REDESIGNING THE AZIMPUR COLONY

Housing Complex for Government Employees

Azimpur, Dhaka

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ABSTRACT

Housing in Dhaka, in the most crowded urban communities in the world has turned out to be more a need than desire. Due to economic reasons, Dhaka is as of now with shortage of grounds for giving home to its tenants. Thus, alongside the extension of the region of Dhaka, Government is anticipating go for multi-storied lofts as housing arrangements inside the city. Government of Bangladesh gives housing to the general population who work for the administration. Rental housing offices are given to all people in general hirelings from higher authorities to workers and they can benefit these offices until the point that they achieve retirement. For densely populated nation like Bangladesh, housing is a vital issue. Government Housing projects were worked all through Bangladesh to suit expanding number of worker but failed to satisfy the need. Government officers need to rent house with higher rate or dwell in sub standard homes. Thus, officers face financial and social issues. Thinking about these issues, Ministry of Housing and Public Works stepped up with regards to a housing project for the Government Officers in Azimpur Colony. Basically there are phases of the project to redesign the colony in order to satisfy the demand for housing. The opportunity of this project is to design communal spaces inside the housing complex, to advance social cooperation. Social relationship assembles strong community among individuals, subsequently fabricate more well-built community. The aim of this project is to discourage the idea of walled community and remove the barrier between government housing and neighbouring area.

Keywords: Housing, Needs, Government Officer, Neighbourhood, Communal Spaces, Social Relationship, Community

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1.1 Project Introduction

Appropriate accommodation does not just refer to a structure or a building, in reality housing incorporates the setting and components of surrounding condition. Components covered us influences people's mental progress and development Many projects are already going on in various parts of the city even in different parts of the country to meet the accommodation demand of the public workers. It is the essential duty of the Government to guarantee appropriate housing for people as the fundamental right of human as per National Constitution of Bangladesh. As per an official records, a project has been launched at Azimpur Government Colony to develop 15-20 storied structures, where there will be 304 flats of 1500 square feet (sft), 152 flats of 1250 square feet (sft) and 250 flats of 1000 square feet (sft) in structures, under the supervision of Public Works Department. The housing complex will be for the Government officers and representatives.

1.2 Project Brief

Name of the Project: Redesigning the Azimpur Colony - A Housing Complex for the Government Employees

Client: Ministry of Housing and Public Works

Site Location: Azimpur Government Colony, adjoining Azimpur Graveyard, Azimpur, Dhaka.

Site Area: 7,59,665 sft (17 acres)

1.3 Programs

- 700 Residential Flats (1500, 1250 and 1000 sft)
- Community Centre
- Primary School
- Playground
- Parking Facilities

1.4 Background of the Project

Dhaka is a diverse city situated in focal Bangladesh by the bank of Buriganga River. It is not just the capital city, yet also the biggest in the country. Dhaka is the most populated city in Bangladesh, and it is likewise crystal clear amongst the most populated urban cities in the world. The Greater Dhaka Area has a population of more than 18 million starting at 2016, while the city itself has a population assessed at 8.5 million. It is a standout amongst the most thickly populated zones on the planet, with a density of 23,234 individuals for every square kilometre inside an aggregate zone of 300 square kilometres. The dynamic culture and a great many Bangladeshi organizations and global companies has added to relocation and population development. Nonetheless, in the same way as other different cities on the planet, the developing population has prompted an expansion in contamination, blockage and neediness, among different issues. As Dhaka is the capital and biggest metropolitan urban communities of Bangladesh, consistently heaps of individuals from country regions move here so as to procure an appropriate business, get great work offices and different openings. The quickly developing population has just put colossal weight on the city, as prove by its high rates of neediness, and future

concerns incorporate expanding blockage, a higher rate of joblessness and lacking frameworks. It is accepted that around 150,000 staying units every year will be expected to suit the expanding population.

In such circumstance, settlement for Government workers is a key issue in stick pressed city. Housing advancement with all the related offices and frameworks is neglecting to take care of the demand of quick development of population. Thusly, the Government workers need to lease flats at higher rates what they can scarcely afford. It makes them face several social and physical issues. It mentally influences their mind and weakens their productivity. Appropriate house and condition around it, has tremendous effect on human mind and health and is one of the fundamental human rights. In addition, it is said in the National Constitution of Bangladesh that, each Government worker must get appropriate housing and it is the essential need of individuals. These days, Government job opportunities are getting higher. No one but Government can designate grounds and take measures to suit the workers. As open hirelings of all classifications experience the ill effects of a genuine emergency of private convenience, the administration has taken various steps to develop 4,190 flats in the city for them to decrease their problems, reports UNB. "Lodging offices will step by step be guaranteed for every open worker from Senior Secretary to representatives," Planning Minister AHM Mustafa Kamal told UNB. He said a few steps are as of now going ahead in different parts of the funding to take care of the convenience demand of people in general hirelings. According to the information gave by the Ministry of Housing and Public Works, there are just 24,000 government living arrangements in the nation against around 1.3 million open hirelings. Whatever is left of the houses are in the region and upazila towns. The Public Works

Department of the Housing and Public Works Ministry is developing the flats in different parts of the city.

1.5 Project Rationale

After division in 1947, an generous quantities of homeless person arrived from India driven a enormous increment of Dhaka population. Dhaka was then a little urban zone of 6-7 sq. miles what is currently known as Old Dhaka. The primary change that Dhaka experienced because of segment identified with its demography. The city's population developed by 53.3% between 1947-51 and in the decade by an amazing 168.6%. With the obligation of making plans for building up the capital at Dhaka, the new government had minimal decision yet to make utilization of the simple physical framework that existed in the city. It was at first chose to assume control over the structures of a few instructive establishments to house the common secretariat. Some of these structures were extended and different semi-perpetual sanctuaries developed to house govt divisions. For private convenience the Plassey Barracks in the Azimpur and Nilkhet territories forgot by the British troops after WWII were utilized. To hold over private emergency, Govt. took up development of settlement in the year 1948-49 in the open space of Azimpur. 42 quantities of 3-story buildings were taken in the primary stage, each with 12 flats. For need of steel poles, the rooftop sections of Azimpur structures were fabricated utilizing the punctured steel plates (PSP) left finished by the British armed force for building brief runway of light air ship and fencing. Azimpur figured by the students of history as the place of the nobles among Mughal control was relatively empty among British run the show. The state territory included the land from north of West End High School to Azimpur

graveyard street, leaving the space of Chapra Masjid and 'Daira Sharif' on the west and Plassey dormitory on the east. Chapra masjid in 1950 was a frail shed with 'tarja' dividers and tin rooftop and subsequently the name. The zone on the north of memorial park street was absolutely empty. New market was under development. It was set apart for prevalent flats.

Government authorities- common, military and Anglo-British staffs working with Police, Fire Service and Railways were given distribution in the Azimpur state. Two building obstructs close lake were given to the staff and specialists of Pak-Italian Dev Consortium occupied with the development of Dhaka-Tongi-Joydevpur-Mirzapur street. A semi-changeless building named 'Gathering House' (Sadashyya bhavan) was worked for the then Member of Legislative Assembly on the north-west the state close new market. Agrani Girls' school came up considerably later. The province zone was extended after independence, extra floor was included over the current structures.

It won't be strange to specify that most civil servants and learned people of the then East Pakistan lived in Azimpur province. It was a supporting spot of original of Bengali abilities in the political, authoritative and social fields. The Community Centre of the housing was viewed as a luxurious space for holding wedding services and social gatherings. The territory holds the centrality as a housing complex from the early time of Dhaka City and that is the reason this proposal of the undertaking is required to be actualized around there.

1.6 Aim of the Project

The housing complex is for Government officers and representatives. The aim of the project is to design a housing complex which will provide the infrastructures of housing along with the surroundings and elements nearby to it which will give people the chance to build up and strengthen the social relationships and bonding and a healthy environment to reside. Breaking the wall between government worker and non-government worker by providing the space where they can gather and interact is the goal of this project.

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02. LITERATURE REVIEW

2.1 Denotations and Connotations of Housing

2.1.1 Definition and Illustration

Housing refers to homes or structures together, accommodation of people, setting up or provision of accommodation via an authority, and associated meanings. The social difficulty is of making sure that individuals of society have a home in which to live, whether this is a house, or some different variety of dwelling, housing, or shelter. Many governments have one or extra housing authorities known as Housing Ministry, Housing Department. Housing refers to any type of bodily structure or enclosed area that protects or refuges human beings or animal that dwells inside it. Housing complexes are the collective association of homes and apartments, the place where groups of people stay mutually forming a neighbourhood. This group of humans are allotted with comparable services and shape a well built social bonding among them.

The Universal Declaration of Human Rights of 1948 perceives the privilege to housing as an essential part of human rights. Consequential universal presentations, for example, the International Covenant on Economic, Social and Cultural Rights of 1966, Agenda 21 of 1992, the Istanbul Declaration and Habitat Agenda of 1996; and the Sustainable Development Goals have assist re-attested the importance of the right to accommodation. Housing has the ability of turning the engine that drives the procedure of socio-economic advancement in any nation focused on. The objectives, destinations, mission, vision and standards of this National Housing Policy all go for delivery of sufficient accommodation for all. The approach perceives the part of

housing in the social economic change and improvement of the nation and especially as a sign of development and advancement.

In an adequate housing, there should have the sense of security and protection from all kind of natural elements, all the required utility administrations, for example, clean and safe water, sanitation and other services and it needs to be reasonable and available. As specified in the National Housing Policy of Bangladesh 1993, Housing is one of the three essential human rights of individuals. Housing gives security, protection and also a feeling of ownership.

2.1.2 Explanation of House and Home

“Home is a shelter from storms-all sorts of storms.”-William J. Bennett

A house is a place or a shelter where individuals stay. It could be anything, a room, a place where individuals stay for a short timeframe and it is not permanent. It is something that people use for a short period being. House signifies to just a structure which is used as a habitation or shelter though home signifies the bonding and adoration for family. As this phrase says, "You can buy a house, but not a home". Home has a broader significance and can refer to a house or to a broader condition where one grows up or where one lives. Home can be an entire city or a nation. The major difference between them is that house is tangible. House refers to a place where somebody lives. In contrast, a home can refer either to a building or to any area that one considers as place to live and that belongs to him.

A home can be a house or a flat, however it could also be a tent, a boat, or an underground cave. Home is where individuals get attached and make many

experiences. It is a place which individuals make for themselves. Home makes the feeling of support, security and pleasure.

People may not be present in a place but their soul always remains present in home. It is the core idea of belongingness. People live in a house and create a essence which turns the house into a home. (Shaw, 2003) stated that a home can bring the feeling of security in following conditions:

- A permanent place of strong material to protect from social environment
- Sense of security can also be grown when a person can perform his or her regular activities comfortably
- When a person have full control over their own life in a place, that feels like home. In home, people are not bound to ask someone or take permission to perform any chore.
- Home must be a place for which people does not have fear to get evicted or lose it or any legal issues

Comfortable setting inside a house is mandatory as it shapes human actions. A peaceful home can give individuals the experience of paradise on earth. The ambience inside home influences the mental wellbeing and human brain who lives inside it. Character of accommodation and the social surroundings outside is equally a vital factor to regard as for building a peaceful atmosphere inside a home.

2.2 History of Government Housing

In Dhaka city, so many of Residential complexes as of now exist for the Government workers, still it isn't sufficiently adequate to oblige the expanding number of population. This unexpected increase in population is the result of movement from

different urban, sub- urban and rural communities to Dhaka city. In present days, there is immense gap between housing stock and growth of population. There is a yearly housing lack of 0.24 million units (BBS Census, 2011). Housing supply must be proportionate with the need of it caused by expanding population that must also be liveable to guarantee wellbeing and security of the inhabitants. Dynamic measures are need to be taken to meet the housing requirement for the projected population of 2035 (Islam, 2005).

In 1947, many people from India began to relocate after division. Shortage of housing was felt then as the sudden increment in population was vitally higher in contrast with the supply of housing. Consequently, the Pakistan Public Works Department (PWD) constructed the Motijheel state in Dhaka and the Agrabad province in Chittagong, for the Government representatives of the focal Government. Afterward, the local Country Government built up the Azimpur Colony and Eskaton Garden Governmental Housing in Dhaka city. In current time, Ministry of Housing and Public Works has add up to 11,678 private units under its ward. These residence units have the ability to suit around one hundred and fifteen thousand government workers and representatives in Dhaka city (Afroza, 2000).

2.3 Importance of Government Housing

2.3.1 Housing Realities

The World Bank says Dhaka, with its present population of 15 million individuals, bears the qualification of being the quickest developing on the planet. In the vicinity of 1990 and 2005 , the city multiplied in measure — from 6 to 12 million. By 2025 , the U. N. predicts Dhaka will be home to in excess of 20 million individuals. The aggregate urban region of Dhaka traverses around 1530 square kilometres (Islam,

2005). Around 80% of the articles of clothing industry in Bangladesh is situated in Dhaka city (World Bank, 2005). Dhaka city adds to around 13% of the nation's GDP. Table 2.3.1 depicts the nature of housing delighted in by overviewed families in 2015.

Housing Type	Dhaka City	Other Urban	Rural
	% of sample		
Jhupri	-	1.8	2.3
Thatches	0.2	38.8	56.1
Tin-shed/Semi-Pucca	40.8	37.6	28.8
Pucca	29.8	15.0	11.4
Flat/Apartment	29.2	6.8	1.5

Table 2.3.1: Quality of housing
(Source:http://www.rajukdhaka.gov.bd/rajuk/image/slideshow/9.Chapter%2006)

Key findings are: • In Dhaka city, the overwhelming housing class for the reviewed family units is 'tin-shed/semi pucca (40.8%). A sizeable rate (29.2%) live in flats and apartments. • In the Other Urban and Rural examples, covered housing stays critical, significantly more so in the towns. Apartments and flats are kind of housing starting to rise in "other Urban' however is still at an incipient stage (6.8%).

2.3.2 Housing for Government Workers

The idea of rental private houses began before the partition of India and Bangladesh, in the provincial past of India. In 1911, the significance of housing was felt hugely by every one of the workers, when the capital moved from Calcutta to Delhi. British wanted all the industries to be run and supervised by their people(Saquib, 2000). Under British age, there used to be cottages for higher authorities and barracks were allotted for workers. Government of Bangladesh gives housing to the administration labourers and officers. These housings are given to them as lease and they can remain in these houses until the point when they achieve the period of retirement.

2.3.3 Necessitate for Shelter

Dhaka is the most populated city in Bangladesh, and it is one of the most populated urban communities in the world. The Greater Dhaka Area has a population of more than 18 million starting at 2016, while the city itself has a population evaluated at 8.5 million. It is a standout amongst the most densely populated territories on the earth, with a density of 23,234 individuals for each square kilometre inside a total area of 300 square kilometres. As Dhaka is the capital and biggest metropolitan urban areas of Bangladesh, consistently migration of individuals from rural regions move here keeping in mind the end goal to gain an appropriate livelihood, get good employment and different opportunities. The quick increment in urban population is the consequence of migration. Individuals shifts from the outskirts to the middle, with many goals and dreams. Among all the South and South-East Asian nations, Bangladesh has the most quick development rate of urban population. The fact that relocation to urban territories began in the post British period, radical change in the rate was felt after freedom in 1971. As per the figure, Dhaka is the most populated and urbanized city among all of the urban areas. The number of inhabitants in the country conceivably, 2060, may be 230 million, with in excess of 70 percent being urban. According to late UN information, 25 percent of Bangladesh current population lives in urban zones. Of this urban population, the greater part lives in the biggest four urban districts: Dhaka, Chittagong, Khulna and Rajshahi (Islam, 2015)

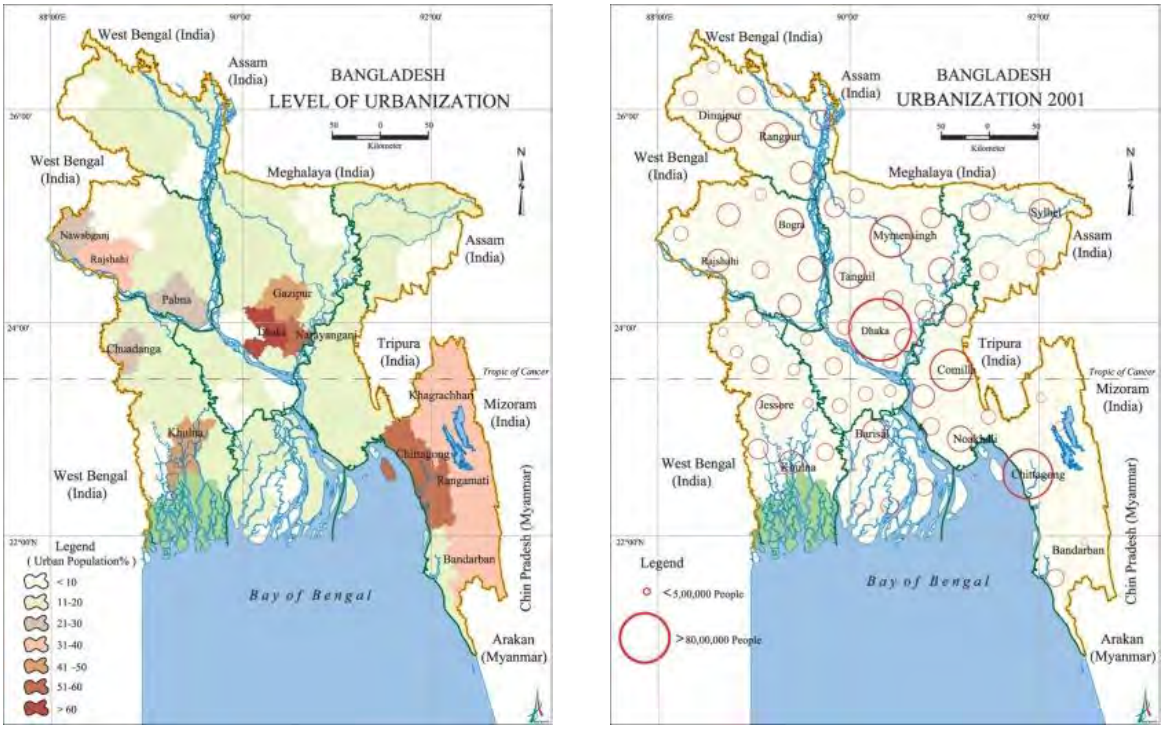

Figure 2.3.3: Level of Urbamization and Population Density of different cities in Bangladesh, 2003 (Source: http://en.banglapedia.org/index.php?title=Urbanisation)

As indicated by the figure, Dhaka is the most populated and urbanized city among every one of the urban areas. In addition to that, different urban communities like, Narayanganj, Chittagong and Khulna are the most urbanized urban communities (Islam, 2005). Migrants are pulled in generally towards the greater urban communities. In 1961-74, add up to number of relocation was around 2,400,000. The relocation rate was 6 times less in 1951-61. People shift from rustic regions to urban regions keeping in mind the desire of showing signs of improvement way of life. Relocation to urban communities relies upon elements, for example, separation, cost and simplicity of movement and furthermore relies upon the financial state of the city.

Reasons for migration to the urban cities are follows:

- Seek for better employment
- Natural disasters and calamities in rural areas
- For better facilities and better lifestyle

In most of the cases, size of the city also determines the proportion of growth of population because of migration. A standout amongst the most important forces is the rapid development rate of urbanization in metropolitan urban areas of Bangladesh. In addition, it as well influences the monetary and social quality of the urban areas. Change in monetary quality can be effectively followed by evaluating diverse financial cursors before and after migration (Isalm, 2015).

2.3.4 Basic Human Right for Citizen

Housing is considered as a significant issue in national constitution of Bangladesh. The Constitution of the People's Republic of Bangladesh states in Article 15 [a] that, it is the key obligation of the legislature to guarantee the essential necessities of life, garments, food, education, medical care and shelter of the subject (Rahman, 2010).

In article 11 it is mentioned that, “the republic shall be a democracy in which fundamental human rights and freedoms and respect for the dignity and worth of the human person shall be guaranteed…”(Rahman, 2010).

The administration would find a way to keep away from forceful movements or removal of informal settlement dwellers as far as possible. Support in situ redesigning, informal settlements remodel and prograsive housing improvements with conferment of inhabitance rights, wherever feasible and to attempt migration with group inclusion for freedom of need locales out in the open intrigue, paragraph 5.7.1 of the Policy which states (Rahman, 2010).

2.3.5 Importance of Government Housing in Dhaka

Question is the reason is use on Housing and Settlement so vital? The number of inhabitants in Dhaka is developing at the rate of 5% for each annum as of now yet

the rate of development is declining. By and by, the collective population will extend to 18 to 21 million by 2020. As expressed before, main part of this development will originate from rustic and other urban hub. The Housing Ministry in Bangladesh plainly acknowledges the requirement for developing in excess of six million accommodation units. The present accommodation improvement plans of the government and that of RAJUK, its chief advancement arm, don't address this issue. RAJUK is principally centered around developing land in and around the City for the mostly middle income people and for making a benefit from such land improvement. Some significant private division designers are likewise in a similar track. The private designers are concerned just where they can profit. While the requirements of both the middle and low income group might be real, they are not the quickest developing or the biggest area of the over all population. Neither of the upper wage segment of the population is in most remarkable need. The bulk of its working and growing segment of the population must be given an opportunity to acquire a housing or a reasonable shelter. It is important that the city to be livable for all its citizens in the future. Without providing that, thousands of people in the urban areas will still be homeless or be living in temporary shelters with mortal fear of eviction. As a result, the city will descend in to a city of slums and turn into environmental and social nightmare.

2.4 Standards of Government Housing in Bangladesh

2.4.1 Distribution Systems

Government is working since the colonial period in public sector, to provide housing for the government officers and employees. These housing are buildings give as rent

to the government employees and owned by government. Public sectors, carried out more than 10% of all the housing projects in the last 40 years (Afroza, 2000)

Different types of housing projects are carried out by Government, in different areas of Bangladesh and the land is allocated by the Government. The government housings are a kind of gated community, keeping separate by boundary wall. All the flats and apartment given to the officers and employees are readymade units, separate flats or even duplex houses. These housing units and types are categorized accordance with their salary and position of the officials and employees. The rent (7.5% of their salary) is paid from their salary every month and they can live here only during working period till retirement, which is 58 years. There are separate schools, religious structure, markets/ super shops, grocery shop, medical centre, utility services and many other facilities needed for proper accommodation complex.

Most of the Government housing activities are carried out by Ministry of Housing and Public Works, different departments such as, Department of Architecture, Public Works Department (PWD), Housing and Settlement Directorate (HSD) and City Development Authority such as, Rajdhani Unnayn Kartripakkhya (RajUK), Urban Development Directorate (UDD) etc.

2.4.2 Space Standards

Depending on the salary and position, government worker are given distinctive sorts of flats and flat size likewise changes. Often there is segregation between class of officers and workers, i.e. isolate structures are designated for officers and separate flats/ buildings for representatives. In 1969, WPI Ministry distributed a guide on private and office space norms for Government officers and representatives (Afroza, 2000).

Categories of Officers and Employees	Allot able floor area in square feet	Types and Categories of Flats
Secretary	4000 3000	Bungalow Bungalow
Class I	1750 1500 1300	'F' Type 'E' Type 'D' Type
Class II	840	'C' Type
Class III	612	'B' Type
Class IV	519	'C' Type

Table 2.4.2: Residential Space Standard for Government Officers and Employees, 1969. (Source: Afroza, 2000)

In 1992, Ministry of works published housing entitlements in the form of a gazette notification.

Category of officers and employees	Pay Scale (Taka)	Allot able floor area in square feet	Entitlement
Class I	8000 and above 7100-7999 5500-7099 2850-5499	1800 + 200 for garage 1500 1250 1000	Superior Type ‘F’ Type ‘E’ Type ‘D’ Type
Class II & III	1225-2849 1125-1725	800 600	‘C’ Type ‘D’ Type
Class IV	1050-1915	500	‘A’ Type

Table 2.4.3: Residential Space Standard for Government Officers and Employees, 1992. (Source: Afroza, 2000)

Table 2.4.3 shows that how the allotted floor are changed with the change in position of an employee. As our land is limited, Government reduced the flat size to accommodate more government servants and ensure hosing for all. In table 2.4.2, 3000- 4000 sft (Bungalow) is reduced to 1800 sft flat size in table 2.4.3. Later, Department of Architecture Bangladesh has proposed new residential space standard for different categories of Government servants to ensure housing for workers and are followed where ever new construction are done.

Grade	Pay Scale (Tk.) 2005	National Pay Scale (Tk.) 2009	Space Standard Residence	Remarks
III	16800/- 20700/-	29000/- 35600/-	1500 sft	With attached toilet
IV	15000/- 19800/-	25750/- 33750/-	1500 sft	Independent room with shared toilet
V	13750/- 19250/-	22250/- 31250/-	1250 sft	
VI	11000/- 17650/-	18500/- 29700/-	1250 sft	Independent room but if considered necessary cubicle with bigger rooms may be provided for convenience of supervision.
VII	9000/- 15480/-	15000/- 26200/-	1000 sft	
VIII	7400/- 13240/-	12000/- 21600/-	1000 sft	
IX	6800/- 13090/-	11000/- 20370/-	1000 sft	
X	5100/- 10360/-	8000/- 16540/-	1000 sft	
XI	4100/- 8820/-	6400/- 14255/-	1000 sft	Toilet jointly shared

Table 2.4.4: Space standard summarized on the basis of National pay grades and the following government circulars (Source: Planning Commission Building Standards of 2009)

2.5 Aspects of Housing

Human health both physical and psychological is affected by the environment and surrounding of the place where he lives. There are very basic aspects of housing which makes a place a better and most importantly liveable place. These are follows:

2.5.1 Communal Spaces

Architecture has the ability to manipulate, strengthen and encourage new social relationship. Social actions are the spirit and Architecture is the body that contains the spirit inside. Society, culture and architecture are firmly connected to each other. These three are the most important elements in a housing complex. (Mahdavinejad, Mahdavinejad, Ghaedi, 2012). A housing complex includes many building and other related structures. People form a sense of community and make a social bond among them. A man as a social being cannot live alone so people interact with family members and neighbour and becomes dependent on each other to live a social life. communal spaces encourage firm linkage among people living together, by proving a space where they can come together and get to know one another.

Now a days, most residential complexes lack proper communal spaces. The outcome is that, people pass their leisure time at home by sitting in front of the TV or play computer games. For deficiency of open space kids cannot play and the security issue does not allow the parents to let their children play in grounds. Physical activities and fresh air is required for appropriate psychological and physical growth. It is examined that lack of physical activities can be caused many diseases, for example, cardiovascular illness, flabbiness, breathing issues and this likewise lessen stamina. Most disturbing result of people's still way of life is that, it may destroy the social linkage among neighbours as a study shows that people in present days do not even know their neighbours by face.

Common spaces refer to a space that is shared by the population of a similar group. Communal spaces ought to be designed and situated in a privilege place preferably inside the complex such that it should be easily accessible to everyone in the community. Security issues should be considered in designing this place (Mashayekhi, Mahdavinejad, Shishavan, 2012). Children's security, elderly and physically challenged people's accessibility should also be a vital design consideration. Design can transform our fantasies into reality. Despite the financial and social state of individuals everybody has a house or a safe house, where they can remain. A secure environment and social bonding is required for a home. A community space can make environment which can transform a house into a home.

2.5.2 Proper ventilation and natural light

Ventilation of building develops the air quality inside and in this way keeps up an comfortable indoor space. Natural ventilation replaces the used air inside with air from outside.

Because of higher population in Dhaka, structures are being constructed at a more prominent rate in which there are no sufficient space to properly ventilate and results unhealthy environment for residents. Residential structures must have enough open space in between them, so that adequate air can pass through (Islam, 2013). It is discovered that residential buildings that permit utmost open spaces and utmost height have plentiful amount of ventilation in base and top floors.

Ventilation is the most essential components for a housing complex. There are many rules and regulations regarding ventilation in residential buildings made by the administration and these should be followed while construction of housing. Rajdhani Unnayn Kartripakkhya (RAJUK) ensure every residential building follows the rules set by Building Construction Act.

Natural light is also the most imperative variables of housing. Sunlight influences the body and brain of a person. Daylight can likewise guarantee thermal comfort for the residents in winter, and in addition daylight can likewise heat the flat. The measure of daylight which enters the building can be controlled effectively by adjusting the opening size and the material of the opening. Direction of the opening is one of the components to be considered for controlling quantity of light to enter. Quantify of daylight can be enhanced by expanding the roof height of the flat and limiting the flat depth. Additionally, gap between structures is likewise essential factor to consider. If the building gap is proper in a housing, it enables adequate quantify of light to enter. As a rule, North faced units gets more daylight, instead of the south faced units.

In residential building all rooms must be oriented properly to get adequate amount of sunlight. As the sun ascends in the east and sets in the west, rooms which require early morning light, for example, bedrooms, kitchen should be placed on east. Then

again, rooms that used mostly during evening, for example, living rooms can be placed on west or south (Phillips, 2004). Daylight may cause glare and this can be diminished by utilizing the system of coating, which chop down the transmission of daylight. Opening does not just refer to window only, rather it also includes sky window or atrium.

Appropriate ventilation and natural light can manipulate mood, minimize vision and breathing issues and other health issues and increase productivity. Ventilation and natural lighting are the fundamentals for swap of air and illuminate inside, to make a comfortable indoor which turns a house into a home.

2.5.3. Greeneries and Water Features

Regular exposure to greenery adds to the psychological, physical and enthusiastic development of kids and young people. Even looking at greenery can improve mood and make one feel better. But gradually crowded urban communities, it can be hard to discover space for parks. The green spaces associated with the housing are indivisible from our society. People love to keep even a planter box in their veranda. The beginnings of shaping normal greenery enclosures and recreational parks, specifically having a place with the multifamily lodging and utilized by its occupants, go back to the nineteenth century and curing the mechanical city. People living in rural areas generally have a higher standard of health, according to the study. Researchers have discovered that being nearer to nature brings considerably more advantages. The people who live in places encompassed by greenery are additionally more open-minded, social, quiet and trusting – no matter how poor the area might be. The discoveries originate from an examination by Teacher Frances Kuo, a professor of the landscape and human health. According to her the health

advantages come independent of different components and that once we are left without green space, our health suffer drastically. She also stated that entrance to nature and green conditions yields better intellectual working, more self-restraint and drive control, and more prominent psychological health in general.

Planning studies now a days, green spaces are frequently referred to as residential gardens or terraces or recreational areas.

Living near water has more profits than its natural beauty. It can provide health benefits by soothing the spirit and offer amity what cannot be found anywhere else. Water tends to draw the spirit and body toward it, mitigating our regular anxiety. Analysts have discovered that green spaces in groups diminish pressure and the examination of Blue Mind is simply starting to take advantage of living nearby water. If living close water unwinds and decreases the hassle of life, the immunity system of body follows the same. The surprising science that shows how being near, in, on, or under water can make one happier, healthier, more connected, and better at what he/she does. When we're close water, our brains switch into an alternate mode which can include mind-meandering, imagination, and rest, which are altogether known to be essential to health, productivity and flexibility.

Psychologists refer to water's changing consistency as placing us in a condition of 'delicate interest,' which can be exceptionally remedial.

2.6 Affects of Non-Standard Housing on Health and Psychology

Standard of housing affects mental and physical health of people dangerously. In a poor accommodation, the lack of proper ventilation and natural light can adjust the temperature and moistness of a house, which later can cause sogginess and can

bring down the temperature. Most vital factor that will be considered is the temperature and moisture inside the house. In these both situations, it can offer rise to aqueous conditions. Deficient ventilation can cause clamminess, which thus can offer ascent to development of parasites, shape and other small scale life forms. Side effects, for example, wheezing, throbs, torment, loose bowels, cerebral pain, fever, and so on were found to happen in light of clamminess. For youngsters dampness can even outcome to pneumonia. In an examination it was discovered that, individuals remaining in clammy housing are the sufferer from asthma (Shaw, 2003).

2.7 Modern Trend of Housing Complex

2.7.1 Modern Housing Trends Around the World

Housing complex is the combined plan of all the basic facilities and residential flats. A housing complex must provide all the services that would make a place to feel like own home. Genuine housing complex must have appropriate breathing space, enough parking lots, recreational facilities, safety and security facilities, open spaces and play zone. As stated in the Hongkong Planning Standard and Guideline (2006), a housing complex must have a Community Hall, Shopping Mall, Ambulance Facility, Child Day Care Facility, School, Library, Elderly Community, Water Sprinkles and other fundamental elements (Hongkong Planning Standard and Guideline, 2006). One of the most basic elements of Housing complex is to give access to the emergency vehicles, for example, fire trucks and ambulances. Besides that structures must have all the protected precautionary measures and fire detection facilities.

The complex must be welcoming for a wide range of people, as people from different age gathering, culture, social and financial status will live in the community. Communal spaces and Residential structures must be accessible to a wide range of people from children to old individuals, in addition the specially-able people. These spaces must be sufficiently protected and alterative arrangement must be given, for example, specially designed lifts and ramps. Spaces should to be sufficiently designed to allow proper movement for the physically challenged people. Community spaces are required for elderly people, as they will spend a large portion of their time in the complex. In addition to that Day care service is fundamental to take great care of children. Community spaces or multipurpose hall should to be accommodated for meeting or some other programs.

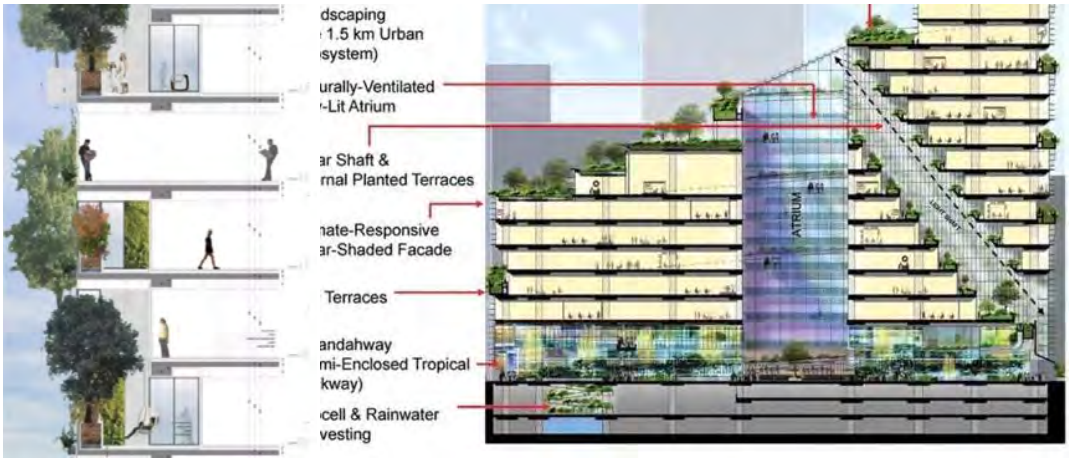

Figure 2.7.1: Vertical garden in buildings. (Source: http://www.greenroofs.com/content/articles/126-SOLARIS-at-Fusionopolis-2B-From-Military-Base-to-Bioclimatic-Eco-Architecture.htm#.WqJ0rexubIU)

Figure Figure 2.7.2: Green facade in buildings. (Source: https://inhabitat.com/insulating-veil-of-plants-envelops-stunning-seaside-home-in-mexico/ezequiel-farca-architects-vallarta-house30-2/)

Housing Complexes around the world are more concerned about sustainable, energy efficient and eco friendly development. Any sort of development must not represent any danger to the atmosphere and occupants. Sensible condition can be made by setting solar panels. This would lessen power utilization and save energy. In addition to that eco friendly building materials must be selected and rain water collecting should be introduced to lessen energy utilization also. This collected rain water can be utilized for every day chores, sprinklers, swimming pools, and so forth. Alongside that, vertical terrace gardens can also be environment friendly. This would reduce temperate, which thus save energy. Effective use to space is likewise essential. Some amenities can be assembled together to avoid wastage of land. Spaces must have ideal space standard for easy movement. Additionally, Recycling of material can even proceed the idea of sustainability inside a complex.

2.7.2 Modern Housing Trends in Bangladesh

Housing is one of the basic issues for quickly developing city like Dhaka. Population of Dhaka is developing at a higher rate. As per RAJUK, population of Dhaka is evaluated to develop from 15 million to 26 million by 2035. Since 2006, around 95% of the new structures manufactured were of single story and around 3% structures were of two stories or more (RAJUK, 2006). With regards to shortage of available land, development needed to expand vertically. The majority of the areas in Dhaka city are utilized for dwelling purposes. To fit in a large number of population flat structures are being constructed inattentively. Structures are being built with no consideration of environment and health condition of residents. Insufficient space in between two different structures. As a rule, developments are done wrongfully, without following any guidelines from the administration and RAJUK. The outcome is that, densely packed condition are made with no breathing space.

In private division, Developers and Real Estate organizations design private apartments, with no thought of quality of space, health aspect, and psychology of inhabitants. Residential apartments have assumed control the majority of the open spaces in Dhaka city. Green spaces are hard to notice even. Nonetheless, people can notice few trees looking behind the solid structure, in a few zones of Dhaka city. If somebody sees Dhaka from top, he/she will notice composition of solid squares with few green trees adjoining them. The extent of open space and trees are less in contrast with structures.

Figure 2.7.3: Green merging with the structure (Source: https://architizer.com/projects/meghna-residence/)

The housing conditions in Public housing complexes are the same. Government distributes little zone of land for the officers and workers. As, the quantity of government worker is similarly high in contrast with the accessibility of land, public housing likewise goes for compact outline. Most of the time a prototype of a building is designed and copied around the whole complex without any consideration of

climate, site and context . Visually these buildings are densely bundled groups of solid structures. In most cases, these bundle of solid structures, badly need an ample amount of open space, recreational spaces and green.

Figure 2.7.3: Greeneries and Water features in Urban Context (Source: https://architizer.com/projects/meghna-residence/)

Accordingly, most of the flats need appropriate ventilation and the occupants are left without breathing spaces. Repetitive looking structures needs space quality inside the residence units as well. Residential apartments don't have arrangement for adequate light and ventilation. Healthy environment of housing is the most important factor to make Dhaka sustainable, economical, healthy, liveable and impartial city.

Chapter - 03: SITE AND CONTEXT ANALYSIS

3.1 History of Dhaka

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3.1 History of Dhaka

Dhaka is the capital and biggest city of Bangladesh. It is one of the world's biggest urban communities, with a population of 18.89 million individuals in the Greater Dhaka Area. It is as well the fourth most densely populated city in the world. Dhaka is the superior monetary, political and social hub of Bangladesh. It is one of the significant urban areas of South Asia, the biggest city in Eastern South Asia and among the Bay of Bengal nations, and one of the biggest cities among OIC (Organization of Islamic Cooperation) nations. As a major aspect of the Bengal plain, the city is surrounded by the Buriganga River, Turag River, Balu River, Dhaleshwari River and Shitalakshya River. The territory of Dhaka has been possessed since the primary thousand years.

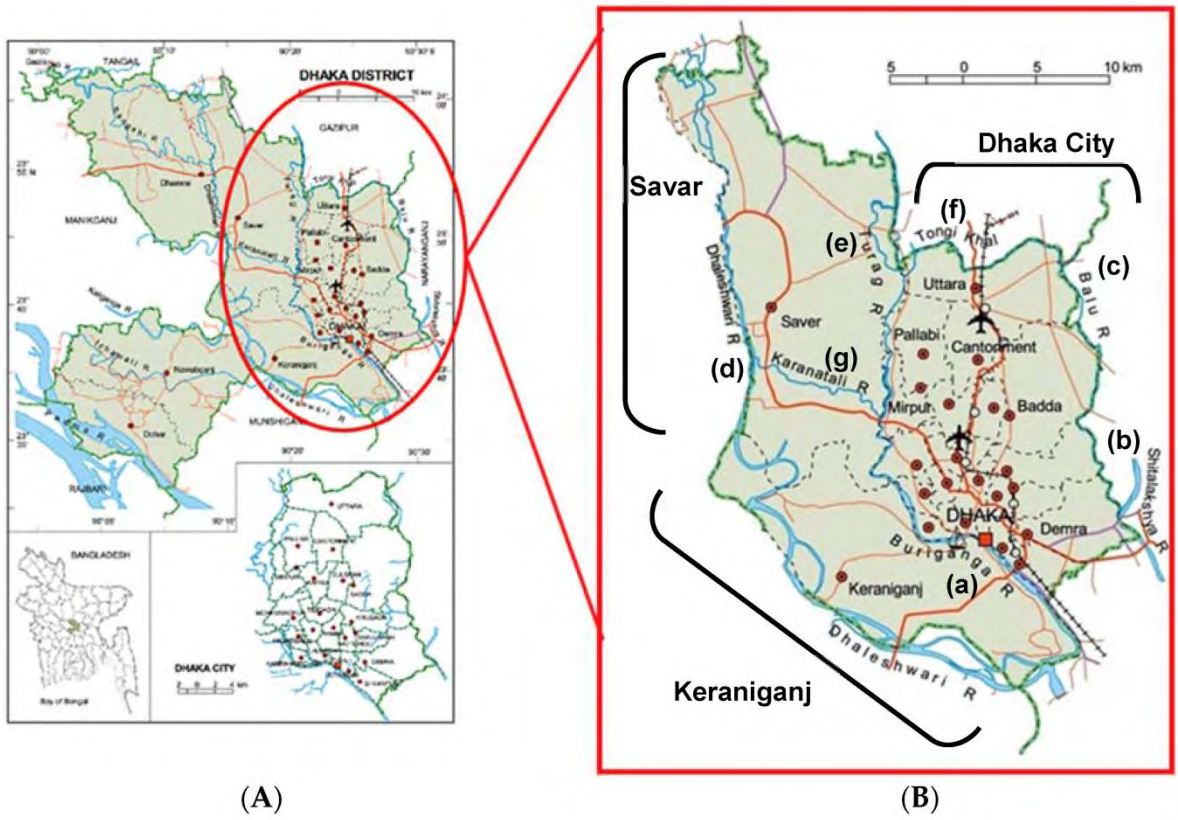

Figure 3.1.1: (A) Zooming in from Bangladesh to Dhaka city, (B) Dhaka city surrounded by (a) Buriganga River, (b) Shitalakshya River, (c) Balu River, (d) Dhaleshwari River, (e) Turag River (source: http://www.mdpi.com/2073-4441/9/5/331/htm)

The city rose to noticeable quality in the 17th century as a provincial capital and business focal point of the Mughal Empire in South Asia. Dhaka was the capital of Mughal Bengal for a long time. As the focal point of the muslin exchange Bengal, it was a standout amongst the most prosperous urban areas in the Indian subcontinent. The medieval city was named Jahangir Nagar to pay tribute to the Mughal ruler Jahangir and facilitated the seat of the Mughal Subahdar (representative), Naib Nazims and Dewans (PMs). Medieval Dhaka's golden time was in the 17th and 18th hundreds of years, when it was home to traders from crosswise over Eurasia

The Mughal designed the city with well-laid out garden, tombs, mosques, palaces and forts. The city was once called the 'Venice of the East'. Under the British Empire, the city saw the introduction of power supply, railways, films, Western-style colleges and schools and a contemporary water supply. It turned into a vital managerial and instructive focus in Eastern Bengal and Assam after 1905. In 1947, after ensuing the end of British rule, it turned into the regulatory capital of the East Pakistan. It was announced as the administrative capital of Pakistan in 1962. In 1971, it turned into the capital of an sovereign Bangladesh. Article 5 of the Constitution of Bangladesh announces Dhaka as the capital of the republic.

Since its foundation as a new capital city, the population, territory, and social and financial variation of Dhaka have developed massively. Dhaka is presently a standout amongst the most densely industrialized areas in the country. By the 21st century, it developed as a megacity. It is recorded as a beta world city.

The causes of the name for Dhaka are debatable. When Dhak trees were extremely common in the zone and the name may have originated from it. On the other hand,

this name may refer to the covered goddess Dhakeshwari, whose sanctuary is situated in the south-western portion of the city. Another well known hypothesis expresses that Dhaka refers to a membranophone instrument, Dhak which was played by request of Subahdar Islam Khan I was one among the initiating of the Bengal capital in 1610. A few references as well say that it was gotten from a Prakrit language called Dhaka Bhasa, or Dhakka, utilized as a part of the Rajtarangini for a watch-station, or it is the same as Davaka, specified in the Allahabad column engraving of Samudragupta as an eastern frontier kingdom. As indicated by Rajatarangini composed by a Kashmiri Brahman, Kalhana, the area was initially known as Dacca then Dhakka. The word Dhakka implies watchtower. Bikrampur and Sonargaon the prior fortifications of Bengal rulers were arranged nearby. So Dhaka was in all probability utilized as the watchtower for the fortress reason.

Until the end of the 16th century, Dhaka was small rural area with a small settlement on comparatively high and plain area bordered by flood affected muddy land. In the final 400 a long time the city experienced a few rulers having distinctive points of view on city advancement and development. Dhaka has come to its display state by encountering distinctive rulers of distinctive societies and through a wide run of administration structures, organization, common misfortune, destitution and a number of many other issues. The locale was portion of the old locale of Bikrampur, which was ruled by the Sena line. Beneath Islamic run the show, it got to be portion of the noteworthy locale of Sonargaon, the territorial regulatory centre of the Delhi and the Bengal Sultanates. The spatial development, particularly, in final 60 a long time in excellence.

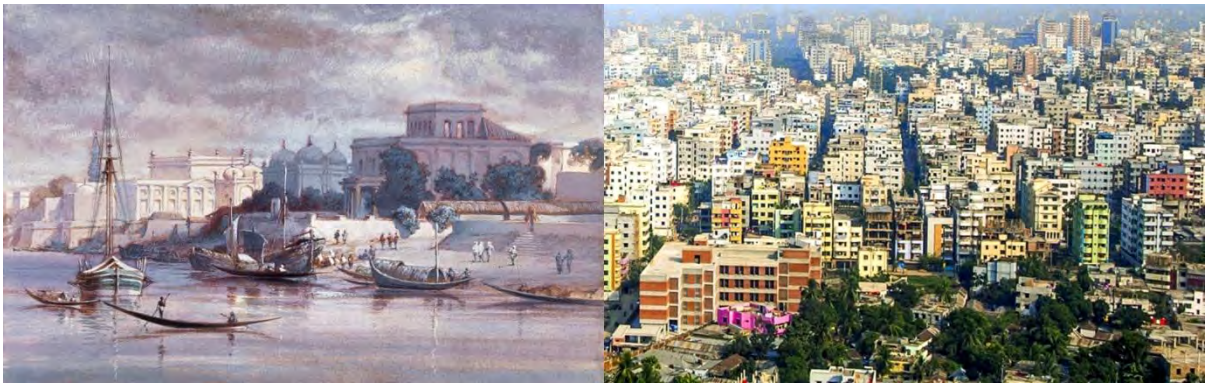

Figure 3.1.2: Dhaka then And Now (Source: https://en.wikipedia.org/wiki/History_of_Dhaka)

The Mughal built up their capital in Dhaka in 1610 and created the city as a trade centre along with their defence base camp. The British East India Company took over control of Dhaka in 1757 and considered Dhaka as a territorial exchanging middle and showcase. Dhaka got to be the common capital of East Pakistan in 1947. Amid this time Dhaka gotten expansive numbers of Muslim vagrants from India. To oblige this sudden development a few region improvement extend were embraced between 1950 and 1960. As the capital of Bangladesh since 1971, Dhaka lead the country in urbanization and city power. The history of urban settlement in the zone of modern-day Dhaka dates to the to begin with thousand years. In arrange to realize the shape of the city and its spatial results, it is fundamental to get it the authentic advancement of the city through knowing its major development, development methodologies, arranging choices and reasons behind it.

3.2 Urban Evolution of Dhaka

3.2.1 Settlement Before, and During Mughal Empire (1608-1757)

Dhaka came into the area of Mughal Empire in the time of the rule of Emperor Akbar (1556– 1605) after the Battle of Tukaroi. Dhaka was alluded as a Thana (a military station). Dhaka was arranged in Bhati district which facilitated a few revolutionary

powers drove by Bara-Bhuiyans from mid to late sixteenth century. After the pioneer of Bara-Bhuiyans, Musa Khan, was curbed by Mughal General Islam Khan Chisti in 1608, Dhaka again went straightforwardly under control of Mughal. The recently designated Subahdar of Bengal Subah, Islam Khan exchanged the capital from Rajmahal to Dhaka in 1610. He additionally renamed Dhaka as Jahangirnagar (City of Jahangir) after the Emperor Jahangir. It was the land area of Dhaka, the topographic focal points of being arranged on higher ground in a low lying locale, or more all its vital position on the water-courses of the nation which persuaded the Mughal to build up their capital. Because of its area appropriate close to some fundamental stream courses, Dhaka was an essential community for business.

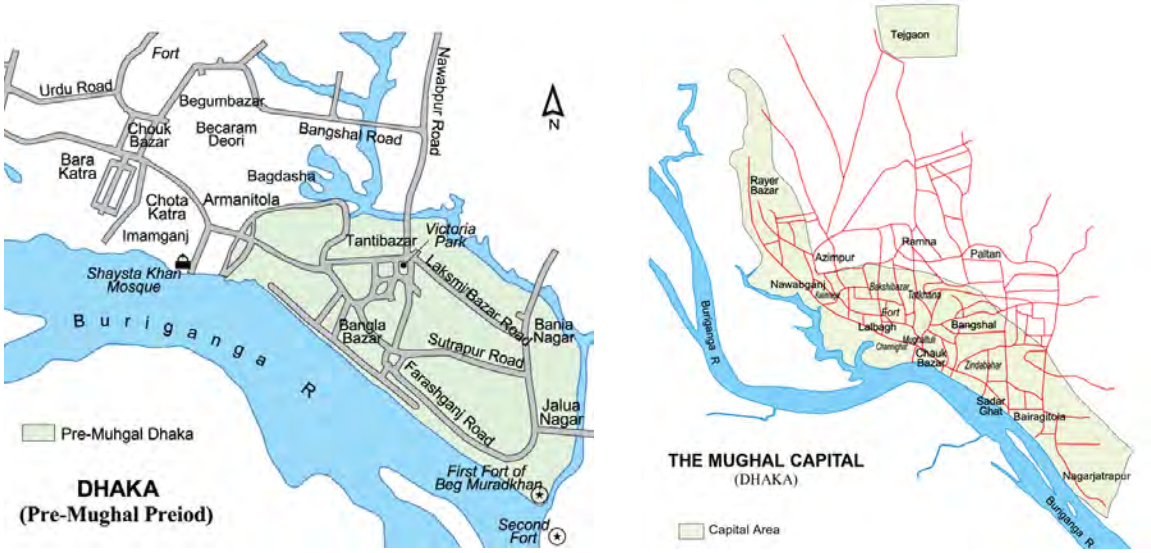

Figure 3.2.1: Dhaka During Pre-Mughal and Mughal (Source: http://www.dhakatown.net/dhaka-city-map)

Dhaka lost its status as a capital town in 1706 when the Mughal capital was moved from Dhaka to Murshidabad, Kolkata and it began to decay and encountered a long sleep for over a century. Ruler Azim-ush-Shan turned into the Subahdar of Bengal Subah in 1697. Because of contention with Diwan Murshid Quli Khan, he exchanged the capital from Dhaka to Rajmahal and after that to Patna in 1703. The industrial facilities of the organizations pulled in numerous individuals associated with

assembling, exchange, business and cash loaning. The fare of the European organizations from Dhaka expanded tremendously amid this time. In this way, regardless of moving the cash-flow to Murshidabad, Dhaka as a city and business focus did not decrease fundamentally, however city extension and improvement was unquestionably contained.

3.2.2 Dhaka Under British Rule (1757-1947)

With the termination of Mughal lead and the beginning of British power around 1760, Dhaka started to decrease in significance and contract in estimate. The city experienced shocking starvations, surge and flames. Calcutta was developing in significance and it was troublesome for Dhaka to opponent Calcutta which was the capital of British India. Amid this period Dhaka endured physical shrinkage also. From 1800 to 1867 the population dropped from 200,000 to under 60,000. The second 50% of the nineteenth century denoted the start of the physical reestablishment of Dhaka.

The city did not grow but rather the old Mughal town experienced changes. Accordingly medieval Dhaka was at last changed into an advanced city with metalled streets, open spaces, road lights and piped water supply. During the time spent combination of Dhaka's business strength in Eastern Bengal, the Narayanganj-Dhaka- Mymenshing railroad was opened in 1886. The rail was laid relatively parallel to the Mugla street from Tongi through Tejgaon to the Phulbari territory and enclosed the Ramna zone to spare the greenery .The inward piece of the city likewise saw broad modifying exercises of streets and houses, yet not following any unmistakable arrangement.

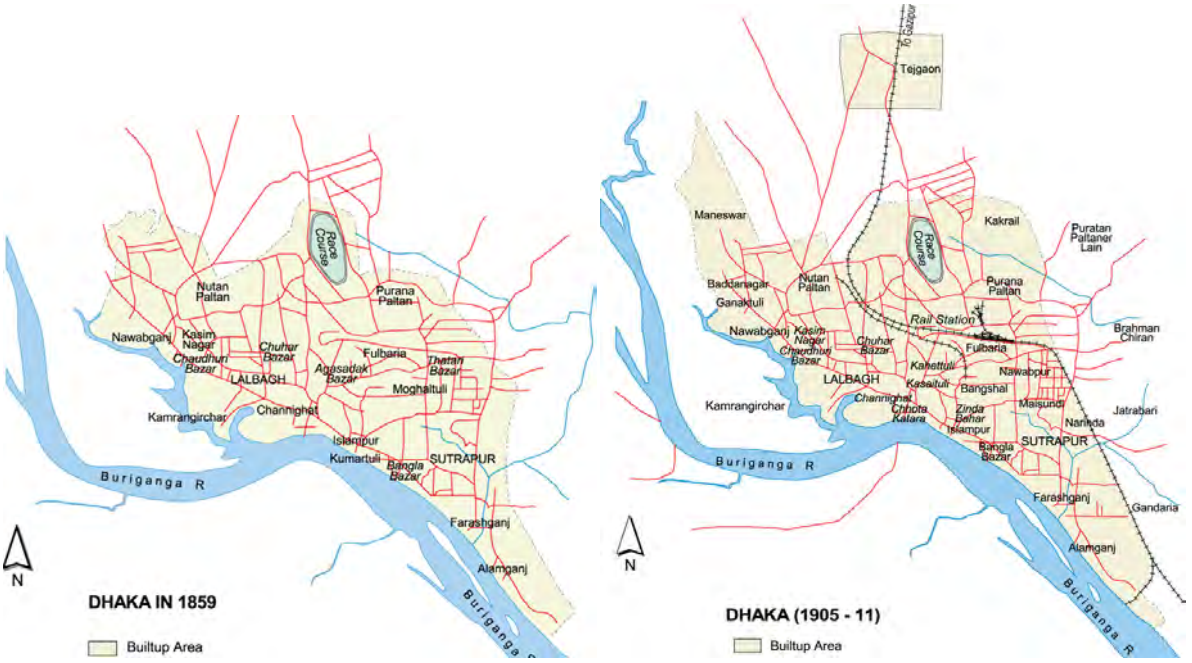

Figure 3.2.2: Dhaka in 1859 and In 1905-11 (Source: http://www.dhakatown.net/dhaka-city-map)

3.2.3 Dhaka as the Capital of East- Pakistan (1947-1971)

Since turning into the capital of East Pakistan in 1947 the scene of Dhaka City has been experiencing fast change, the city extended northward and the high class neighbourhoods were continually trying to keep themselves at the northern outskirts of the city by making 'new Dhaka'; essentially, on the grounds that, higher terrains were accessible in the North and marshes in East and West were defenceless against yearly surges. The Motijheel region, once destroy and lying on the edge of bogs and bogs, was reserved as a business region in 1954. To take into account the regularly expanding private needs of the new capital, the Dhanmondi territory, which was embellished with paddy fields, came to be created as a local place after 1955. The Mirpur street framed a hub and the good country on either side of the street came to be involved straight up to Mohammadpur and Mirpur. In the 1960s these two territories came to be produced by the administration for the most part to oblige the vagrant Muslim populace. The requirement for an arranging body was felt right

now and the Dhaka Improvement Trust (DIT) was made in 1956 for the arranging and advancement of the city. DIT built up the Ghulsan Model Town in 1961, Banani 1964, Uttara 1965 and Baridhara show town in 1972. In spite of the fact that these satellite towns were created to suit the centre wage gatherings, the unseemly portion technique and quick increment of land cost has finished with these high class local locations. These satellite towns have now developed, provide food for a substantial number of occupations and are vital places for the city.

3.2.4 Dhaka as the Capital of Bangladesh (Since 1971 till Present)

Freedom in 1971 upgraded urbanization in Bangladesh. Dhaka, being the biggest city and having most comforts, got the lion's offer of this development. The driving components for this fast country urban movement are surplus work in horticulture, globalization, dry season, orderly disappointment of provincial agribusiness and saw opportunity in the city. With the expansion in populace, the good countries spreading towards the north came to be involved and developed. The mediating trench, bogs and swamps were topped off, not in any arranged way, but rather as the exigency emerged and private activity assumed an overwhelming part all the while. The arranging and advancement expert DIT/ RAJUK picked the good countries on the Dhaka-Tongi tomahawks as locales for its private ventures. The city did not encounter any genuine push to recover arrive under an all around arranged plan to give the city a homogenous and durable development. Until 1990 the primary city was restricted between the Balu and Turag streams in the east and west because of the zone past this farthest point being low, swampy and surge influenced. However, with fast populace development and the coming of private engineers the low lying zones were filled in and raised and diverse lodging plans advertised. As the land end

up scarcer, the vertical advancement for both business and private divisions turns into a typical example.

3.3 Spatial Growth and Urban Formation of Dhaka

Dhaka super city is developing in an uncontrolled way prompting all the more swarming and clog in the primary city. The confirmation recommends that if there are no significant choices as far as its example of lodging improvement, clog could achieve excruciating levels sooner rather than later .The urban structure of the uber city, the assignment of land-utilize and action and its force mirrors the verifiable past of the city. Extensive activity is direly required that perceives the character of a region and allotment or controlled action in a practical way. Dhaka city developed from a country settlement to end up a urban city without much arranging exertion. Nilufar (2010) recognized four unmistakable urban examples in Dhaka which mirrors the age of the city, its rulers, arranging philosophy or more all arranging control. In the first place is the verifiable centre or 'Old Dhaka' which still contained the Mughal format of the human scale city. Limit paths, exceptionally smaller structures, blended utilize – all continue as before and help one to remember the great past. The second classification of urban territory involves the formal arranged region or satellite towns imagined and arranged since 1950. Dhanmodi, Gulshan, Mirpur, Baridhara are cases.

It was common that low lying zones were chosen and recovered for 'site and administrations' satellite towns. Until 1980 just RAJUK was engaged with arranging and outlining for this sort of improvement yet now private designers are likewise giving the same. There is a third class joining the two – a combination of old and formal examples – which possesses the most piece of improvement.

Dhaka: The Capital City of Bangladesh

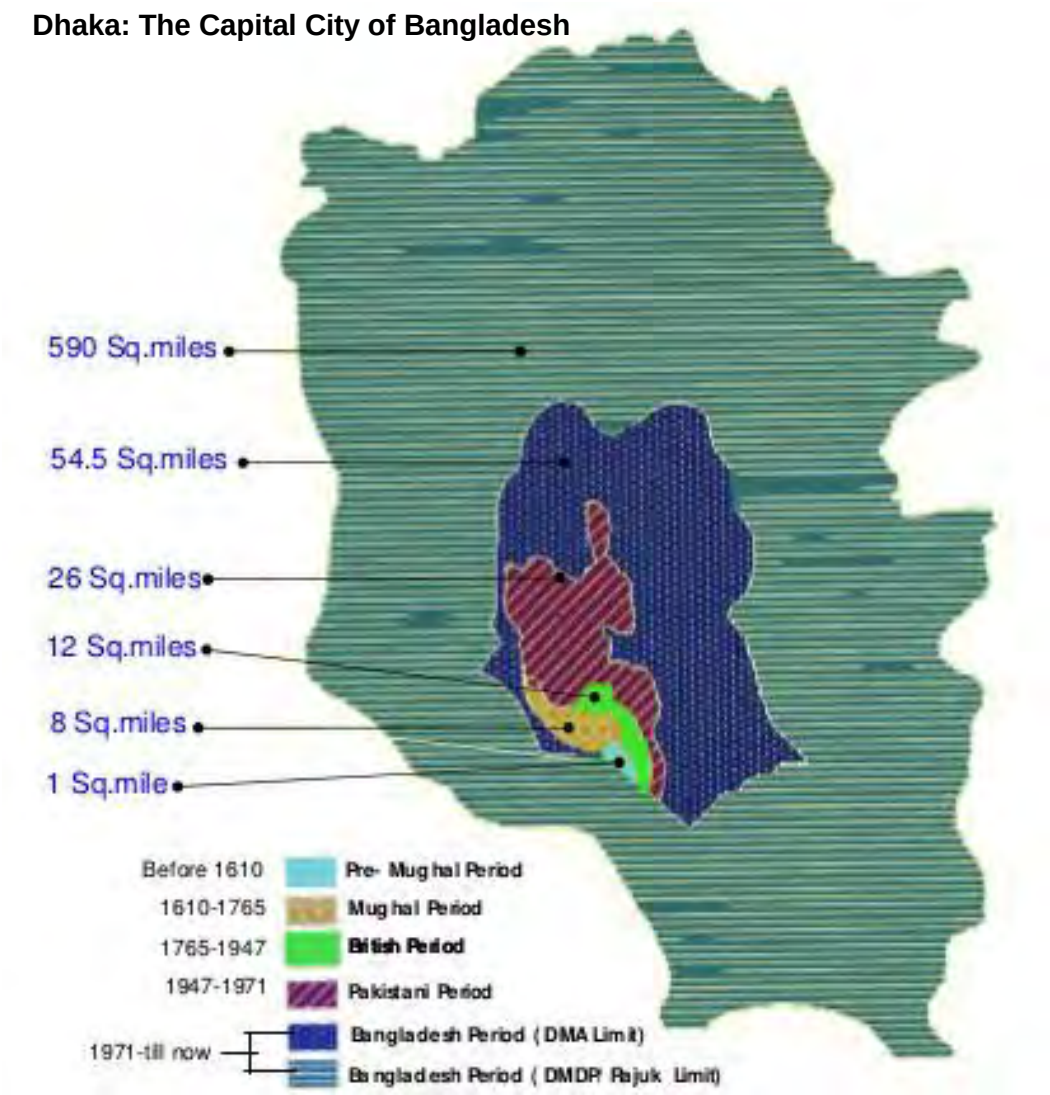

Figure 3.3.1: Spatial Dynamics of growing City and the Urban Core (Source: Nilufar, 2010)

Natural Urban Grid of Dhaka:

• With the progression of time the whole Dhaka developed normally

•Formal Planning and Uncontrolled improvement one next to the other

•Some parts are intentionally made by the creators fragmentally

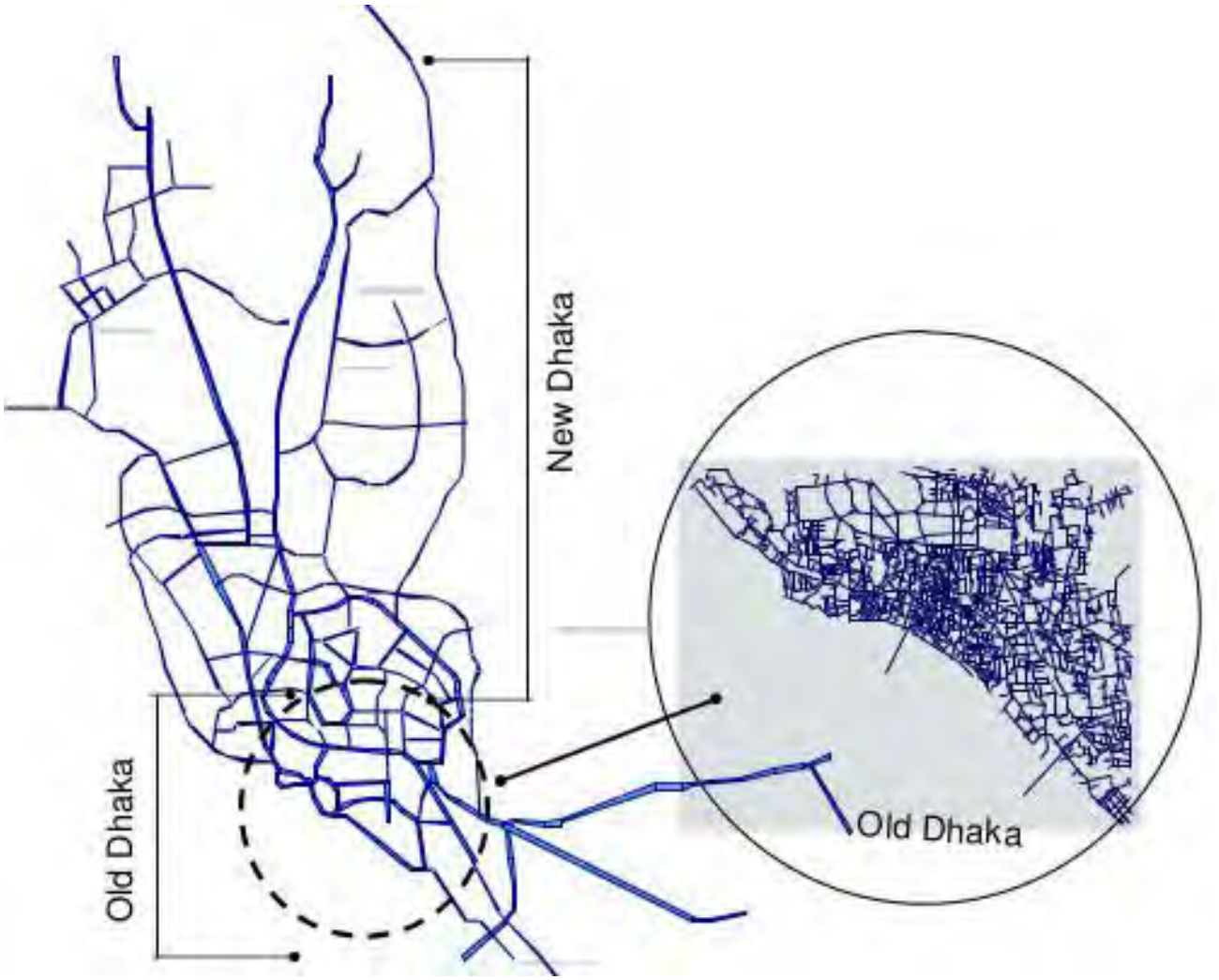

Figure 3.3.2: Old Dhaka and New Dhaka (Source: Nilufar, 2010)

Two prevailing urban examples are prominent inside the progressive phases of development; they are the chronicled centre or old Dhaka and the later improvement towards the north, known as new Dhaka.

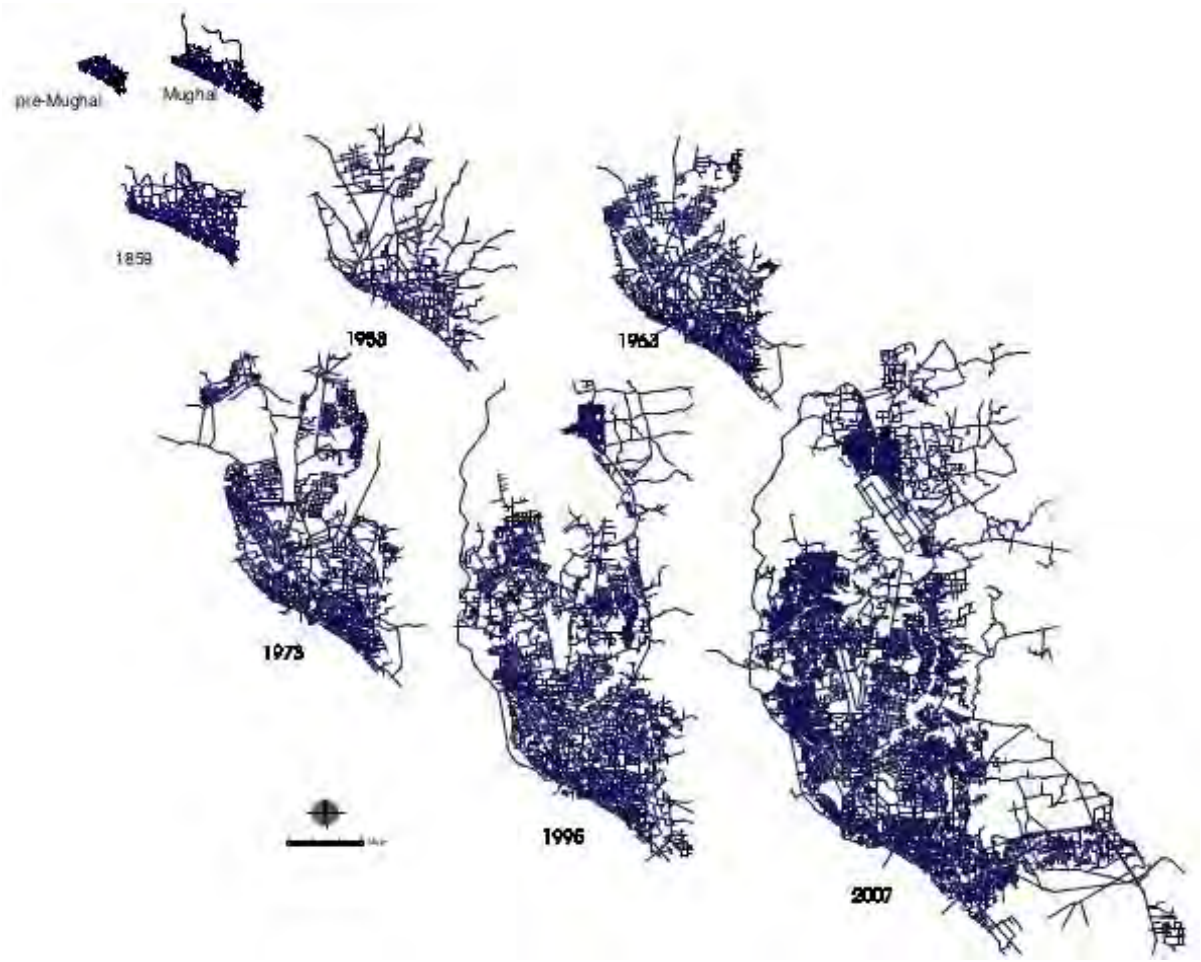

Figure 3.3.3: Old Urban core and functional pattern in Dhaka (Source: Nilufar, 2010)

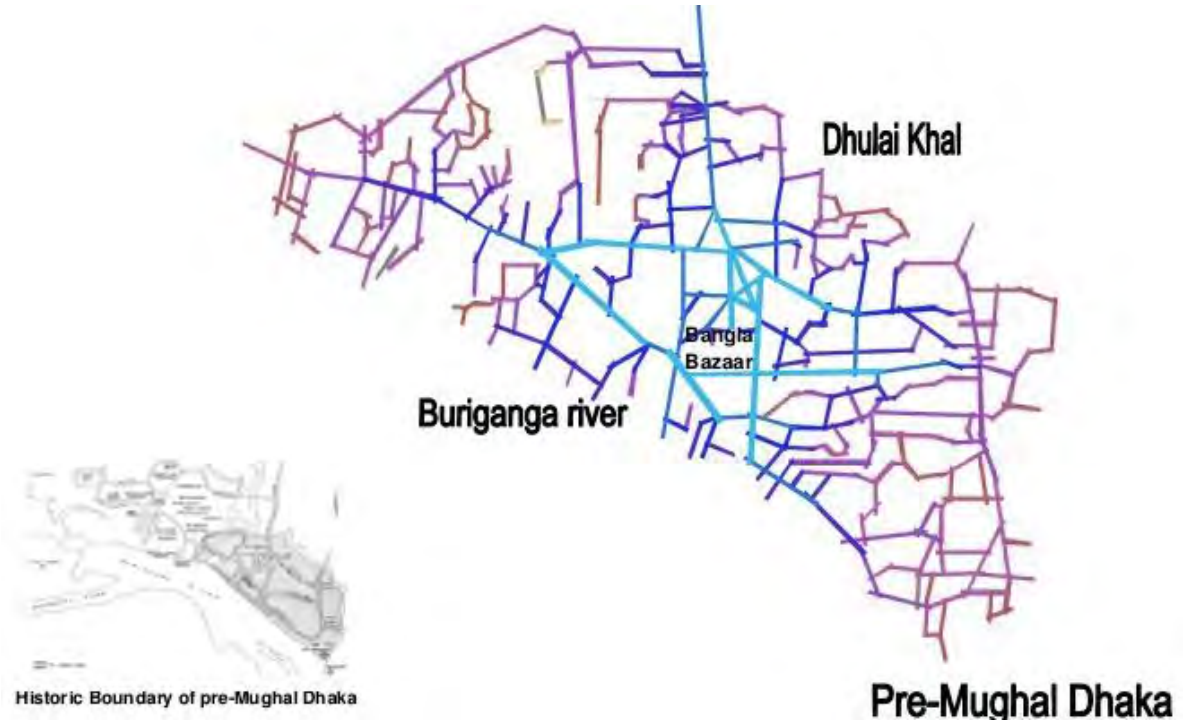

Figure 3.3.4: Historical Boundary of Pre-Mughal in Dhaka (Source: Nilufar, 2010)

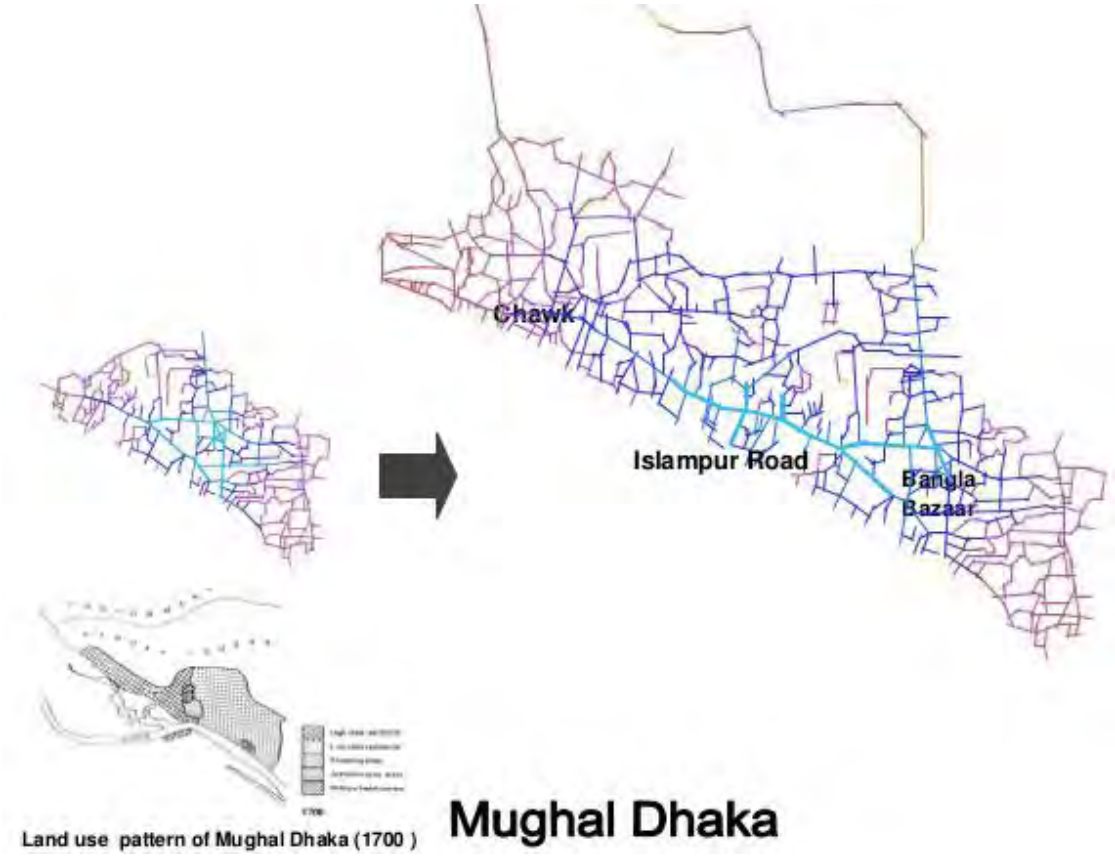

Figure 3.3.5: Land Use Pattern of Mughal in Dhaka-1700 (Source: Nilufar, 2010)

•Integration centre at the physical focal point of the city

•Highly incorporated lines - inside the more current parts of Dhaka

•The worldwide centre - a persistent circle framing three rings, with a long tail connecting Motijheel Tejgaon

•All these give a proof of a move in significance from the old city towards the more up to date part Dhanmondi Green Road

•Rangy and empty centre which contained extensive pockets of un-manufactured and open territories

•The business focus deliberately decreases in significance with each ensuing phase of development

•The worldwide centre of the aggregate spatial arrangement of Dhaka at various stages recognized the practical centre, both business and authoritative, of the city in each relating period

•This result depends on the changing character of the worldwide incorporation centre at various stages, which is constantly affected by the draw of the new augmentations

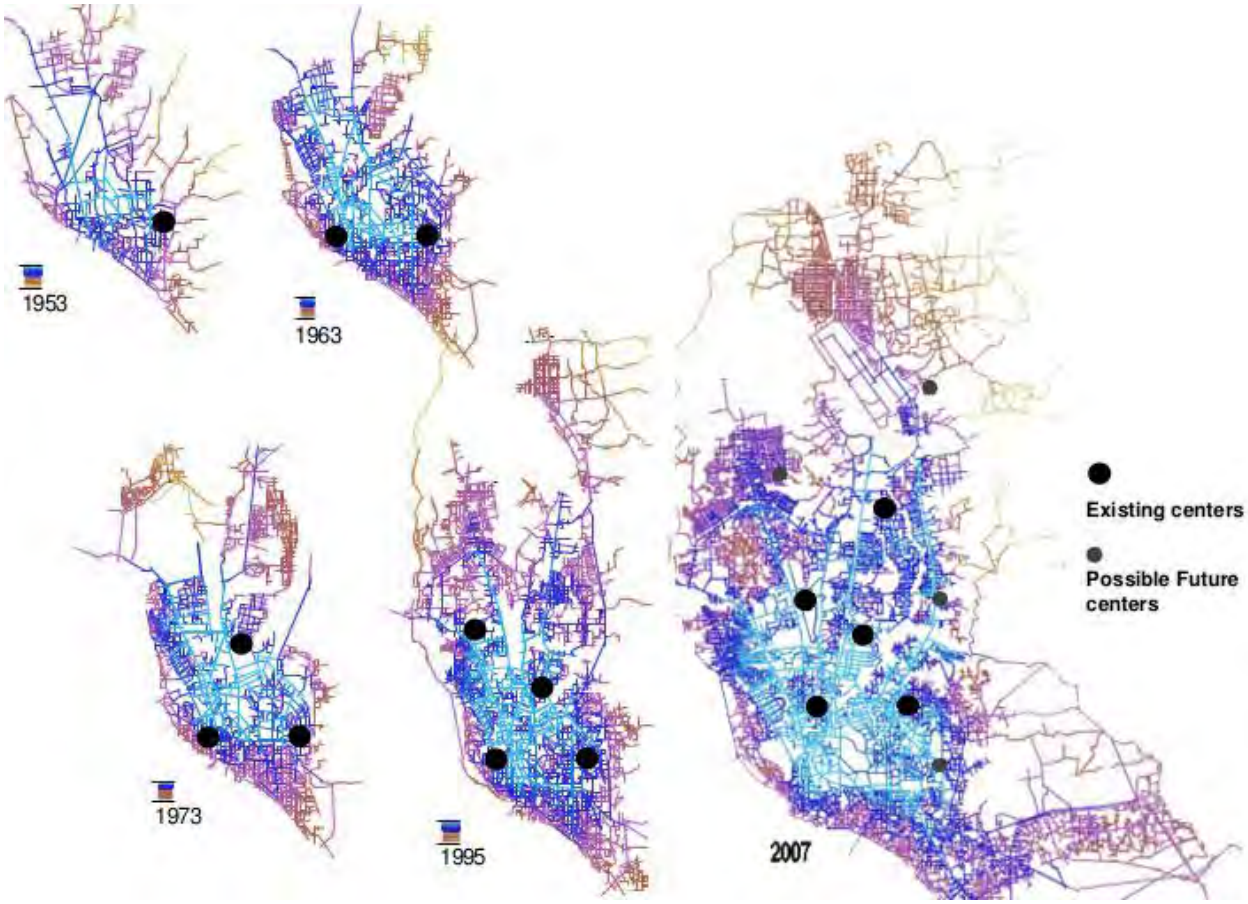

Figure 3.3.6: Existing centres Possible of Future Dhaka (2007)(Source: Nilufar, 2010)

3.4 Site Exploration

3.4.1 Location of Site

Figure 3.4.1: Azimpur Location (Source: Google Map)

The site is located at Azimpur, Dhaka. It is commonly known as the Azimpur Colony. Two primary roads run along the site, Azimpur Road on east and south and New Market-Pilkhana Road on the north. The west side of the site is surrounded by the Azimpur Graveyard. Another main forces of the site are New Market, Eden Mohila College, Home Economics College. Apart from these landmarks, the site itself is a Landmark, most prominently known as Azimpur Sorkari Colony or Azimpur Colony.

In context of Dhaka city Azimpur is the area which connects the Old Dhaka and the New Dhaka. Its adjacent areas on one side Lalbagh, Hazaribagh, Pilkhana are in Old Dhaka and another side Nilkhet, Dhanmondi, Palashi, Ramna are in New Dhaka. Azimpur situated in New Dhaka and under Lalbagh thana. So the area is a connector of Old and New Dhaka.

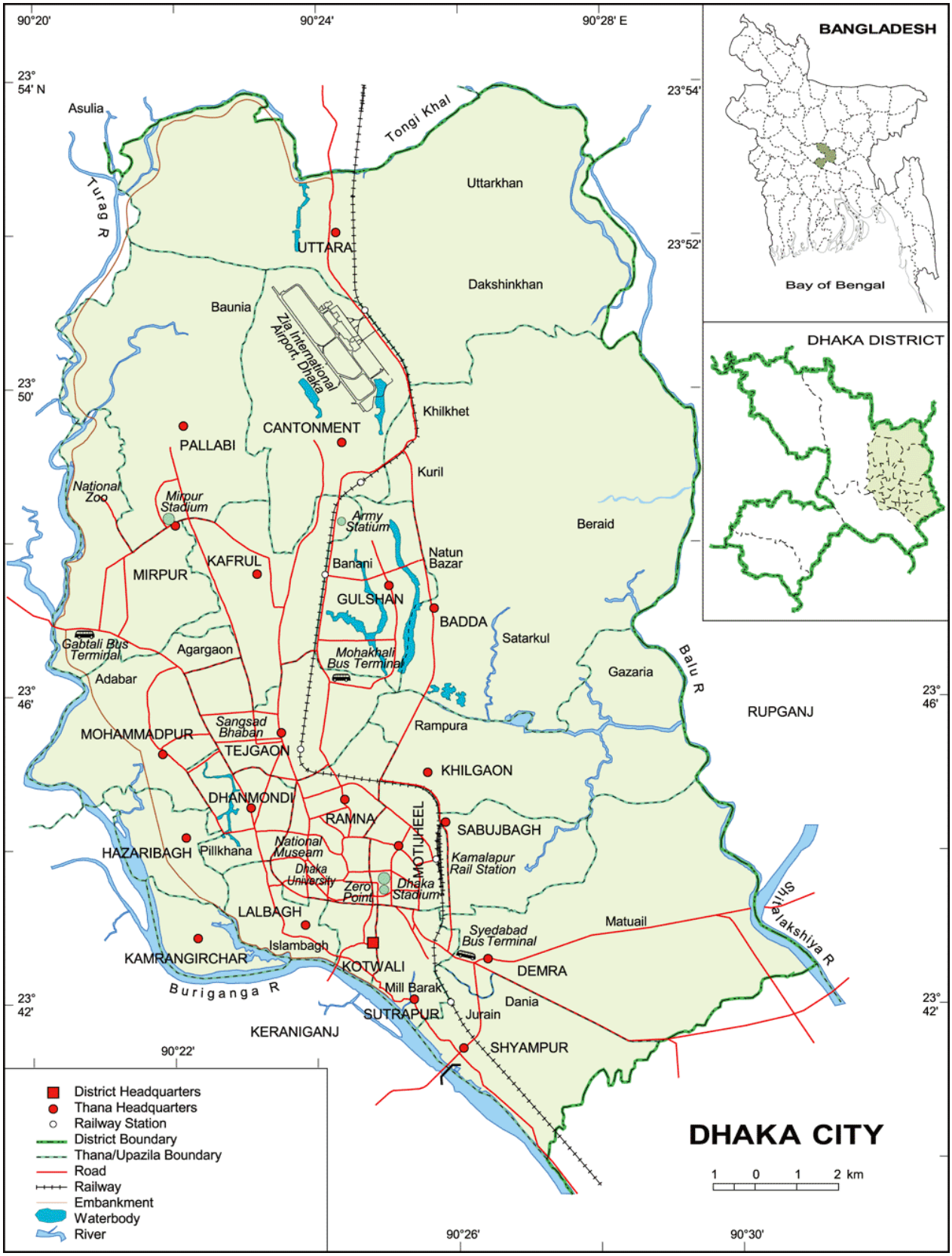

Figure 3.4.2: Dhaka City Map (Source: http://www.dhakatown.net/dhaka-city-map)

Azimpur area is situated in Lalbagh thana, just beside the Azimpur Graveyard.

Figure 3.4.3: Lalbagh Thana Map (Source: http://www.dhakatown.net/dhaka-city-map)

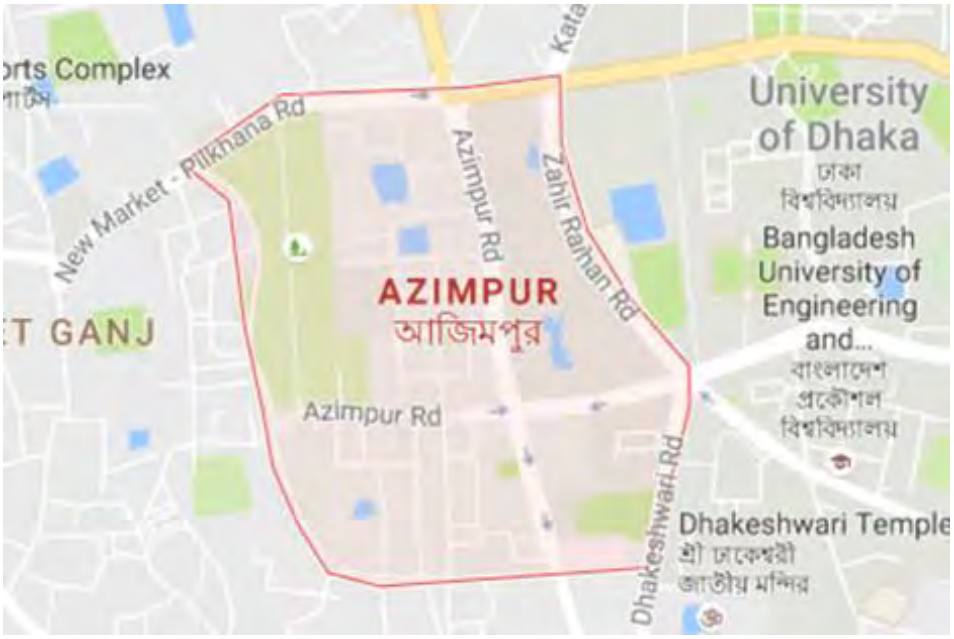

Figure 3.4.4: Azimpur Location in Context of Dhaka (Source: Google Map)

Figure 3.4.5: Azimpur Location in Context of New and Old Dhaka (Source: Source: http://www.dhakatown.net/dhaka-city-map)

3.4.2 Geographical

Azimpur is an old locale in the old piece of Dhaka, capital of Bangladesh. The area is named after Shahzada Azam, son of Mughal Emperor Aurangzeb. Different records credit the name to Azim-us-Shaan, the Nayeb-e-Nazim of Dhaka in the middle of the mid 18th century. Azimpur is situated at 23.7298°N 90.3854°E. Its aggregate region is 1.17 km². Eden College, one of the most seasoned instructive establishments for young ladies in behind the times India, is situated in Azimpur. Close-by organizations incorporate Dhaka University and Bangladesh University of Engineering and Technology. Azimpur has 02 Wards (Wards-59, 62), 20 Mahallas and 01 Police Outpost Station. and so on.

3.4.3 Climatic

Dhaka has a hot, wet and humid tropical climate. Annual average temperature stays at 27°C (81°F), which varies monthly between 19.5°C (67°F) in January and 32°C (90°F) in May.

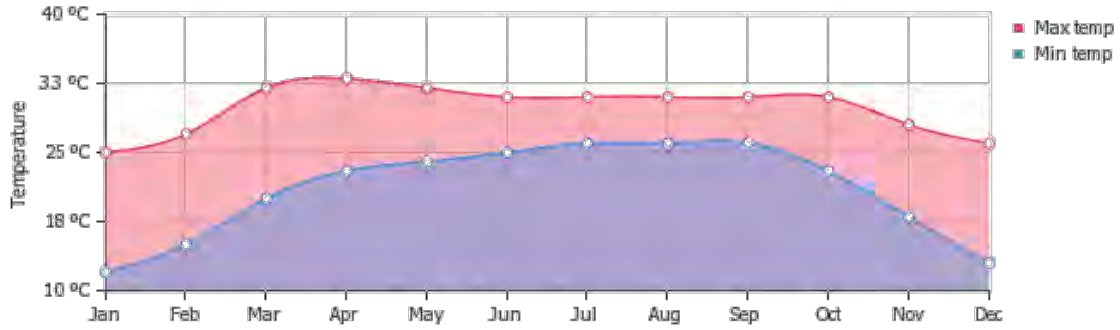

Figure 3.4.6: Average Min and Max Temperature in Dhaka (Source: https://weather-and-climate.com)

January is the coldest month, whereas May is the warmest month of the year.

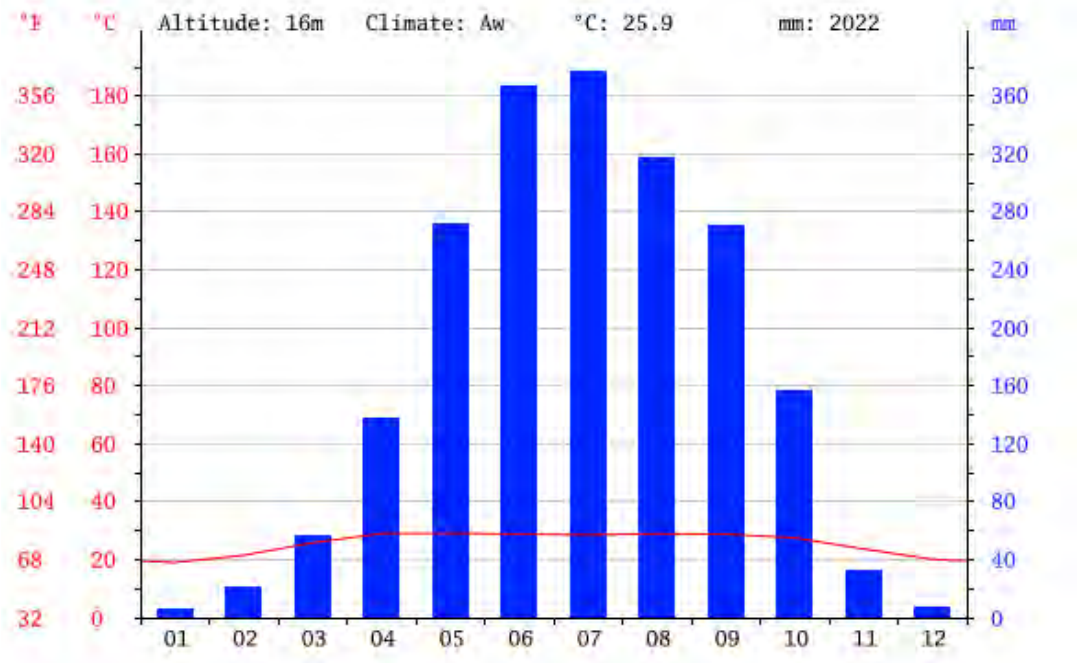

Figure 3.4.7: Climate graph. (Source :http://en.climate-data.org)

Throughout the year, between the driest and the wettest month precipitation varies by 371 mm, whereas, temperature varies by 10.1 °C.

Annual average rainfall 2,123 mm (83.5 in) occurs between May and October.

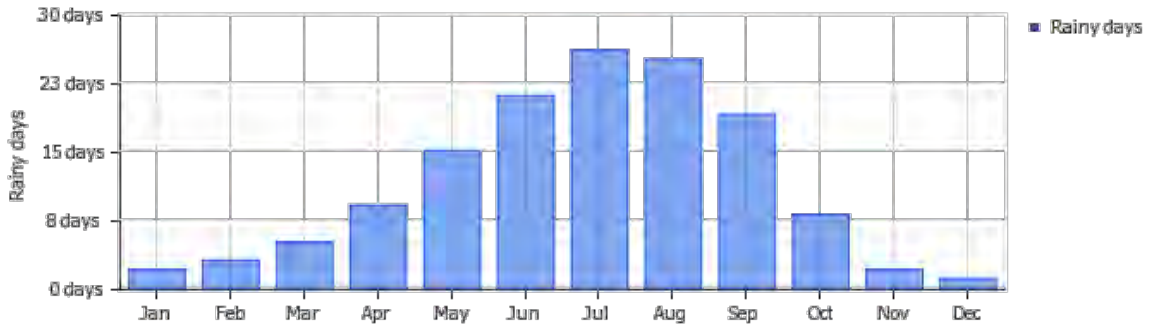

Figure 3.4.8: Average Rainy days in Dhaka city. Source: (https://weather-and-climate.com)

3.4.4 Socio-Cultural

As of the 1991 Bangladesh enumeration, Azimpur has a populace of 96,641; male 51,598, female 45.043. This region is arranged in Lalbagh thana. The thana Population is made out of individuals from different region. The national dialect, Bengali and territorial dialect Dhakaiya are for the most part utilized among the general population. Dhaka city is loaded with energetic societies. One of the well known festivals is Pohela Boishak. Individuals around the City accumulates at essential open areas like Ramna stop, Dhaka University Campus, and so forth, wearing conventional garments and celebrate. Other yearly festivals like Independence Day, Victory Day and Language Martyr's Day are likewise commended conspicuously over the city. Hindu religious celebrations like Durga Puja, most critical celebrations for Hindu religion, are commended tremendously in the city. Notwithstanding that, Eid-ul-Fitr and Eid-ul-Adha, essential Muslim celebrations are celebrated here enjoyably.

3.4.5 Site Communication Way

The way of communication and transport is through the Mirpur Road, in front of New Market to the south-east Azimpur Road. Azimpur Road and New Market-Pilkhana Road connects the site to Mirpur Road. Bus stoppages near the site, at Azimpur Road in front of Eden College, New Market made accessibility even more easier.

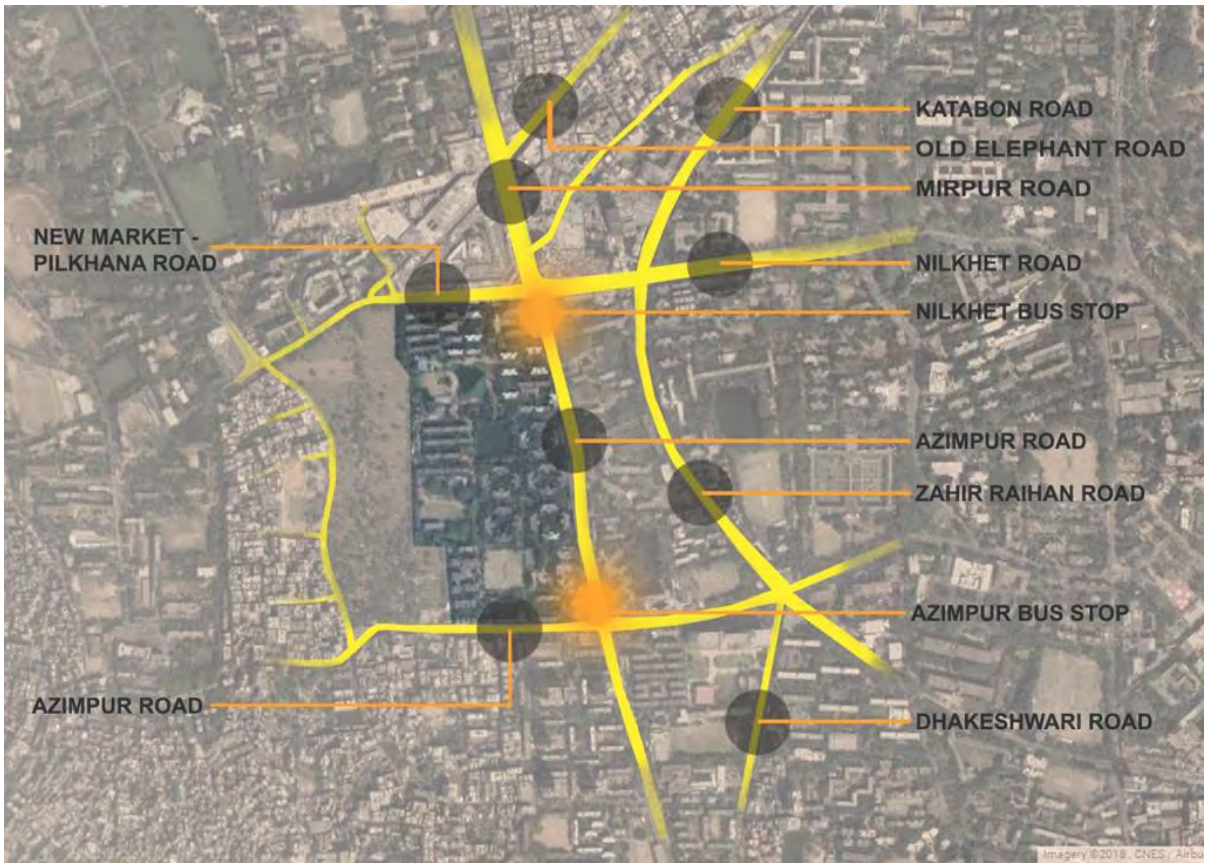

Figure 3.4.9: Site Communication Way. (Source: Author based on Google Map)

3.4.6 Site Surroundings

Figure 3.4.10: Site surroundings. (Source: Author based on Google Map)

3.4.7 Connectivity and Landmarks

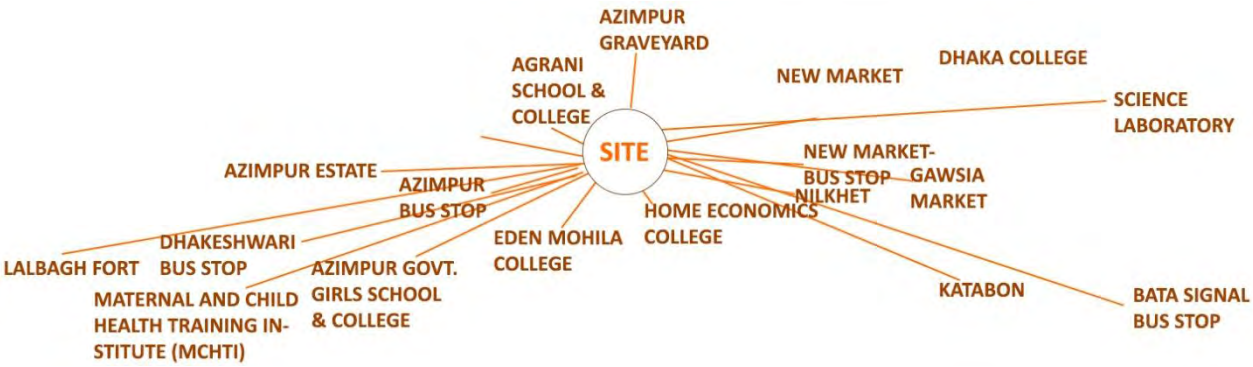

Figure 3.4.11: Site Connectivity. (Source: Author)

Figure 3.4.12: Site Landmarks. (Source: Author based on Google Map)

3.4.8 Site Forces

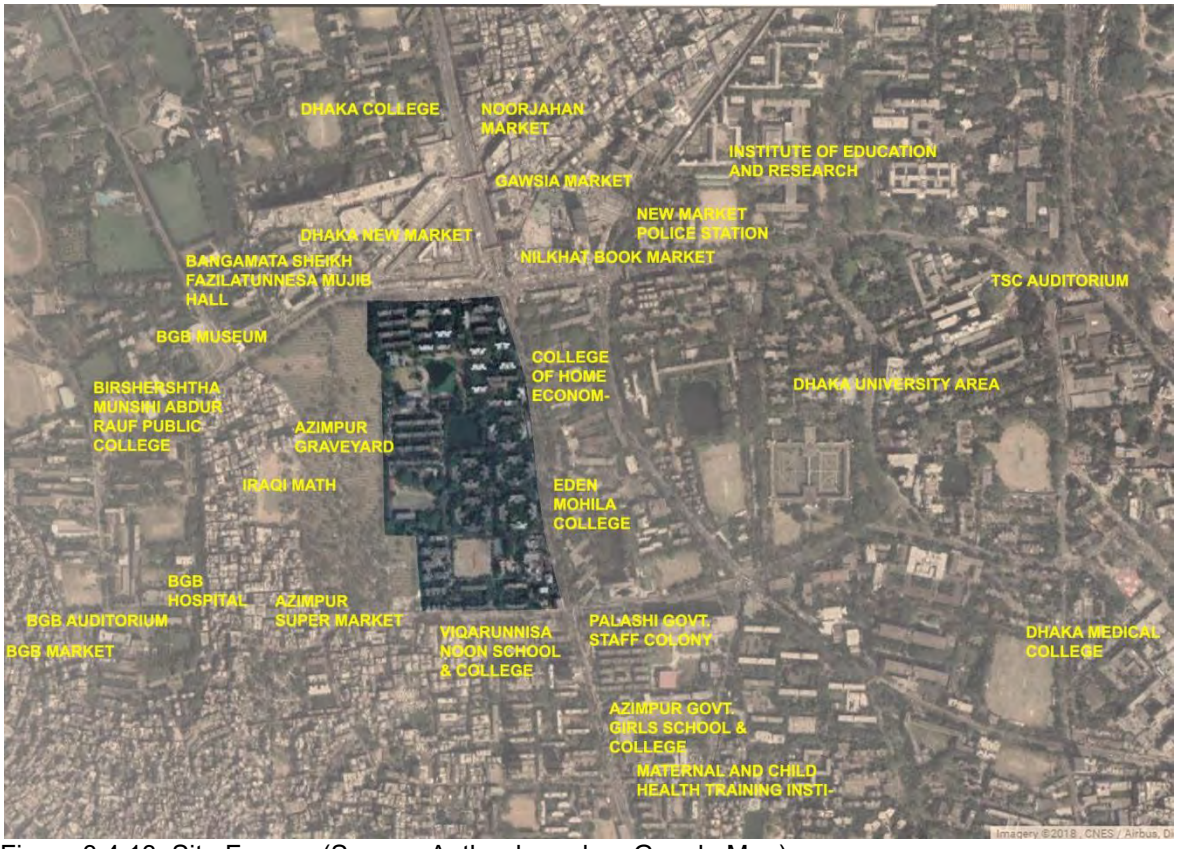

Figure 3.4.13: Site Forces. (Source: Author based on Google Map)

3.5 SWOT

3.5.1 Strength

- Easily accessible and transportation system is good
- Located at the nodal point of two primary roads
- A well known housing complex
- Many Educational Institutions in the area
- Many Departmental stores in the area
- Ponds inside the site
- Green and open spaces
- Mosque, and school inside the site
- Existing community centre
- Vendors and super shop existing

3.5.2 Weakness

- Inappropriate use of open space
- No recreational space
- Site is surrounded by Azimpur grave yard on one side, so the area becomes congested sometimes
- Existing Agrani School is a reason for congestion in site
- The area is overcrowded and roads get narrower towards west
- No medical centre/ Hospital near the site
- Improper car parking system
- Open drains around the residential buildings
- One of the ponds is left dirty and unutilized

- No access on the roof of buildings
- Garbage thrown here and there
- Some of the buildings are too old to dwell as they are not structurally strong

3.5.3 Opportunity

- The Site is easily accessible and already is a well known housing so it has the potential of redesigning the Housing Complex in a better way.

3.5.4 Threats

- This housing complex is one of the very old, well known and properly working housing of Dhaka city. The residential buildings are too old that they are not structurally strong enough to dwell. So, the buildings need to be redesigned. The existing buildings have proper setbacks, open space around it and all the facilities that a housing needs. As a result, wrong construction might affect the environment, if the site is not dealt carefully.

3.6 Site and Neighbouring Area

3.6.1 Map of the Site and Existing Neighbouring Area

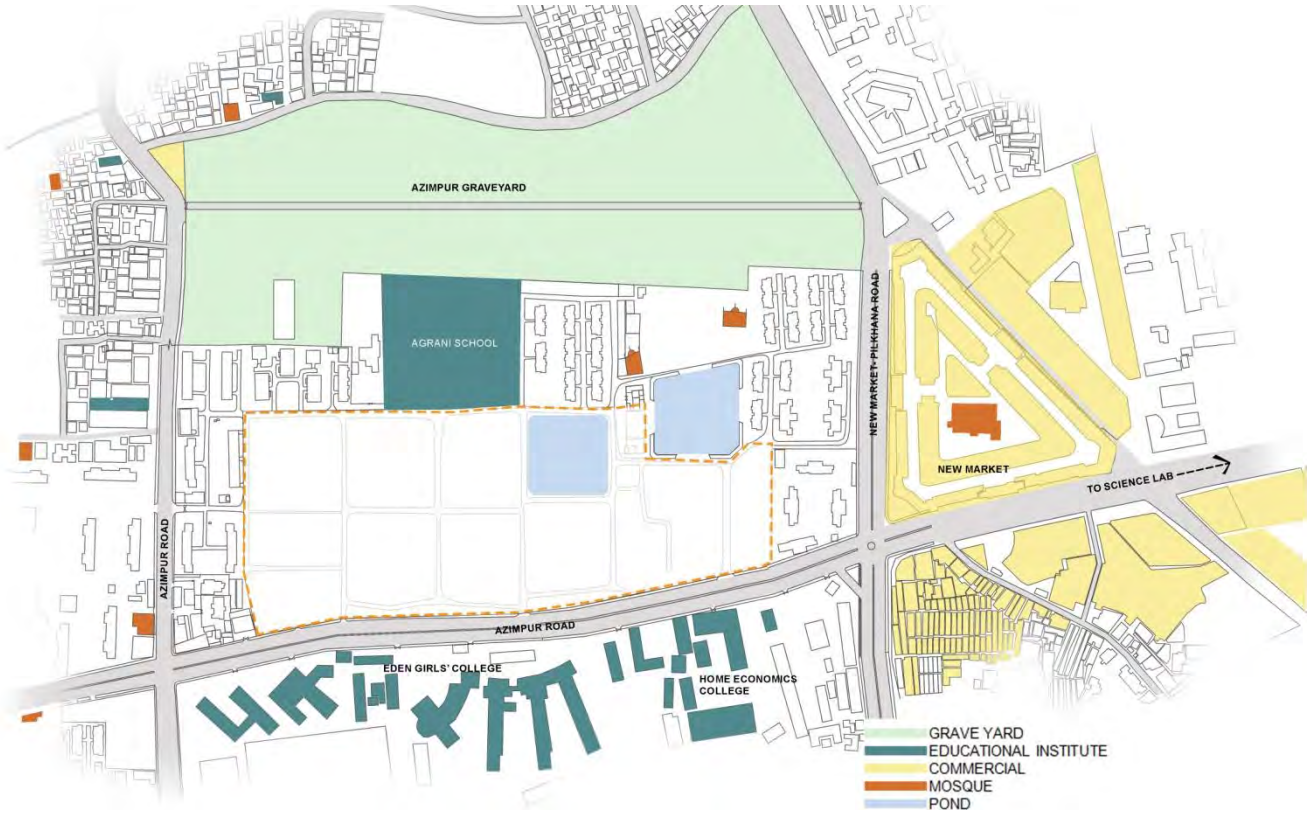

Figure 3.6.1: Existing Site and Surrounding. (Source: Author)

3.6.2 Road Network

Figure 3.6.2: Road Network. (Source: Author)

3.6.3 Important Nodes

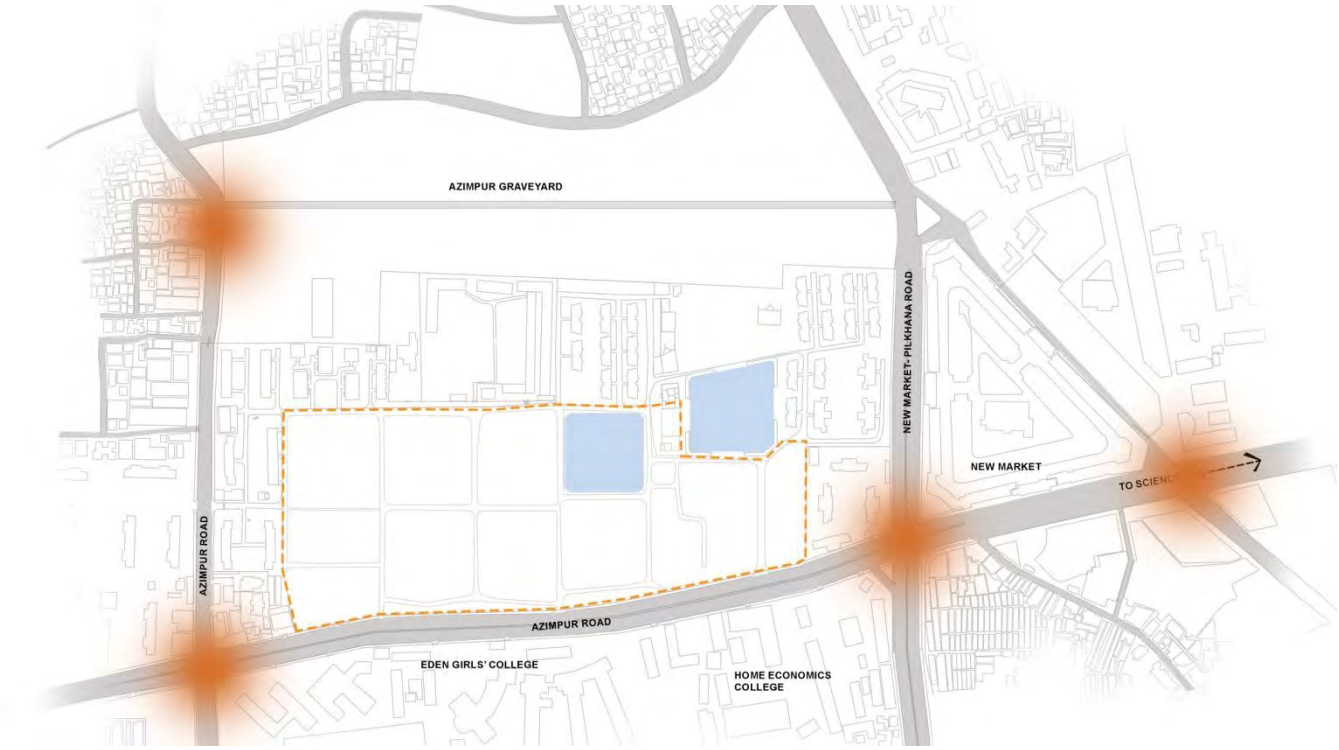

Figure 3.6.3: Important Nodes. (Source: Author)

3.6.4 Sound Scape and Traffic Congesstion

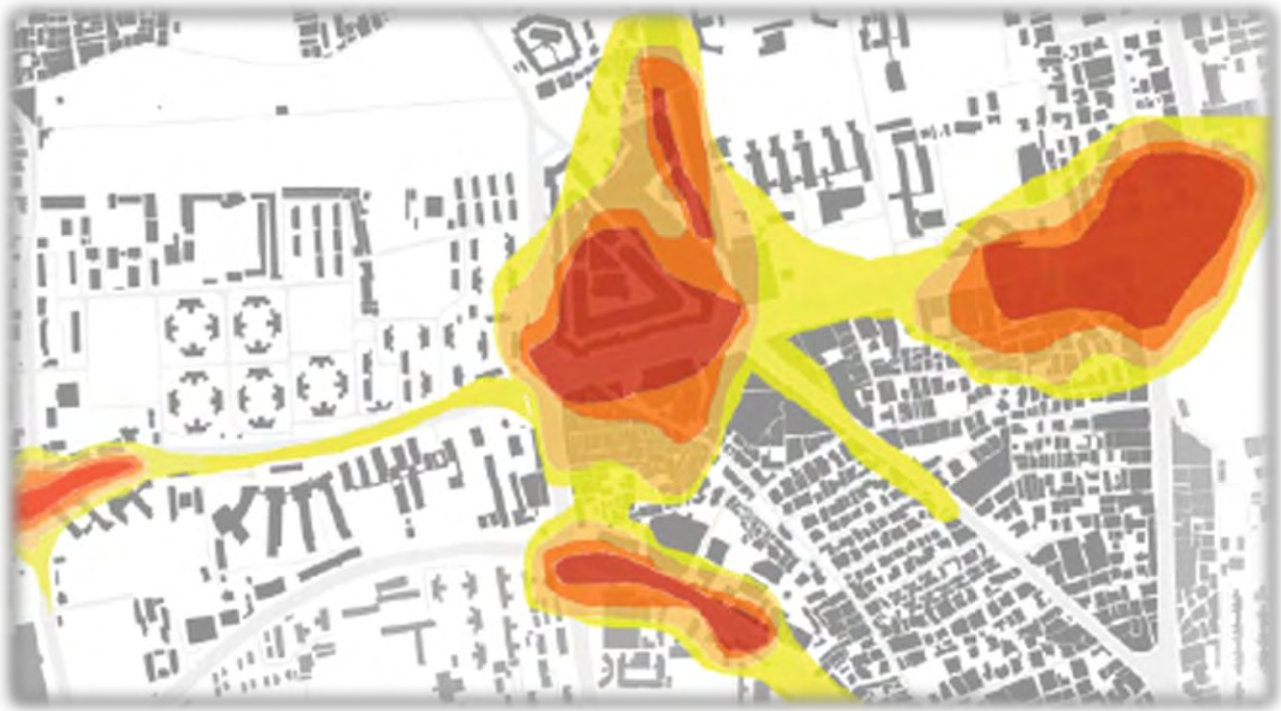

Figure 3.6.4: Sound Scape. (Source: Author)

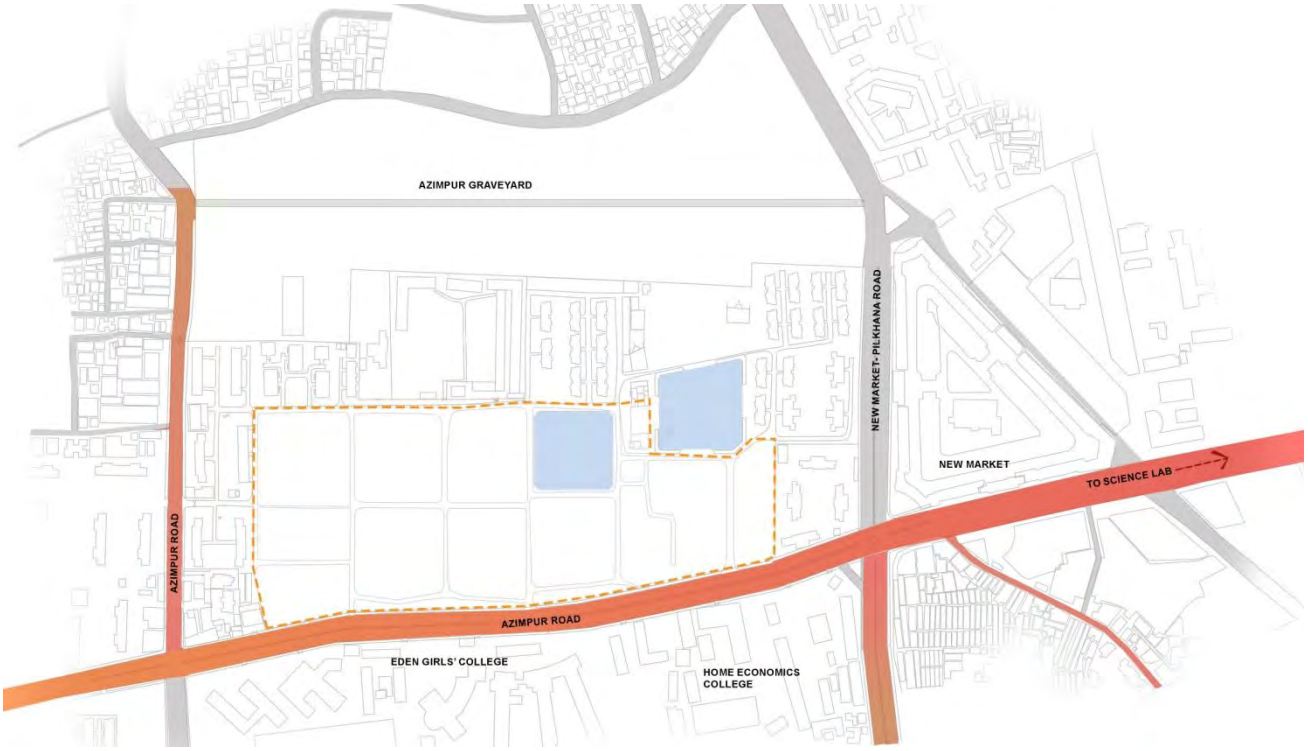

Figure 3.6.5: Traffic Congestion. (Source: Author)

3.6.5 Zoning, Built Form, Greeneries, Water Body

Figure 3.6.6: Zoning. (Source: Author)

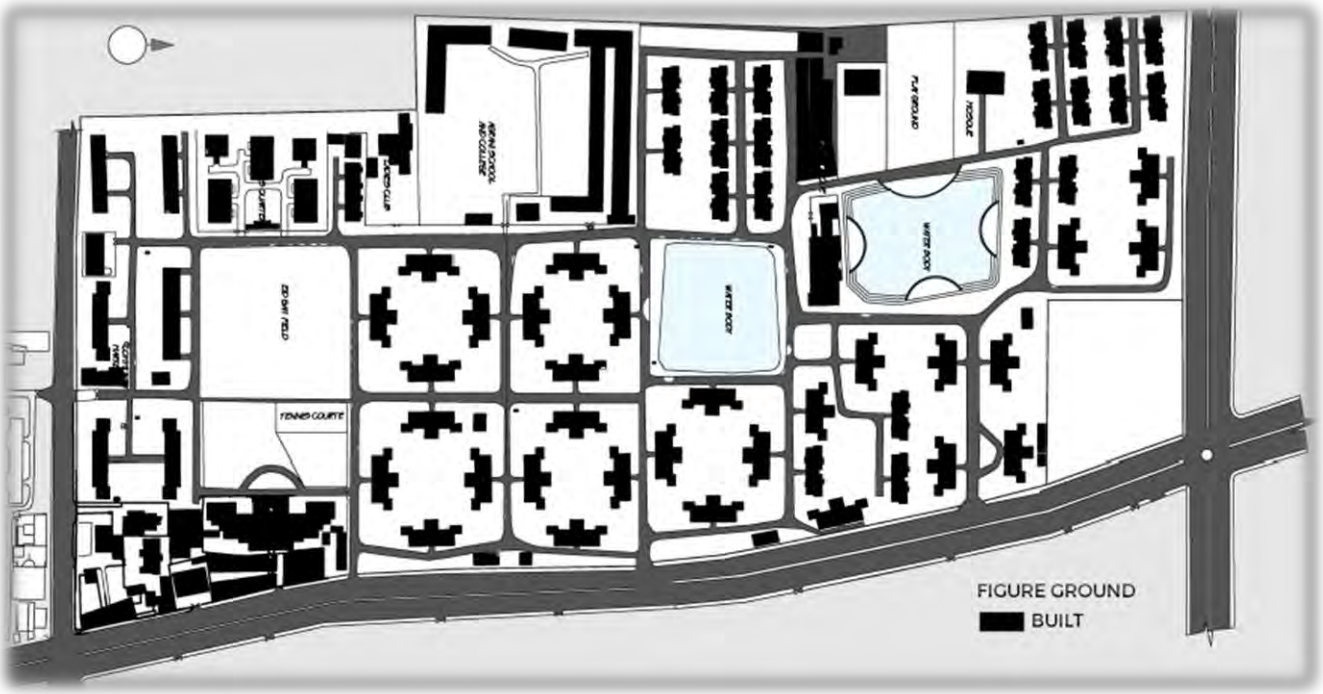

Figure 3.6.7: Built Form. (Source: Author)

Figure 3.6.8: Greeneries and Waerbody. (Source: Author)

3.6.6 Sun Path and Wind Flow

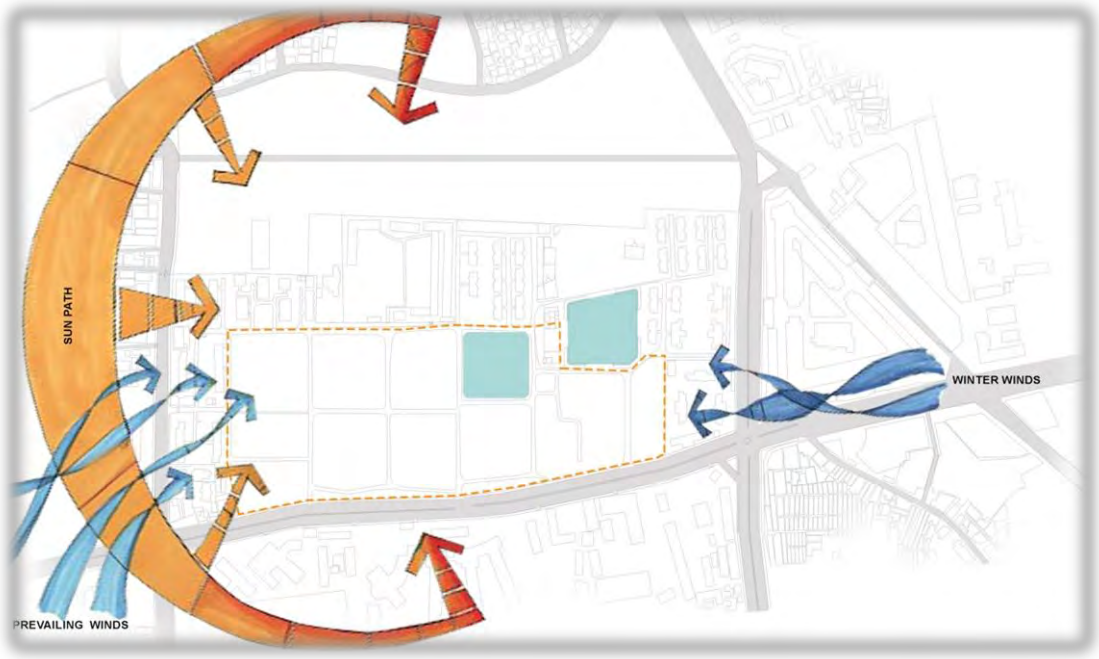

Figure 3.6.9: Sun Path and Wind Flow. (Source: Author)

3.7 Site Photographs

Figure 3.7: Site Photographs. (Source: Author)

Chapter - 04: PROGRAM AND PROGRAM ANALYSIS

4.1 Proposed Programs from Client

4.2 Rationale of the Programs

4.3 Standards for Programs

4.4 Functional Program Development

4.5 Maximum Ground Coverage

4.6 Programs Layout

4.1 Proposed Programs from Client

- 700 Residential Flats (1500, 1250 and 1000 sft)
- Community Centre
- Primary School
- Playground
- Parking Facilities

4.2 Rationale of the Programs

The housing complex includes fundamental services that will improve the comfort and guarantee better state for living for the consumers. Ministry of Housing and Public Works, proposed a catalogue of programs that incorporates dwelling flats, community or multipurpose hall, utility building and security guard room, considering the security issues. Depending on the need of the clients and thinking about the surroundings of the site, few changes may be done later to the program list. In total, 706 Residential flats were proposed by the client. Residential flats are separated into three types, 1500sft, 1250sft and 1000sft flats. As the project is for Government officers and workers, verity sizes of the flats are assigned for the officers according to their remuneration and designation.

In Dhaka city, settlement of Government officers is an severe concern. Accordingly, officers need to lease flats with higher rate. This decreases their productivity and causes money related problems. These flats will suit considerable number of officers and their families. Although that, officers will have the ability to carry on a standard situation with better living conditions, which will at last lead them to carry on with a better-quality life.

Extensive number of people would live inside the accommodation complex forming a community, sharing a bond. To encourage concrete bond among the people, a community hall or a multipurpose hall is required. people can celebrate different sorts of event together inside the community. Consequently, they need not to travel a long way from the complex for this purpose and this will as well be effective financially.

Considering the security issue, it is required to have guard room for security guards. Alternative power supply system needs a utility building, which is a important part of a housing complex. The utility building should not be placed far away from guard room, as guard needs to operate the room immediately after power failure.

4.3 Functional Program Development

Type and no. of flats	Functional Activities	No. of Elements	Area in sft
304 (1500 sft) Flats	Foyer	1	50
	Master Bedroom	1	170
	Bedroom	2	150*2= 300
	Servant Bed	1	70
	Store	1	50
	Living Room	1	200
	Dining Room	1	150
	Family Living Room	1	160
	Kitchen	1	80
	Toilet (M.Bed)	1	45
	Toilet (Bed)	1	40
	Toilet (S.Bed)	1	30
	Toilet (Common)	1	35
	Veranda (Kitchen)	1	50
	Veranda (M.Bed)	1	40
	Veranda (Bed)	1	30

	Total sft of 1 Flat		1500
	Total sft of 304 Flats		1500*304 = 456000
	30% Circulation		136800
Total sft of 304 nos (1500 sft) Flats			**592800**
152 (1250 sft) Flats	Foyer	1	30
	Master Bedroom	1	150
	Bedroom	2	140*2= 280
	Servant Bed	1	60
	Living Room	1	180
	Dining Room	1	120
	Family Living Room	1	120
	Kitchen	1	70
	Toilet (M.Bed)	1	40
	Toilet (Bed)	1	30
	Toilet (S.Bed)	1	30
	Toilet (Common)	1	30
	Veranda (Kitchen)	1	40
	Veranda (M.Bed)	1	40
	Veranda (Bed)	1	30
	Total sft of 1 Flat		1250
	Total sft of 152 Flats		1250*152 = 190000
	30% Circulation		57000
Total sft of 152 nos (1250 sft) Flats			**247000**
250 (1000 sft) Flats	Master Bedroom	1	130
	Bedroom	2	120*2= 240
	Servant Bed	1	50
	Living Room	1	150
	Dining Room	1	100
	Family Living Room	1	90
	Kitchen	1	60
	Toilet (M.Bed)	1	35
	Toilet (Bed)	1	30
	Toilet (S.Bed)	1	25
	Toilet (Common)	1	25
	Veranda (Kitchen)	1	20

	Veranda (M.Bed)	1		25
	Veranda (Bed)	1		20
	Total sft of 1 Flat			1000
	Total sft of 250 Flats			1000*250 = 250000
	30% Circulation			75000
Total sft of 250 nos (1000 sft) Flats				**325000**
Function	**Functional Activity**	**No. of Elements**	**No. of Users**	**Area in sft**
Community Centre	Multipurpose Hall	1	800	800*12 = 9600
	Kitchen	1	-	800
	Store	1	-	150
	Change Room	1	-	200
	Office	1	4	200
	Staff Lounge	1	10	150
	Toilet + Hand Wash Area	F (6 WC, 8 WB) M (4 WC, 4 U, 6 WB)	-	300+450 = 750
	Toilet for Stuff	F (2 WC, 1 WB) M (2 WC, 1 WB, 2 U)	-	180
	Total sft of Hall			12030
	30% Circulation			3610
Total sft of Community Hall				**15640**
Primary School	Class Rooms	10		100000
	Teachers Room	2		2000
	Multipurpose Hall	1		5000
	Stuff Room	1		1000
	Toilet	Students (20 WC, 10 WB) Teachers (F -6 WC, 8 WB, M- 4 WC, 4 U, 6 WB) Stuff (F- 2 WC, 1		2000

		WB, M- 2 WC, 1 WB, 2 U)	
Total sft of Primary School			**110000**
Utility Building	Substation Room	1	2000
	Equipments Room	1	200
	Office	1	100
	Total		2300
	30% Circulation		690
Total Area			**2990**
Guard Room	Bedroom	3	3*70 = 210
	Toilet	3	3*30 = 90
	Total		300
Total Area			**300**
Guard Room	706 Residential Flats + 350 Community Hall	1056 no of Cars	135168 (without driveway)
Total Area			**135168**
Grand Total of Area			**1428898**

4.4 Maximum Ground Coverage

Site Area, A = 17 acre = 740520 sft

Minimum Width of Internal Road = 9m = 29.52 ft

Far for Residential Area = 5.25

MGC = 50% of A= 370260

Total Built Area (TBA) = Far * Site Area = 5.25*740520 = 3887730 sft

30% Circulation = 1166319 sft

Total = 3147210+944163 = 5054049 sft

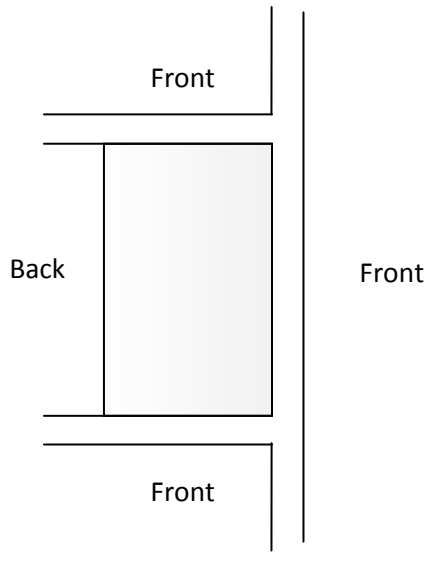

Figure 4.4: The Proposed Site Orientation for Set Back (Source: Author)

Set Back for Site: Front = 1.50 m = 5.0 ft

Back = 3 m = 10 ft

4.5 Programs Layout

Figure 4.5.1: Level of privacy in a housing complex (Source: Author)

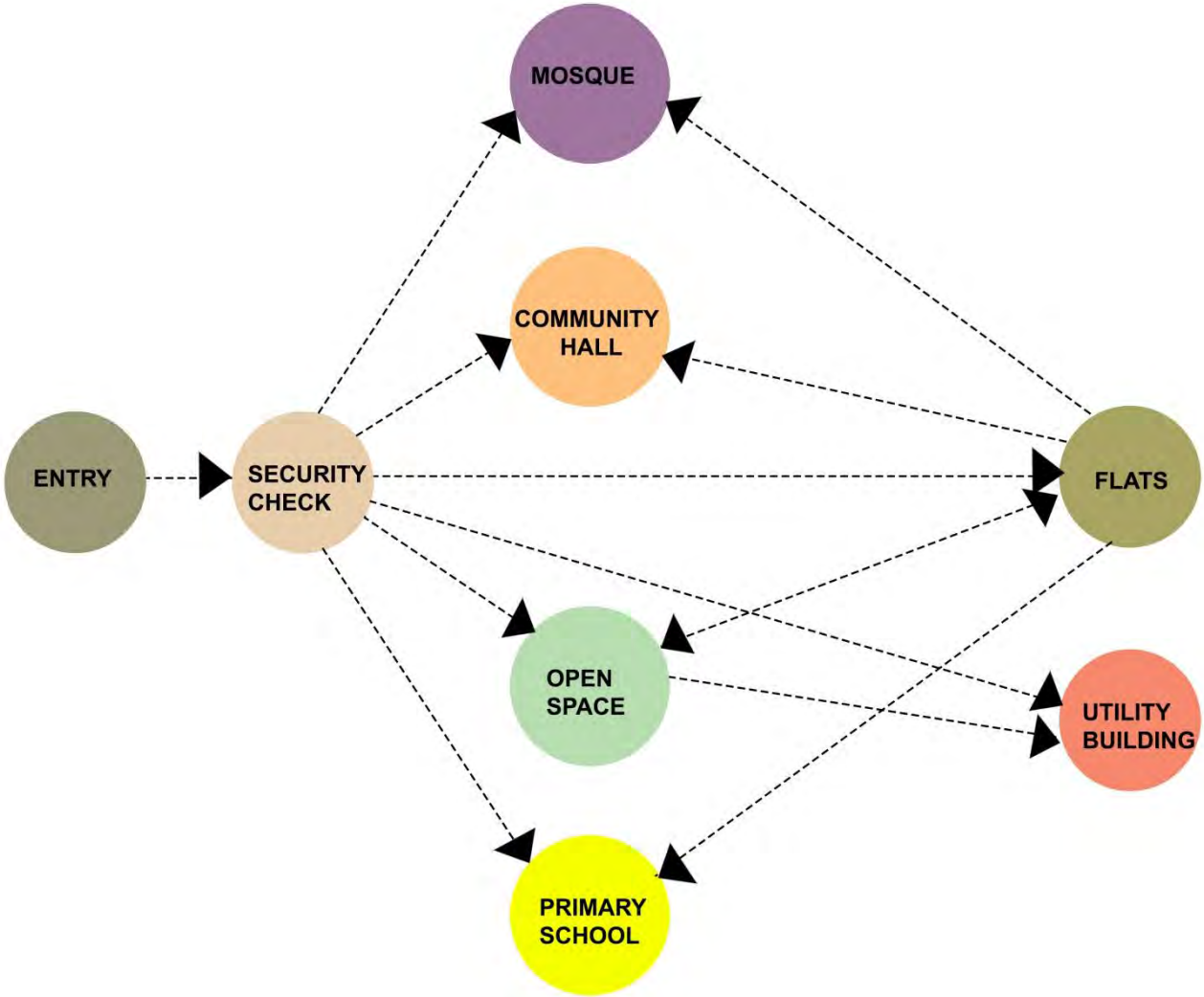

Figure 4.5.2: Connectivity Diagram (Source: Author)

4.6 Standard for Programs

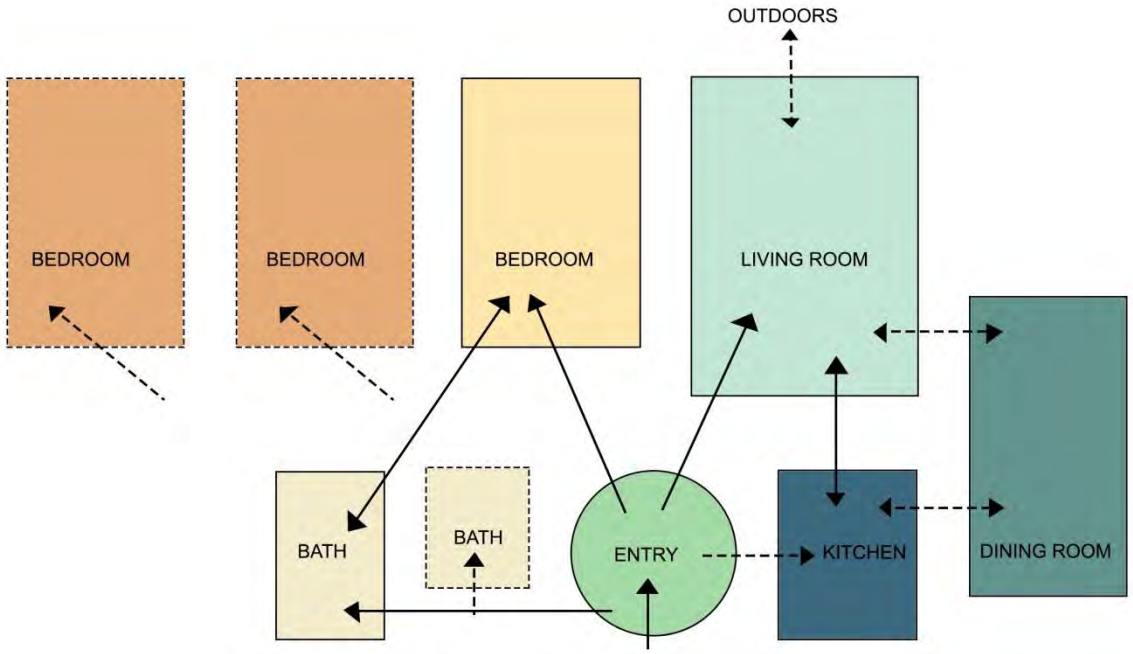

Figure 4.6.1 **:** Apartment Elements Diagram (Source: Modified by Author based on De Chiara, J., Callender, J, 2013)

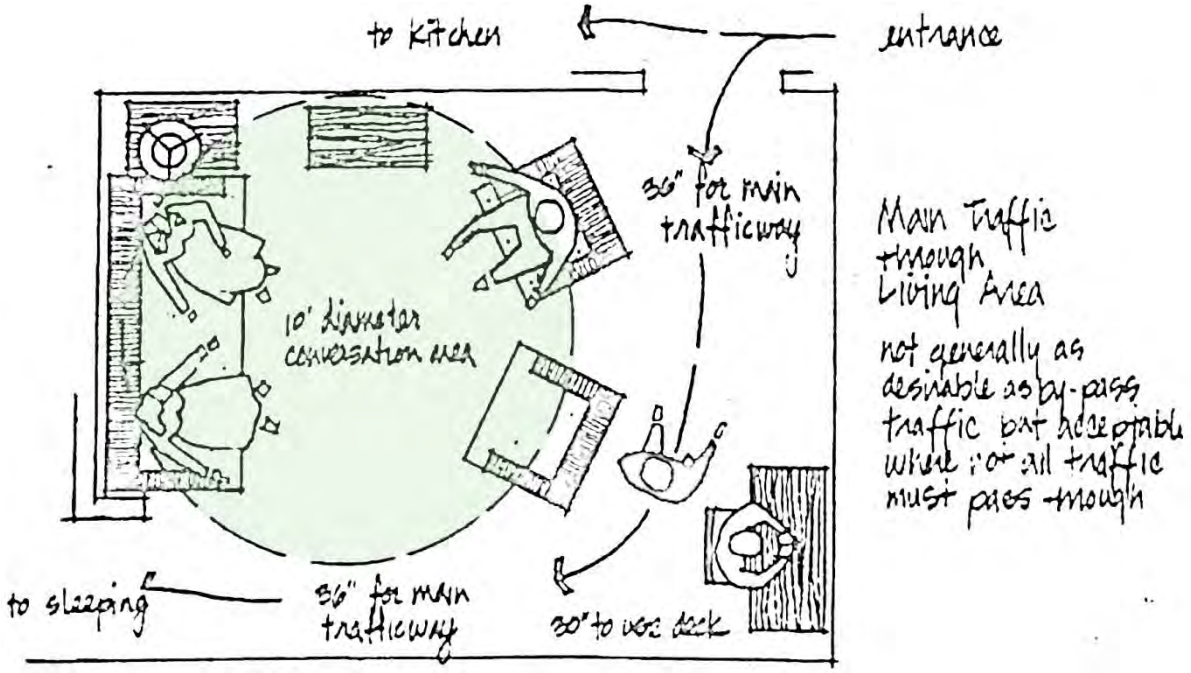

Figure 4.6.2 **:** Living Room Circulation Approaches (Source: De Chiara, J., Callender, J, 2013)

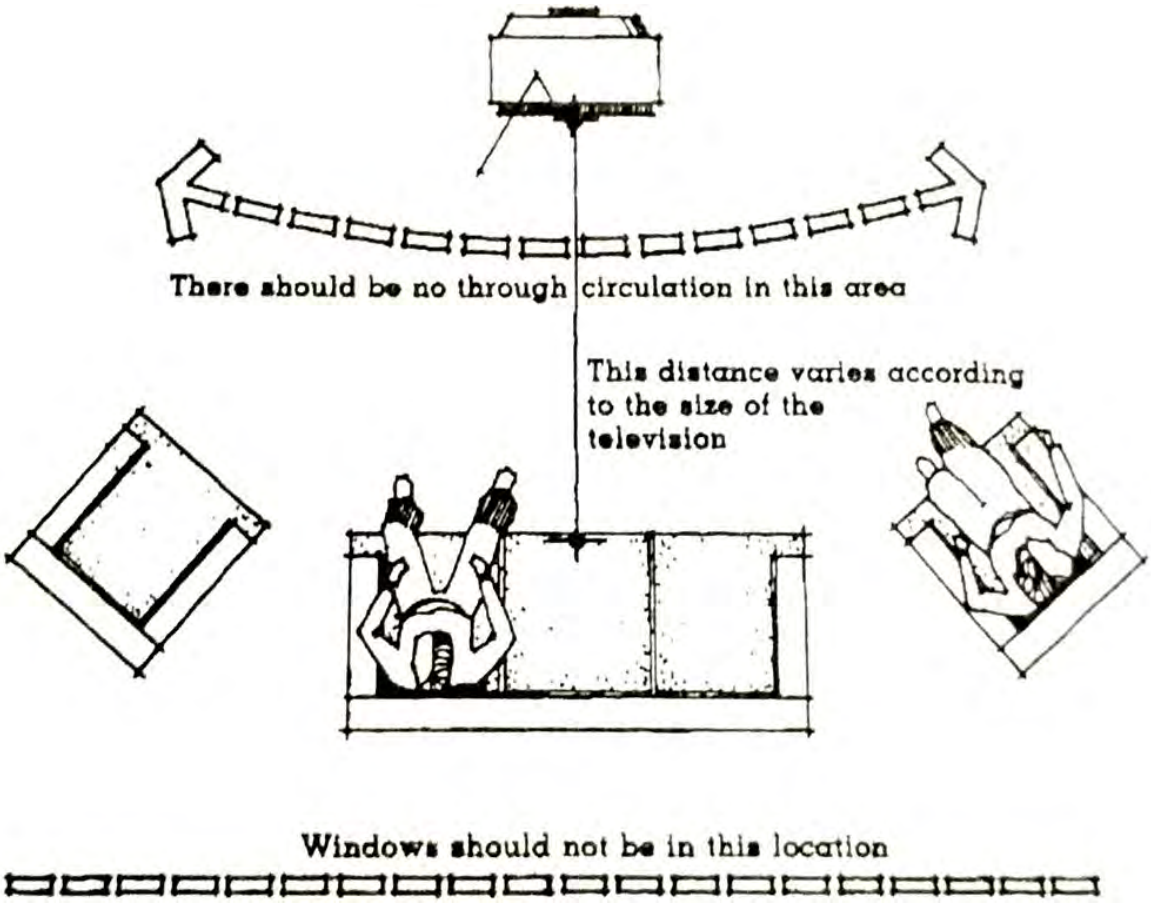

Figure 4.6.3 **:** Space for Television Viewing. The television set should not be placed where the screen will not reflect light and where it can be seen from the main seating group (Source: De Chiara, J., Callender, J, 2013)

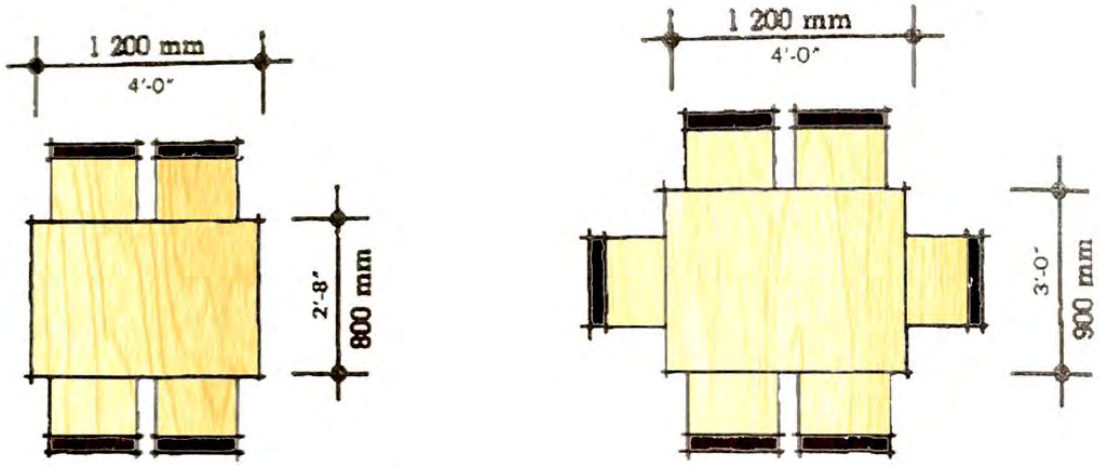

Figure 4.6.4 **:** Dining Table for 4 and 6 People (Source: Modified by Author based on De Chiara, J., Callender, J, 2013)

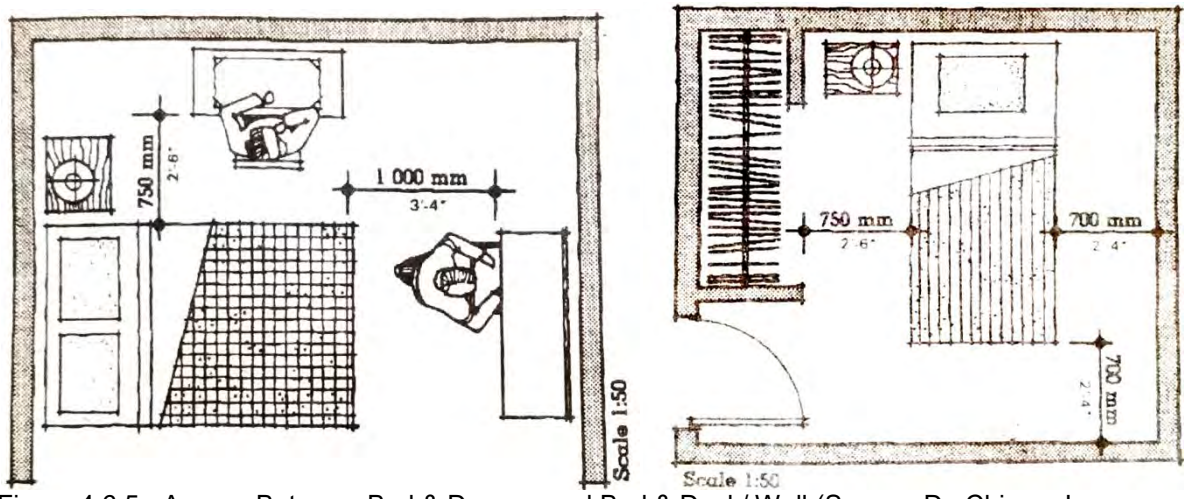

Figure 4.6.5 **:** Access Between Bed & Dresser and Bed & Desk/ Wall (Source: De Chiara, J., Callender, J, 2013)

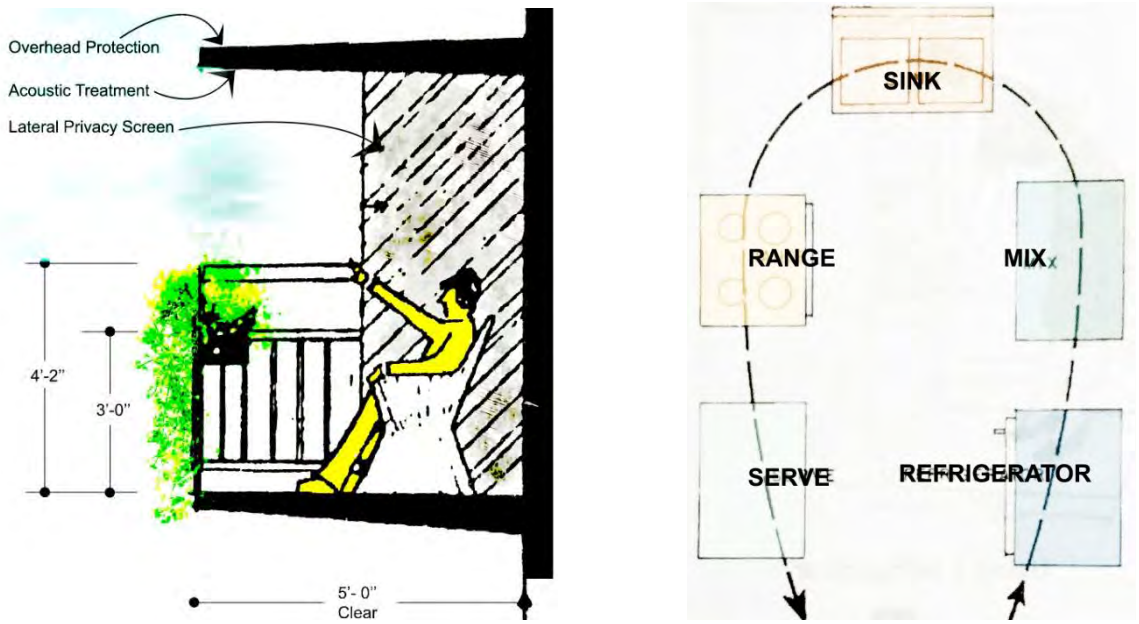

Figure 4.6.6 **:** Veranda and Kitchen work flow (Source: Modified by Author based on De Chiara, J., Callender, J, 2013)

Chapter 05: Case Study

5.1 Local Case Study

5.1.1 Dhansiri Apartment Complex

5.2 International Case Study

5.2.1 Kanchanjunga Apartments

5.2.2 Tara Group housing

5.1 Local Case Study

5.1.1 Dhansiri Apartment Complex

Project Name: Dhansiri Apartment Complex

Architect: Architect. Bashirul Haq

Location: Indira Road, Farmgate, Dhaka

Year of Completion: 1997

Programs: 46 units of apartments (4 nos 4 Bed units, 42 nos 3 Bed units), Parking, Visitors Parking, Electrical Sub-station, Maintenance Office, Common Terraces/ Children Play Area, Private Terraces.(Haq, B. personal communication, March 1, 2018)

Analysis:

- 40' set back from the road on north
- Internal courtyard

Figure 5.1.1: View of Internal Courtyard in Dhansiri Apartment Complex (Source: Modified by Author based on a collected 3D image of Dhansiri)

- Terraces at different level
- Connectivity through terraces and verandas

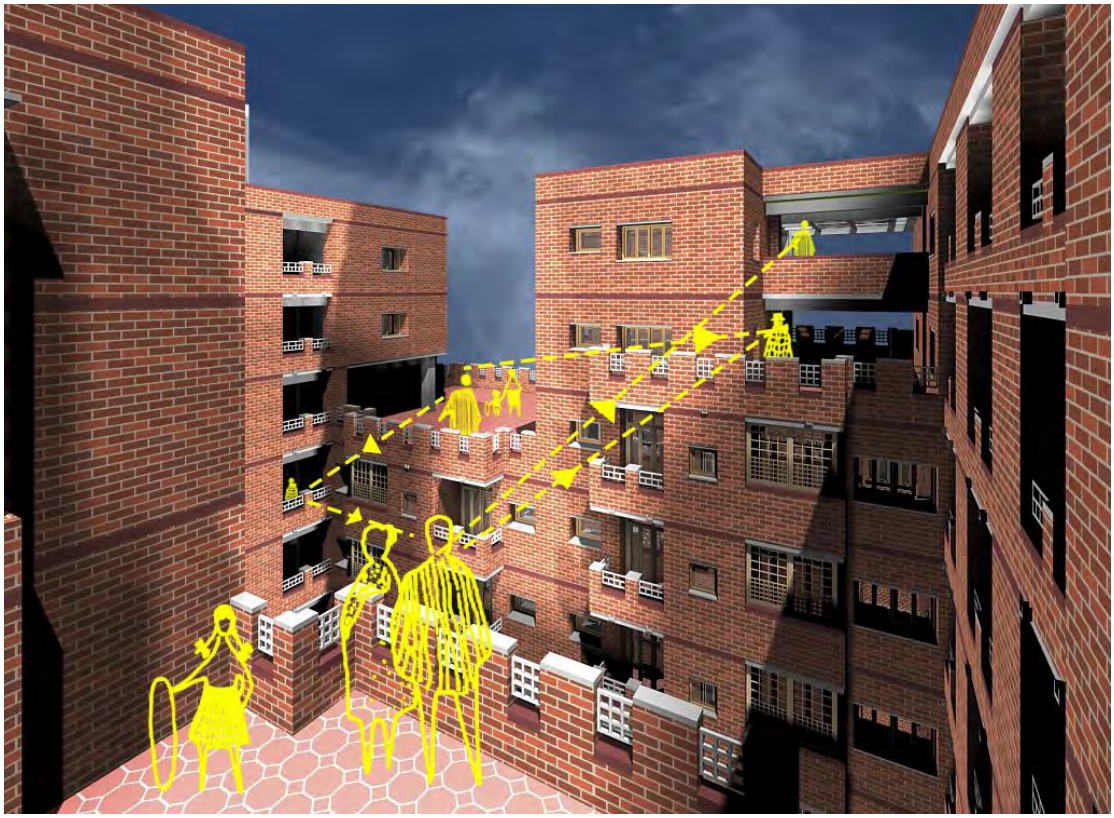

Figure 5.1.2: Connectivity in terraces in Dhansiri Apartment Complex (Source: Modified by Author based on a collected 3D image of Dhansiri)

- Internal courtyard cuts the massive volume, acts as microclimatic environment and ensures the proper ventilation in flats

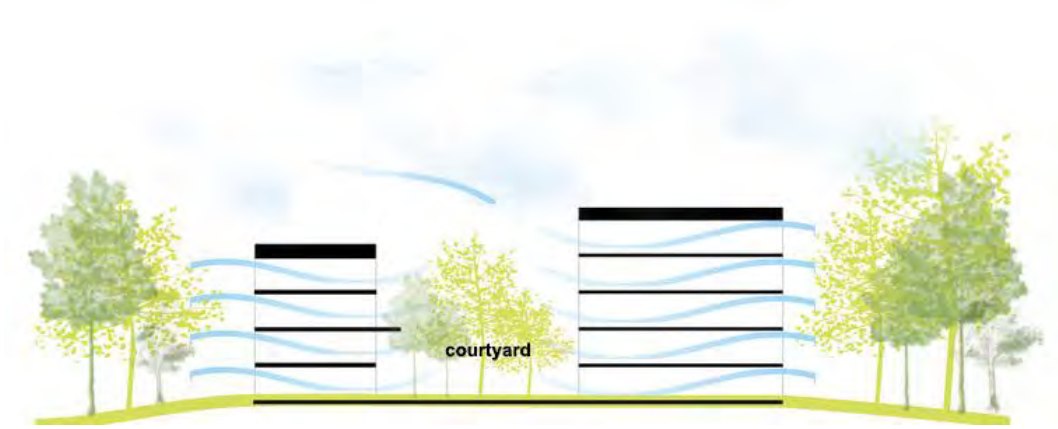

Figure 5.1.3: Internal Courtyard as Microclimatic Environment in Dhansiri Apartment Complex (Source: Drawn by Author)

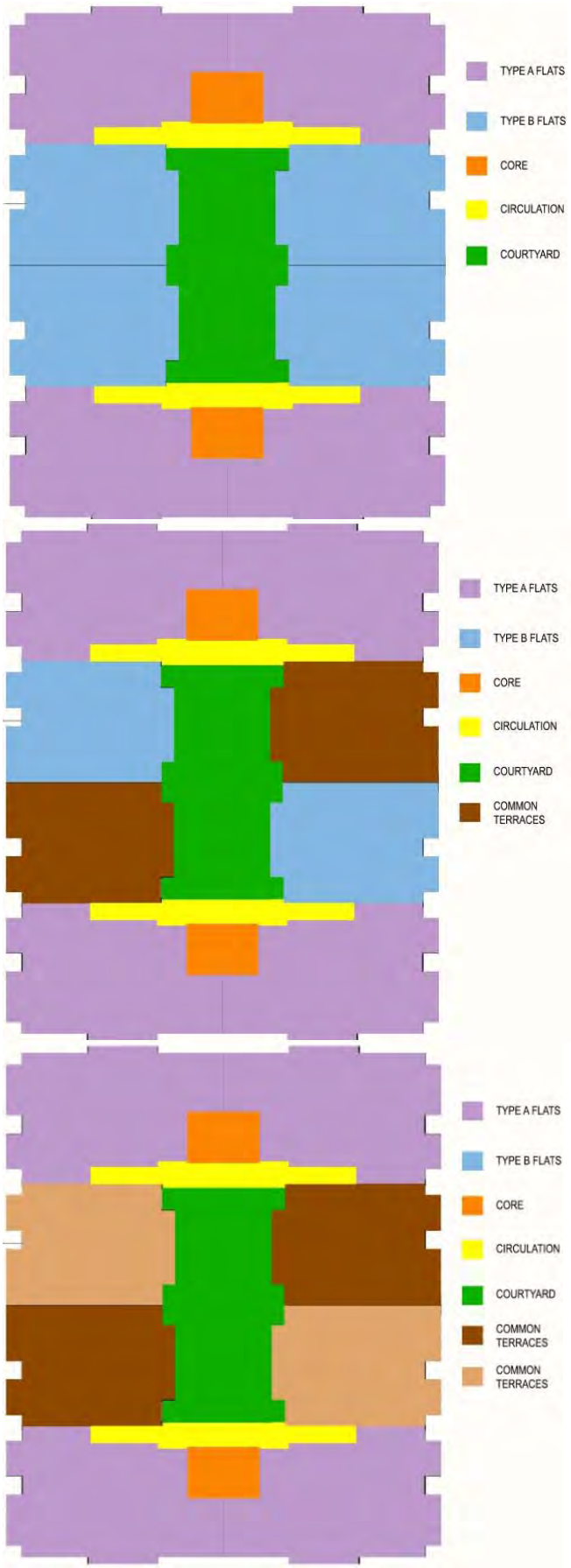

Figure 5.1.4: Zoning in Dhansiri Apartment Complex (Source: Drawn by Author based on plans of Dhansiri apartments)

5.2 International Case Study

5.2.1 Kanchanjunga Apartments

Project Name: Kanchanjunga Apartments

Architect: Architect Charles Correa

Location: Mumbai, India

Year of Completion: 1983

Programs: Community space, Basement parking, Children park, Green species regeneration space, Orchid culture centre, Green balconies, Living area, Master Bed, Child Bed, Guest bed, Living Room, Family living, Kitchen, Master toilet, Common toilet, Servants quarter, Balconies

Analysis:

- Subverts the traditional principles of a bungalow veranda and applies them to a high-rise, creating generous two-storey terraces within geometrically-complex interlocking apartments.

Figure 5.2.1: Concept of climate responsiveness (Source: Chakraborty, 2017)

- Orientation of the building had to be east-west in order to capture the prevailing sea breeze and views to the city.

- But this orientation also a disadvantage for hot sun and heavy rains, so architect effectively shields the effects of both sun and rain by the concept of loggias to keep out of sun and take cool sea breeze and veranda used in individual housing on both front front and back of the house.

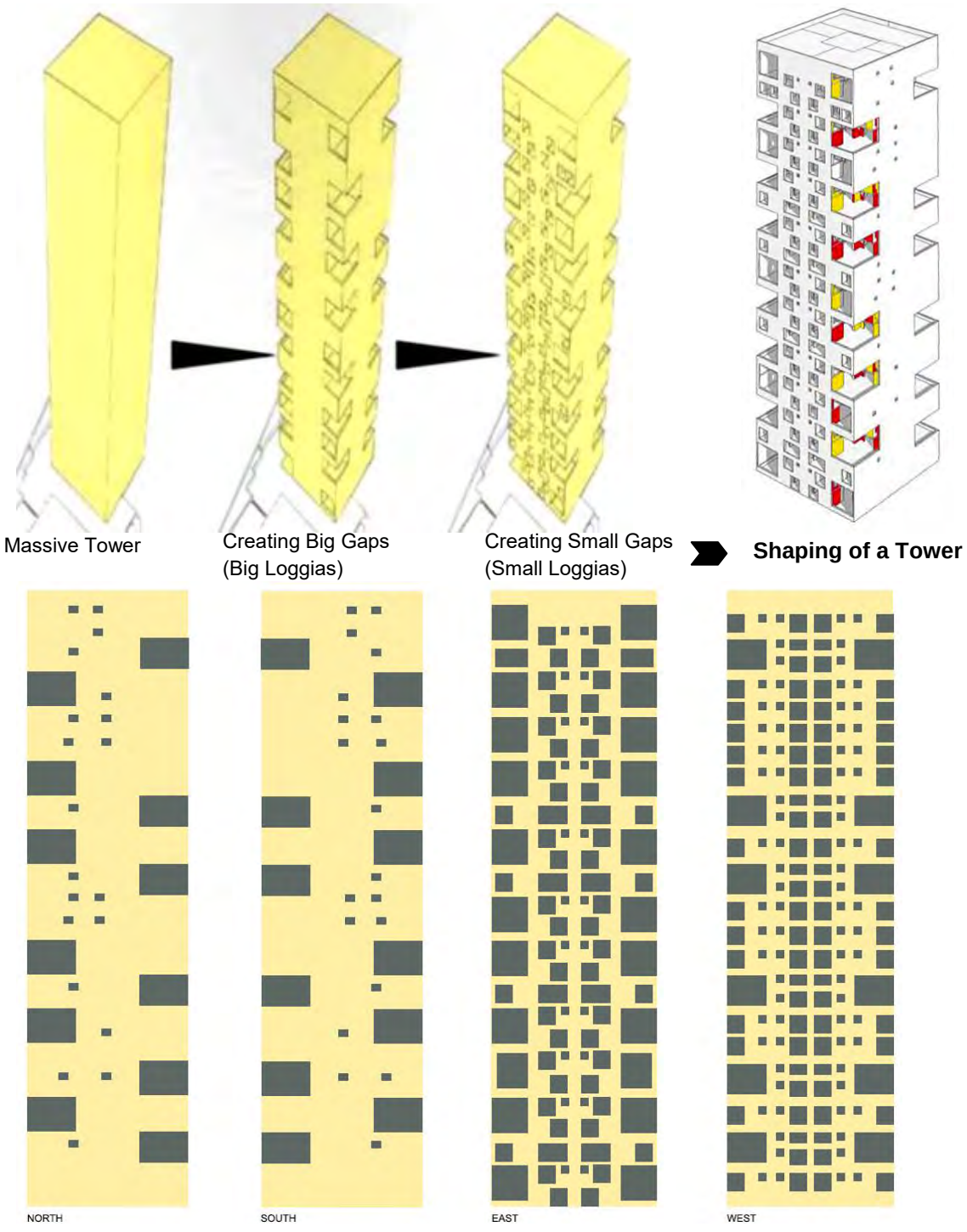

Figure 5.2.2: From a Mass to a Tower, Creating Variation in Punches in Facades (Source: Drawn by Author based on case study by Chakraborty, 2017)

- Great transparency has been achieved by the use of large openings and terrace garden on every floor.

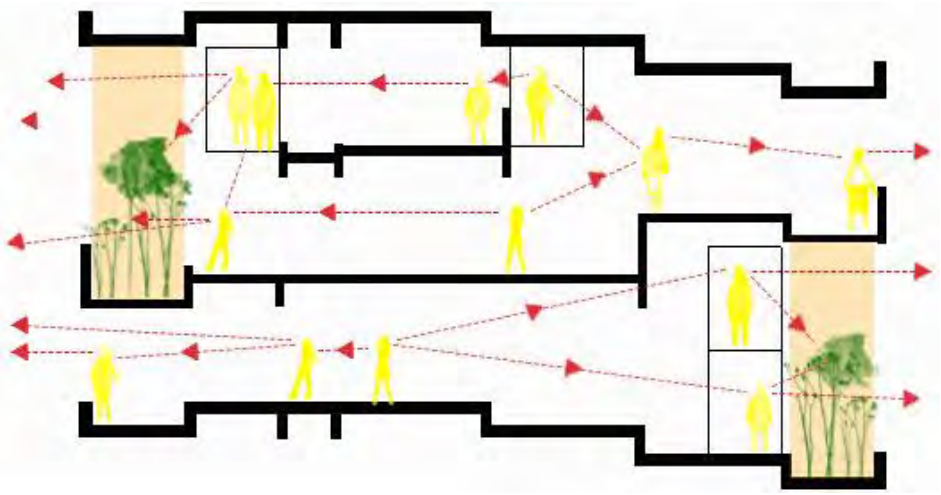

Figure 5.2.3: Connectivity and interlocking flats (Source: Drawn by Author based on case study by Chakraborty, 2017)

- Tube within Tube is the structural system of this building. Core is the main structural element. Terraces are cantilevered so the facades is made of concrete.

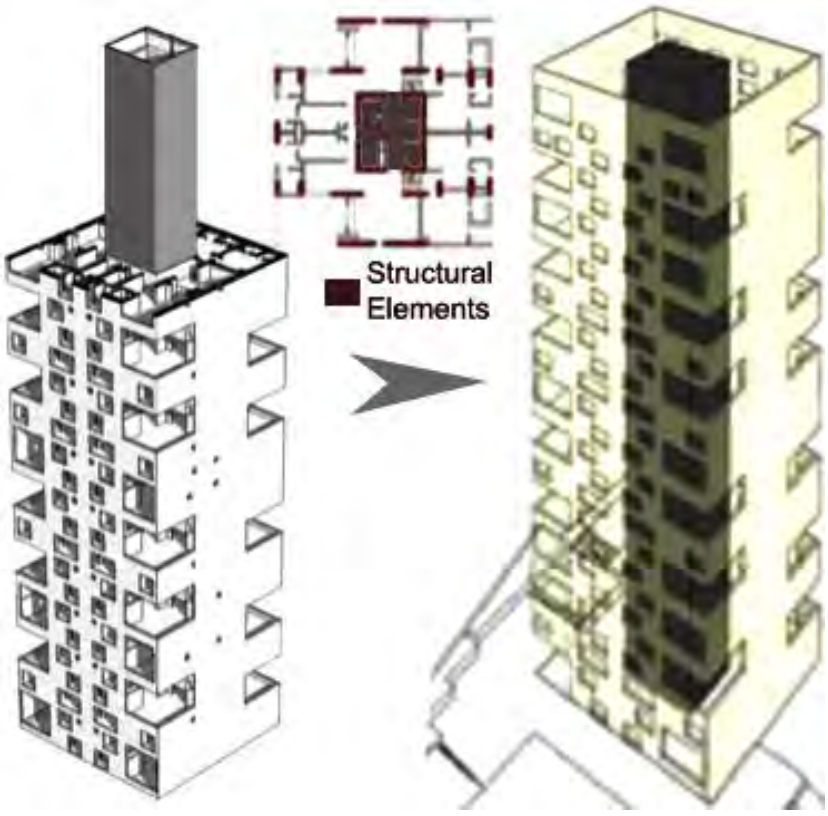

Figure 5.2.4: Structure (Source: Chakraborty, 2017)

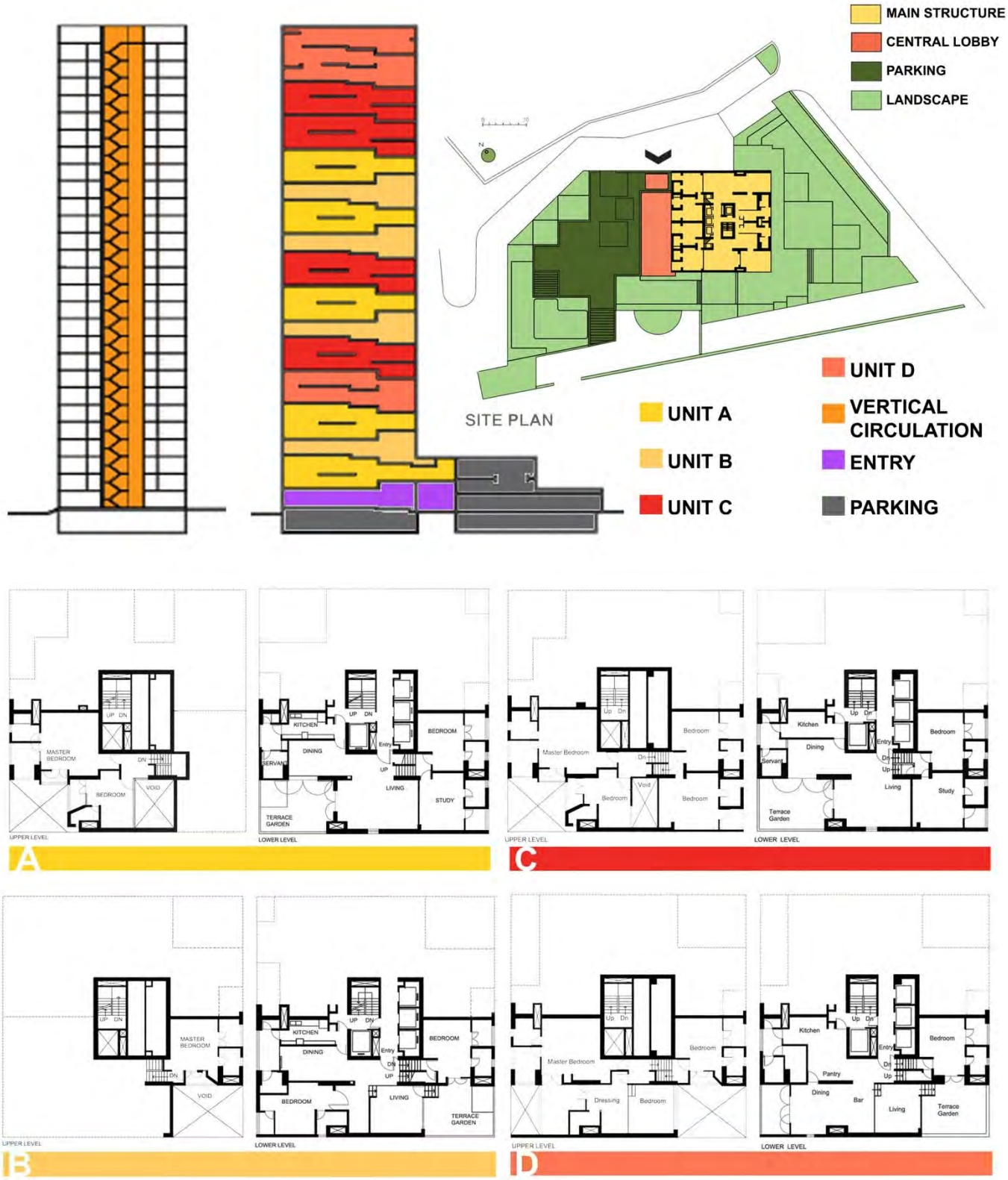

Figure 5.2.5: Vertical Circulation in Section, Different Unit Types in Section, Zoning in Site Plan, Plans of Different Unit Types (Source: Drawn by Author based on case study Jamal, 2014)

5.2.2 Tara Group Housing

Project Name: Tara Group Housing

Architect: Architect Charles Correa

Location: New Delhi, India

Year of Completion: 1978

Programs: Housing Blocks (More than 125 units in which 16 are 3 bed room units and rest are 2 bed room units), Guard room, Scooter Parking, Sets, Amphitheatre, Lawn, Planters, Children's Play Area, Swimming Pool, Changing Room, Covered Seating, Service Entry, Structure on Stilts, Car Parking, Pergola on Parking Area

Analysis:

- An innovative vernacular typology introduced in terms of arranging and supporting the singular flat into combined blocks

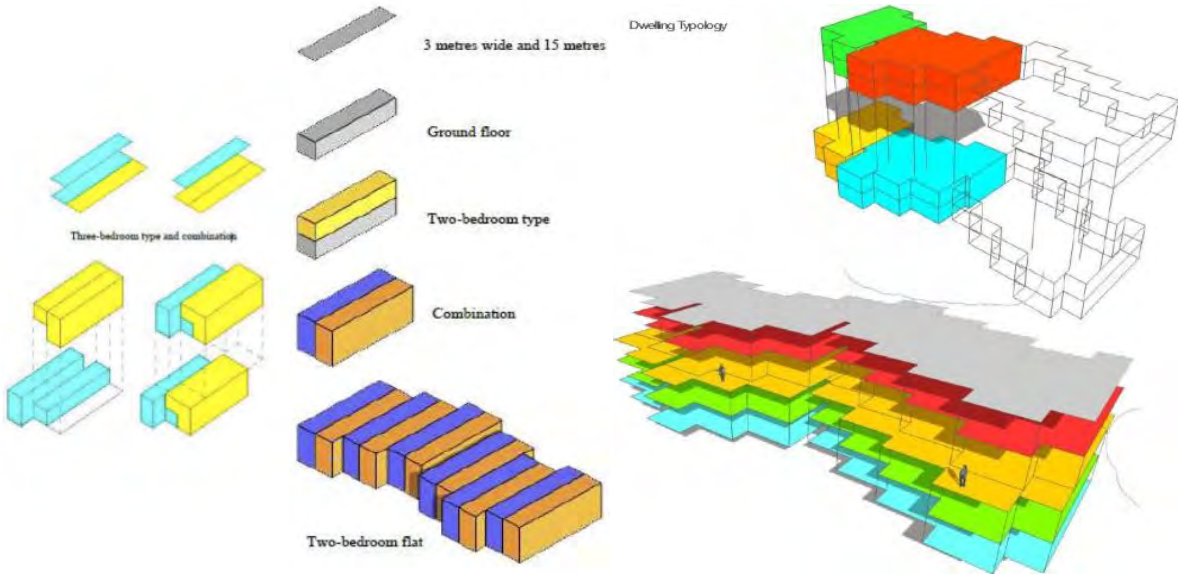

Figure 5.2.6: Form Generation (Source: Sharma. P, 2014)

- During the extreme summer, big overhangs over the units provides shade and an internal garden allows the natural light and ventilation in the units.
- Internal garden gives a privacy as well as an outdoor community space for dwellers
- Parking lot are at the back of the building so only the pedestrians can get the entry in the housing
- Natural light and ventilation considered in the project in a way that all the units share the attribute equally.
- Building oriented in such a way that its back is on the street to avoid noise and dust

Figure 5.2.7: Natural Ventilation (Source: Modified by Author based on Sharma. P, 2014)

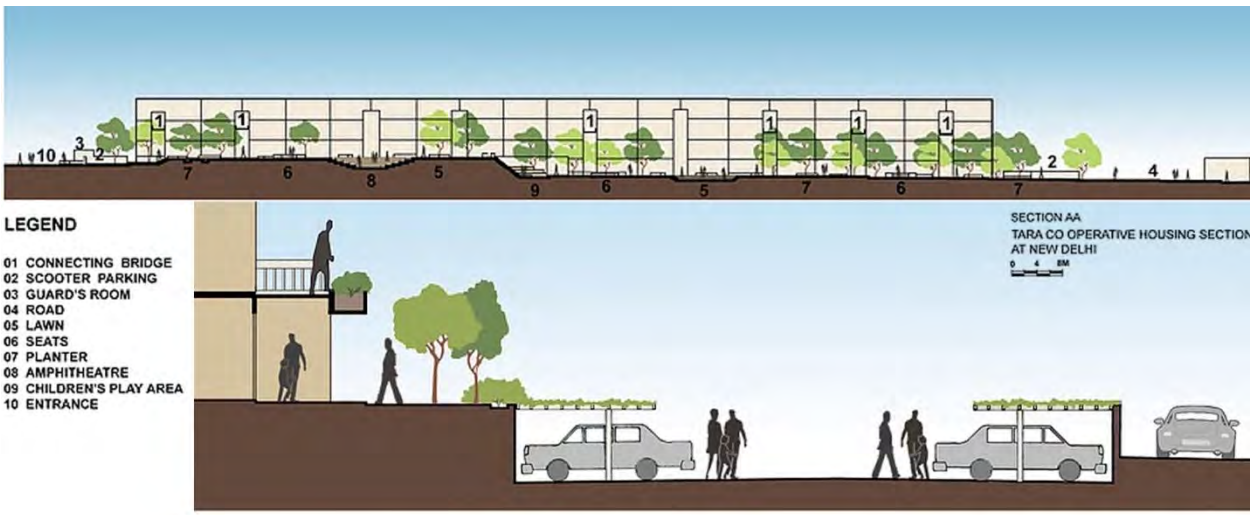

Figure 5.2.8: Sectional Arrangement of Functions (Source: Drawn by Author based on Sharma. P, 2014)

- Central garden, stacked effect, big overhangs give these housing a sense of contextual as all these elements represents typical Indian buildings.
- Duplex units have access on both floor
- Each unit have over hanged pergola confined open terrace
- Two sides of the housing cluster are connected by a staircase on central garden

Figure 5.2.9: Central garden, Connectivity, Human Interaction (Source: Drawn by author based on Sharma. P, 2014)

Chapter 06: Conceptual Phase and Design Development

6.1 Concept Development

6.2 Analysis for Design Decision

6.2.1 Analysis of Human Densities

6.2.2 Analysis of Amenities

6.2.3 Analysis of Context

6.3 Design Decisions

6.3.1 Design Decisions

6.3.2 Zoning

6.4 Final Programs Modification from Analysis

6.5 Development of Form

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6.6.1 Master Plan

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6.6.4 First Floor Plan

6.6.5 Other Floor Plans

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6.7 Rendered Images

6.8 Model Images

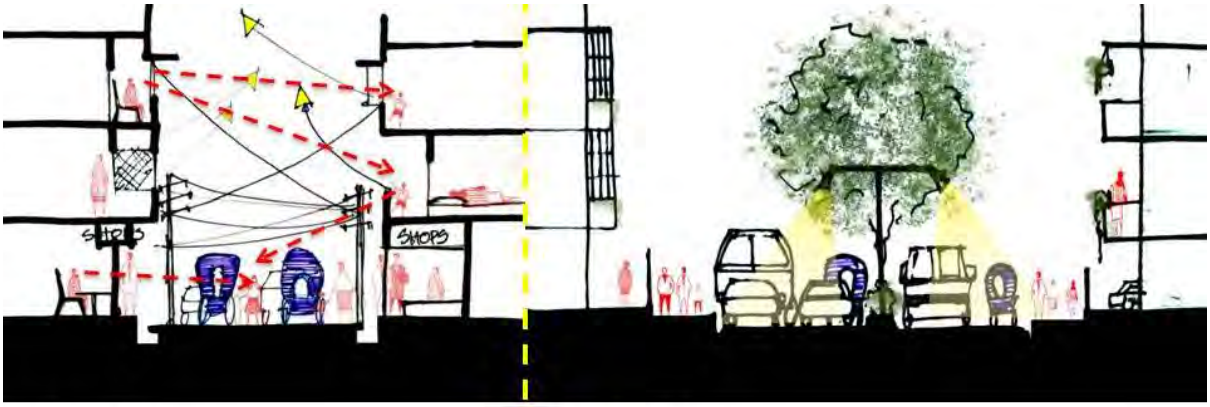
6.1 Concept Development

Location of site is in Azimpur area, which located in the intersection of Old Dhaka and New Dhaka.

Figure 6.1.1 **:** Site Location and Connection to New and Old Dhaka (Source: Author)

So the concept was to **integrating** the neighbourhood characteristics of **Old Dhaka** and **New Dhaka.**

To work on this concept I surveyed both Old and New Dhaka.



OLD DHAKA

- **CONNECTIVITY**
- SENSE OF **NEIGHBOURHOOD**
- SENSE OF **SECURITY**
- **INTERACTION**
- **FESTIVE**
- **PEDESTRIAN** FRIENDLY ROADS
- LACK OF **OPEN SPACE**
- NOISY/ CHAOTIC
- IMPROPER **ROADS**
- IMPROPER **WALKWAYS**

NEW DHAKA

- PROPER **ROADS** AND **WALKWAYS**
- CALM AND QUITE
- PRIVACY INSURED
- **COMMUNAL FACILITIES** AVAILABLE
- LACK OF **OPEN SPACE**
- NO **CONNECTIVITY**
- LACK OF **SOCIALIZATION**
- NO SENSE OF **NEIGHBOURHOOD**

Figure 6.1.2 **:** Features of New Dhaka and Old Dhaka (Source: Author)

Surveying the New Dhaka and Old Dhaka, I found some positives and negatives sides of neighbourhood of both areas. I decided to include positive points and improve the negative points of both areas.

Encouraging pedestrian walkways and decreasing vehicular movement will represent the shared streets of Old Dhaka. Again the community facilities to serve the housing dwellers as well as the neighbourhood reflects the facilities found in New Dhaka.

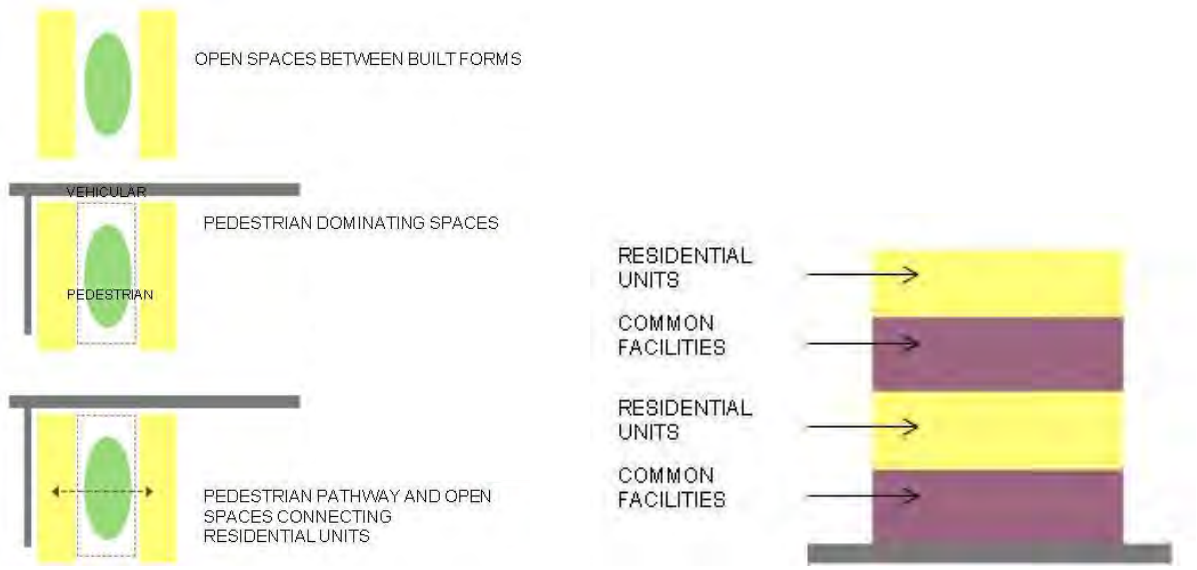


Figure 6.1.3 **:** Primary Concept (Source: Author)

Figure 6.1.4 **:** Interaction among People (Source: Author)

6.2 Analysis for Design Decision

6.2.1 Analysis of Human Densities

For Housing Complex, Human density per acre is 350 people. Though this rule is for private housing construction, Government housing policy also follows this. For this project, human density is 4760 people in 17 acres. This density is less than the standard density and it is within the limit. Since the demand for housing is increasing so there is a scope for vertical expansion.

Number of units proposed by client: 746 flats

Number of dwellers in proposal: 2984 persons

From the survey of socio-economic and demographic report the household ratio from the year 2001 to 2011 decreased from 4.86 to 4.29. Since the project need to be constructed by 2019 so I need to assume the household ration at least till 2050 which is 3.47. That indicates the family consisting 3 to 4 members. So, the unit design will be considering the family size of future prediction.

6.2.2 Analysis of Amenities

According to Land Development Rules of Private Residential Project 30% plot should be used for public recreation and accumulate other facilities, width of main road should be 60', secondary road 40' and other roads 25' and site must have a primary school, a kacha bazar, a super shop, a community centre, a religious institute, drug store. Here though the project is government housing but I consider all these in my design considerations as all these should be present in an ideal housing complex.

6.2.3 Analysis of Context

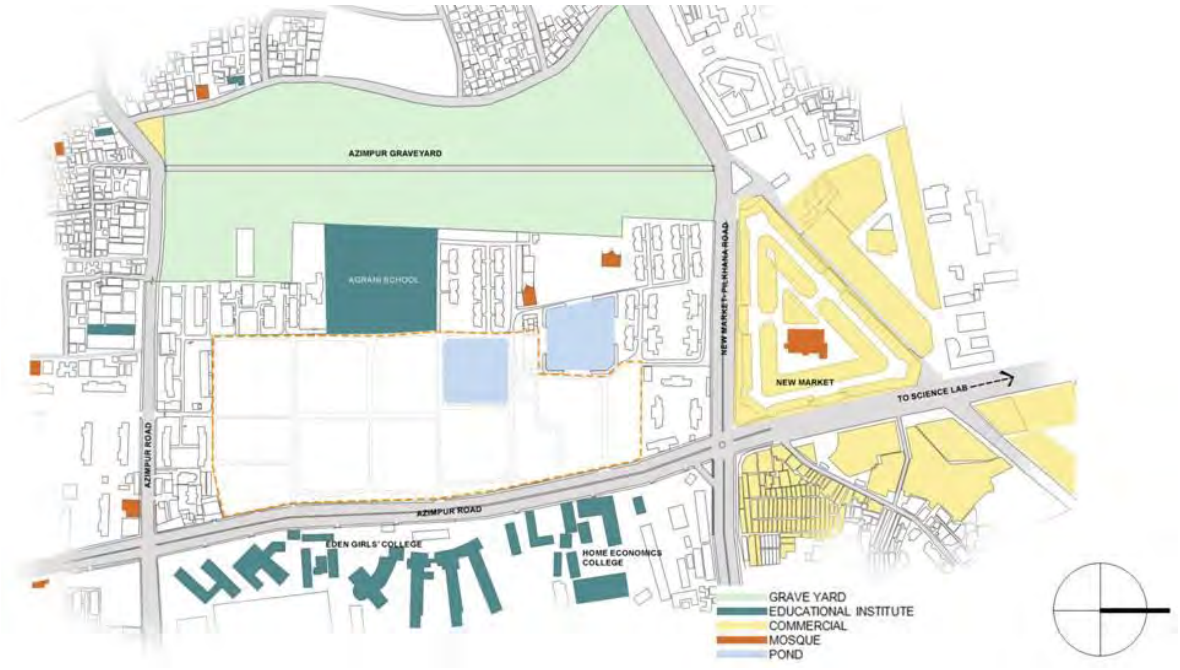


Figure 6.2.1 **:** Existing Site Plan with Context (Source: Author)

After analysis of the existing overall site and context the findings are:

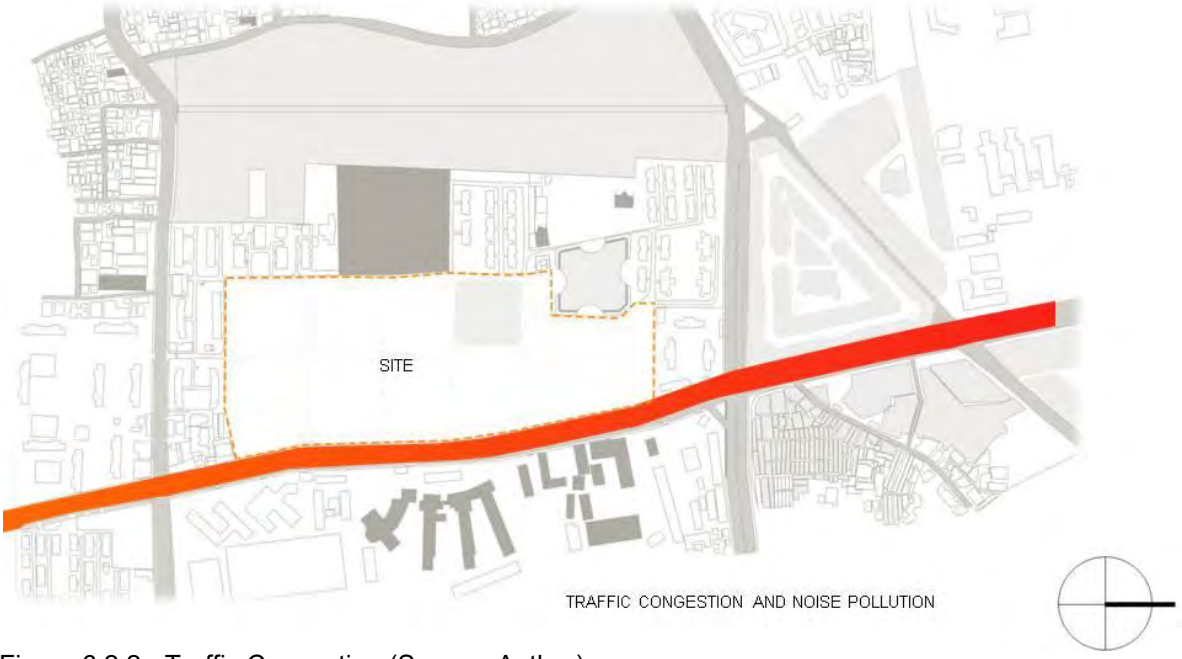


Figure 6.2.2 **:** Traffic Congestion (Source: Author)

a) the road on the east of the site, Azimpur Road is over congested and noisy because of New Market, Eden and Home Economics College, Nilkhet book market, Viqarunnesha school and Azimpur Graveyard

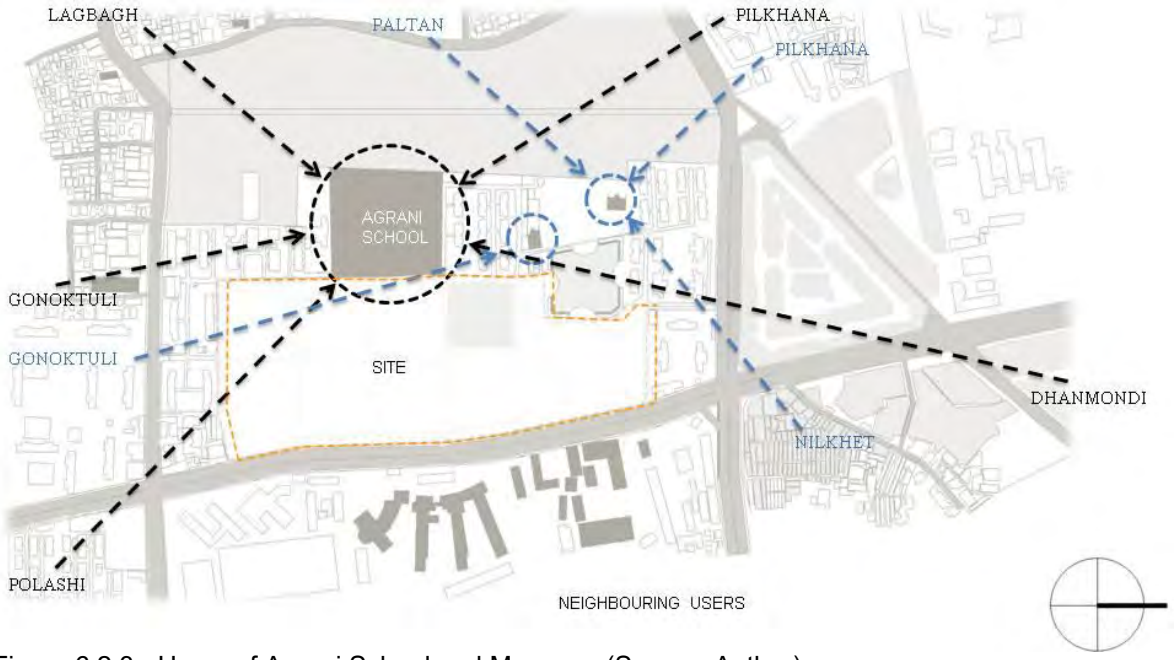


Figure 6.2.3 **:** Users of Agrani School and Mosques (Source: Author)

b) Users of Agrani School and 2 Mosques just adjacent to site use the internal housing roads and make the housing chaotic.

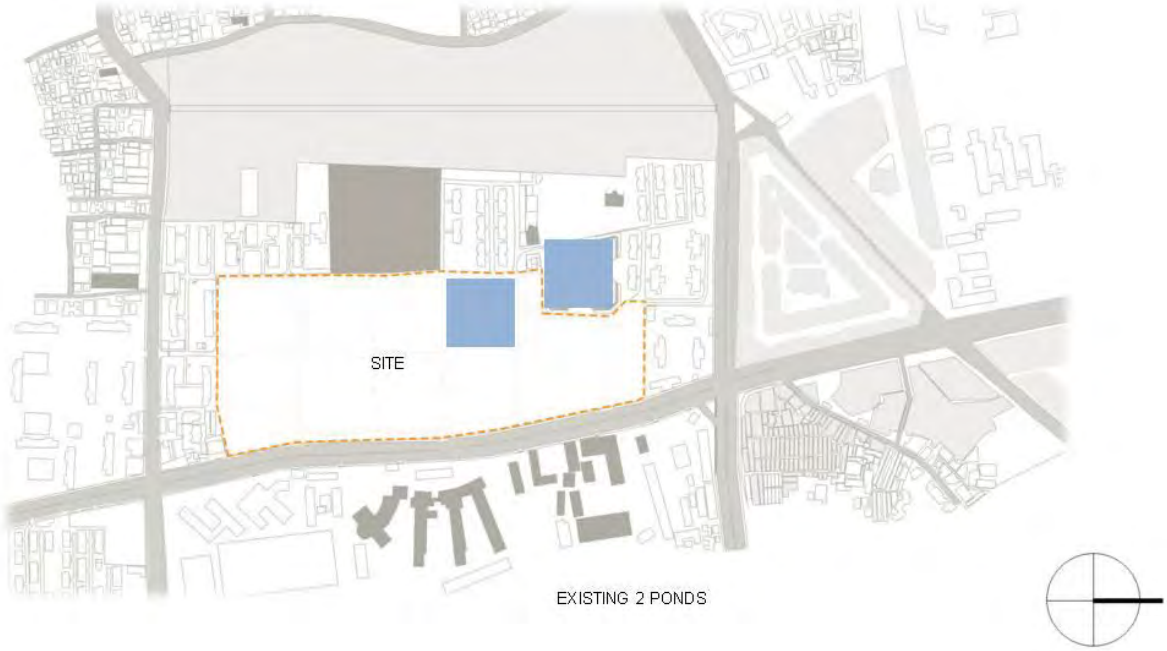


Figure 6.2.4 **:** Existing Two Ponds (Source: Author)

c) there are 2 ponds, one is inside the site and other one is adjacent to the site and the first pond.

6.3 Design Decisions

6.3.1 Design Decisions

Alternate vehicular connection was proposed to lessen traffic congestion

Figure 6.3.1 **:** Alternate Road Proposal (Source: Author)

Green buffer was proposed to filter the noise

Figure 6.3.2 **:** Green Buffer (Source: Author)

Proposal of two pedestrian connections from existing road to proposed road one of which will facilitate the users of Agrani school and other one will benefit the mosques users.

Figure 6.3.3 **:** Pedestrian Connection (Source: Author)

Creating some pocket like open spaces to facilitate the users of neighbouring dwellers inside the housing zone

Figure 6.3.4 **:** Open Spaces for Neighbouring Dwellers (Source: Author)

The open spaces will be connected through some communal activities

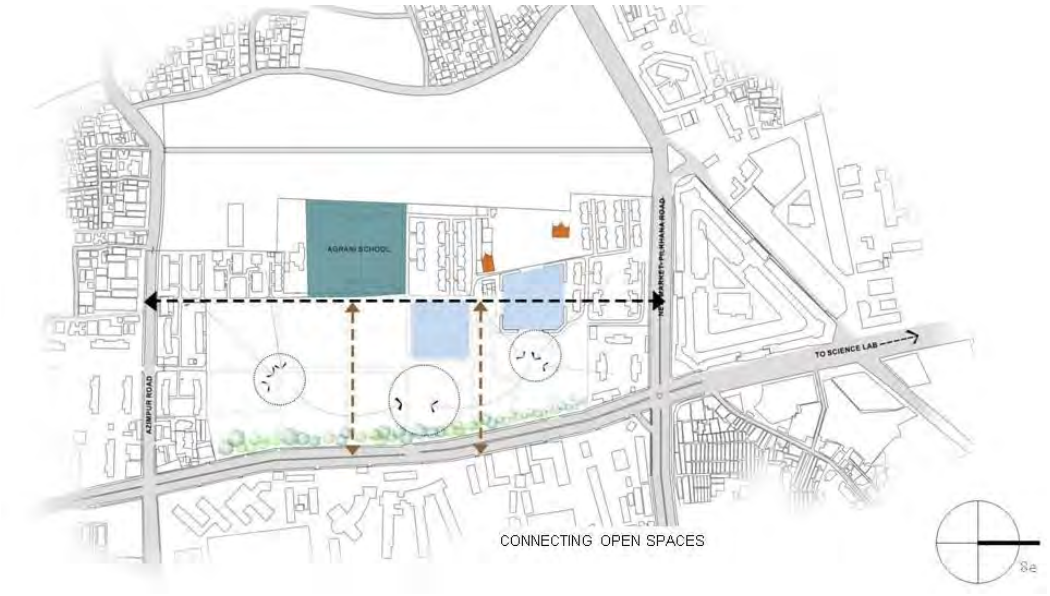


Figure 6.3.5 **:** Connecting Open Spaces (Source: Author)

6.3.2 Zoning

Since the pond will be recreational object in the design so the public functions such as Community Centre, Primary School, Play Ground cum Eidgah are located in the

Figure 6.3.6 **:** Zoning (Source: Author)

same zone that divides the site in three parts. So the other two parts are designed as housing zone.

6.4 Final Programs Modification from Analysis

Broader programs :

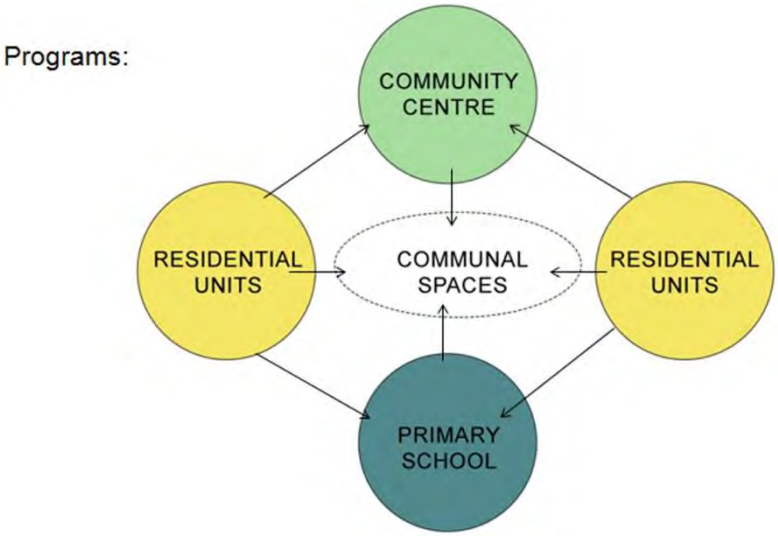


Figure 6.4.1 **:** Broader program (Source: Author)

So the final modified programs are:

- 600 Residential Units
- Primary School for 300 Students
- Community Centre For 800 People
- Communal Facilities - Playground, Clinic, Corner Shop, Laundry, Library, Male Club, Female Club, Male Indoor Games, Female Indoor Games, Gym, Cafe, Super Shops.

6.5 Development of Form

a) Placing the buildings in north-south orientation to consider the climate

Figure 6.5.1 **:** Placing the Buildings in North South Orientation (Source: Author)

b) Shifting the buildings to create open spaces and ensure proper ventilation

Figure 6.5.2 **:** Shifting the Buildings (Source: Author)

c) Tilting the building to hold the open spaces in between the buildings and break the monotonous quality of space

Figure 6.5.3 **:** Tilting the Buildings (Source: Author)

d) To limit the vehicular movement inside the housing providing every alternate building vehicular access and pedestrian access

Figure 6.5.4 **:** Vehicular and Pedestrian Access in Buildings (Source: Author)

Then design the buildings as described in context analysis and derivation of forms.

6.6 Architectural Drawings

6.6.1 Master Plan

Figure 6.6.1 **:** Master Plan (Source: Author)

6.6.2 Ground Floor Plan

1. Drivers Waiting
2. Reception & Lobby-Lounge
3. Indoor (Male)
4. Library
5. Indoor (Female)
6. Club (Female)
7. Gym (Male)
8. Club (Male)
9. Kids Zone
10. Club (Female)

Ground Floor Plan

Figure 6.6.2 **:** Ground Floor Plan (Source: Author)

6.6.3 Cluster Plan

Figure 6.6.3 **:** Ground Floor Plan of a Cluster (Source: Author)

6.6.4 First Floor Plan

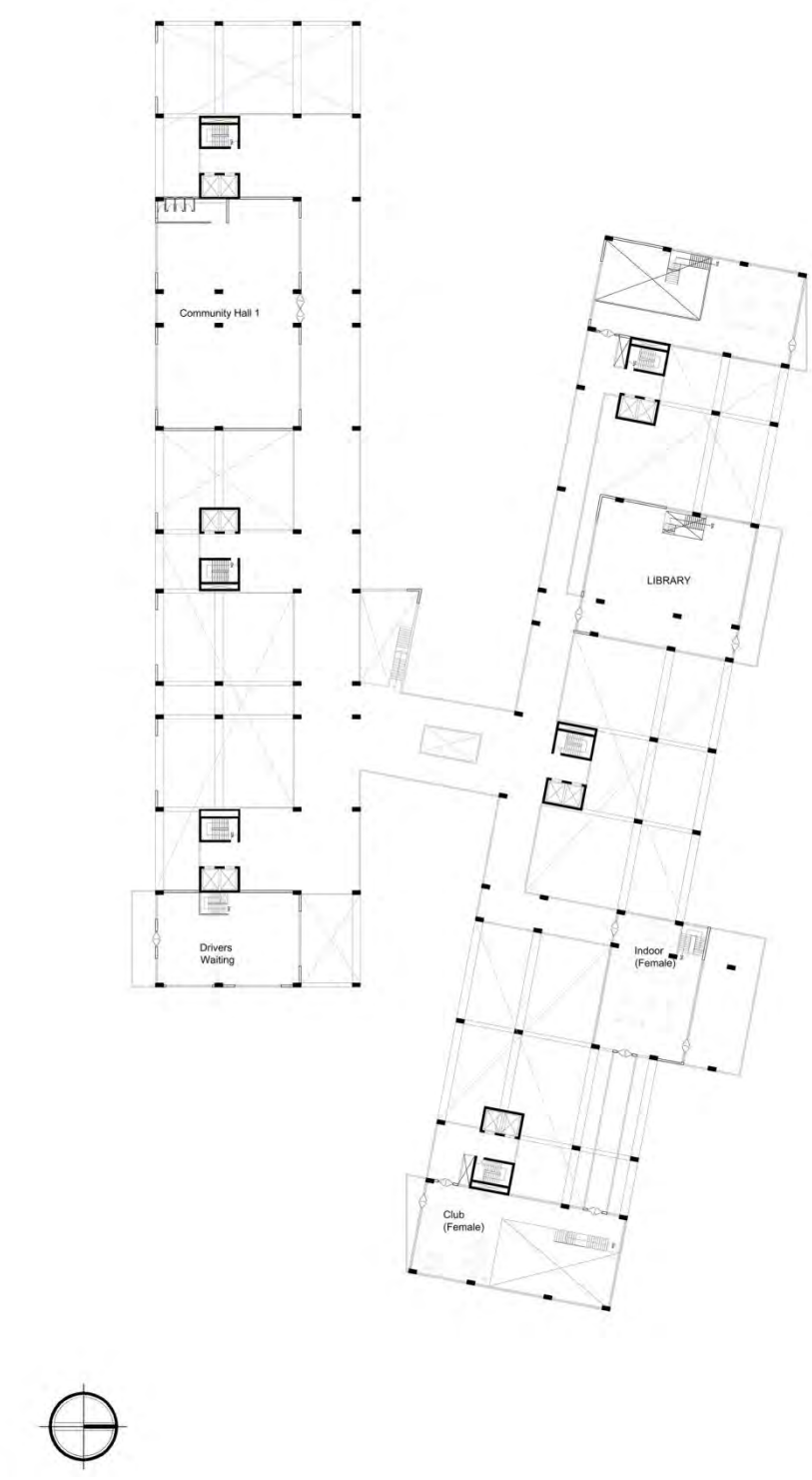


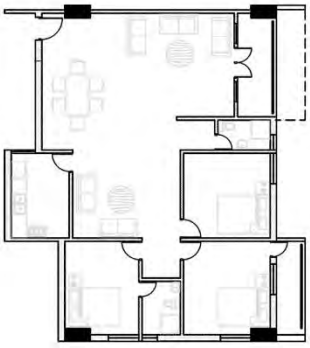
Figure 6.6.4 **:** First Floor Plan (Source: Author)

6.6.5 Other Floor Plans

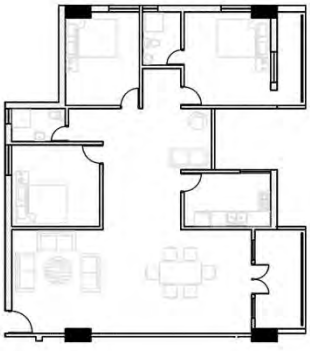
Figure 6.6.5 **:** Other Floor Plans (Source: Author)

6.6.6 Unit Plans

Unit Type 01
(1100 sft)



Unit Type 02
(1540 sft)



Unit Type 03
(1280 sft)

Figure 6.6.6 **:** Unit Plans (Source: Author)

6.6.7 Elevation & Sections

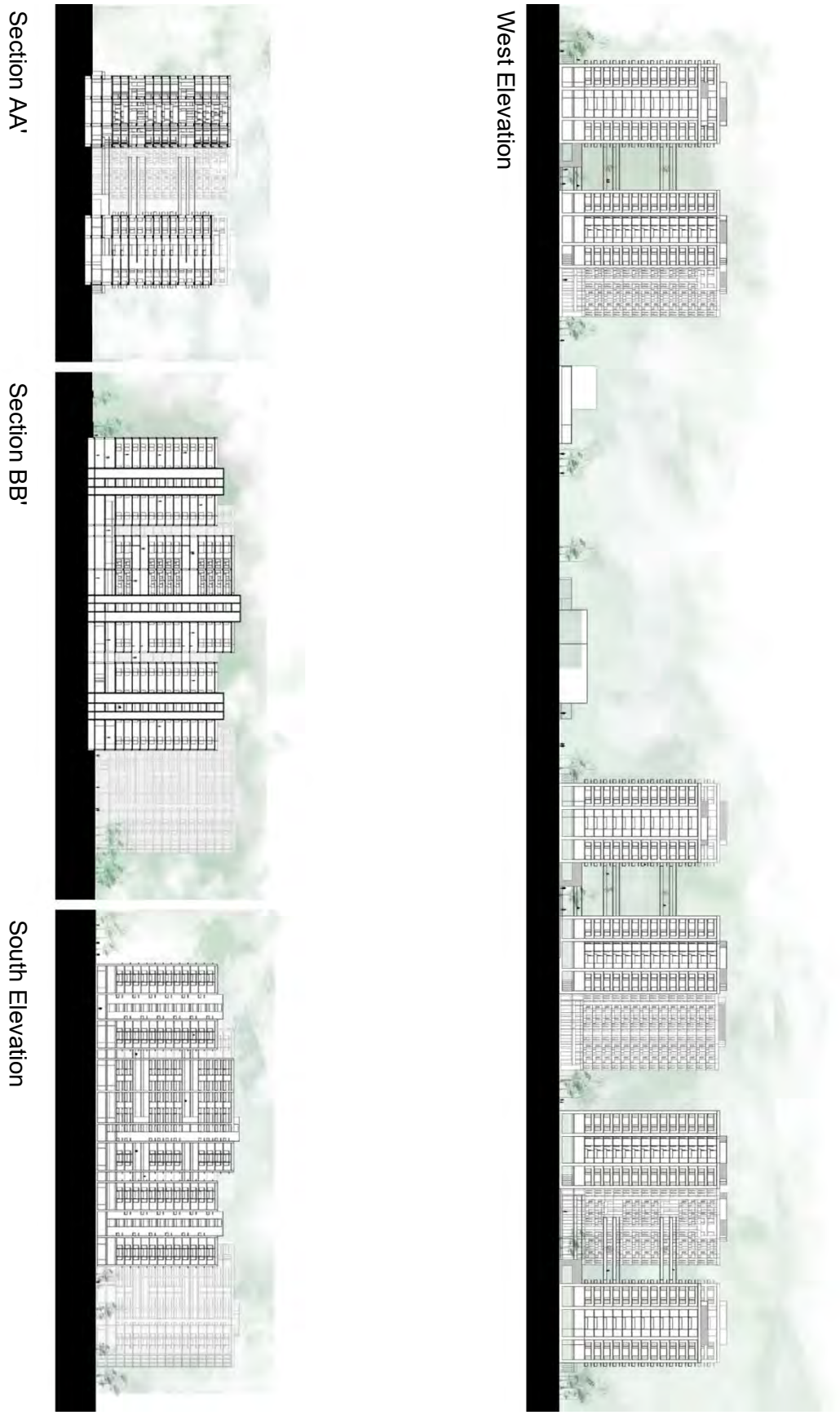


Figure 6.6.7 **:** Sections and Elevations (Source: Author)

6.7 Rendered Images

Figure 6.7.1 **:** View from the west (Source: Author)

Figure 6.7.2 **:** View from South **(**Source: Author)

Figure 6.7.3 **:** View from the Bridge Connecting Two Buildings (Source: Author)

Figure 6.7.4 **:** View from the Bridge Connecting Two Buildings towards East (Source: Author)

Figure 6.7.5 : View From 11th Floor to the Open Space (Source: Author)

Figure 6.7.6 : View of the Community Space (Source: Author)

Figure 6.7.7 : View of the Community Space (Source: Author)

6.8 Model Images

Figure 6.8.1 : Model Image (Source: Author)

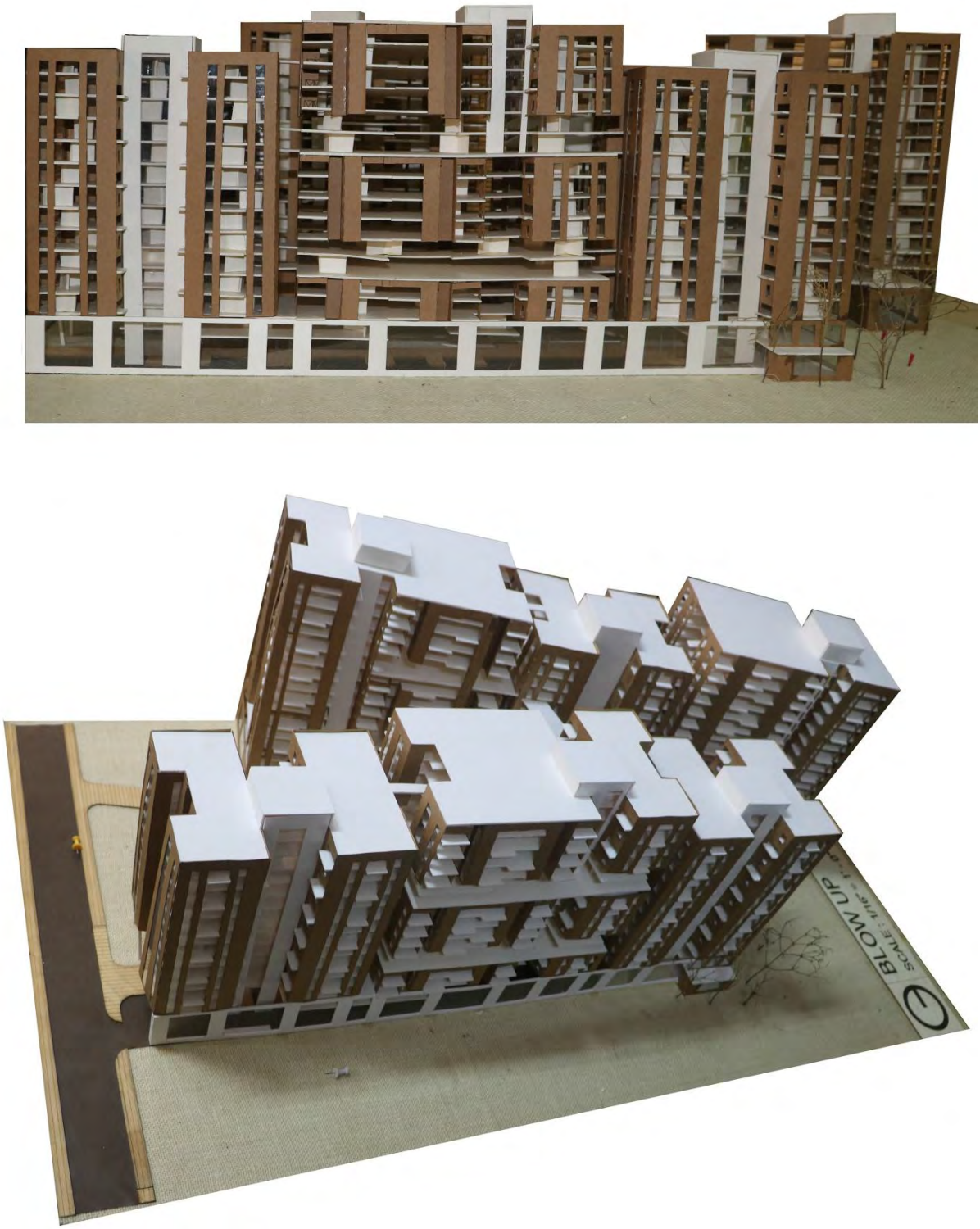


Figure 6.8.2 **:** Model Image (Source: Author)

Chapter 07: Conclusion

7. Conclusion

Government gives housing provisions to every one of the officers until the point that they achieve retirement. Housing is the most vital part of life and well-being. It isn't just about the structures, housing likewise incorporates individuals, neighbourhood, community, and additionally surrounding and nature. A man spends whole his life inside a housing complex, from newborn child arrange till death. All through the life expectancy of a man, they grow plenty of reminiscences. Housing is all about the everyday life of an individual. Housing influences the mental and physical fitness of a man. Housing comprises of individuals of different age, different occupation and additionally individuals from various backdrop. The aim of this project is to create an interactive and communal spaces inside the housing complex, where individuals can gather and socialize. The consideration is to pioneer open and green spaces and influence individuals to feel near nature specially for those elderly users who have spent most of their life in rural areas and feel suffocated in the four walled houses of this city. Government officers are not dissimilar to the people in the neighbouring area. Major consideration of this project is to discourage the idea of walled community and withdraw the blockade between government housing and neighbouring area. Relationship with the area will form a more well-built community. Thus a well-built community will form a more integrated nation.

Reference:

Ahmed, N. (1980). Mughal Dacca and the Lalbagh Fort. Dhaka

Afroza, S. (2000, February 10). Peoples' Needs and Public Housing. Retrieved March 1, 2018, from http://www.lth.se/fileadmin/hdm/alumni/papers/ad2000/ad2000-02.pdf

Ahmed, S. U. (2009). Dhaka Past Present Future. Dhaka

Ahmed, S. U. (2010). Dhaka Etihash O Nogor Jibon 1840-1921. Dhaka

Akhtar. S. (2015, Feb 17). Kanchanjunga apartments. Retrieved March 3, 2018 from https://www.slideshare.net/sahid_akhtar/kanchanjunga-apartments

Ahemd, A. (2016). Dhkaiya Ashli. Dhaka

Correa. C. (1987). Charles Correa - Architect in India (Page 62-65)

Chowdhury, E. H. (2017, May 20). 4,190 flats to be built for government employees in capital. Sun Online Desk. Retrieved March 4, 2018 from http://www.daily-sun.com/post/227682/4190-flats-to-be-built-for-government-employees-in-capital

Chakraborty. P. (2017, May 26). Case study on Kanchanjunga Apartments, Mumbai Charles Correa . Retrieved March 3, 2018 from https://www.slideshare.net/PrithaChakraborty4/kanchanjunga-case-study-by-pritha?qid=3f4a070f-5264-4831-b6d1-db3f3b9700a8&v=&b=&from_search=11

De Chiara, J., Callender, J. (2013) Time-Saver Standards For Building Types (3rd Edition, Page 1-140). USA

FAR Rule and Building Code (RAJUK). (2016). Retrieved March 3, 2018 from https://www.academia.edu/28125445/FAR_Rule_and_Building_Code_RAJUK_

Hasan, F. (2008, August 8). From Jahangirnagar to Dhaka. The Daily Star. Retrieved March 2, 2018, from http://archive.thedailystar.net/forum/2008/august/jahangirnagar.htm

Haque, E. (2009). Dhaka alias Jahangirnagar: 400 years. Dhaka

Hossain, S. (2013). MIGRATION, URBANIZATION AND POVERTY IN DHAKA, BANGLADESH. Retrieved March 1, 2018, from http://www.asiaticsociety.org.bd/journal/10ShahadatHossain.pdf

Islam, S. (2013). A study on zoning regulations' impact on ventilation rate in non-conditioned apartment buildings in Dhaka city. 20th General Assembly and Conferrence, CAA, Dhaka.

Islam, N. (2015, April). Urbanization in Bangladesh: Challenges and Opportunities. Retrieved March 1, 2018, from http://www.shiree.org/wp-content/uploads/2015/04/NI-Paper.pdf

Jamal. N. (2014, Sep 20). Kanchanjunga apartment. Passive sustainable design. Case study. Retrieved March 3, 2018 from https://www.slideshare.net/NaveenJamal/kanchanjunga-apartment-passive-sustainable-design-case-study

Kroon. E. (2009, Nov 9). Analysis Kanchanjunga Apartments. Retrieved March 3, 2018 from https://issuu.com/eelkokroon/docs/kanchanjunga-apartments

Mallick. F. H. (1987). A Local Approach to Urban Design in Bangladesh (Master's Thesis). Retrieved March 1, 2018, from

http://dspace.bracu.ac.bd/xmlui/bitstream/handle/10361/3355/Dissertation-%20Master%

Mamun, M. (1993). Dhaka: Smriti Bismritir Nogori. Dhaka

M. N., Saquib. (2000, March). Housing for Employees of Government and Private Companies. Retrieved March 1, 2018, from http://www.lth.se/fileadmin/hdm/alumni/papers/ad2000/ad2000-03.pdf

Neufert, E. (1984). Neufert Architects Data (New Edition, Page 38-100,). London

Nilufar, F. (2010, April 08). Urban Morphology of Dhaka City: Spatial Dynamics of Growing City and the Urban Core. Retrieved March 1, 2018, from https://www.academia.edu/245137/Urban_Morphology_of_Dhaka_City_Spatial_Dynamics_of_Growing_City_and_the_Urban_Core

Nawaz, R. (2014, June 27). Right to shelter: Bangladesh. Retrieved March 1, 2018, from http://www.urbancentre.utoronto.ca/pdfs/housingconference/Nawaz_Right_to_Shelter.pdf Phillips, D. (2004)

Ozkan. H.C. (2009, March 3). Charles Correa – Kanchanjunga Apartments, Cumballa Hill, Mumbai. 1970-1983. Retrieved March 3, 2018 from https://identityhousing.wordpress.com/2009/12/03/charles-correa-kanchanjunga-apartments-cumballa-hill-mumbai-1970-1983/

Rahman, M. (2010, January 01). Government and Housing for the Poor: Policy and Implementation in Bangladesh. Retrieved March 1, 2018, from http://hdl.handle.net/123456789/370

Shay, C. (2011, August 15). Saving Dhakas Heritage. Retrieved March 2, 2018, from http://www.bbc.com/travel/feature/20110815-saving-dhakas-heritage

Sharma. P. (2014, July 21). Tara Housing Complex, New Delhi, India. Retrieved March 3, 2018 from http://www.msaudcolumbia.org/summer/?p=3439

The Daily Star.net. (2016, January 28). History of Dhaka's origin [Video podcast]. Retrieved March 2, 2018, from http://www.thedailystar.net/video-stories/watch-glimpse-the-history-dhakas-origin-208639