban needs.

The site is situated along with the shapla chottor node. The area of the site is 4.8 acre. This huge area, in such place demands a lot. Just build office spaces and commercial zones are not enough. The future consequences also need to be measure. Monorail is going to start from 2025, motijhel going to host one of the major station. This site is appropriate for holding a monorail station. In current situation a bus coming from fokirapul roads holds here. A designed bus stop and other public vehicular stands is a must.

Motijhel area lacks green spaces. Visually almost no green line is out there. People need to have more greenery for recreation. It helps to maintain the balance. Concrete junks affect the human mind, a breathing space is essential.

Urban life demands various kind of activity. People used to go to fitness centers. That needs to be close with the working place. So as shopping centers, convention centers, health club, restaurants etc. Art gallery, installation exhibitions, Cineplex, an auditorium also comes with it. All of this program must be situated side by side with the commercial zone.

So there is lot of function goes at a time in a CBD area. A commercial complex or mixed use building needs to provide all the urban services. Hold different kinds of function in one complex. These are all interconnecting and very hard to combine at a same time. That's the biggest challenge of designing any mixed used project in an commercial area. The vision is to create a flagship project, which will demonstrate the economic and social value of building high density structure, at major transport nodes.

CHAPTER 05: CASE STUDIES

5.1: CASE STUDIES 01:

(Easter plaza at Banglamotor, Dhaka, Bangladesh)

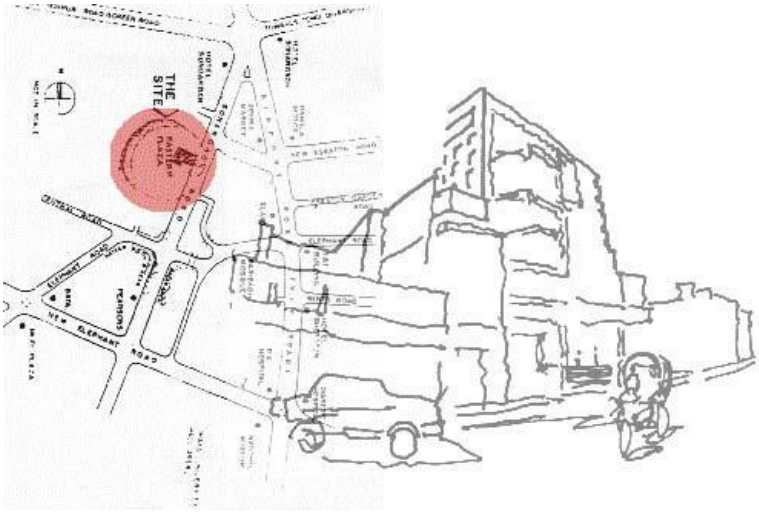


Fig 18: site location

5.1.1: PROJECT BRIEF:

The areas around elephant road and its neighborhood have developed as commercial zone in the last 30 years. Here residential plots are being converted to plots for commercial enterprises. Such is also the case for Eastern plaza. Eastern plaza (fig01) was built as a result of high demand for commercial development and absence of large scale and quality markets in Hatirpool area.

- Architect: A. Q. M. Musa.
- No. of stories 10
- Site area: 38,072 sq.-ft
- FAR ratio: 1:8.3
- Floor to floor height: 12 ft.
- Floor area: 3, 16,450 sft
- Shop size: 10'x12'= 120 sft , 10'x5'= 50 sft.
- Function: Shopping, Office, Doctors chamber

5.1.2: EFFECTS ON LOCALITY:

Due to the success of Eastern plaza, Hatirpool started to convert entirely into commercial areas. The residence is now breaking up to form more commercial complexes.

5.1.3: DRAWBACKS:

- Major traffic disturbance at Hatirpool and Paribagh (fig02)
- Rickshaws waiting in front of the entry create traffic congestion
- The continuation of foot path is disturbed by the vehicular entrance and exit

Fig 19: Traffic disturbance

Fig 20: Entrance and space allocation

5.1.4: ENTRY:

The entry to the building is through a double height space and easy circulation.(fig03) This Portal has created an appropriate street side facade allowing view into the building from the street and inviting the shoppers in.

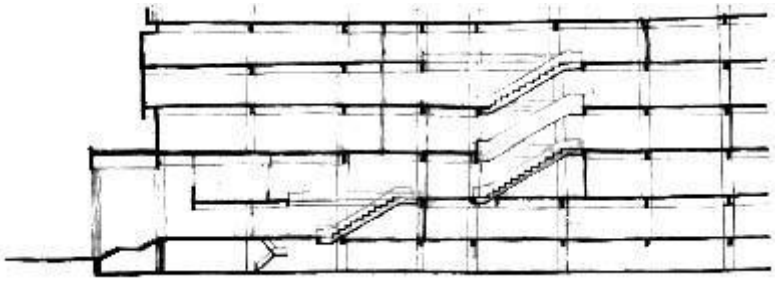


Fig 21: Section through entrance

5.1.5: PARKING:

- Originally 79 parking spaces are provided
- Inadequate set back in the drop off area
- Office entry is not properly expressed

5.1.6: STRUCTURE:

- Beam-column Structure
- The module (19:22, 24x22) derived from the analysis of parking lots

Project Information Source: Towfiqur Rahman, 2008, thesis paper: mixed used development, BRACU

5.1.7: COMMENTS:

- A landmark in the city
- Earn success as a commercial building
- The entrance of the building must be functional in terms of setback from road
- All functions should be expressed clearly in the scheme and also if possible in the elevations
- Circulation must be segregated for each function
- Inadequate Parking

5.2: CASE STUDIES 02:

(Proposition 2065- Urban Porosity, Sydney, Australia)

5.2.1: PROJECT BRIEF:

- Architects: Billard Leece Partnership (BLP)
- Client: Willoughby City Council, Altomonte Holdings
- Total Built Area: 29,000 sqm
- Program: Mixed-use
- Commercial Space - Office
- Retail - Shopping
- Community Centre
- Residential Units

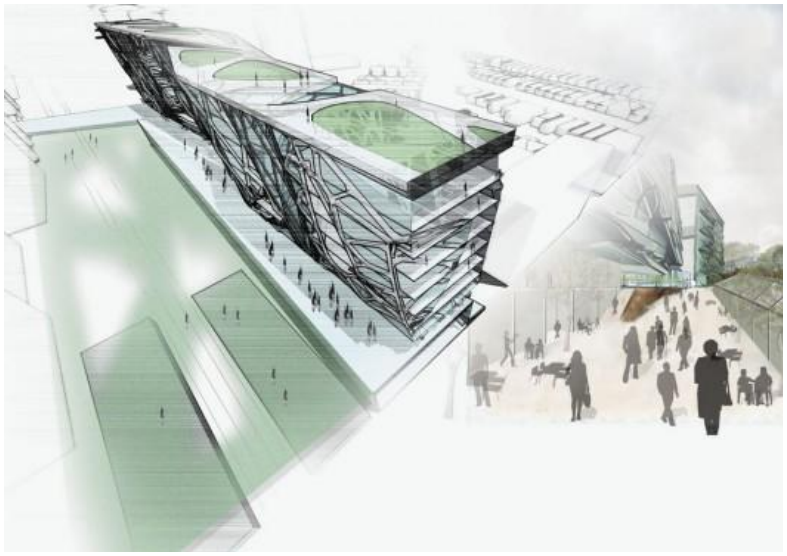


Fig 22: Rendered Illustration (source: arch daily website)

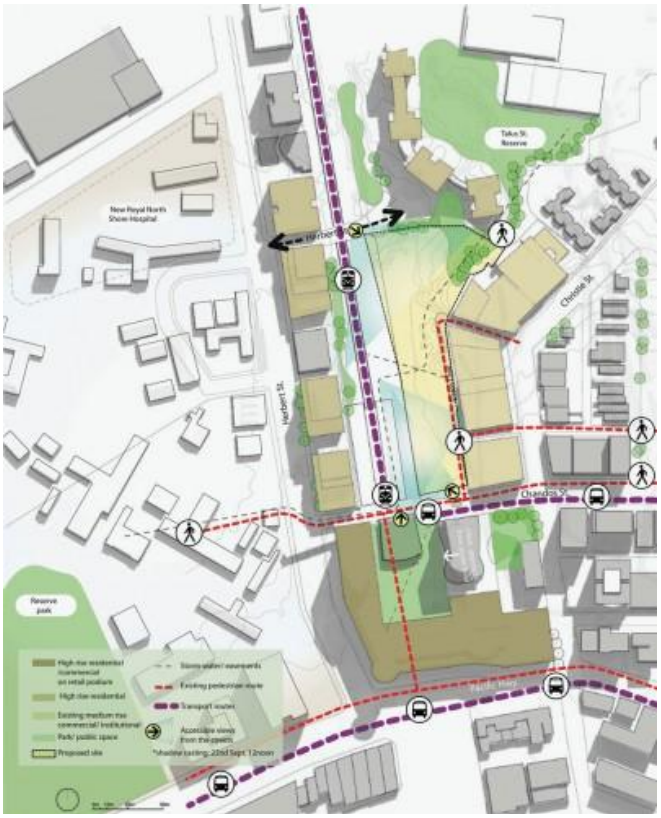


Fig 23: Diagrammatic Presentations of Key Concepts (source: arch daily website)

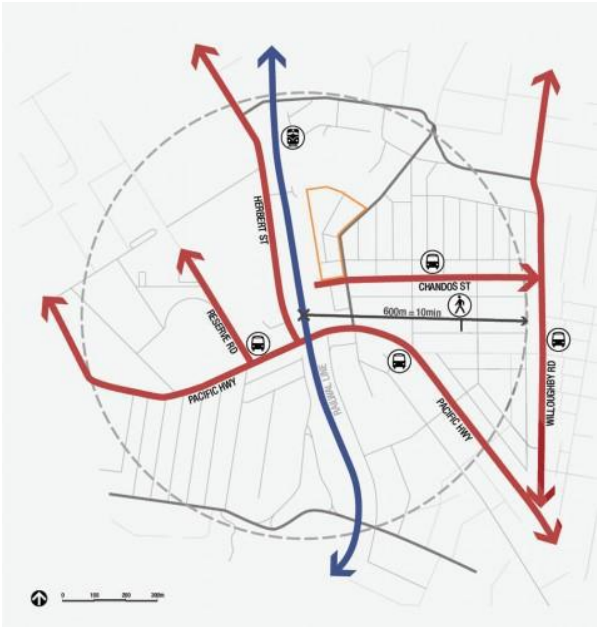


Fig 24: Diagrammatic Presentations of Key Concepts (source: arch daily website)

5.2.2: CONCEPT:

The principle concept for the site is to provide strong pedestrian connections between Chandos Street, Herbert Street and the Talus Street Reserve, whilst simultaneously creating a new public-access and commercial spaces for the inevitable expansion of the business district and incorporating the integration of cultural and leisure activities to the area.

5.2.3: DESIGN DEVELOPMENT:

Seemingly suspended over the new site datum, wiry buildings encase flexible floor-plates, divided by atria that align with the east west street grid, and occupied predominantly by commercial office space. The built form exposes the internal street with a site-imposed deformation that replicates the atria but exposes the pedestrian street below. The buildings are further articulated by responding to neighboring form and amenity: folding back from the residential tower at Chandos Street; perching next to the railway as a buffer; leaning back from the reservation. Internal site amenity is greatly enhanced by the shallow floor plate, allowing solar access, natural cross ventilation, views from and through the site. Visual bulk and overshadowing are curtailed to the north, south and east boundaries.

5.2.4: DETAILS:

The building skin is based on a steel exoskeleton rather than a traditional structural core model, providing open floor plates and extensive glazing. The main structural spines weave along the facades, containing, exposing and articulating an ornamental facade. The undulating new street and datum sweeps people under the ribbed soffits, discontinuously exposing the light and aspect of the atria above.

5.3: CASE STUDIES 03:

(The Shard, London, Uk)

5.3.1: PROJECT VRIEF:

- Architects: Renzo Piano
- Client: QNB Group, Qatari Islamic Bank, QInvest, Barwa Real Estate
- Program: Mixed-use

- Observatory
- Hotel
- Office spaces
- Retail - Shopping
- Residential Units

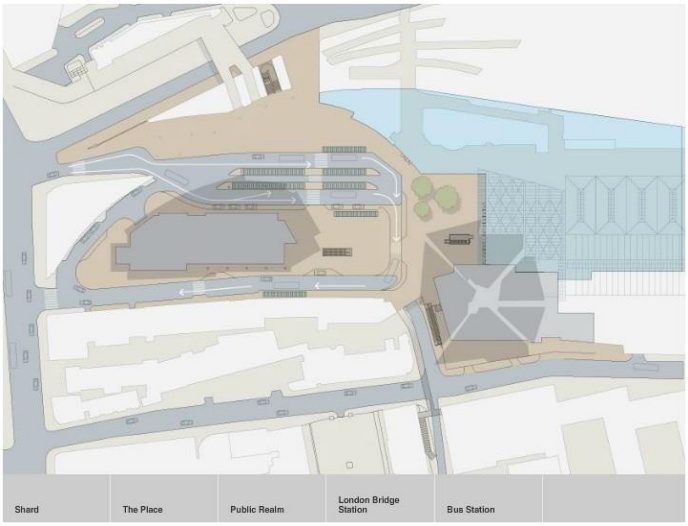


Fig 27: site location of the shard (source: the shard website)

5.3.2: CONCEPT:

London Bridge Tower, a 1,016 foot tall mixed use development in the central London borough of Southward, by the river Thames is being designed by architect Renzo Piano. Many have commented that it can only be solved by showing the people of London how his

design will respond to their concerns. Those against the project defend the English Heritage, claiming the building would interfere with legally protected views of St. Paul's Cathedral and "open the floodgates to high-rise development in the city's historic core." Those for the project believe it would identify London as a 21st-Century capital while filling a growing need for desirable office space in the city. Of course, there are always financial concerns outside the architect's control. The project, developed by Irvine Seller, is estimated to cost close to

£500m and as with most large-scale developments, will hinge on financing. But the more that Piano can show how beneficial the design will be for the city of London, a political blessing will go a long way to raising the necessary funds for its construction.

Piano himself refers to his design as a "Shard of Glass", describing the tower's design as a sharp and light presence in the London skyline, its shape generous at the bottom and narrow at the top, disappearing into the air like the mast of a tall ship. The tower is planned to be sheathed in glass, using a ventilated double-skin facade to reduce heat gain. The building's shape also lends itself to a pragmatic structural approach, and Piano has aligned himself with Ove Arup and Partners for both structural and sustainable design. Targeting a 30% reduction in energy compared to a conventional tall building, Arup's contributions will only help Piano realize his desire for human, technological, energetic and economic sustainability

In a dense city such as London, a mixed-use skyscraper project makes sense. Its location has excellent public transport connections as London Bridge station connects mainline and Tube trains and has a large bus depot. However, for such a building to become reality, concessions must certainly need to be made - concessions that Renzo Piano may not be willing to make. The longer the project takes to get started, the more it will cost. The developer has promised to honor a legal agreement he signed with the architect binding him to follow through on the quality that Piano demands. But if the building is still under construction in 2009, it might be hard to stay the course on quality with escalating construction costs and the pressure to complete the project.

Fig 28: The shard in London skyline (source: Wikipedia)

CHAPTER 06: PROGRAME AND DEVELOPMENT

6.1: EXIXTING PROGRAMES IN THE SITE:

- office and commercial spaces
- Urban resting place
- Car parking and Car repairing workshop
- Public transport station
- WASA water pump station
- Small slum of 30 families
- Street Vendors
- Restaurants and street food stall
- Garbage collectors shop
- Store house
- Private residence
- Police box

6.2: REQUIRMENTS OF SURROUNDING AREA:

- Recreational activity
- Public gathering spaces
- Public transport station
- Hawkers market
- Park and visual green
- Proper car parking

6.3: PROPOSED PROGRAMS:

6.3.1: OFFICE SPACES:

Fully rentable office towers is important as a part of CBD zone. Offices are organized into two zones:

- Public oriented offices: Travel Agency, Banks, Customer Care, etc.
- Client oriented offices: Specialized offices, Head-quarters, etc

6.3.2: SHOPPING:

Developing the CBD area, shopping area is essential. The various goods will ensure a social and economic mix of people. There will be 300 shops. Allocating 15,000 sft for these shops.size of the shops will vary as large, medium and small.

6.3.3: HAWKERS MARKET:

There are so many street vendors on shapla chottor site. They seats haphazardly and make chaos. There should be defined place for them. They will pay rents for it. Government gets revenue from here. People also come to this fixed places for street shopping.

6.3.5: CONVENTION CENTER:

To serve the CBD as well as the city, this mixed-use rentable program will ensure a lot of activity. It can serve as business conference centre, convention hall, exhibition hall and community centre.

6.3.6: RECREATIONAL FACILITIES:

The entire city people need the recreational facilities. The CBD area is always so tensed up. So there must be a resting place. They could take a break and breathe. Also diversify the users groups and create vibrancy.

Recreational Facilities are grouped in 2 zones:

CBD ORIENTED FACILITIES:

- Restaurants
- Fitness Centre
- Clubs
- Games Centre

CITY ORIENTED FACILITIES:

- Amphitheatre
- Auditorium
- Exhibition Centers
- Street Food Facilities
- Cineplex
- Food Court

6.3.7: TRANSPORTATION FACILITIES:

- **Connection with monorail station:** The monorail transportation service has already chosen motijhel as one of the station. The first monorail route is, uttora to saydabad via farmgate and motijhel. It has 16 stations on its path.
- Bus stop and station for other public vehicles
- Adequate number of car parking for the whole complex
- Car parking service for the shapla chottor area

6.3.8: AREA REQUIRMENT:

Program	Sqft/number	Similar example	Sqft/number
Office space	6,00,000 sft	City center Shena kollan Dorren tower	482,413 sft 321,000 sft 151,275 sft
Convention hall (only for office)	400 seats Area = 8000 sft	Raowa Marriot convention	1000,400,200 person in 3 halls 700 people
Seminar/conference room (only for office)	3 room Each serve 100 people 2000 sft x 3 Total are=6,000 sft	City center conference room	200 people in one room
Exhibition/gallery	400 people 10,000 sft	Drik gallery Novo theater level 1	2796 sft 14,719 sft
Club/gaming/bar	300 people 6,000 sft	Sakura bar Thunderbolt 4 lane bowling alley	1800 sft 3,000 sft
Fitness-gym/swimming pool	Gym 4,000 sft for 150 people Swimming pool 3000 sft	Bashundhora city Jamuna future park	2000 people 2000 people with separate swimming pools
Multipurpose hall for public	600 people 14,000 sft	Raowa Bangabandhu international conference center	700 people 13,500 sft 700 people 15,000 sft
Shopping	800 shops (600 of 100 sft and 200 of 200 sft module) Total area = 1,00,000 sft	Bashundhora city Eastern plaza	2325 shops (100 and 200 sft module) 380 shops (50 and 100 sft module)
Food court	50 shops 300 people seating capacity Area = 6,000 sft	Jomuna future park Basundhora city	100 Restaurant, Food Court 2500 Seating 100 food shops
Cineplex	2 movie hall 400 people in each 8000 sft each Area total = 16,000 sft	Bashundhara Cineplex jamuna future park	4 hall capacity of 1,286 seats 7 halls, 400 people each
parking	Total space = 7,64,000 sft 30% circulation = 2,29,200 Total = 9,93,200 sft = 92271 sqm 432 cars + 70 + 40 Total = 542	City center Bashundhora city	480 500
Hotel	200 people	Hotel purbani 450 people	1,25,000 sft

CHAPTER 07: CONCEPTUAL STAGE AND DESIGN DEVELOPMENT

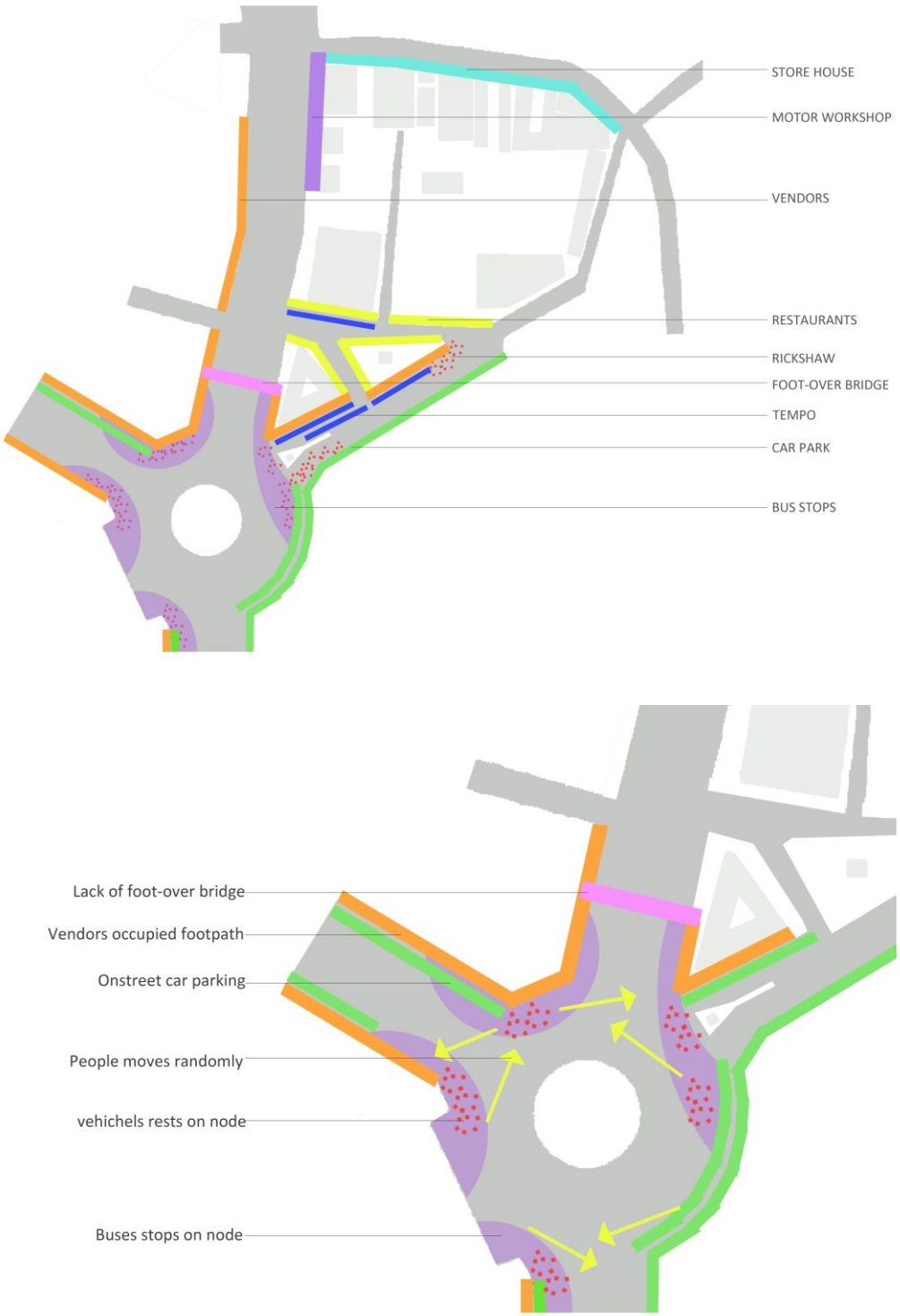


Fig 29: Site and node analysis.

ANALYSIS	DESIGN DICISION
Haphazard vehicular movement	Bus stand and tempo stand
Lack of green	Introducing green horizontally and vertically
Lack of recreation	Introducing different recreational activities
Parking on road	Parking facilities public/private
Uncomfortable office space	Properly designed office
No space for pedestrians	Design walkways
Haphazard food stall on footpath	food court
Not enough hotel services for the visitors	hotel
Lack of urban facilities for the residential neighborhood	Shopping, multipurpose hall, gym
Lack of visual connection with functions and people	Create a nodal public realm , underground connection ,visual connection towards residential block

Fig 30: Site analysis and design decisions.

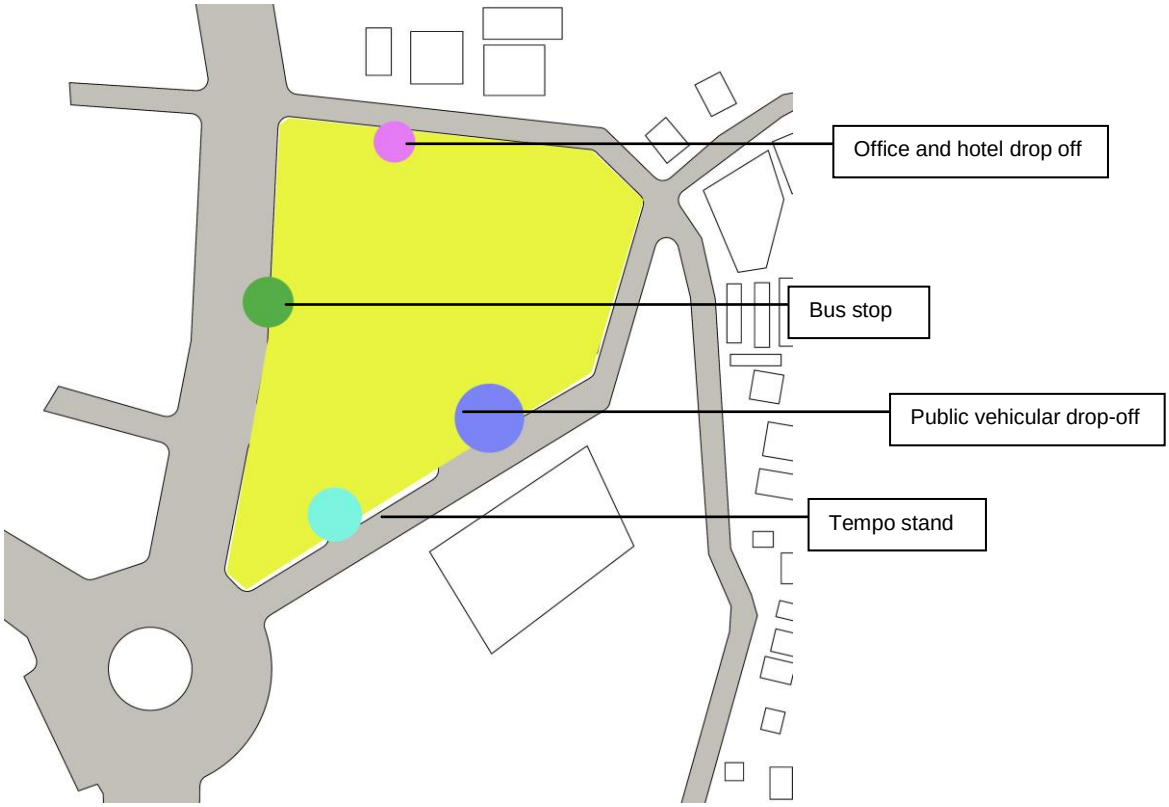


Fig 31: Design concept..

7.1: DESIGN CONCEPT:

Analyzing the site the first step was to makeit a single block, so that there will be more free space on ground.people can use it as civic space which is much needed in motijheel. Also to clear the alongside road and the node proposed a bus stop and tempo stand for public. For this the site will get advantage on FAR calculation.

Alongside road designed wide for a better vehicular movement. A strong connection from motijheel to komolapur railway station Designed. There is also two separate drop off designed for office and hotel service. And another one is for civic activities.

7.2: FAR CALCULATION:

Site area = 195040 sqft = 18120 sqm = 270.8 katha = 4.48 acre

FAR = 9.5 (for side road 12m/40 feet)

MGC = 50%

*(50% of uncovered area must remain unpaved for drainage)

FAR = maximum built area/ site area

9.5= 18,52,880 sqft/195040 sqft

Set back = front 1.5 meter, back 3 meter, side 3 meter (building height over 33m)

Fig 32: Study model,massing.

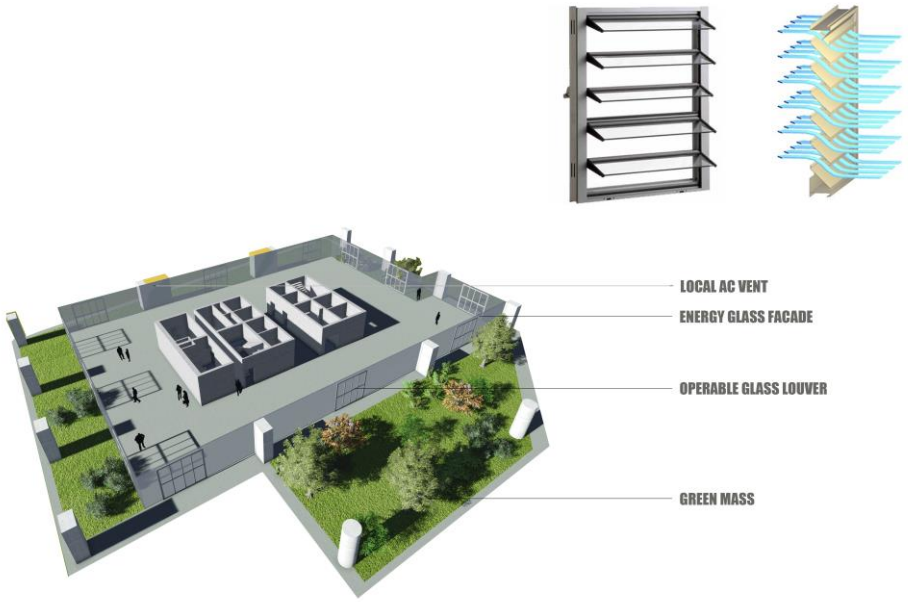


Fig 33: placing green on vertical space and façade design.

7.3: FAÇADE DESIGN:

The tower is north-south oriented for the passing cross ventilation. On the south side maximum amount of green is placed for passive cooling and bioclimatic approach. On the west a 10 feet green strip is placed to protect the users from heat and better comfort. The floor to ceiling full glass is triple glazed energy glass, which protect heat and uv rays and makes electricity from natural and artificial lights. Strips of louver are installed on the façade for the better passive cross ventilation, naturally.

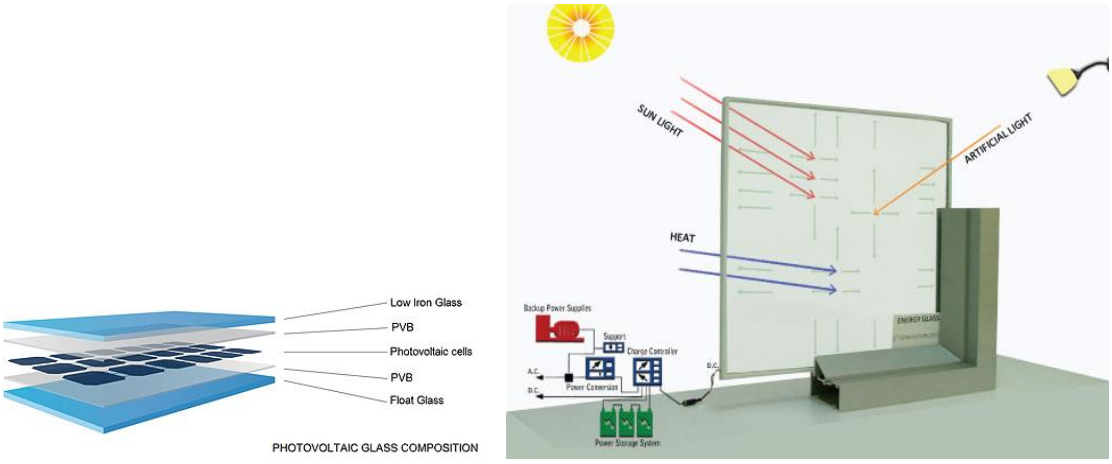


Fig 34: Energy glass design.

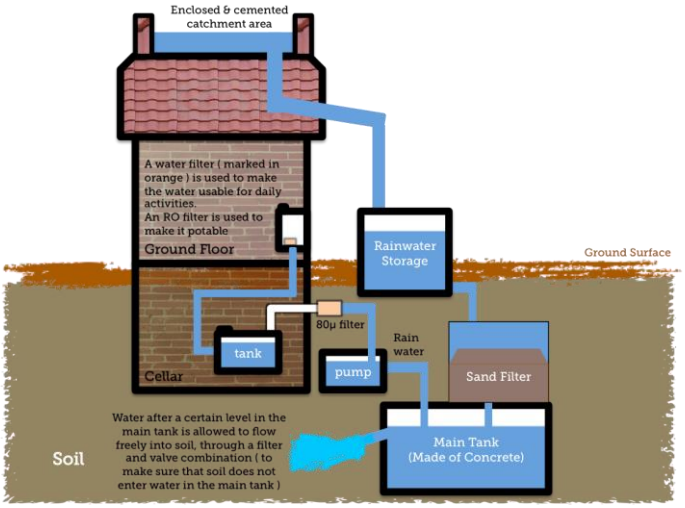


Fig 35: Rainwater Harvesting Process.

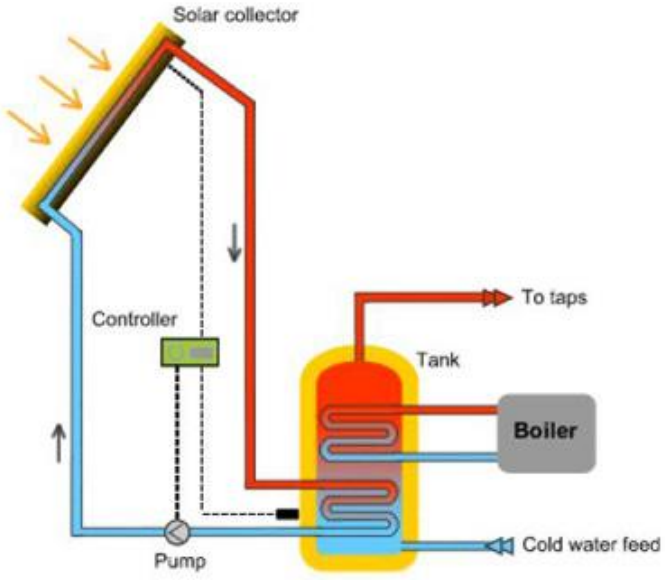


Fig 36: Solar thermal water.

7.4: SUSTANAIBLE DESIGN CONCEPT:

Dhaka city need a sustainable design solution. A high-rise building can adopt many sustainable solutions. Rain water harvesting, solar thermal hot water, green for passive cooling, energy glass which will protect both from heat and uv rays and produce produces 1-2 watts per sq. ft. per hour for 10-12 hours during the day and 4-5 watts at peak dependent on location.100 percent naturally ventilated shopping corridors by ensuring natural cross ventilation.

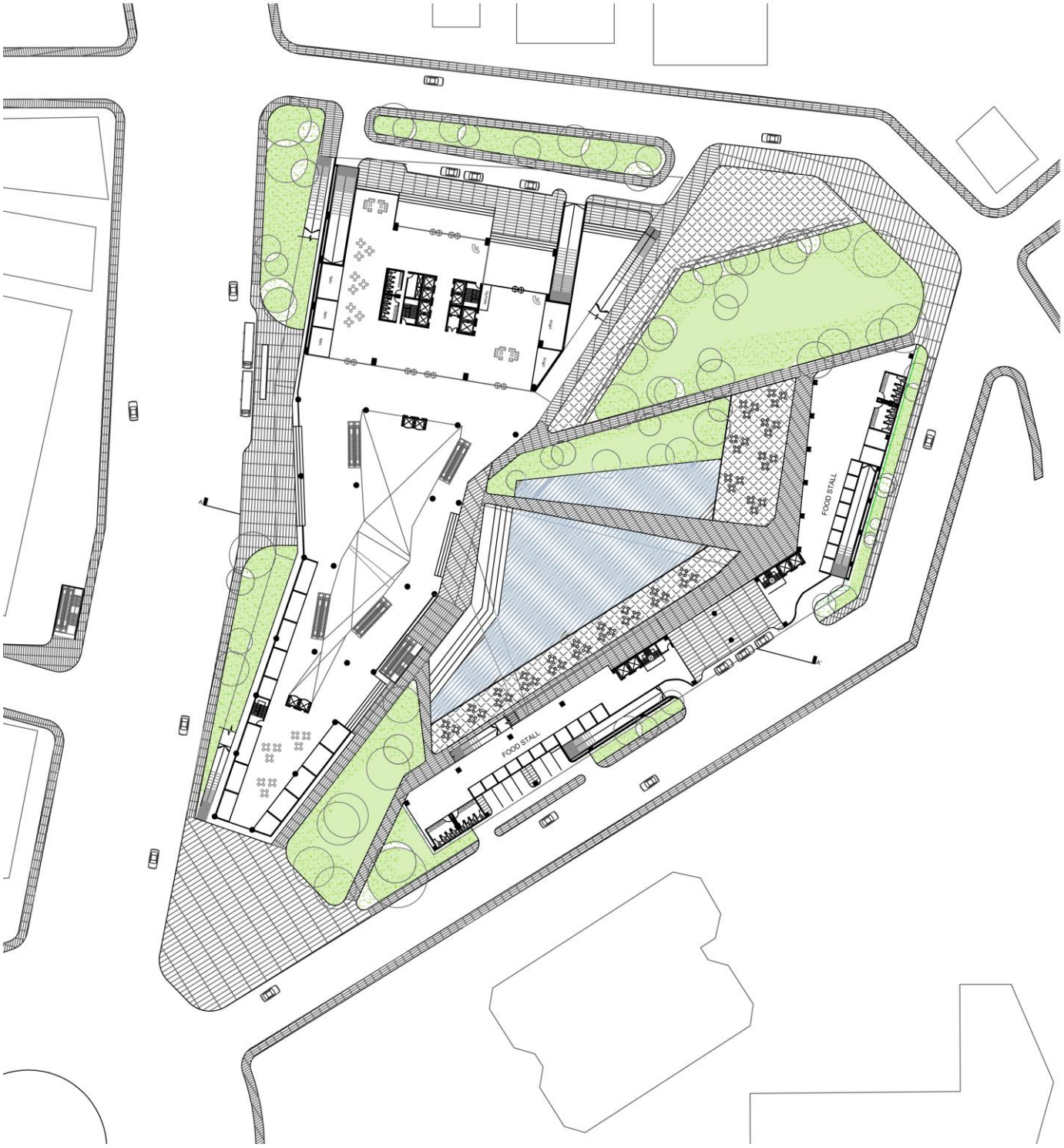


Fig 37: Ground Floor Plan at level +2’

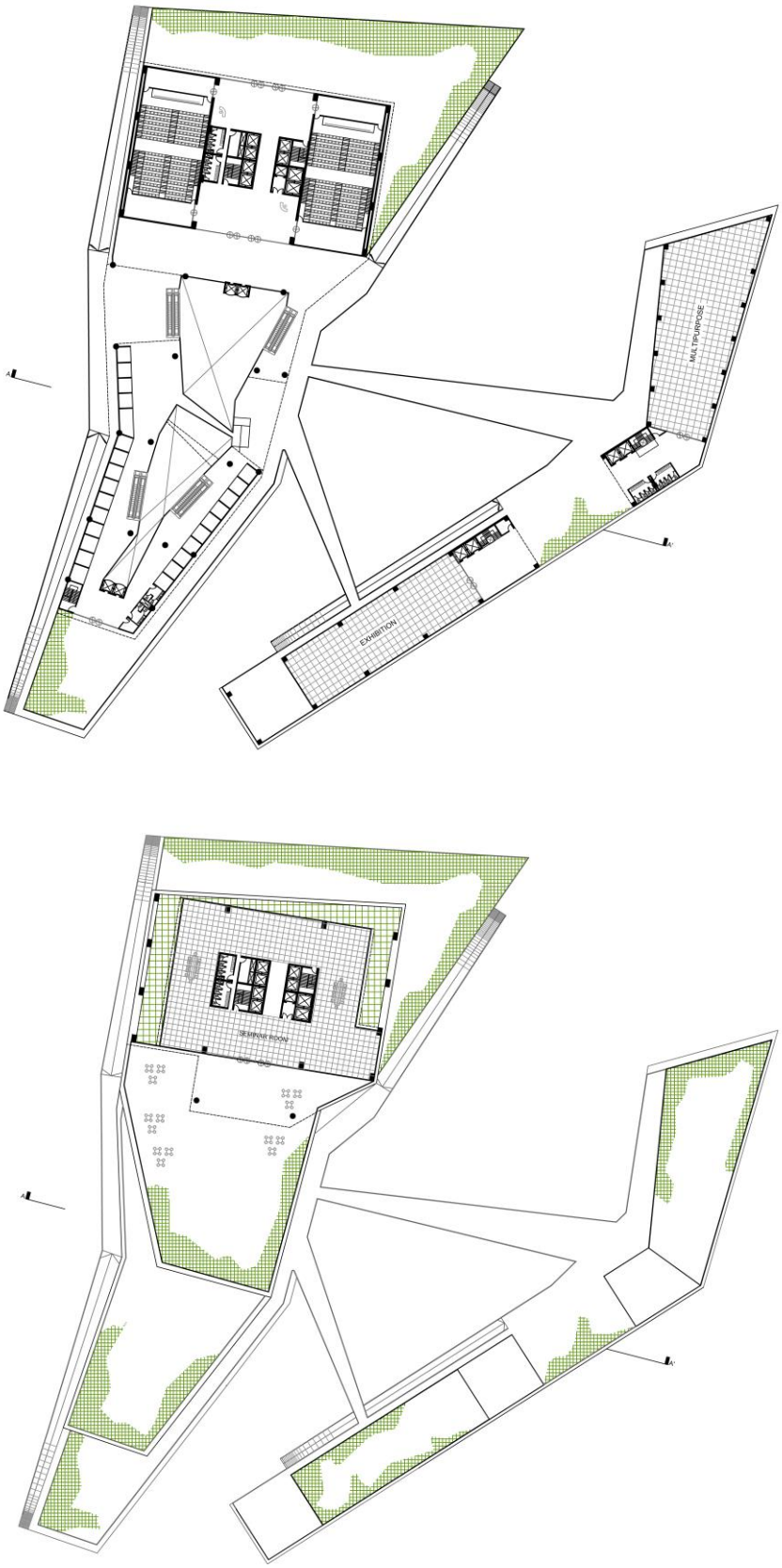


Fig 38: Plan at level +20’ and level +95’

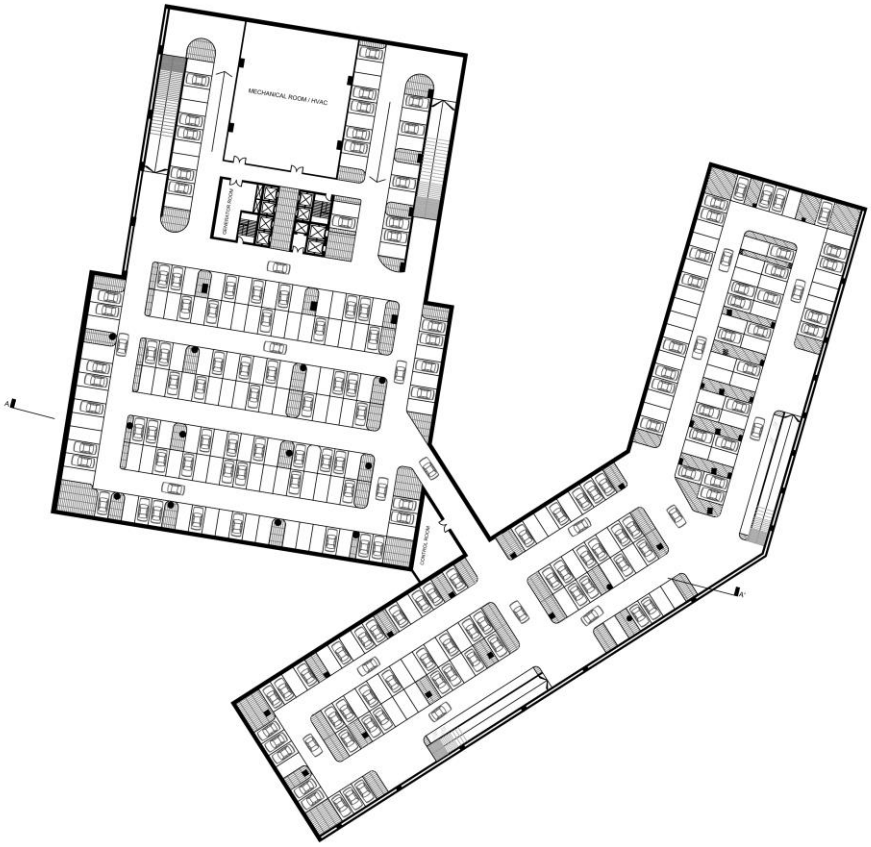
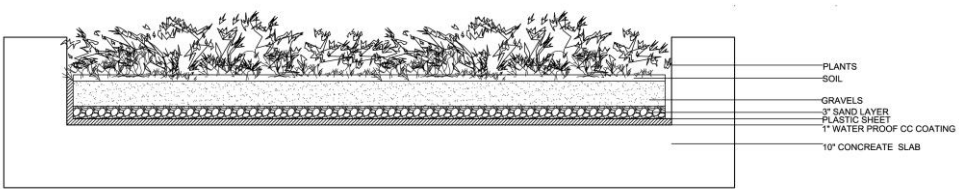


Fig 39: Basement 1 plan at level –10’



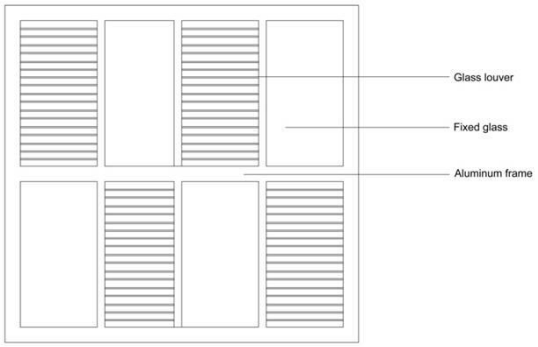


Fig 40: detail drawing of planter box and façade louver.

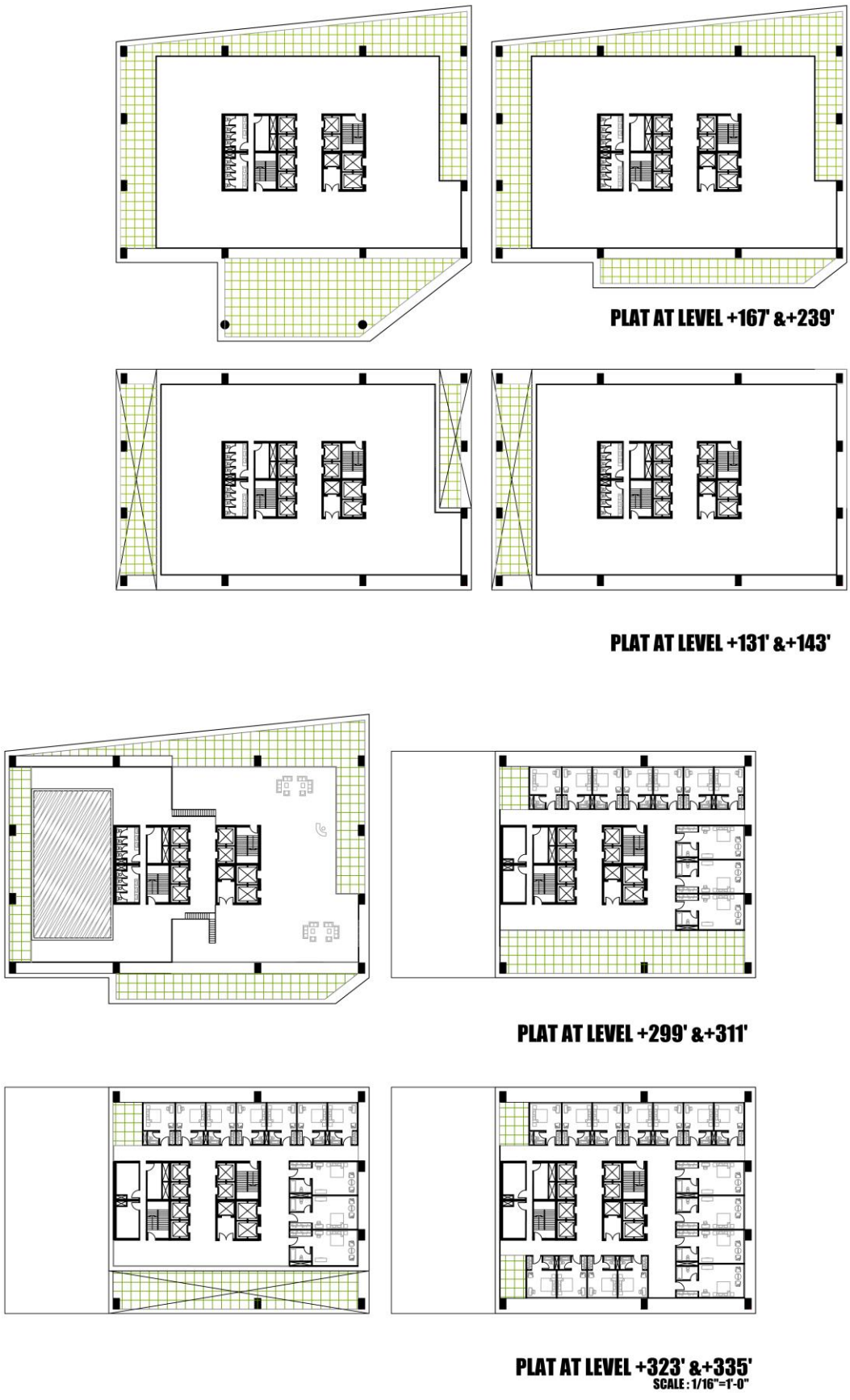


Fig 41: Office and hotel floor plans

Fig 41: East elevation and section AA’

Fig 42: Sustainable approaches and 3d view.

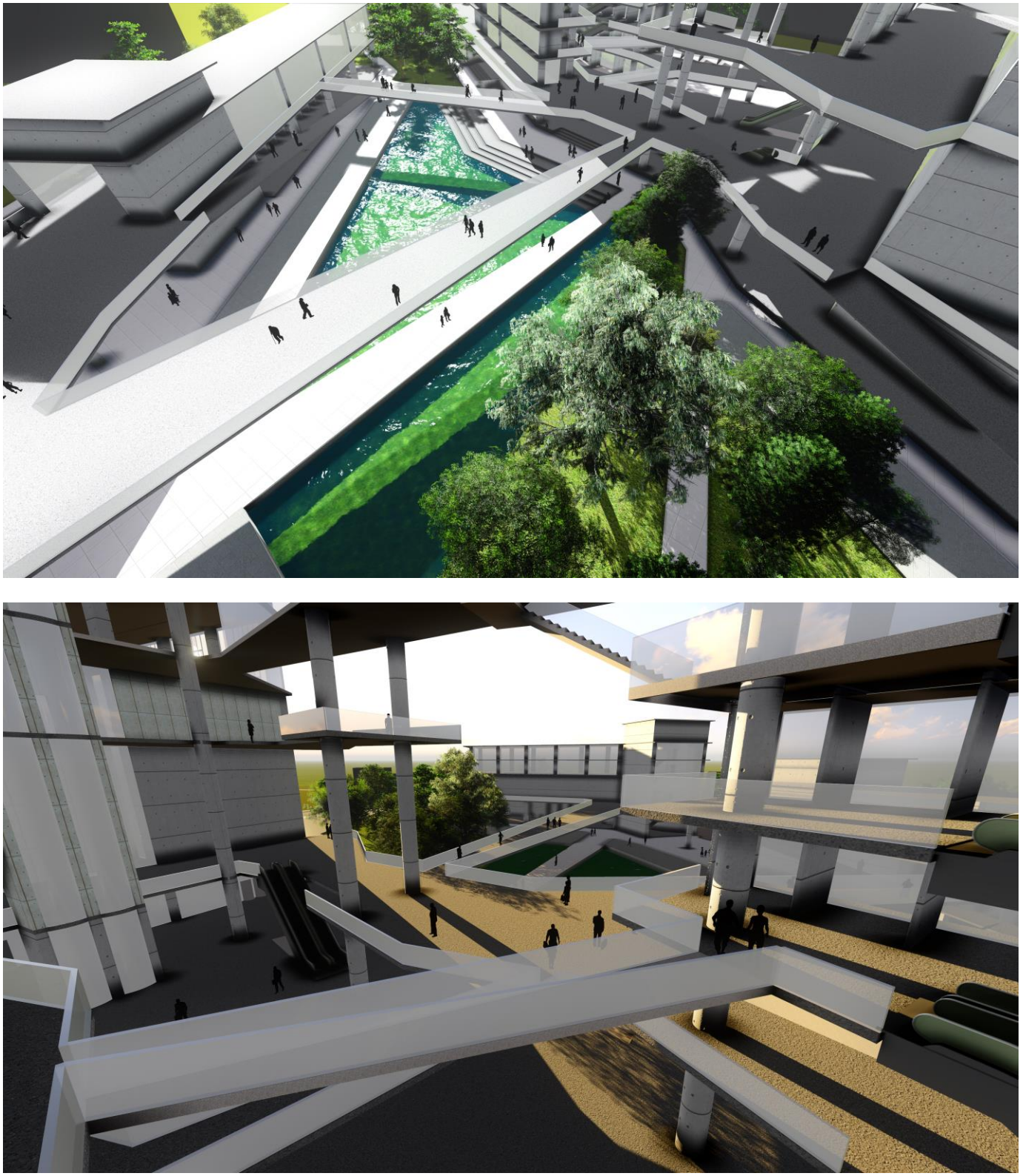
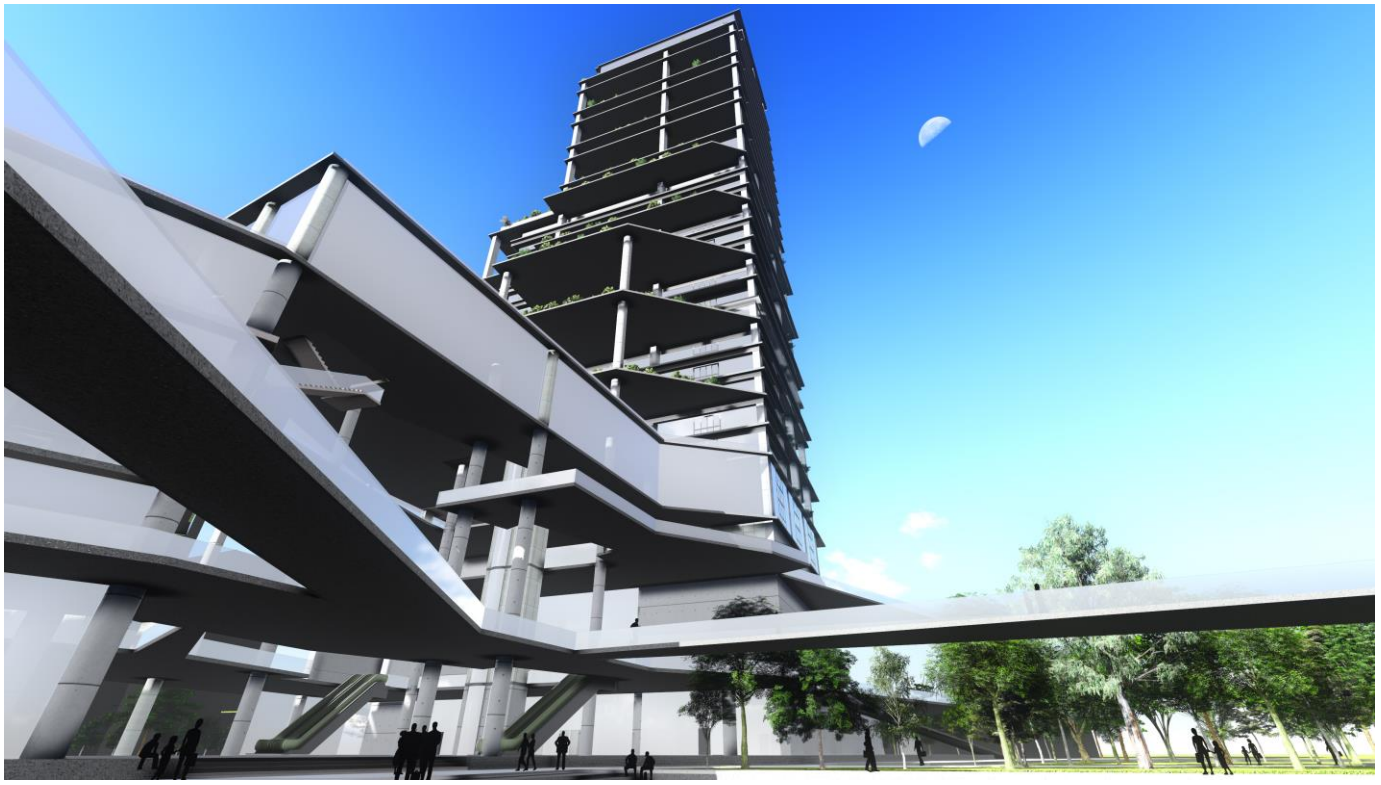


Fig 43: view of the urban courtyard and shopping atrium.



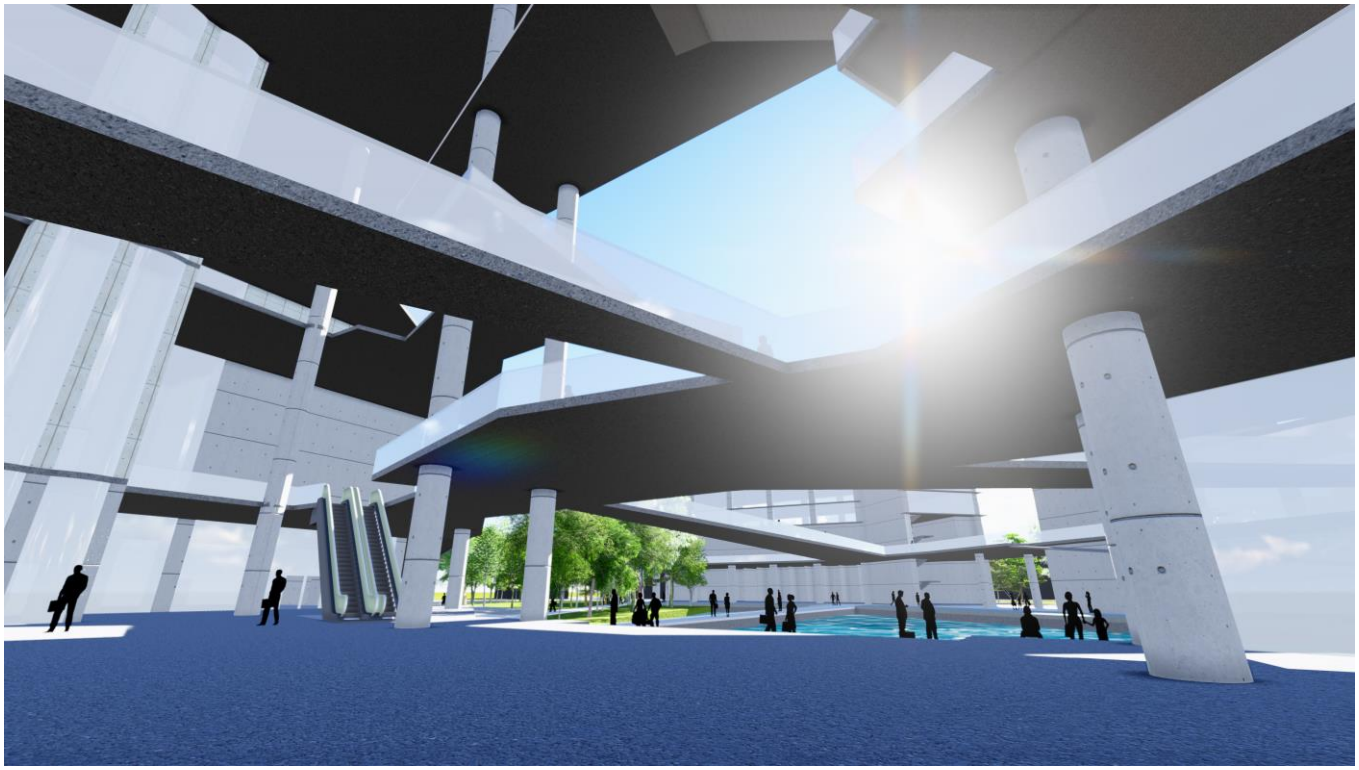


Fig 44: Exterior 3d views.

CONCLUSION

Urban problems are very critical to handle and people suffered most with these. Things are possible to solve with a proper planning. If we don't start to plan this area, and address the urban needs in future it's going to be very difficult to handle. People design only their own building here, ignoring the impact of the surrounding. But in a city like Dhaka we have to deal with the urban issues, there can't be any single building standing out alone neglecting the context. This project comes with these thoughts that we have to start planning. We should design these commercial buildings according to their urban needs. These ideas are implemented in the design proposal for the Motijheel CBD area. Which will detailed to illustrate for an integrated development. Also it will develop guidelines, for future developments.

The idea came up with very basic analytical functions of what, why, how, where and when. Dhaka city need a sustainable design solution. Rather creating more new projects or function we need to rearrange all these functions. Understand the needs of people who lives/works there. And serve those people. The building must co ordinate with the urban context for a better living.

REFERENCE

Victor Gruen, *Centers for the urban environment: Survival of the cities*, Van Nostrand Reinhold, New York, 1973

Rajuk , Future development projects section, http://www.rajukdhaka.gov.bd

Erik Germen and Solana pyne, September 8, 2010, the global post website

A look into Dhaka, March 8, 2013, RISE society, http://risebd.com/author

Land use distribution of Dhaka city, JICA, 1992 in Nishat, 2000 and GOB, 1989 in UNESCAP, 2004

The World Bank (2005), —Annual Report on Dhaka", Dhaka

L.Davis, 1982, planning and architecture

Ashraf, Kazi Khaled (2008), "A New Dhaka Is Possible", Forum, the Daily Star

Detailed Area Plan (2008), RAJUK, Dhaka Metropolitan Development Plan

Dhaka Transportation Coordination Bureau (2005), Strategic Transport Plan

The Financial Express (2007), Vol 3 Num 321, articles by correspondents

New Age Xtra (2008), The Hatrijheel-Begunbari Projectll, News desk