A LAND DEVELOPMENT POLICY FOR LOW-INCOME HOUSING IN DHAKA METROPOLITAN AREA

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MASTER'S THESIS

SUBMITTED TO THE DEPARTMENT OF URBAN AND REGIONAL PLANNING, BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF URBAN AND REGIONAL PLANNING

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<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>BHFC</td>
<td>Bangladesh House Building Finance Corporation</td>
</tr>
<tr>
<td>BSCIC</td>
<td>Bangladesh Small and Cottage Industries Corporation</td>
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<td>BADC</td>
<td>Bangladesh Agricultural Development Corporation</td>
</tr>
<tr>
<td>BARD</td>
<td>Bangladesh Academy for Rural Development</td>
</tr>
<tr>
<td>BBS</td>
<td>Bangladesh Bureau of Statistic</td>
</tr>
<tr>
<td>CARE</td>
<td>Cooperatives for American Relief Every Where</td>
</tr>
<tr>
<td>CUS</td>
<td>Centre for Urban Studies, Dhaka University</td>
</tr>
<tr>
<td>DMC</td>
<td>Dhaka Municipal Corporation</td>
</tr>
<tr>
<td>ESCAP</td>
<td>Economic and Social Commission for Asia and the Pacific of the United Nations</td>
</tr>
<tr>
<td>FWP</td>
<td>Food for Work Program</td>
</tr>
<tr>
<td>KIP</td>
<td>Kampong Improvement Programme, Indonesia</td>
</tr>
<tr>
<td>MHP</td>
<td>Million Houses Programme, Sri Lanka</td>
</tr>
<tr>
<td>MIT</td>
<td>Massachusetts Institute of Technology</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<tr>
<td>NHA</td>
<td>National Housing Authority of Thailand as well as of the Philippines</td>
</tr>
<tr>
<td>NEC</td>
<td>National Economic Council</td>
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<td>PC</td>
<td>Planning Commission</td>
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<tr>
<td>PDB</td>
<td>Power Development Board</td>
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<tr>
<td>PWD</td>
<td>Public Works Department</td>
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<tr>
<td>RAJUK</td>
<td>Rajdhani Unnayan Kartipakhya</td>
</tr>
<tr>
<td>TTDC</td>
<td>Titas Gas Transmission and Distribution Company, Bangladesh</td>
</tr>
<tr>
<td>T&amp;TE</td>
<td>Telegraph and Telephone</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>UNICEF</td>
<td>United Nations International Children's Emergency Fund</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>WASA</td>
<td>Water and Sewerage Authority</td>
</tr>
<tr>
<td>WB</td>
<td>World Bank</td>
</tr>
<tr>
<td>ZIP</td>
<td>Zonal Improvement Project, Philippines</td>
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ABSTRACT

Housing provision cannot be isolated from other aspects of urban life and both its production and usability are closely related to critical financing problem and the eventual difficulties faced by the urban poor. For all but the middle and upper-income group, housing is usually costly in relation to income and the quality of dwellings available. Our Government is also unable to provide standard housing in sufficient quantity to meet the ever rising demand because of the enormous subsidies that would be involved. The alternative before us is to set standards of housing for this group at a lower level so that much more people can be benefitted utilizing the same amount of resources.

Low-income peasants, victims of natural disasters, famine and war together with a vast number of rural unemployed and under-employed youth comprise the bulk of the low-income population of Dhaka city. The most striking feature of the low-income people of Dhaka city is that they comprise a significant proportion of the city’s population but share only a tiny proportion of the city’s residential area.

Due to financial hardship, these people are often housed in slum and squatter settlements in sub-human condition. The number of these settlements are increasing day by day causing inhuman living condition for the low-income people and thereby creating enormous problems for the city life.

Dhaka city is surrounded by low-lying lands on all sides. This situation has hindered the outward expansion of the city to a great extent. Flood free buildable land is in short supply at Dhaka and its price is also very high. As a result, the possibility for housing the low-income people of the city at suitable locations is also very limited.

This study identified the problems of the low-income people of the city mainly through secondary survey. After identifying the problems of low-income settlements of the city, the problems of low-income settlements in other South and South-East Asian countries are also studied in order to utilize their experiences in drawing inferences and instances which are applicable to our case.

In this connection housing and land development policies of the country are reviewed. The problems and prospects of urban land at Dhaka, its supply, demand, availability, price pattern and other aspects have also been studied.
Suggestions are made to improve the condition of the low-income people with the overall objective of improving their living condition aiming to accommodate maximum number of people in a single piece of land in a desired environment.

This study suggests 7-storied walk-up blocks in case of acquired land in the fringe areas of the city, high-rise housing blocks for inner-city tenement slums and upgrading principle for the privately owned slums.

In this regard generalised policy guidelines, short, medium and long-term strategies, administrative, financial, and legal policies are suggested.

Thesis Title: A LAND DEVELOPMENT POLICY FOR LOW-INCOME HOUSING IN DHAKA METROPOLITAN AREA.

Thesis Supervisor: AJMAL HAYAT AHMAD, ASSOCIATE PROFESSOR, DEPARTMENT OF URBAN AND REGIONAL PLANNING, BUET, DHAKA.
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CHAPTER 1

THE PROBLEM, OBJECTIVES, STUDY AREA AND METHODOLOGY

1.1 The Problem

Dhaka is the capital of Bangladesh and the largest city of the country. It grew and rose to its height of importance beginning back from the Mughul era down to its present position as the capital city of the country. Dhaka is growing very fast both in area and in population. In 1947 when Dhaka was made the capital of the then East Pakistan (Now Bangladesh) its population was only 0.25 million (C.U.S., 1983). After 1971 when it became the capital of Bangladesh, its population rose to 1.69 million (1974). The last census of Bangladesh in 1981 recorded the population of Dhaka at 3.5 million spread over an area of 160 square miles (B.B.S. 1981). With this population, the metropolitan city of Dhaka has absorbed 30 percent of the total urban population of the country. By the year 2000, the population of Dhaka is expected to be more than double the figure of 1981, growing to over seven million (United Nations, 1983). Thus Dhaka has experienced a rapid growth and it will continue to grow more in future.

Housing situation of the low-income people of Dhaka is extremely unsatisfactory. land-less peasants, victims of natural disasters, famine and war, together with a vast number of rural unemployed and under-employed youth comprise the bulk of the low-income population of the city. The most striking feature of Dhaka's low income people is that they comprise a significant proportion of the city's total population but share only a tiny proportion of Dhaka city's residential area. As a result the density of the low-income population is extremely high, five or six
The problem of low-income housing is a direct result of the high density of Daka's population. Most of the low-income families who live in slums and squatter communities receive very little or no access to government facilities. The demand for housing in Daka is extremely high, but the supply of low-income housing is significantly lower.

In order to understand the housing problem for the low-income group of Daka city, and to identify and develop policies to house them in a planned and sustainable environment, the objectives of this study are:

1. To review the land development programmes and policies that have been adopted or implemented so far in the country.

2. To formulate a land development policy to house them in a desired environment, and thereby provide guidelines for land development to the low-income group.
b) To study the existing housing situation of Dhaka and to determine the actual nature and magnitude of the housing problems of the low income group. To study the demand of housing and to identify the gap.

c) To search for a possible solution. To study future availability of buildable land (demand side) and the accessibility and affordability by the low-income group (supply side).

d) To define appropriate and affordable standards of housing for the low-income groups in terms of sizes type, prices, facilities, tenure and location.

e) To formulate appropriate suggestions, recommendations and land development policy guidelines for housing the low-income groups of Dhaka city at suitable locations in a good environmental condition.

1.3 The study area:

Dhaka Statistical Metropolitan Area of 1981 and its very near surroundings have been considered as the study area for the research purpose. It includes Dhaka Municipal Corporation Area, Tongi Pourashava, Narayanganj Pourashava and a part of Keraniganj Thana. The approximate area is about 170 square miles.
1.4 Methodology:
The study is mainly based on data and information from secondary sources. In conformation with the objectives of the study the following methodological procedures are followed.

a) Collection of information from secondary sources. A part of the study is concerned with published and unpublished references concerning housing policies, population, housing stock etc.

b) Literature survey is done to make a detailed inventory of housing policies adopted in the country and to assess their effectiveness to obtain a better understanding and representation of the problems.

c) Further literature survey is conducted to acquire knowledge about policies and principles of land development for housing schemes of different countries. Lessons are taken from successes and failures of such schemes to help adapt effective policies in the present context. Special considerations are given to the housing policies of Singapore, Hongkong, Taiwan, U.K., South Korea, India, Thailand and Indonesia.

d) Household and land-use survey of some part of Dhaka and ad-memoir study of 10-12 institutions are done for better understanding of the housing problems of this group.

e) Interviews of experts in related field (Planners, Architects, Engineers, Administrators, Policy makers and other experienced personnel) are taken for better understanding of the problem issues and expected solutions.

f) Analysis and interpretations of the collected information are done.

g) From observation, surveys, interviews and review of land development policies at home and abroad, conclusion and inferences are made for a better land development policy for housing the low-income people of Dhaka Metropolitan area.

1.5 Organization of the thesis
Chapter 1 discusses about the problem, objectives, study area and methodology. Chapter 2 contains description about Dhaka's urban land. Existing low-income housing situation is discussed in chapter 3. Major land development strategies and policy instruments are discussed in chapter 4. Chapter 5 discusses about land policy issues of Bangladesh. Role of different development organizations is described in chapter 6. Chapter 7 gives us policy guidelines, recommendations and suggestions for land development of the low-income group of Dhaka.
Figure No. 1

Source: B.B.S., 1981

THE STUDY AREA
THE DACCA CITY AREA

Source: DMAIUP, Final Report Vol. 1

THE GROWTH OF DHAKA (1600 - 1980)

Figure No. 2
CHAPTER 2

URBAN LAND OF DHAKA

2.1 Introduction

Dhaka is an old settlement on the bank of the river Buriganga which has a command over its surrounding areas from time immemorial. Little land at Dhaka is within flood free zones. Moreover Dhaka's outward expansion is limited by natural topography. It is surrounded by the river Buriganga on the south and by wide tracts of low-land on the east and west. Inspite of all these, Dhaka is growing very fast both in size and in population after the war of liberation in 1971. With the intense population pressure in Dhaka, land around the city is shifting rapidly from agriculture to urban use at a rapid pace in an unplanned manner. Buildable urban land is scarce at Dhaka and its price is also very high. On the contrary the intensity of land utilization is very low here.

The characteristic features of urban land of Dhaka would be easily understood if we come to know about its demand, supply, price and availability pattern. These are discussed in the following paragraphs.

2.1.1 Demand for Urban Land in Dhaka

Population increase and rapid urbanization are the main instigators for the demand of urban land at Dhaka. Immediately after independence, cities, specially capital Dhaka, became attractive and focal point of economic, political and social activities. People started crowding at Dhaka along with many other cities. This crowding pushed the demand for urban land.

Foreign remittances from Bangladeshis working abroad are safely invested in the purchase of land both in the rural and urban areas. This affordability of Bangladeshi
citizens working abroad increased the demand for urban land to a great extent at Dhaka.

Black money or wealth which is estimated to be around 20 to 25 percent of the total GNP (Chowdhury, A.L., 1990) is also partially responsible for increasing the demand for urban land at Dhaka.

Speculators and real estate business houses further pushed the demand for Dhaka's urban land. Absence of cheap and mass transport forces people to live within the city and put pressure on urban land. Deteriorating law and order situation in the rural areas pushed many rural rich to the urban areas of Dhaka for safer haven. All these factors along with other social and economic forces pushed the demand for urban land of Dhaka to a critical stage.

2.1.2 Supply of Urban Land in Dhaka

The scarcity of supply of urban land at Dhaka is

Natural or topographic limitations of Dhaka to develop fringe land quickly and cheaply bar the supply of urban land.

Large amount of vacant land within Dhaka is not released for use. In Dhaka city two-thirds of the land within the urban area are vacant or under utilized (A.C., 1990). This under-utilization of urban land reduces the total supply of land at Dhaka. The speculators in Dhaka's urban land market withheld significant amount of land specially in the fringe areas and thereby create a pressure on the supply of such land.

Public sector intervention has gone against the increase of supply of urban land at Dhaka. Area acquired by government agencies and later distributed for private
housing have become low density areas. (The housing estates of Banani, Gulshan and Baridhara have very low residential density)

2.1.3 Land value in Dhaka

Due to non-availability of land at Dhaka, land price is exorbitantly high and the price is increasing at a rapid pace. There are many reasons behind the increase in the value of land at Dhaka. The factors affecting land value at Dhaka are mainly:

i) Location
ii) Types of land (e.g. high, low etc)
iii) Access facility
iv) Provision of infrastructure
v) Existing land use in the neighbourhood.
v) Quality of environment
vii) Social and economic condition of the inhabitants of the area.
viii) Availability of public transport.

During the last 15 years the land value at Dhaka city has increased by 20 to 50 times. Land value even in the low-income high-density areas is not of lower cost. For example at old town, the city's oldest core of development, land value is not less than 80 lakh taka per bigha where land use is mixed and the residents are predominantly low and middle income people (Salimullah, M., 1987).

The land value of Dhaka city has steadily increased during the seventies but more sharply from 1974 to 1978 indicating 12 to 40 percent annual increase in price over this period (Salimullah, M., 1987).

Public Works department in a recent study has determined the prices of land at different parts of Dhaka. According to this report land price is highest at Motijheel area which is about 1-1.5 crore taka per bigha, at other centrally areas land value is about 0.8-1.2 crore taka per bigha and land price is about 0.5 crore taka per bigha at Uttara. Price of low land at fringe areas of Dhaka is also high. Prices of low land at fringe areas vary from 0.2 to 1.5 lakh taka per acre according to location (Survey by the author). The price of residential land in Dhaka City, varies according to planned (Developed by RAJUK/HSD) and un-planned neighbourhood. The distance from the city centre has impact on land price in case of un.
planned neighbourhood areas. But distance has little effect in case of the planned
neighbourhoods particularly the high class residential areas developed by RAHI (like
Gulshan, Baridhara, Banani).

2.1.4 Speculation of land in Dhaka

The rise in land price to some extent has resulted from the growing amount of
remittance from the Bangladeshi people working in the Middle East. In absence of
other lucrative investment opportunities, a large amount of remitted money is
spent on buying land for speculation and future use purpose. The average infla-
tion rate in the economy of Bangladesh was around 20% during the 1981 calendar
year (Seraj, M.T., 1982). The inflation rate in the preceding year was also the
same. To safeguard savings against this high inflation rate wealthy people are
investing on urban land because the rate of appreciation is highest in this sector.
This has led to land speculation and price escalation. Due to high land speculation,
land remains vacant, underutilized and unproductive. This again leads to artificial
land scarcity and rise in land price.

The prospect of profit making is highly encouraging in case of land speculation.
Land speculators take advantage of this situation by artificially increasing land
price. Encouraged by the prospect of making large profits a good number of housing
societies and housing co-operatives have been established in Dhaka city in the re-
cent past. These societies and co-operative are mainly engaged in the process of
buying and selling of urban land and acting as broker or middlemen. The activities
of these societies and co-operatives in real term have very little contribution in
solving the housing problem in the city.

2.1.5 Land ownership pattern and intensity of land utilization in Dhaka

In Dhaka, majority of the people do not own any land in the city. They live in the
city as tenants. Thus a survey by the Ministry of Land shows that 56.63 percent of the households in Dhaka lived as tenants in 1981 and had no land in the city or in any other urban area (Table-1).

This survey most likely did not include the hundreds of thousands of Bastuharas (slum and squatter dwellers) of the city. If these households were included, possibly the proportion of households (or population) who did not own a piece of land in Dhaka would be over 70 percent (Islam, K., 1985-86). Majority of the urban population therefore have access to land or housing only as tenants or as illegal occupiers (i.e., squatters).

The pattern of land ownership in Dhaka is highly unequal (Table-1). Thus 56.63 percent of the households have no land in the city, while 10.24 percent own only up to 1 katha (or 0.0330 acre), 14.89 percent own between 1 and 5 katha, 7.31 percent own 5-10 katha, 6.76 percent own between 10 katha to 1 bigha (0.1644 - 0.3289 acre), and the rest 4.14 percent own more than a bigha of urban land. About 1 percent of the households also own more than 2 bigha of urban land. The unequal pattern of ownership is more obvious if we consider the amount of total land held by each of the ownership groups. Thus it is evident from Table-1 that only 4.14 percent of the large ownership group hold as much as 27.29 percent of the city's land, while 56.63 percent have no land at all, and 17.23 percent own only up to 1.5 katha (0.0494 acre).
### Table-1: Dhaka City: The Distribution Pattern of Households by size of Owned Land

<table>
<thead>
<tr>
<th>Sizes of owned land (acre) (Family)</th>
<th>Households</th>
<th>Percentage</th>
<th>Cumulative percentage</th>
<th>Area under holding Percentage</th>
<th>Cumulative percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No land</td>
<td>124085</td>
<td>56.83</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Below 0.0330</td>
<td>22441</td>
<td>10.24</td>
<td>66.87</td>
<td>5.49</td>
<td>-</td>
</tr>
<tr>
<td>0.0330-0.0494</td>
<td>15315</td>
<td>6.88</td>
<td>73.86</td>
<td>4.82</td>
<td>10.27</td>
</tr>
<tr>
<td>0.0495-0.0824</td>
<td>17325</td>
<td>7.90</td>
<td>81.76</td>
<td>9.32</td>
<td>18.59</td>
</tr>
<tr>
<td>0.0825-0.1649</td>
<td>16018</td>
<td>7.31</td>
<td>89.07</td>
<td>16.85</td>
<td>36.44</td>
</tr>
<tr>
<td>0.1650-0.2474</td>
<td>8487</td>
<td>3.87</td>
<td>92.94</td>
<td>12.37</td>
<td>48.81</td>
</tr>
<tr>
<td>0.2575-0.3299</td>
<td>6341</td>
<td>2.89</td>
<td>95.83</td>
<td>13.90</td>
<td>62.71</td>
</tr>
<tr>
<td>0.3300-0.4948</td>
<td>5045</td>
<td>2.30</td>
<td>98.14</td>
<td>14.62</td>
<td>77.33</td>
</tr>
<tr>
<td>0.4050-0.6599</td>
<td>1815</td>
<td>1.83</td>
<td>98.86</td>
<td>10.64</td>
<td>87.97</td>
</tr>
<tr>
<td>0.6600-0.9998</td>
<td>1559</td>
<td>0.71</td>
<td>99.77</td>
<td>7.80</td>
<td>95.77</td>
</tr>
<tr>
<td>1.000 &amp; above</td>
<td>665</td>
<td>0.30</td>
<td>99.99</td>
<td>4.23</td>
<td>100.00</td>
</tr>
<tr>
<td>All households</td>
<td>219096</td>
<td>100.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Insipite of the acute scarcity of buildable land at Dhaka, it is strange to note that the urban land of Dhaka is underutilized. The Ministry of Land, Government of Bangladesh carried out an initial survey of all lands acquired by different development agencies within the boundaries of the Metropolitan City of Dhaka and found out that as much as 500 acres of land have remained vacant or unused for the purpose for which these lands were initially acquired. The publicly owned lands are very centrally located and these are very high valued properties. The intensity of land utilization at Dhaka is far from satisfactory. The density of Dhaka city was 72 persons per acre in 1975 and now it is approximately about 100 persons per acre while the density of Calcutta was 159 persons per acre in 1963 (Seraj, M.T., 1982).
2.1.7 Future availability of buildable land at Dhaka

Dhaka being surrounded by the Buriganga river on the south and by low-land on the east and west, there is severe scarcity of buildable land here. Moreover, a large amount of buildable land at Dhaka remains vacant due to under-utilization and acquisition by government and autonomous organizations and by speculation of individual owners and housing societies.

Through earth filling of the low-lying fringe areas of Dhaka we can reclaim some land but it is very costly and time consuming. Dhaka Municipality is building a flood protection embankment for Dhaka city. This embankment will bring a good amount of low-lying land within flood free zone. By developing a portion of this land we can have some land suitable for house construction. The second flood protection embankment of Dhaka beside Balu river will include a good proportion of lands of Uttarkhan, Dakshin Khan, Satarkul, Mathertek within flood free area. A portion of land at these places are sufficiently high for house building purpose. But some lands are low-lying and need earth filling for development.

Low land is available at Kamrangirchar. But this land requires earth filling and development. On the opposite side of the Buriganga there is extensive settlement at Keraniganj and Jinjira. It is possible to reclaim some low-lying land at these places for house building purpose.

Flood-free land is also available at Yousufganj, Rupganj and Khanpur, but these places are away from city centre. Besides all these, there are some low-lying marshes in Dhaka city where water stands throughout the year. These pockets can be developed if adequate fund is available.
Source: Dhaka Development Project
Kinhill Stearns
FLOOD PROTECTION EMBANKMENT FOR DHAKA


Figure No. 4
2.1.8 Acquisition of Land

The official land acquisition process enables Government of Bangladesh to acquire land but with considerable delays and at high prices which approach market levels. Thus even in government sponsored projects, it would be difficult to provide minimum shelter to low income groups at Dhaka without subsidies to offset high prices of land.

Policies for official land acquisition are set by the Ministry of Land Administration and Land Reform and implemented by the Deputy Commissioner of each district. Land can be acquired by the government through the Land Acquisition Act of 1894 or the East Bengal Requisition of Property Act of 1948. Government and its corporations may acquire land for public purposes using the 1948 Act as it permits immediate possession even while legal compensation issues are outstanding. RAJUK has a special provision in its enabling act to expropriate land, and in the event of objections, it can set up tribunals to review compensation appeals.

There are several problems with the present land acquisition process. The price of land is supposed to be set at a level equal to the average price during the 24 months prior to acquisition. In a time of rapid land price escalation, land owners are seldom satisfied with this price. Although land selected for acquisition can be taken over reasonably quickly, and a provisional compensation is paid at that time, establishment of the final price is subject to an appeals process which can last ten to fifteen years or more. Landowners are usually awarded higher prices by the court which may reflect market prices at the time of appeals are declared. This gives landowners an incentive to pursue the appeals process as long as possible. The additional compensation becomes a liability of the development agencies years after the development projects are completed.

There are some alternative means of land acquisition which could make land available...
for public purposes at lower cost. These include the proposals for the purchase of development rights by public agencies for land in urban fringe areas in advance of price rises and land re-adjustment as practised in Korea, whereby land owners are compensated through participation in publicly controlled development schemes.

Means could also be explored to increase the supply of land through private, informal land development. Roads could be constructed into new areas to encourage low cost development. The public transport system could also be improved to give low income group a wide range of locational options.
2.2 Summary

There is acute scarcity of buildable land in Dhaka. Dhaka being surrounded by low-lying areas on all sides the prospect for future land development for housing schemes is limited. The characteristic features of urban land of Dhaka are expressed in its demand, supply, price, availability and ownership pattern. Population increase and rapid urbanization are the main reasons for the high demand of urban land in Dhaka. Foreign remittance, black money and speculation are also responsible for the increase in demand for urban land. Topographic limitations of Dhaka to develop fringe land quickly and cheaply bar the supply of urban land. Under-utilization and speculation of land at Dhaka also hinder the supply of urban land to a great extent. Land value is exorbitantly high in Dhaka. During the last 15 years land value has increased by 20 to 50 times. High demand and retarded supply of land has resulted in the tremendous increase of land price in the city. At Dhaka land-ownership pattern is highly unequal. Majority of the people in the city do not own any land. They live in the city as tenants. On the contrary a small group of affluent people of Dhaka owns a significant proportion of the city's urban land. Future availability of buildable land for Dhaka is limited due to topographic reasons. Through earth filling of the low-lying fringe areas of the city we can reclaim some land but it is very costly and time consuming.
CHAPTER 3

STUDY OF EXISTING HOUSING SITUATION OF THE LOW-INCOME PEOPLE OF DHAKA

3.1 Low-income people of Dhaka City

In the past Dhaka was the exclusive residential neighbourhood of the cultural and political elite, but now it is the low-income groups who account for the greater part of the physical growth and character of the city. The low-income people of Dhaka now constitute a significant proportion of the city's population but they share a tiny proportion of the city's residential land. They do not have sufficient earnings to meet their daily necessities. Moreover, they lack all kinds of civic and community facilities at their residing places.

By the term low-income we mean those people for whom it is difficult to afford permanent, safe, healthy and sanitary housing at places suitable for their jobs and economic activities. A greater part of the income of low-income people is spent for food and clothing and they set aside a small portion of their household income for shelter purpose.

According to the bastee survey of Dhaka District Administration, 1989, about 50% of the bastee dwellers pay a rent of 200 taka or more and 20% of the families pay a rent of 300 taka or more for housing. The rent for a room in a bastee settlement may be as high as 500 - 600 Tk. per month. Poor bastee dwellers pay a rent of 4 taka per sft for a kutch room and at least 8% of the bastee dwellers pay a rent of 5 Tk. per sft of dwelling space. The survey shows that 15% of the slum dwellers spend 20% of their household income for house rent purpose and about 34% of them pay about 10-20% of their household income for house rent purpose.
From the above discussion we find that house rent varies from 10% to 20% of household income of the low-income families. For ease of our calculation we shall consider the housing expenditure for low-income families to be 20% of their monthly income.

A baseline survey of 109576 families in Dhaka by the Bureau of Statistics in 1987 reveals the following facts.

**Table-2: Distribution pattern of Dhaka’s low-income households in terms of monthly income.**

<table>
<thead>
<tr>
<th>Monthly Household income</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 500 Taka</td>
<td>3.81%</td>
</tr>
<tr>
<td>500 - 1000 Taka</td>
<td>19.83%</td>
</tr>
<tr>
<td>1000 - 1500 Taka</td>
<td>31.18%</td>
</tr>
<tr>
<td>1500 - 2000 Taka</td>
<td>19.87%</td>
</tr>
<tr>
<td>2000 - 3000 Taka</td>
<td>13.45%</td>
</tr>
<tr>
<td>Above 3000 Taka</td>
<td>8.18%</td>
</tr>
</tbody>
</table>

*Source: B.B.S., 1987*

For our research purpose we shall deal with the middle 4 income groups in this range. Un-official inflation rate in Bangladesh varies from 15 to 20% per year. We shall consider the maximum inflation rate to predict the approximate monthly income of different categories of low-income people of Dhaka in 1990.

**Table-3: Predicted income & housing expenditure of Dhaka’s low-income households (1990).**

<table>
<thead>
<tr>
<th>Monthly Household Income in 1987</th>
<th>Monthly Household Income in 1990 (Predicted at 20% inflation rate)</th>
<th>Monthly Housing expenditure (20% of households’ monthly income)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 - 1000 Taka</td>
<td>800 - 1600 Taka</td>
<td>320 Taka</td>
</tr>
<tr>
<td>1000 - 1500 Taka</td>
<td>1600 - 2400 Taka</td>
<td>480 Taka</td>
</tr>
<tr>
<td>1500 - 2000 Taka</td>
<td>2400 - 3200 Taka</td>
<td>640 Taka</td>
</tr>
<tr>
<td>2000 - 3000 Taka</td>
<td>3200 - 4800 Taka</td>
<td>960 Taka</td>
</tr>
</tbody>
</table>

3.2 Physical characteristics of low-income housing at Dhaka.

The low-income settlements of Dhaka are distributed in a fragmented manner in and
around the city. Almost two thirds of the low-income housing of Dhaka are established on private land (Islam, N., 1990). A significant proportion of the houses are established on government and semi-government lands. These are mostly squatters and they developed on land owned by mainly the departments of Railway, Public Works, Roads and Highways etc. House occupancy in these low-income settlements are mainly of three types, owner occupant, tenant occupant and free occupant. Majority of the houses are tenant occupants, followed by owner occupants and free occupants.

Almost ninety percent of the houses of the low-income settlements are kutchha type and the rest are pucca and semi-pucca (C.U.S., 1988). The houses which are made up of jute hessian, polythene sheets, paper boards etc. are termed as jhupri. Most of these houses are squatters. Many of these houses are made up of bamboo walls and a significant portion of them have C.I. sheet roofing.

Municipal and community services within the low-income settlements are very poor and inadequate. Moreover the access to various services at household level is limited to a few selected families. There is gas connection in 30 percent of the slum dwellings (C.U.S., 1988) but many families can't avail this. Most of the slums don't have gas connection and use a variety of fuels for cooking. More than fifty percent of the slums have electricity connection (C.U.S., 1988). Most of those are direct lines and unauthorised connections. About half of the city's slum dwellers use water from street municipal taps or have their own water connections (C.U.S., 1988). Others use water from community tubewells or from nearby ponds or rivers. Most of the low-income settlements do not have garbage disposal services from the municipality. They dump garbage at nearby low-lands. Majority of the low-income settlements have their own community toilet facilities. However, most of the toilets are kutchas. Community facilities like mosque, primary school etc. within the low-income settlements are also very inadequate or absent. Drainage and sewerage facilities are very unsatisfactory and road condition is very bad within the low-income settlements.
3.3 Land tenureship pattern and housing sub-system of the low-income people of Dhaka.

The low-income peoples of Dhaka are spread in different areas of the city and they live in different types of housing systems and in different land tenureship pattern. If we study the housing pattern of the low-income people of the city we can classify them into six major sub-systems: (i) Squatters (ii) Refugee rehabilitation colonies and squatter resettlement camps (iii) Bastees (iv) Conventional tenement slums (v) Employees' housing (vi) Other sub-systems.

3.3.1 Squatters

These are unauthorized dwellings built by the low-income people in government land. Squatters include persons or families residing or squatting in terminus pavements, bus-shelters, public or semi-public office buildings. Squatters are characterised by the most rudimentary shelter, e.g. makeshift shacks or thatched huts, etc; and lack of basic services. Most squatter shacks are built and owned by the occupants, but a few are tenant occupied. The density of population in squatter settlement is extremely high almost 1500-2000 persons per acre (Islam, 1990). The approximate number of squatter population in Dhaka city is roughly around 1 lac. This population (about 25% of total) covers less than 0.5 percent of all residential land of the city (Islam, N., 1990).

3.3.2 Resettlement Camps

There are some resettlement colonies in Dhaka where people reside in large groups occupying a single piece of land in crowded and congested condition. The first group of these colonies were developed immediately after 1947 when large groups of refugee families from India started migrating to the then East Pakistan. Large scale resettlements were organized by the Government at Mohammadpur and Mirpur.
which provided land and core houses. These plots were given to the allottees on a long term lease-hold basis. Bashabo Wahab Colony is another resettlement camp for the low-income refugees. Some 565 families were given plots in this resettlement colony between 1958 and 1960. Another type of rehabilitation camps was set up at Mohammadpur and Mirpur for the Bhuiyas who wanted to repatriate to Pakistan after the liberation war of Bangladesh. About 1,20,000 people live in these camps at Mirpur and Mohammadpur. Health, sanitary and dwelling condition is extremely poor in these camps.

In 1975 Government evicted inner-city squatters of Dhaka and a portion of them were sheltered in three settlement camps outside of Dhaka. These are the rehabilitation camps at Dattapara, Demra and Vasantek. These camps have gross densities up to 300 persons per acre and have well laid out roads and provision for communal toilet and drinking water facility (G.R.B., Pratibadan, 1989). These resettlement colonies together with a few other government assisted rehabilitation camps accommodate an approximate low-income population of some 250,000 people (about 6 percent of the population of the city) while covering little more than 2 percent of the residential land of the city (Islam, N., 1990).

3.3.3 Bastees

These are authorized settlements of the low-income communities having very high area density as well as high room crowding and poor housing condition. The largest group of poor people at Dhaka live in innumerable bastees of the city. These bastees are characterized by temporary and semi-permanent structure of a single or double storey. A bastee settlement usually includes (i) the rental houses (ii) the rental mess units (iii) the owner occupied units. The rental houses are the most common and predominant and they accommodate nearly 35 percent of the total population of the city (Islam, N., 1990). The bastee settlements have residential densities of 1000-2500 persons per acre and
and they cover approximately about 11 percent of the city's residential land (Islam, N., 1990).

3.3.4 Conventional Inner City Tenement Slums

Conventional inner-city tenement slums are seen in the old parts of Dhaka. These dwellings may be distinguished from the bastees mainly by age and structural system. Many houses in the inner part of Dhaka are semi-pucca but there are also pucca 2/4 storied buildings which are very old and dilapidated. These slums have very high residential densities due to room crowding and vertical development. Utility services and other environmental facilities are very poor. The conventional tenement slums of Dhaka accommodate approximately about 12 percent of the city's population covering less than 4 percent of the city's residential land (Islam, N., 1990).

3.3.5 Employees' Housing

This is one of the major types of low-income housing of the city. This system provides accommodation for about 9 percent of the total population (Islam, N., 1990). The government or formal sector industries and institutions responsible for half and the middle class households provide accommodation for the other half. Industrial workers' housing are usually in the form of pucca or semi-pucca barracks with "mess" type occupancy and very high room crowding.

3.3.6 Other sub-systems

Many low-income people house themselves through free lodging in middle class families in shops, factories and in institutional buildings. Some other low-income families live on boats in rivers or water fronts around Dhaka City. The working girls in garments factories usually arrange for their shelter in lower or lower middle income family "messes". A single room is usually rented to a group of four to eight girls. The other sub-system category provide for accommodation of about 2.5 percent of the population of the city on less than one percent of the land (Islam, N., 1990).
The past Dhaka was the exclusive residential neighborhood of the cultural and political elites, but now the low-income people constitute a major proportion of the city's population though they share a tiny proportion of the city's residential land. For our research purpose we have chosen four ranges of people of the low-income community of Dhaka. The low-income settlements of Dhaka are distributed in a fragmented manner in and around the city. Municipal and community services within the low-income settlements are very poor and inadequate. Moreover the access to various services at household level is limited to a few selected families. The housing pattern of the low-income settlements of Dhaka can be classified into six major sub-systems. These are (i) Squatters (ii) Refugee rehabilitation colonies and squatter resettlement camps (iii) Bastees or slums (iv) Conventional tenement slums (v) Employees' housing (vi) Other sub-systems.

Squatters are unauthorised dwellings built by the low-income people in government land. Resettlement camps developed when large groups of people were rehabilitated in different areas of the city. Bastees are legal settlements of the low-income communities having very high area density as well as high room crowding and poor housing condition. Conventional inner-city tenement slums are seen in old parts of Dhaka. These are pucca or semi-pucca old buildings having very high residential density due to room crowding and vertical development. Employees' housing are seen at Dhaka usually in the form of pucca or semi-pucca barracks with mess type occupancy and high room crowding. Other sub-systems include those people who house themselves through free lodging in middle class families or in shops, factories, institutional buildings and people living on boats in rivers or water fronts around Dhaka city.
4.1 Some land development strategies

Of the different land development strategies used to solve housing problems, the following four are most widely used and have been applied in different situations. These are sites and services schemes, squatter upgrading and squatter resettlement program, nucleus or core housing and direct or formal construction. The characteristic features of these strategies are briefly discussed in the following paragraphs.

4.1.1 Sites and services schemes

In this approach land plots are levelled and furnished with access roads, drainage, water, sewerage, electricity and a variety of other individual as well as community services such as schools, shops, health clinics, refuse collection and fire fighting facilities etc. The occupants of the plots contribute to the construction of their own houses.

Land procurement, site preparation, on site infrastructure (including road, water, electricity, sewerage and drainage facilities) and plot development (including core housing and material loans for dwelling construction) are the four major elements in sites and services scheme.

The great advantage of sites and services scheme is that it increases the private investment in housing. Much of the savings needed for this process can be mobilized directly rather than indirectly through financial intermediaries. Savings and investment thus occur simultaneously. By phasing construction over a number of years, the owner can improve his dwelling according to his financial capacity.
The principal problem however is that unrealistically high building standard makes this approach a waste of land and consequently low density sites and services scheme may lead to urban sprawl.

At Dhaka the residential areas of Dhanmondi, Gulshan, Uttara, Banani & Bari-dhara are the outcome of sites and services scheme. Plots with service and infrastructure facilities were allotted to individual buyer and later on they construct their own residential buildings. Sites and services scheme at Dhaka has created low density areas and it has benefitted only the high income group.

4.1.2 Squatter upgrading and squatter resettlement program

This approach, as a complement to sites and services program, is seen as an increasingly important means of providing benefits to low-income people. Upgrading the existing squatter areas through the provision of utilities and services may be attempted for those income groups who are unable to afford sites and services scheme. Squatter upgrading can help prevent squatters from being relocated from employment opportunities, and provides a means of retaining and improving existing housing stock which might otherwise be demolished. At the same time, it maintains the low-cost access to employment and social services of relatively central locations.

The essence of squatter upgrading is to conserve the existing low-income housing stock, particularly in serviceable condition and relatively in central locations and to improve housing by including additions and improvements to services and facilities within the entire neighbourhood. The most important contribution of this approach is to give the poor a security of tenure.

In squatter resettlement program the existing residents are dislocated in order to make the land free for other purposes and the evicted squatters are
relocated on cheap land usually on fringe areas or periphery of cities. The families under squatter resettlement programs at places far from the city centre face formidable access problems, specially the access to employment.

Squatter resettlement program was launched at Dhaka in 1975. In January 1975 the Government of Bangladesh took decisions to evict slums and squatters from the city centre. Slum clearance operation was launched in Dhaka and 2 lakh slum dwellers of Dhaka were forced either to return to their villages or to settle in one of the three rehabilitation camps set up at Mirpur, Demra and Tongi. Approximately about seventy thousands of the evicted people were rehabilitated at these three places outside of Dhaka. Later on permanent settlements and rehabilitation programs were taken up for them. 2500 families have been rehabilitated at Mirpur area. 3444 families are in the process of rehabilitation at Ershadnagar, Dattapara (C.O.B., Pratibedan, 1989). In both the projects 100 acres of land have been allocated and the total cost is 43 crore taka, that is 71,000 taka per family. In these projects the homeless families are allocated a piece of land of about 400-600 sq., one built room and some physical and socio-economic facilities (C.O.B., Pratibedan, 1989). Money is allotted from Government of Bangladesh and international donor organisations. Dhaka Municipal Corporation with the financial assistance of World Bank has taken up a project of 115 crore taka for physical upgrading of the slums of Shaheednagar, Rasulpur and Islambag of Lakhagh Thana (C.O.B., Pratibedan, 1989). Recently formed "Dhaka Mohanagari Basti Samasya Nirashan Committee" has taken up steps to rehabilitate the basti dwellers of Dhaka. A few projects of this scheme have already been started.
Squatters upgrading has been successfully implemented in Thailand, Indonesia and India. The National Housing Authority (NHA) of Thailand took over the tasks of slum upgrading programme in Bangkok in 1977. But ultimately they could not provide long term security to the residents after infrastructure improvement was completed due to land rental system. So they concentrated in improving walkways, drainage, water supply and garbage collection facilities of the slum areas.

In spite of this constraint, the Authority's first five-year slum upgrading programme benefitted forty thousand families (United Nations, 1983). The main obstacle the authority had to face was the land tenure problem and as such the authority proposed land sharing and implementation of the legislative framework for compulsory acquisition to provide long-term security to the residents.

In Indonesian cities slum settlements are known as 'Kampong'. The houses are built from bamboo, in compact and congested blocks, with little or no space in between them. The city Kampong is a re-interpretation of the village pattern in an urban setting. In Bandung, Village Development unit known as Bonjio, took up the responsibility for maintaining contracts and assisting in development of Kampong areas. Initially they used to receive minor fund from development budget and concentrated on improving physical aspects of environmental improvement. Subsequently their budget was increased substantially, and they took a ten year programme of infrastructure investment for the city's poorly serviced kampongs. Indonesian government initiated development programme of similar nature in other urban cities. In Bandung, with the financial assistance of the Asian Development Bank the city government in 1978 took up the responsibility to provide water supply, drainage system, communal toilet facilities, garbage disposal, paved roads and footpath (United Nations, 1985).
In Calcutta, slum improvement and upgradation started in early seventies. In Calcutta, West Bengal Slum Areas Act of 1971 provided for two courses of public sector intervention, one for environmental improvements without interference with the rights and interests of land owners and hut owners, and the other for redevelopment with restructuring of land use and services. The Bustee Improvement Programme consists of providing sewer latrines or septic tank, potable water supplies, surface drainage, road and footpath paving, street lighting and solid waste collection points. By 1983 sixty two thousand five hundred latrines had been constructed, twenty one thousand water taps were provided, sixteen hundred wells were sunk and ten thousand street lights were erected. The programme as a whole benefitted a total of 1.9 million population (Mhatre, K.P., 1984).

4.1.3. Nucleus Housing/Core Housing

The low-income families often need protection from rain or cold while constructing their dwellings. In such cases, some shelter is usually required for the self-help process to get started. A temporary shelter or small core unit may in some instances be required to enable them eventually to benefit from neighborhood development through their own efforts. Such partial construction is generally described as "core housing" or "nucleus housing". It is built as far as possible of traditional materials. But in some cases, more modern construction methods are required for structural reasons.

In this approach some basic facilities like toilet, kitchen, washstand etc. are provided with individual plots. This scheme is very efficient and helpful for low income people.
In sites and services scheme usually service distribution network ends at property line. But in nucleus housing schemes the distribution network is normally extended to toilet and washstand or to the utility block of individual plots. This principle may also be applied in case of two-storey row housing which leads to a more economic use of land. In most instances of core housing for row houses two common walls on the sides of a dwelling unit is provided with individual plots.

In Dhaka the housing estates of Mirpur and Mohammadpur were built with the concept of nucleus housing. The Mirpur Housing Estate and the Mohammadpur Housing Estate were primarily designed to benefit the low and lower-middle income repatriates from India. It was also meant for the same category of people who were former residents of this area. The Mirpur and Mohammadpur Housing Estates are located at a distance of 5 miles and 3 miles respectively from the centre of the city. Out of the 16 housing estates constructed in the 1959-69 period, these two are the only ones that were meant to benefit the poor. The types designed for the lower-middle income group consisted only of 267.56 sq.m. (2000 sft.) plots and the other designed for the lower income groups consisted of 117 sq. m. (1260 sft.) and 49 sq.m. (450 sft.) plots, with a room a kitchen and a toilet (Hafiz, R., 1987).

After the liberation of Bangladesh a significant portion of the residents of these two housing estates repatriated to Pakistan and their houses were taken care of by the Government of Bangladesh as abandoned property. Other residents sold their plots to the better off people who bought them at prices well below the market level but far above what other poor families could afford to pay. Often two or more continuous plots were put together and used for the construction of apartment buildings for middle income tenants, leaving most of the poor once again landless.
4.1.4 Direct or Formal Construction

In this approach government provides full-furnished housing units to the users. Private developers usually build houses to meet the demand for all but the poorest urban groups. Direct construction is a method to help the poor. Publicly financed formal construction could reach large numbers of the urban poor if those were appropriately designed. It can also improve the spatial distribution of people in urban areas. Government housing in Bangladesh are constructed through direct construction method.

In Bangladesh the public housing have been built for various standards. But the houses socially provided are not geared to actual requirements. The occupants of public housing in our country do not have the freedom to choose their houses according to their family requirements or economic capability.

Hongkong and Singapore are the two successful cities with some 40 percent of their populations living in public housing provided through direct construction method (Grimes, Orville, F.J., 1976). The experience of these two cities of Hongkong and Singapore indicate that the principal ingredients of success in public housing are that the housing standards must be consistent with prevailing income levels but buildings have to be designed flexibly at first to low standards so that they can be adapted to income rise. Design and construction must be technically sound and economically efficient.

4.2 Some land development policy instruments

The most widely used policy measures to deal with urban land problems include Land Ceiling, Land Banking, Land Pooling and Taxation of house property. The characteristic roles of these policy measures are briefly discussed in the following paragraphs.

4.2.1 Land Ceiling

The objectives of Land Ceiling are to prevent the concentration of urban land in the hands of a few persons, to bring about an equitable distribution of land in urban agglomerations to serve the common goal and to stop speculation and profiteering therein. But the main weaknesses of this policy instrument are that it does not ensure construction and does not ensure efficient utilization of land.
Land may be an important tool for urban and regional planning. Building restrictions may stimulate new constructions, and a percentage tax on recent built property may influence on the use of land, for example, tax exemption on land that is held for agricultural or other than productive reasons. Land taxation is an instrument of policy to help to maintain the holding of urban real estate. It is a useful device for preventing the holding of land for speculative purposes. It simply reduces any incentive to hold land for speculation, while increasing the incentive to use land.

4.2.4 Land Taxation

The taxation of house property is a very important instrument for desirable development.
Of the different land development strategies used to solve housing problems, these four strategies namely Sites and services, Squatter upgrading and squatter resettlement program, Nucleus housing, Direct or Formal construction are the most widely used and have been applied in different situations. In sites and services scheme land plots are levelled and furnished with necessary infrastructure and service facilities. Then the plots are delivered to individual buyers. In squatter upgrading program the existing low-income housing stocks are conserved and improvements are done to existing infrastructure and service facilities. In squatter resettlement program the existing residents are dislocated in order to make the land free for other purposes and the evicted squatters are relocated on cheap land usually on fringe areas or periphery of the city. In nucleus housing scheme a temporary shelter or a small core unit is provided with individual plots in addition to the service and infrastructure facilities already provided. The most widely used policy instruments to deal with urban land problems include Land Ceiling, Land Banking, Land Pooling and Taxation of House Property. Land Ceiling gives a restriction on land ownership limits. Land Banking is the process of advance acquisition of land by government authorities to meet the long term need of urban growth. Land Pooling is the technique of compulsory partnership between the land owner and the public authority for the servicing and subdivision of their land as a planned whole. Taxation of House Property implies tax on vacant land, unused land and tax for urban land value increase.
CHAPTER - 5

HOUSING AND LAND DEVELOPMENT PROGRAMS AND POLICIES IN BANGLADESH

5.1 Introduction

A number of land development programs and policies have been adopted in Bangladesh and many of these programs have been implemented. Some of these programs achieved the predicted goals but many others could not achieve the desired result. The DIT Master Plan for Dhaka (1958-60) is the first attempt for a planned land development and housing strategy for Dhake. Many proposals of this Master Plan were implemented but some were not implemented at all. After the war of liberation of 1971, land development and housing policies and programs of the country were formulated through five year plans. So far 4 five year plans were formulated. The Dhaka Metropolitan Area Integrated Urban Development project of 1980 gave a structure plan for the planned future growth of Dhaka. Major housing and land development programs in the country are briefly discussed below.

5.2 Proposals concerning housing and land development in the DIT Master Plan of Dhaka (1958-90).

The Dhaka Master Plan (1958-60) was prepared for the Dhaka Improvement Trust (DIT) by M/S. Minoprio, Spencely and P.W. Macfarlane. The work of the master plan was started in 1958 and its final report was submitted in 1960.

5.2.1 Problems of Dhaka as envisaged by the technical committee of the Master Plan.

The technical committee preparing the master plan envisaged three main problems of Dhaka. These problems are stated below.

1. Shortage of suitably located highland free from annual flooding.
2. Dhaka is surrounded by a main river on the south and on the east and west by wide tracts of low land.
3. There is huge congestion in the old parts of Dhaka and there is also great confusion of uses.

The technical committee considered some assumptions and predictions for Dhaka's future growth. They considered the population of Dhaka City to increase at the rate of 1.75% per annum and in 20 years the population of Dhaka City would grow from 575,000 to 8,16,000 and that of Narayangonj from 100,000 to 140,000.

5.2.2 Land Requirements for Residential Development

To provide for the anticipated expansion of Dhaka city and to improve present bad housing condition, the technical committee considered that large new areas would be required for residential development.
The new areas must be sufficient to meet the following needs:

(a) To house natural increase of population.
(b) To house the population displaced by essential planning proposals as roads and open spaces.
(c) To house planned over-spill e.g. persons displaced by clearance of slum areas.
(d) To house voluntary over-spill, residents in the central areas of old Dhaka who will be displaced by the conversion of their houses to commercial use.
(e) To house persons living in the remainder of Dhaka in overcrowded conditions: general housing need.

The estimated population to be rehoused during the first 20 year period was about 391,500 and the available land for residential development was 11,345 acres.

5.2.3 Considerations for Residential densities

With regards to residential densities on new estates a gross maximum of 75 persons per acres with a 50% allowance for roads, schools and open spaces etc. was considered. This gave a net density of 150 persons per acre.

5.2.4 Long term development policy

I) Use of Dhaka airport for housing. When the present airport will be shifted to the new site at Kurmitola, the present airport would afford 500 acres of housing.

II) Reclamation of low-lying land.

a) An area of approximately 285 acres at Candaria and Postagola between the railway and the new Narayangonj road.

b) An area of approximately 1540 acres just east of the new Narayangonj road between Demra road on the north and the Narayanganj road on the south.

c) Opposite to Dhaka, on the south bank of the Buriganga an extensive settlement has developed at Jinjira with an important market and boat building facilities.
d) As Keraniganj is a highland, if it is provided with bridge connection to Dhaka, it would be a site for accommodating over spill population of the city.

5.2.5 An evaluation of DIT Master Plan (1958-60) proposals concerning Housing and Land-Development

The Dhaka Master Plan was prepared by M/S Minopric, Spencely and F.W. Macfarlane on behalf of the Dhaka Improvement Trust (DIT). It was started in 1958 and the final report was submitted in 1960. Although not substantially updated, this plan remains as the framework for Development Planning for DIT. The plan was prepared for a 20 year period and its formal validity ended in 1980. The master plan required evaluation at 5 year interval which could help the plan to adjust the short falls. But such steps were never taken.

The plan is basically a development control document. The Town Improvement Act (1953) provides regulatory powers for DIT over a designated area. In practice, development control, based on the control of buildings on individual plots, can only be effective in the specific development areas which are planned and leased by DIT. Development in other parts of the city remains largely uncontrolled, and the lack of updating of the plan leaves the statutory service agencies in the city without a basis for coordinated action.

The Master Plan was founded on two assumptions both of which have since proved to be incorrect. Firstly, population growth was projected at 1.75% per annum a figure lower than even the rate of natural increase of the existing population. Actual growth between 1961 and 1974 has been approximately 6% per annum (OMALUDP, 1981). Secondly, it was assumed that the city would continue to grow outwards at existing urban densities. In practice it is apparent that the major trend since 1959 has been the extreme intensification of densities in some areas with a recent rapid growth on the eastern and southern fringes at comparatively low densities.
The result, in 1980, is that not all the development areas proposed in the Master Plan have yet been developed. Two examples are Uttara Model Town and the proposed development north of Tongi. On the other hand there have been substantial unplanned growths around the edges of the city. Many of these unplanned areas are liable to seasonal flooding in years with above average flood levels.

Previously assumptions about the standards and feasibility of providing services, the level of building occupancy, and the usage of the transport system have therefore all been superseded.

5.3 Policies and proposals in the five year plans

5.3.1 Introduction

After the independence of Bangladesh in 1971, Bangladesh Government formulated five year plans for the planned development of the country. Housing and land development policies are incorporated in these five year plans. The first five year plan is formulated for the period of 1973-78. After the first five plan an interim 2 year plan was formulated for the period of 1978-1980. The second and the third five year plans were formulated for the period of 1980-1985 and 1986-1990 respectively. Now the fourth five year plan is in progress. It is formulated for the period of 1991-1995. Housing and land development programs and policies in the five year plans are briefly described below.

5.3.2 First five year plan

First five year plan of Bangladesh was prepared for the period 1973-1978. This plan was prepared in the background of a grim and dilapidated economy of the country after the war of liberation.

In the first 5 year plan period efforts and resources were directed towards the short term objectives.

To achieve the short term objectives the following programs were undertaken.

- Building of multistoried apartment houses within the urban area for low and lower middle income groups in the public sector.
- Building of minimum shelter in a planned environment.
- Development of "Sites and services" schemes through the Urban Development Agencies and local bodies for building apartment houses.
- Organisation and financing of co-operative apartment houses.
- Providing a planned environment for temporary settlements as temporary measures with a view to develop these into proper housing estates in future.
Urban Housing

Construction of multistoried flats and minimum shelters for the low-income groups is viewed as the desirable long-term solution of the problem especially in view of the extreme scarcity of urban land and the economy that can be desired in provision of services. However, in the First Plan period the housing back-log was so large that the investment in high rise apartments proved inadequate to make an impact on the problem. For this reason, the low-income housing was divided into two portions.

(I) Multistoried apartment housing providing a higher standard of accommodation.

(II) Nucleus shelter providing pucca accommodation of a basic sort at a much lower unit cost than the apartment.

The low-income housing construction was planned to be located within the core and inner periphery of the cities while sites and services schemes for co-operative apartments were planned to be located outside the inner periphery and beyond that. It was proposed that transportation services be simultaneously provided for commuting residents of these peripheral housing estates.

5.3.3 Second Five Year Plan

The Second five year plan of Bangladesh was prepared for the period 1981-1985. The major objectives and strategies for housing in this plan period were:

(a) Construction of larger number of low-cost semi-permanent housing units requiring lesser time and resources to recover the shortage of public servants' housing.

(b) Provision of developed land, utilities and easy term finance.

(c) Reduction of present entitlement of residential accommodation with a view to providing more accommodation units with the available resources.
(d) The specification for structures, fittings and finishes needed to be lowered and standardised to reduced cost.

(e) Provision of small service plots with nucleus units to government employees on hire purchase basis.

(f) Provision of suitable land, services and utilities and easy terms of finance for house building to government, semi-government and corporation employees so that they can build their own houses.

Programs for the SFYP

The major programmes of the Physical Planning and Housing sector during the second five year Plan are indicated below:

Initiation of the process of development for 1200 growth centres and construction of 4,000 housing units consisting of semi permanent structures and flats.

Construction of office and residential buildings at the new district and thana headquarters.

Development of sites and services by the Housing and Settlement Directorate and city development authorities for construction of houses giving special emphasis on middle income and lower income groups of people.

5.3.4 The Third Five Year Plan

The Third Five Year Plan was prepared for the period 1985-90.

Objectives, Strategies and Policies of the Third Five Year Plan in Housing Sector

The major thrust in housing sector in this plan period is to formulate necessary policy prescriptions for stimulating expanded private sector participation. Public sector investment is made only in those areas where it is unescapable, such as land development, roads, construction, water supply and construction of residential buildings for public servants. Rehabilitation of squatter families will also be the responsibility of the
public sector and for some socio-economic groups the government will provide core houses on self financed basis. To stimulate private investment in housing in district towns the government adopted the strategy of seed fund during the second plan period for development of small service plots for the lower income groups of people. This strategy is considered to be followed during the third plan period.

Residential Housing: Besides construction of 384 units of low-cost multi-storied flats in major cities, 1911 flats at upazila complex and 980 flats at new zila shahar, low-income housing and environment improvement project at Kaklakhal, Chittagong, low-income housing project at Mirpur, Dhaka, squatter settlement at Mirpur and Datta-para of Dhaka for about 5,000 families and provision of sites and services and sale of plots with seed money provided by the government is covered under the programmes for development of residential housing.

5.3.5 Fourth Five Year Plan (1991-1995)

In this period the main objective of housing policy is to provide acceptable living environment for all sections of the people in the long run. Separate policy guidelines are formulated for public and private sector.

Public Sector Policy:

(I) Public sector involvement should be limited to provision of housing only for those who cannot afford houses without direct government support.

(II) A National Housing Authority (NHA) should be formed to facilitate housing for the low and lower middle income group.

(III) Public and Semi-public agencies should concentrate on land development projects for middle and lower income groups.
(IV) Public sector should go for nucleus housing, skeletal housing and expandable housing to suit the varying degree of affordability of the people.

(V) Priorities should be given on slum upgradation and environmental improvement programmes for health and safety of the urban dwellers.

Private Sector Policies

(I) Government should develop necessary physical and financial facilities to promote private sector housing in both rural and urban areas.

(II) Semi-autonomous, autonomous and private corporate sectors should develop housing estates for their employees.

(III) Private developers should be allocated land at suitable locations for providing housing for the middle and upper income group.

(IV) Fiscal incentives and concessional investment credit should be extended to develop building material industries at suitable locations of the country.

5.4 Programs and Policies in Dhaka Metropolitan Area Integrated Urban Development Project

The Dhaka Metropolitan Area Integrated Urban Development Project was prepared and funded jointly by the Government of Bangladesh, Asian Development Bank (ADB) and the United Nations Development Program (UNDP). The Planning Commission, Government of Bangladesh, was allocated responsibility for implementation with ADB acting as the executive agency. The project commenced in September 1979. The inception report was submitted in October 1979. The interim report in April 1980 and the Draft Final Report in October 1980. Shankland Cox in partnership with local consultants prepared this structure plan.
5.4.1 Objectives:

Four objectives were formed for the strategy aiming to achieve by the year 2000. There were two assumptions: economic growth assumptions and population growth assumptions. In economic growth assumptions three economic projections were considered - a central projection, upper and lower projection.

There were nine options identified for the first stage evaluation.

In first stage evaluation three evaluation criteria were established relating to employment, resources and administration.

In first stage evaluation the three recommended alternative strategies were:

A. Extensive development of land immediately adjoining the city by providing comprehensive flood protection.

B. Continuous peripheral expansion of the city without flood protection.

C. Expansion of the city to the north and west on land which does not require comprehensive flood protection.

In second stage evaluation a more detailed set of evaluation criteria was drawn up. Criteria for second stage evaluations were costs, benefits, implementation and flexibility.

After detailed evaluation the recommended strategy was "Continual peripheral growth followed by northern expansion".

5.4.2 Description of the strategy

The combined peripheral growth with northern expansion strategy forms the basis of the recommendations for the long term planned growth of Dhaka.
In this context, the recommendation was that the government should adopt a strategy for the development of the metropolitan area, whereby the northern corridor between Tongi and Joydebpur become the principal channel for urban growth in the long term.

The following sections describe the way in which the metropolitan area should develop in accordance with the recommended strategy.

5.4.3 The Short term: 1980-85

In the short term it is expected that the current commitments and existing trends would continue. The government land development programmes would proceed.

The largely unplanned fast growing peripheral parts of the city is planned to undergo Area Improvement Plans, with the emphasis on the supply of basic needs within the framework of a clearly defined set of priorities. Similarly, old Dhaka, the historic urban core is designated for an area improvement plan with the aim of identifying redevelopment opportunities, slum upgrading and historical conservation schemes. During this period, government policies should be designed to promote the northern corridor as the location for as much as possible new industrial and commercial development. Industrial development would be permitted to continue in the short term in parts of the conurbation other than Tongi.

5.4.4 The medium term: 1985-90

In this period (1985-90) new industrial and residential infrastructure will be required around Tongi and in areas immediately to the north of Tongi. Residential development will take place further from the existing centres of employment.

If the required level of employment growth were not possible at the end of this 10 year period a "fall back" interim strategy would be required. It is suggested that this take the form of servicing further growth of the city around the periphery. The most
advantageous area for this would be in the areas of the DND triangle closest to Dhaka and Narayanganj.

5.4.5 The long term 1990-2000

Beyond 1990, it should be possible to accelerate development in the Tongi-Joydevpur corridor and also in Savar area.

Public investment would be concentrated on the creation of employment opportunities and supporting infrastructure rather than residential development, and this promotion and concentration would be directed to the Tongi-Joydevpur corridor rather than in and around Savar.

The development of Savar would not necessarily be restricted, but it would be required to be self-financing so that it would not compete for public resources and deflect the main emphasis of the strategy.

5.4.6 Recommendation for land and housing

It is recommended to introduce polices for the taxation of the development value of land and for the large scale acquisition of land by government well in advance of requirement.

A development levy is proposed payable on the implementation of planning permission granted for development. In addition, the capital gain tax should be properly enforced as a means of raising revenue from gains on property already developed. Advanced acquisition on special terms for the purposes of building up a land bank to meet the long term needs of urban growth is recommended. It should be emphasised that the establishment of a land bank would in no sense mean the nationalisation of land. It is temporary holding of land by a public agency to be eventually replanned in a rational manner and disposed off when ripe for development so as to secure a more equitable distribution in future.
A number of land development programs and policies have been adopted and implemented in Bangladesh. Some of these programs achieved the predicted goals but many others could not achieve the desired result. The DIT Master Plan for Dhaka (1958-60) is the first attempt for a planned land development and housing strategy for Dhaka. Although the plan was not substantially updated, it remains as the framework for development planning for DIT (Now RAJUK). After the independence of Bangladesh in 1971, Bangladesh Government formulated five-years plans for the planned development of the country. Housing and Land-development policies are incorporated in these five years plans. First five year plan of Bangladesh was prepared for the period of 1973-1978. In this plan period efforts and resources were directed towards the short term objectives. After the first five year plan a 2-year plan was formulated for the period of 1978-1980. The second and the third five year plans were formulated for the period of 1981-1985 and 1986-1990 respectively. Now the fourth five year plan is in progress. It is formulated for the period of 1991-1995. The Dhaka Metropolitan Area Integrated Urban Development Project (1979-1980) prepared jointly by the Government of Bangladesh, Asian Development Bank (ADB) and the United Nations Development Program (UNDP) is a structure plan which shows the strategy for future growth of Dhaka.
CHAPTER- 6

ROLE OF DIFFERENT INSTITUTIONS AND AGENCIES IN LAND DEVELOPMENT AND HOUSING PROGRAMS IN DHAKA.

6.1 Introduction

A number of institutions exist to guide and control the housing and land development works of Dhaka Metropolitan Area. Present housing and land development programmes of Dhaka are not sufficient for the overall demand of the city. There is acute scarcity of buildable land and resources for Dhaka, and there exists a lack of coordination among different agencies involved in this program. Some functions related to housing and land development are sometimes assigned to more than one agencies. In practice many of these functions are hardly performed at all and coordination among different agencies is often lacking. There is considerable overlap in streams of responsibilities among many of these agencies. The lack of proper coordination and integration of these agencies is one of the reasons for the growth of various socio-physical problems in the city.

6.2 Specific role of individual agencies

The institutional framework adopted for the housing and land development works of Dhaka Metropolitan Area presents the existence of a number of national, sectoral, local and special agencies. The role of these agencies are discussed below:

National agencies concerned about housing and land development are the National Economic Council (NEC) and the Planning Commission (PC). The National Economic Council takes decision on national economic planning including investment in the metropolitan areas. The Planning Commission advises the National Economic Council and receives submission from all development agencies throughout the country.
own internal organisation is on a sectoral basis with a physical planning and housing section (PP&H) which has national responsibilities. Special agencies created for undertaking development works of Dhaka and at the same time to provide essential services to the city are the Rajdhani Unnayan Kartripakha (RAJUK), the Dhaka Water and Sewerage Authority (DWASA), Dhaka Electric Supply (DES) etc. The RAJUK (erstwhile DIT: Dhaka Improvement Trust) was created in 1956 according to the Town Improvement Act of 1953 and since its inception the institution is responsible for the preparation and implementation of a master plan for Dhaka. Its implementation of the East Bengal Building Construction (EBBC) Act of 1952 which is framed for the prevention of haphazard construction of buildings, RAJUK is authorised to develop, improve and expand the city with major infrastructure and site development for housing, commercial and industrial use. Although it is supposed to undertake many general public works, in fact, RAJUK has concentrated on income generating operations such as middle and upper-income residential developments and commercial and industrial developments. During the last 15 years, 80% of the investments of RAJUK have been concentrated on such income generating activities.

The Dhaka WASA (DWASA) and the Dhaka Electric Supply (DES) are responsible to provide services within the Dhaka metropolitan area.

Local level agencies concerned with the planning and development of Dhaka Metropolitan Area (DMA) are, viz., the Dhaka Municipal Corporation (DMC), Tongi Paurashava (TP) and Narayangonj Paurashava (NP), the Zila and Upazila Parishads. The Paurashavas including the DMC have responsibilities for the provision and maintenance of civic or municipal services. The Paurashava Ordinance of 1977 empowers the Paurashavas to prepare master plan and the site development schemes, to draw up building bye-laws. But these functions have never been used by the municipal authorities in Bangladesh. Municipal administration, services and maintenance are generally the responsibility...
of Dhaka Municipal Corporation. It is empowered to provide a range of urban services such as public health and sanitation, maintenance of public infrastructure, water supply and independent of other development agencies it is also empowered to undertake town planning, building control and some development works.

The Dhaka Metropolitan Area (DMA) belongs to the District Administration and hence it comes within the purview of Zila and Upazila parishad's planning and development activities. Zila Parishad's main responsibility is the construction and maintenance of roads, culverts and administration of local authority. The rural part of DMA belongs to the jurisdiction of Upazila and hence comes within the planning and development of Upazila Parishads.

The Housing and Settlement Directorate (HSD) of the Ministry of Works has specified duties to prepare housing schemes for the general public and also to provide housing for the lower paid government employees and low income groups. The public Works Department (PWD) also under the Ministry of Works has responsibility for the construction of buildings for the government officers and government departments. Because of the relatively high standards of buildings provided by these two agencies and because most of their programs have been directed toward public employees, the programs of PWD & HSD are not relevant to the needs of the vast majority of the urban population. As compared with other implementing agencies, the PWD and the HSD have strong engineering staffs oriented toward project implementation, but they have little involvement in program planning. They lack the financial and economic skills for this purpose. The Deputy Commissioner of Settlement (DCS) is also under the Ministry of Works and discharges functions towards leasing and transferring title of government land to the allottees.

The Department of Public Health Engineering (DPHE) under the Ministry of Local
Government, Rural Development and Cooperatives works for water supply, drainage
and sanitation of the city. The Registrar of Cooperatives under the same ministry
provides registration to urban housing cooperatives including the DMA. The Deputy
Commissioner (DC) under the same ministry is responsible for administration and
coordination of development activities within the DMA. The DC is also chairman of
the land allocation committee and plays a crucial role in the planning and development
process of the DMA.

The Directorate of Environment and Pollution Control (DEPC) under the Ministry
of Environment and Forest is responsible for the control of air and water pollution
in the DMA. The Telegraph and Telephone Board (T&TB) under the Ministry of Post
and Tele-Communication provides the service of tele-communication in the metropolitan
area of Dhaka. Titas Gas (TG) belonging to the Ministry of Energy and Mineral Re-
sources supplies fuel gas for use in the metropolitan areas of Dhaka.

The Roads and Highways Department (R&HD) belonging to the Ministry of Communication
is responsible for the construction and improvement of highways, major roads, bridges,
and related works many of which are undertaken within Dhaka Metropolitan Area.
A number of institutions exist to guide and control the housing and land-development programs within Dhaka Metropolitan Area (DMA). National agencies concerned about housing and land-development are the National Economic Council (NEC) and the Planning Commission (PC). Special agencies created for undertaking development works of Dhaka are the Rajdhani Unnayan Katripakshaya (RAJUK), the Dhaka Water and Sewerage Authority (DWASA), Dhaka Electric Supply (DES) etc. Local level agencies concerned with the planning and development of Dhaka Metropolitan Area are the Dhaka Municipal Corporation (DMC), Tongi Paurashava (TP), the Zila and Upazila Parishads. The Housing and Settlement Directorate (HSD) and the Public Works Department (PWD) under the ministry of works are respectively responsible for the preparation of housing schemes for the general public and the construction of buildings for government officers and government departments. The Department of Public Health Engineering (DPHE) under the ministry of local Government, Rural Development and Co-operatives works for the water supply, drainage and sanitation of the city. The Directorate of Environment and Pollution Control (DEPC) under the Ministry of Environment and Forest is responsible for the control of air and water pollution in the DMA. The Telegraph and Telephone Board (TTB) under the Ministry of Post and Telecommunication provides the services of tele-communication in the Metropolis Dhaka. Titas Gas (TG) belonging to the Ministry of Energy and Mineral Resources supplies fuel gas for use in the metropolitan areas of Dhaka. The Roads and Highways Department (R&HD) under the Ministry of Communication is responsible for the construction and improvement of highways, major roads bridges and related works within Dhaka Metropolitan Area. The Deputy Commissioner (DC) is responsible for administration and co-ordination of development activities within the DMA.
Introduction

CHAPTER 7

LAND DEVELOPMENT FOR LOW-INCOME HOUSING IN DHAKA:

POLICY GUIDELINES, PLANNING PRINCIPLES AND RECOMMENDATIONS FOR

OF A TENTED, LEASEHOLD OR FREEHOLD OCCUPIANT UNDER HUMAN HABITABLE CONDITION.

THE MICROZONE SYSTEM TO HAMPER ON URBAN LAND (LAND TENURE/PROPERTY) AS A RENTAL.

POLICY FOR LOW-INCOME HOUSING AT DHAKA SHOULD BE TO PROVIDE EACH HOUSEHOLD WITH A STANDARD OF A HABITABLE CHILDREN'S ROOM AND IN EXTREMELY DISTRUSTFUL TACK. IN THIS REGARD WE VESTROKE THAT CUSTOMERS A PLACE OF RESTORATION LAND FOR EACH HOUSEHOLD OF THE

FOR HOUSING, THEREFORE, THERE IS NO WELL-ORGANIZED SYSTEM AND ARE IN SHORT SUPPLY AND THEIR PRICES ARE ALSO QUITE HIGH.

PUBLIC SECTOR LAND;

THESE ARE THE MANY OTHER REASONS WHICH HONOR THE

MISERATION AND A HIGH RATE OF NATURAL GROWTH.

AND THEIR OBLIQUE NUMBER AND PROPORTIONATE SIZE AS INCREASING ENOUGH.

AND THE UNRESISTED NUMBER AND PROPORTIONATE SIZE AS INCREASING ENOUGH.

OF THE CITY FOR THE GOVERNORSHIP OF THE LOW-INCOME PEOPLE. SO THE PROPOSED FOR RESIDENTIAL LAND IN EXTREME SHORT SUPPLY AT DHAKA, THERE ARE LITTLE LAND AVAILABLE IN THE DILAPIDATED HOUSING GROUP. MOST OF THE END-USE RULES AND BUILDING APPEARANCE FOR THE HIGHER APARTMENTS. FOR THE LARGER APARTMENTS AND DWELLING DEVELOPERS OF DHAKA ARE BUYING LAND OCCUPIED BY QUARTERS AND THEM DEVELOPERS CAN DEVELOP HOUSING GROUPS AND REPLACEMENT HOUSING FOR HOUSING, CAREFUL DEVELOPMENTS ARE GRADUALLY REPLACING THEIR RESIDENCES. THE REAL ESTATE DEPARTMENT PLACES ARE CONTINUOUSLY BEING THREATENED FOR OCCUPATION, CONSUMER-

COMMUNITY LIFES ARE STILL OBTAINING OR IN SHORT SUPPLY IN AREAS OCCUPIED BY THEM. THE COMMUNITY LIFES ARE STILL OBTAINING OR IN SHORT SUPPLY IN AREAS OCCUPIED BY THEM. THE DIFFERENT PARTS OF THE CITY, DUE TO HIGH POPULATION DENSITY AND OVER-CROWDING.
7.1.2. Guidelines and planning principles for land-development

Considering the objective of providing each household the minimum right to stay on urban land, the guidelines and planning principles for land development are formulated on the basis of land development programs and policies of different South Asian countries in accordance with the 3rd and 4th five year plan (proposals concerning housing) of Bangladesh. The following generalised policy guidelines and planning principles are put forward as an introduction to the land development policy for low-income housing at Dhaka.

Utilization of community resources by preserving existing infrastructure and preventing unnecessary destruction.

1) Preserving the present housing stock is of utmost importance. No matter how bad the slum settlements may appear compared to standard housing areas, they are none the less a living shelter for the urban poor, and in fact serve as a vital and important function in the urbanization process. Experts now believe that housing stock even in slum and squatter areas must be preserved. Clearance is appropriate where slum areas occupy essential land of a city or when it becomes very much hazardous to the life of the city's residents.

2) Maximum emphasis should be given to utilization of community and individual resources employing labour intensive techniques and direct participation of the low-income people in the development process.

3) Maximum use should be made of the existing social and physical structures, avoiding wastage and replacement cost.

4) Every available opportunity for infill and utilization of inappropriate land should be taken into consideration in order to absorb additional population into the existing urban areas.

Ensuring land-tenureship right

For the low-income households land tenure is a critical issue. Land tenure is not a simple entity. It is a collection of different rights. The variety of rights can be divided into rights of use, rights of development, rights
This land development program for low-income housing must be done with

the increase of the resources on each family.

the recovery of the cost of urban services should be improved by matching

The recovery of the cost of urban services should be kept at minimum level so that it is affordable

Household standards should be kept on responsibility of the land development program

Responsibility of the land development program to meet their minimum requirements at suitable locations

Reasonable fees to meet their minimum requirements at suitable locations

households the opportunity to purchase, rent or lease a dwelling unit at

case, the prime objective of a land policy should be to provide every
the essential concerns of each party are properly met, but whatever may be

more substantially communities, government, or commercial agencies so that

to determine arrangements should be done by discussion with the key partners concerned

the land and community ownership, short term leases of land and mortgaged, cooperatives

to very many among the broad tenant, long term leases, short term leases, two fixed

of transfer, titles of lease or rental, interests of mortgagee etc. These rights
5) Priorities should be given on developing infrastructure and other services which can be upgraded over time. For resource constraints, it is not possible for the Government to provide all services at a time. It is wise to install services gradually once a community is formed.

Co-operative and integrated land development schemes

1) Emphasis should be given on cooperative land development schemes. Groups of low-income people can be organized to settle on a piece of land to develop a planned settlement. A two tiered tenure system can be introduced where individuals own the improvements on the land and the community owns the land itself. When houses are sold, the land is sold back to the community which can then sell it to the new buyers at a higher price. Credit can be obtained for such settlements using the communal land and the legal status of the cooperative to obtain access to loans.

2) Policies for integrating popular settlements into larger-scale redevelopment schemes should be adopted. Popular settlements in areas with commercial development potential can benefit from participation in redevelopment through the sharing of development gains. The land in the redevelopment scheme can be apportioned between the original settlers on the one hand and the commercial and public interest on the other, accommodating all of them in the scheme.

Other policy guidelines

1) Policies and programs should be of such nature that they may have a control over informal land development and land subdivisions. Informal private sector land subdivision often results in missed opportunities creating undesirable development. Regulations and incentives should be introduced to guide development into areas which are scheduled for urban expansion.

2) The total duty of land development should be borne by a single organization. At the same time different parts and phases of development work may be done by different government, semi-government, private and non-government organizations.

3) The money needed for this land development program should be provided from government fund and from funds of different donor organizations like World Bank, Asian Development Bank, UNDP, UNICEF, USAID etc.
4) All the low-income people of Metropolitan Dhaka should be brought under this development scheme step by step. This programme should first be limited within Dhaka Municipal Corporation area, later on it should expanded to greater Dhaka Metropolitan Area.

7.2 Description of the Policy:

With the objective of ensuring each low-income household of Dhaka the minimum right to stay on urban land, the short term, medium term and long term strategies are formulated accordingly.

7.2.1 The Short term (1991-1995)

1) In the short term period the squatters and slums of the city centre will be rehabilitated. The slums and squatters of Lalbag, Nawabpur, Sutrapur, Kotwali, Mohammadpur and Banasandh will be under the short term development.

2) First task will be to divide the low-income housing of this area into authorized (slums) and unauthorized (squatters) groups.

3) Resettlement program for the squatters and upgrading programs for the slums should be adopted. Arrangements should be done to provide better infrastructures, services and amenities for these people. The responsibility for providing physical infrastructure and service facilities will be upon Dhaka Municipal Corporation, LCORDE, Dhaka WASA, Power Development Board, Public Health Engineering Department, Titas Gas and T & T Board.

Resettlement Policy

1) The families squatting on unauthorized land can't be rehabilitated in the existing site, they should be rehabilitated in different areas of khas land, disused land, abandoned property and acquired land of the Government.

2) Since the squatter families are living near the city centre, they should be rehabilitated near their places of employment. The possible sites for their rehabilitation will be Kamrangirchar, Keraniganj, Jlingira, Nawabgang etc.

3) The Government will have to acquire land at these places to develop housing settlements for these people.

4) Multi-storied walk-up blocks with kitchenette and attached toilet facilities should be provided. The responsibility for providing the services will be upon DWASA, Dhaka Electric Supply, DPHRE, T&W, Titas Gas etc.

5) The families should make a down-payment and repay the rest of the land development cost through monthly instalments.
The government should provide loan through government and private housing.

Most of these buildings should be replaced by high-rise residential blocks.

The development policy in most suitable for this area. Basic policies in this area.

Some of the houses have low-income, the main characteristic of this area is higher.

There are also old buildings in the inner-city of Dhaka. Many of the houses

Revised Policy

This development process through direct participation.

The owners of the houses will make a down payment, and the rest of the money they

Affordability of the homes.

| (d) Minimum standard to bring down the cost in order to keep it within the |
| (e) Minimum disbursement of tenants. |
| (f) Maximum cap's participation. |
| (g) Maximum percentage of cost sharing. |

Basic policies in this upgrading program should be:

4) Per capita investment is lower in upgrading.

5) From the vicinity.

6) To the dwellers upgrading is acceptable because they are not pushed away.

7) To the owners upgrading is more affordable.

8) For less cost and less disruption.

These statements are legal. Upgrading will be more acceptable to the owners.

Upgrading policy is more viable for this area - because

built these houses for rental purpose.

Many of the houses are located from the ground.

Very high population density, over room cooking and family building structure.

Amidst, surround upgrading scheme is more viable. Some of the stairs are structured.

For the particularly, sending some of the area nearby Shahdorager, Katnabag, Jetelbari,
(iii) Direct participation of government agencies will be required at some instances where the government agencies will build some housing blocks and will own a portion of those buildings.

(iv) Private developers should be encouraged to take part in this redevelopment scheme.

7.2.2 The Medium term (1995-2000)

(i) In this period the policy will be to rehabilitate low-income people at fringe areas of Dhaka Municipal Corporation.

(ii) Land-sharing policy should be adopted for the squatters to regularise a portion of the low-income housing.

(iii) Application of land-readjustment technique is suitable for ensuring supply of land at fringe areas of Dhaka. It is not possible for government agencies to acquire all fringe lands of the city. So it will be wise to adopt land readjustment policy in this area. The government will acquire some land at fringe area for some time. It will align new roads and provide services and infrastructure facilities. As a compensation for the value addition of the lands in this area, government will expropriate a portion of land from the land owners and will return the rest back to the owners. The land so achieved should be used for low-income housing development.

(iv) The private developers should be compelled to build at least 20% of their housing units for the low-income group at fringe areas of Dhaka at a subsidized rate.

7.2.3 The Long term (2000-2010)

(i) In this period the policy will be to rehabilitate the low-income people on the outskirts of Dhaka namely Tongi and Narayanganj.

(ii) The low-income people may be rehabilitated around industrial locations at those areas where they will get job facility.

(iii) Nuclear housing should be provided keeping provision for individual toilet, kitchen and water connection.

(iv) The households should be rehabilitated in some large settlements having facilities for play-ground, schools and community activities.
(v) Households will make down-payment and later on they will pay monthly instalment.

(vi) Responsibility for land acquisition will be on National Housing Authority. Other organisations like PWD, LGRDB, DWASA, Dhaka Electric supply, Titus Gas, DPHE etc. will provide other facilities.

7.1 Role of public sector and private sector agencies in the land development program for low-income housing at Dhaka.

Public sector will contribute maximum for the land development of the low income people of Dhaka. Public sector has the capability to bear the large amount of cost that would be involved in the land development program for housing the low-income people.

7.3.1 The role of public sector agencies in the land development program for low-income housing at Dhaka are described below.

(i) Public sector agencies will make provision for land and infrastructure for the low-income group which these people can't easily provide for themselves.

(ii) The public sector will provide land to the low-income people at prices lower than the market level through cross subsidization for this purpose.

(iii) Public and semi-public agencies should concentrate on land development through direct construction of multi-storied residential blocks for their low-earning employees.

(iv) In view of limited resources public sector may go for core houses, skeletal-houses or expandable houses for the low-income group in areas at commuting distance from the city centre.

(v) Public sector will undertake slum-upgradation and environmental improvement programmes for slum areas. Public sector will also rehabilitate squatter dwellers in different planned settlements.

7.3.2 Private Sector Policies:

Private sector supplies almost 93% of the housing stock. If any meaningful impact is to be made on housing delivery, private sector needs to be encouraged through appropriate credit, fiscal and financial policies.
These policies may comprise:

(i) Government should create conditions for the low-income people to build their own houses. This will indirectly facilitate mobilisation of resources in the private sector for housing. Keeping this in view, necessary physical and financial facilities will have to be created by the Government to promote private sector housing for the low-income people.

(ii) Semi-autonomous, autonomous and private corporate sector should develop land in suitable locations for establishment of housing settlements for their low-income employees. The serviced plots should be allotted to their employees so that they can build their houses with house rent allowance, general provident fund and concessional loans.

(iii) The Government should enact rules to compel private developers and cooperatives to develop at least 20% of their housing units for the low-income people at a subsidized price.

(iv) Individual households must take part in upgrading programmes, through self-help and direct participation. It sites and services schemes and core housing program, households should construct their houses through direct participation.

(v) Private contractors and developers should be given the responsibility for construction of multi-storeyed residential buildings for the low-income families.

7.4 Policies for land cost, land acquisition and speculation.

Urban land cost is conditioned by the availability of an accessible land supply, the use to which the land is put and the efficiency of acquisition procedures. Both the land problem and land cost are linked to (a) the expansibility of the land supply at the periphery, (b) the adequate utilization of raw land or under-utilized land within the city, (c) the linkage of land supply to transportation and to work location, and (d) the proper use and development of sites for housing the people for whom the pressure is greatest.

Land cost, moreover, is an important item in the housing of the lowest income group to whom all costs, however small, are a burden. Run way increases in
land cost can be controlled in a number of ways. The measures to control land cost are described below.

(i) Taxation is an important instrument to control land cost. There is presently no tax on raw land, as exists in the United States but not in the British Commonwealth. A tax on land value as assessed would hold down the land costs without eliminating the owner's profit, force more land into use and give the Government revenues. The tax could take the form of an annual levy on its capital value.

(ii) There should be tax holidays for low-rent housing.

(iii) Zoning is another device which can be employed not only to curb speculative increases in value, but to regulate the rational development of land in the city. Unless zoning laws are enacted, haphazard growth is inevitable. Zoning includes regulation of use, height, coverage and open space and govern density and set-back requirements.

(iv) One of the problems confronting Bangladesh is the condition of Compulsory Acquisition Laws. Many items of this law can be retained, but some parts are confusing and some are contradictory. Irrespective of whether the purpose is an emergency one or otherwise, the public authority should be authorized to take possession without waiting for the award to be determined.

(v) Advance acquisition of land on special terms for the purposes of building up a land bank to meet the long term needs of urban growth is recommended. Establishment of a land bank does not mean the nationalisation of land. It is temporary holding of land by a public agency to be eventually replanned in a rational manner and disposed off when ripe for development so as to secure a more equitable distribution in future.

(vi) Land sharing and land readjustment techniques should be adopted for accommodating the poor in the fringe areas.

7.5 Administrative and legislative policies.

In Bangladesh there is considerable overlapping of duties among agencies who are responsible for land development and housing. In the whole country there lacks an agency whose job is to make building plots available for low-income
housing. There is no authority in Bangladesh whose task is to initiate, finance, and execute low-income housing schemes. Loan financing of lower and middle income housing is at present negligible.

For ease of land development program for low-income housing at Dhaka the following administrative policies should be taken.

(i) **National Physical Planning and Housing Council.**

A National Physical Planning and Housing Council may be set up at the highest national level to lay down policies on physical planning and housing for both urban and rural areas of the country.

(ii) **National Housing Authority**

Intervention of the public sector will be necessary to provide housing to the weaker segments of the community through cross-subsidization. For this purpose Housing and Settlement Directorate should be converted into a National Housing Authority (NHA) which will operate as an autonomous organization. NHA will mobilise both local and foreign aided funds for housing the low and middle income group of people on a commercial basis, preferably in competition with similar private sector organizations. The role of National Housing Authority should be limited to the essential needs of the lowest income groups. The responsibility of the housing authority should include the following:

(a) Make building plots available for low-income housing.
(b) Initiate, finance and administer low-income housing schemes.
(c) Provide and service for low-income housing.
(d) Administer housing estates.
(e) Plan, zone, control, and execute housing and ancillary works.

(iii) Reform in land administration should be introduced in order to increase the supply of land for development, to reduce acquisition costs and to recoup the unearned increment in land values.

(iv) Government should impose statutory restrictions on the size of private residential buildings and the use of precious imported materials. Alternatively graduated tax schedules should be imposed to discourage luxurious practices. Proceeds from such taxes should be used to effect costs of land development schemes for the poor.
(v) Administrative procedures for land registration, and records, transfer and exchange etc. should be modernised. The system of land records should be made fool-proof so that interpolation through lower functionaries become difficult, if not impossible. Fake claims of land should be severely punished through introduction of new laws.

(vi) There should be a ceiling on urban land ownership. Gradually ownership mode may be changed. More of cooperative ownership may be encouraged in the future.

7.6 Financial policies.

House construction in Bangladesh is undertaken either by cash outlay, construction in stages, or by government operations directly. The bulk of the housing is built without mortgage funds. There are no financing agencies in the country to help low-income housing. Bangladesh has not developed any practical formula for financing house building for the low-income people. In the absence of such financing mechanisms, most families must have the total cost of a house in hand before starting to build. Only the rich with liquid funds can afford and pay for a good house. The poorer classes must live under unsatisfactory conditions for years, before they have accumulated necessary funds to build the core of a house or to complete it. To meet the need for mortgage money, the Government has set up (in 1952, by the then Pakistan Government) the Government House Building Finance Corporation with three regional offices in Dhaka, Chittagong, and Rajshahi. The Corporation has been giving loans up to 80% of the estimate house value at 13% interest rate for single unit and at 10% interest rate for multistoried residential buildings. The maximum loan period is 25 years with repayments made in monthly instalments. Application for a loan must be accompanied by proof of sufficient income, by a plan approved by the competent local authority, an architect's or an engineer's estimate of the total cost of construction and proof of title. Although this represents a sincere effort to meet a pressing need, it has met housing needs only fractionally, and has failed to meet the requirements of the low and lowest income groups completely.

In view of the above discussion, the following policies for financing land
development for low-income housing should be adopted.

(i) Creation of new private sector housing finance institution.

(ii) Reconstitution of House Building Finance Corporation (HBFC)

(iii) Creation of a housing bank for the poor.

The following considerations should be adopted in this connection.

(a) The low-income families can not pay the going interest rates on a self-supporting basis. Interest rates would have to be considerably lower than 7%.

(b) Pay back period of loans should be longer (30/40 years).

(c) Many special arrangements have to be made with squatters and other low income families having special problems.

(d) Loans to poor families with very low incomes will require special arrangements. For the poor families it is difficult to make a down payment. So they will deposit money in monthly instalments in the housing bank for the poor. After 2 or 3 years of deposition of money, when the down payment amount is reached, they should be allotted loan for buying of plots or dwelling units. These families will have to pay the monthly instalments of this loan for the next 30/40 years.

(e) The private sector housing finance institution will provide loans for redevelopment projects and for construction of multistoried residential buildings for the low-income group.

(f) Government will mobilise fund for these financing institutions from International Donor Organizations like ADB, USAID, World Bank, IMF etc.

(g) Default in loan payments should be strictly enforced. If the general feeling is established that such loans are dealt leniently, defaults may become general and the loans be viewed as gifts. Again, if rent collections break down, capital should be unavailable for other housing.
7.7. **Summary**

Considering the objective of providing each low-income household the minimum right to stay on urban land, the guidelines, planning principles and recommendations for land development are formulated in accordance with the 3rd and 4th five-year plan (proposals concerning housing and land development) on the basis of experience gathered from the land development programs of different South and South East Asia countries. In the generalised policy guidelines emphasis is given on preserving the land tenure rights, preserving the existing housing stocks, replicability of land development projects, lowering of housing standards, optimum use of resources and co-operative land development schemes. The policy is formulated for short, medium and long term period. In the short term period (1991-1995) the policy is to rehabilitate the slums and squatters of the city centre. In the medium term period (1996-2000) the policy is to rehabilitate the low income people in fringe areas of Dhaka. In the long term period (2001-2010) the policy is to rehabilitate the low income people on the outskirts of Dhaka namely Tongi and Narayanganj. In policies for land cost, land acquisition and speculation emphasis is given on adopting the techniques of Taxation of Land, Zoning, Land Banking, Land Sharing and Land Pooling. Regarding administrative and legislative policies it is recommended for the creation of a National Physical Planning and Housing Council and a National Housing Authority at National level. Suggestions are made for reform in land administration, land registration, records and transfer. Regarding financial policies it is suggested for the creation of a private sector housing finance institution and a housing bank for the poor.
APPENDICES
LAND AND INFRASTRUCTURE COST IN AND AROUND DHAKA CITY

Land price in and around Dhaka

Beyond Maghbazar to T.V. station at Rampura 20 - 22 lacs/acre
At Basundhara Development Scheme of Baridhara 10 - 12 lacs/acre
At Mirpur (Beside Botanical Garden) 10 - 12 lacs/acre
At Kamrangir Char 8 - 10 lacs/acre

Earth filling cost

4 Taka / cft.
For filling of 7 acres land of 15' depth 6.5 lacs cft of earth will be required.

Infrastructure cost

Herring bone bond road
20 - 22 Taka / sft.

Gas connection cost

1½", gas pipe line
100 Taka per running ft.

Water connection cost

1½" water pipe line
60 Taka per running ft.
Water pump
20,000 Taka per pump.

Sewer connection cost

Cost per inspection pit = 1,000 Taka
Price per running ft. of 9" sewer pipe = 40 Taka.

Electric connection and street lighting cost
6,000 Taka per electric post.

Electric wiring (exterior) 10 Taka per running ft.

APPENDIX - 2

APPROXIMATE URBAN FRINGE AREA OF DHAKA CITY

Figure No. 5

Figure No. 6

Possible location of areas for rehabilitating the squatters of Dhaka

Possibly the locations shown provide rehabilitation areas for squatters.
LAND DEVELOPMENT PROPOSALS

In making provision for land and housing for the low-income people in case of acquired land, we can go for two alternative solutions—(1) low-rise construction (one-storied tin shed), (2) Multi-storied walk-ups (seven/eight storied). We shall have to compare the merits and demerits of these two proposals and shall have to suggest one.

For the income group of Tk. 800-1600, their maximum expenditure capability per month for housing is about 320 taka. If we consider that the Government will provide them built-up housing through long term loan, the monthly instalment should not exceed 320 taka per month.

PROPOSAL - I : (Tin Shed)

For this group if we provide a room of 8' x 10' with an attached toilet of 3' x 4' size and a kitchenette of the same size, it is possible to arrange about 150 dwelling units (one storded tin shed blocks) in one acre of land.

Cost of low-lying land at fringe areas of Dhaka (Information received from different housing developers of Dhaka)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of low-lying land at fringe areas of Dhaka</td>
<td>8 - 10 lacs/acre</td>
</tr>
<tr>
<td>In-fill cost (considering 15' earth filling)</td>
<td>25 lacs/acre</td>
</tr>
<tr>
<td>Internal road construction cost</td>
<td>1.5 lacs/acre</td>
</tr>
<tr>
<td>(20 taka per sft of Herring bone bond)</td>
<td></td>
</tr>
<tr>
<td>700 x 10 x 20 = 140,000 sq ft approx:</td>
<td>1.5 lacs/acre</td>
</tr>
<tr>
<td>Cost of electric connection &amp; street lighting</td>
<td>1.5 lacs/acre</td>
</tr>
<tr>
<td>Cost of gas connection</td>
<td>1 lacs/acre</td>
</tr>
<tr>
<td>Cost of Water connection</td>
<td>0.5 lacs/acre</td>
</tr>
<tr>
<td>Cost of sewer connection</td>
<td>0.5 lacs/acre</td>
</tr>
<tr>
<td><strong>Total cost</strong></td>
<td>40 lacs/acre</td>
</tr>
</tbody>
</table>
Land and infrastructure cost per dwelling unit

- $40,000,00$

\[ \text{\scriptsize \text{\hspace{1cm} Taka}} \]

\[ \text{\scriptsize \text{\hspace{1cm} 150}} \]

\[ \text{\scriptsize \text{\hspace{1cm} Taka}} \]

26,666 Taka

Area of one dwelling unit

\[ = (8' \times 10' + 24) \text{ sq. ft.} \]

\[ = 80 + 24 = 104 \text{ sq. ft.} \]

Construction cost per dwelling unit = \(104 \times 300 = 31,200 \text{ Taka} \)

(300 Tk, per sq. ft.)

Total cost per dwelling unit = \(31,200 + 26,666 = 57,866 \text{ Taka} \)

For the low-income families it is very hard to take loan at the existing bank interest rate and it is also difficult for them to return the borrowed amount within the scheduled short period. To make the project viable for the low-income families, the pay back period should be longer and interest rate for loan should be lower. For this project we have considered the pay back period to be 35 years and the bank interest rate to be 4% per annum. Shorter pay back period and a higher bank interest rate will lead this project beyond the affordable limit of the low-income group.

Considering a pay-back period of 35 years,

Capital payment per year = 1610 Taka

Interest (4% per annum) payment per year = 2240 Taka

Total payment per year = 3850 Taka

Installment per month = 320 Taka
**PROPOSAL - II (Multi-storied Residential Housing Blocks):**

If we go for 7-storied walk-up buildings we can accommodate about 900 dwelling units per acre. In this case total infrastructure and construction cost is higher than one-storied structure.

We have the following calculations for 7-storied walk-up housing blocks:

<table>
<thead>
<tr>
<th>Calculation</th>
<th>Cost per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land cost (low-lying land at fringe areas of Dhaka)</td>
<td>8 - 10 lacs/acre</td>
</tr>
<tr>
<td>In-fill cost (15' earth filling)</td>
<td>25 lacs/acre</td>
</tr>
<tr>
<td>Internal road construction cost</td>
<td>1.5 lacs/acre</td>
</tr>
<tr>
<td>Cost of electric connection and street lighting</td>
<td>1.5 lacs/acre</td>
</tr>
<tr>
<td>Cost of water connection</td>
<td>1.5 lacs/acre</td>
</tr>
<tr>
<td>Cost of gas connection</td>
<td>2 lacs/acre</td>
</tr>
<tr>
<td>Cost of sewer connection</td>
<td>1 lacs/acre</td>
</tr>
<tr>
<td><strong>Total Cost</strong></td>
<td>42 lacs/acre</td>
</tr>
</tbody>
</table>

Land and infrastructure cost per dwelling unit = \( \frac{42,000}{900} \) = 4,666 Taka

Per unit construction cost = 525x104 = 52,000 Taka

Total cost per dwelling unit = 57,666 Taka

Considering a payback period of 35 years, yearly capital payment = 1,595 Taka

Annual interest (4% per annum) payment = 2,215 Taka

Total payment per year = 3,840 Taka

Installment per month = 319 Taka
Comparison:

It is seen that monthly instalment money is more or less same in both cases. Yet the multi-storied housing scheme has some specific advantages over one-storied tin-shed housing scheme.

The following points are in favour of multi-storied housing scheme.

(i) Building is permanent (100 year life)  
   (life of tin shed is 25 years),

(ii) There is adequate open space in between building blocks.

(iii) Good density is achieved (900 units/acre)

(iv) Saving of valuable land

(v) Saving of infrastructure cost per dwelling unit.

So multi-storied residential development is suggested.

PROPOSAL - III:

Methodology for redevelopment scheme for  
Inner Dhaka tenement slum areas. (Case study of Tanti-bazar)

At inner Dhaka tenement slum areas, land price is very high and buildings are crowded, congested and they are in a dilapidated condition. Urban redevelopment is most suitable for this area.

For this purpose, 7 housing plots at Tanti-bazar road are chosen. Here in about 0.5 acre of land 42 families live in over-crowded condition. On the frontage of these buildings at road side, there are shops of various types.
It will be wise to demolish these buildings to construct high-rise buildings. First three floors may be used for shopping purpose and the upper 15 floors should be used as residential blocks. For widening of the road 5' wide patch of land will be set aside.

In the schematic diagram it is shown that it is possible to construct a shopping centre having at least 150 shops in this piece of land. In the high-rise residential block it is possible to accommodate 450 rooms of 10'x12' size with attached toilet and kitchenette. By selling of the shops a good proportion of construction cost may be realised. Moreover after accommodating 42 families, there will be enough rooms to sell to individual buyers. So it is seen that the redevelopment scheme is self supporting.

PROPOSAL - IV:

Methodology and standards for upgrading of the privately owned slums:

Upgrading principle is most suitable for the privately owned slums because it is acceptable to both the dwellers and owners for less cost and less disruption. In upgrading scheme the inhabitants are not removed from their places of residing. Components and standards for this upgrading program are described below.

Components for upgrading program

(i) Improving footpaths (ii) improving vehicle roads linked to the urban network (iii) construction of drains (iv) installing piped sewerage lines under footpaths (v) extension of the city water supply system permitting individual connections (vi) construction of latrines (vii) providing garbage disposal (viii) health and education facilities.
In designing the improved infrastructure facilities, the following criteria should be followed:

- Low cost
- Social acceptability
- Simple technology
- Maximum possible people’s participation
- Extension of main urban infrastructure.

The selection of the infrastructure components are made on the basis of the above criteria.

1) **Roads**

The possible options are:

- Concrete/bituminous roads/walkways.
- Herring bone bonded brick roads/walkways laid over brick flat soling
- Simple brick flat soling road/walkways

While the first option is very costly, the third one has very low serviceability. The second one is acceptable to effect low cost and reasonable serviceability.

2) **Water Supply**

Possible options are:

- Piped water extension from the existing city main
- Hand operated tube well
- Water vendor

These slums are situated within reasonable distance from the city water supply network. This advantage, together with the assured quality of water leads us to choose the first option.

3) **Drainage**

Options for drainage are:

- Underground drainage system connected to the existing city drainage system.
- Covered drains along both sides of wider main roads
- Open drains
- Drainage by reinforced cement concrete (RCC) pipes
The first option is expensive and disruptive to the existing structures.

The third one allows unauthorised human waste and refuse disposal. The fourth one is functionally not good. The solution with a brick lined drain along both sides of the wider roads covered with RCC top to allow greater width of the road is suitable. It is functionally good and comparatively less expensive.

4) Solid Waste Disposal

Here options are limited. The following two options are seen as feasible:

- Dumping the refuse into the nearby ditch
- Throwing the refuse into containers installed by municipality.

The first option is unacceptable because of health hazards. Consequently, the second option should be chosen.

5) Human Waste Disposal

The following are the available options:

- Water-borne sewage
- Septic tanks
- Pour-flush water-seal latrines
- Manually cleaned bucket privies
- Improvised toilets discharging directly into the river.

The first two solutions are expensive. The last two are unhygienic, causing environmental pollution and health hazards. Pour-flush latrines, found suitable in Bangladesh and India, are less expensive, easy to construct even at individual household level and allow simple maintenance. Hence this solution is acceptable.

6) Electricity and Gas Supply

In the cases of electricity and gas supply, practically, there is no alternative to taking connections from the existing network.
PROPOSED HOUSING DEVELOPMENT (7 STORIED WALKUP BLOCKS)
ROOM SIZE 10'x16' WITH ATTACHED TOILET & KITCHENETTE
900 DWELLING UNITS PER ACRE
PROPOSED HOUSING DEVELOPMENT (7 STORIED WALKUP BLOCKS)
ROOM SIZE 6'X12' WITH ATTACHED TOILET AND KITCHENITHE
900 DWELLING UNITS PER ACRE
GROUND FLOOR PLAN OF EXISTING BUILDINGS (AT PLOT NO 23-29 OF TANTIBAZAR LANE)
PROPOSED REDEVELOPMENT SCHEME

GROUND FLOOR & FIRST FLOOR LEVEL (SHOPPING CENTRE)

TOTAL NO. OF SHOPS = 62X2 = 124
PROPOSED REDEVELOPMENT SCHEME

2ND TO 15TH FLOOR LEVEL (HOUSING BLOCK)

TOTAL ACCOMODATION: 430 ROOMS OF 10' X 12' SIZE WITH ATTACHED TOILET & KITCHENETTE

SCALE: 1/100
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