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Housing for the lower income people of Dhaka, Bangladesh: a peri-urban development approach

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This thesis is submitted in fulfilment of the requirements for the Degree of Doctor of Philosophy

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ABSTRACT

The city of Dhaka has grown from a population of half a million to four million in 30 years. As the housing supply has failed to keep abreast of this growth, there is now serious overcrowding in a rapidly deteriorating housing stock. The topography of the city, being surrounded by low lying land liable to flooding, is a serious constraint to growth. The lower income group has been increasingly forced to occupy peripheral, often low-lying land.

This thesis examines the housing conditions of the lower income people to be found in peri urban areas of Dhaka; a survey has been carried out of 424 households in three areas of Mirpur, Hazaribag and Jurain and then analyzed with computer. Through an analysis of the current housing stock and the socio-economic characteristics of the inhabitants, the affordability of future housing options is assessed, with respect to the requirements of reclaiming land liable to flooding and the current speculation in land suitable for development purposes; the response of the dwellers is also examined to ensure their participation in the incremental developments of their units.

In dealing with the future development strategies, the techniques of land reclamation have been analyzed and proposals made for guiding land developments. Following the cost analysis of land recovery potentials aiming to provide land for the lower income population, alternatives are proposed; with a view to make finance available to ordinary households to enable them to increase their housing stock without exerting unbearable stress on the country's economy, other alternatives are suggested.

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Glossary of Terms

BBS

Bangladesh Bureau of Statistics. The statistical system of Bangladesh is centralised mostly in the Bangladesh Bureau of Statistics (BBS). The broad function of BBS is to collect, compile, analyse and publish statistics of all sectors of the economy to meet the needs of development planning, research, policy and decision making.

Bigha

A unit for the mesurement of area used locally. 1 'Bigha' comprises 20 'kathas' and is equivalent to 14,400 sq. ft. approximately. 3.02 'Bighas' make 1 acre.

Other typical Bangladeshi units used in this research are:

1 'maund' (a weighing unit) = 82.285 lbs. = 37.324 kg.
1 'lac' (or 'lakh') = 0.1 million.
1 'crore' = 10 millions.

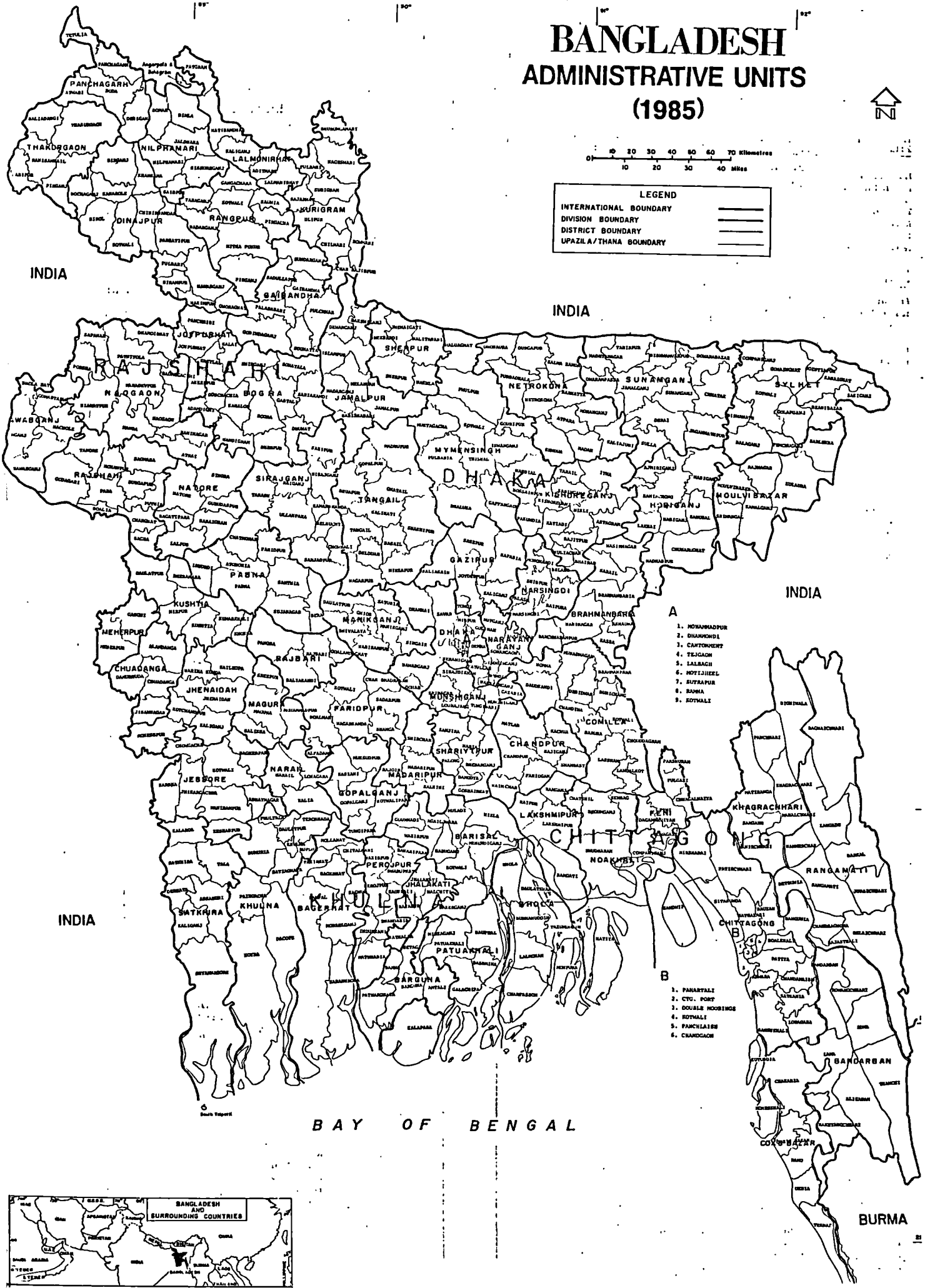
Taka

Taka (or Tk. in short), is the currency of Bangladesh which was officially changed from 'Rupee' (currency of Pakistan) after the liberation of the country in 1971.

The official rate of exchange is determined daily by the Bangladesh Bank on the basis of "basket of foreign currencies". For the home remittance special rates known as I.P. (Import Permit) rate exists, which is based on the rate obtaining at local auction. In relation to the pound sterling, the external values of Taka was fixed to Tk. 50/00 = 1/00 pound sterling approximately in 1986.

Note:

The English spelling of the capital city was changes officially from Dacca to Dhaka in 1983. In this thesis the spelling appears as Dacca in the quotes and references prior to 1983.


BANGLADESH
ADMINISTRATIVE UNITS
(1985)
LEGEND
INTERNATIONAL BOUNDARY
DIVISION BOUNDARY
DISTRICT BOUNDARY
UPAZILA/THANA BOUNDARY
INDIA
INDIA
INDIA
INDIA
BURMA
BAY OF BENGAL
RAJSHAHI
DHAKA
KHULNA
CHITTAGONG
SYLHET
PANCHAGARH
THAKURGAON
NILPHAMARI
LALMONIRHAT
KURIGRAM
DINAJPUR
RANGPUR
GAIBANDHA
JOYPURHAT
SHERPUR
NETROKONA
SUNAMGANJ
NAOGAON
BOGRA
JAMALPUR
MYMENSINGH
SIRAJGANJ
NATORE
PABNA
TANGAIL
GAZIPUR
NARSINGDI
KISHOREGANJ
HABIGANJ
MOULVIBAZAR
KUSHTIA
MEHERPUR
CHUADANGA
JHENAIDAH
MAGURA
RAJBARI
MANIKGANJ
FARIDPUR
MUNSHIGANJ
NARAYAN GANJ
COMILLA
CHANDPUR
SHARIYTPUR
MADARIPUR
NARAIL
JESSORE
GOPALGANJ
LAKSHMIPUR
FENI
KHAGRACHHARI
BARISAL
NOAKHALI
RANGAMATI
PEROJPUR
JHALAKATI
SATKHIRA
KHULNA
BAGERHAT
BARGUNA
PATUAKHALI
BHOLA
CHITTAGONG
BANDARBAN
COX'S BAZAR
A
1. MOHAMMADPUR
2. DHANMONDI
3. CANTONMENT
4. TEJGAON
5. LALBAGH
6. MOTIJHEEL
7. SUTRAPUR
8. RAMNA
9. KOTWALI
B
1. PAHARTALI
2. CTG. PORT
3. DOUBLE MOORINGS
4. KOTWALI
5. PANCHLAISH
6. CHANDGAON
BANGLADESH AND SURROUNDING COUNTRIES

CHAPTER ONE

INTRODUCTION

Like many other cities of the developing countries, Bangladesh cities are also affected by the severe consequences of the rapid pace of urbanization. The country is also characterised by economic hardship, lack of resources and inadequete supply of food, clothing and shelter to a significantly higher proportion of the poor population; many parts of the country, including the major cities, are vulnerable to natural disasters.

1.1 BANGLADESH IN THE WORLD CONTEXT

Located in the delta of the Ganges, Brahmaputra and other rivers in the north-eatern part of the Indian sub-continent, Bangladesh is an independant Asian republic. It lies between 20 34' and 26 38' north latitude and 88 01' and 92 41' east longitude with the tropic of cancer running almost through the centre of the country. With a population of more than 100 million, crammed in an area of 55,598 sq.miles (appx. 144,000 sq.km.), Bangladesh is among the most densely populated countries of the world (surpassed only by Hongkong, Singapore and Malta). In fact, if the entire population of the world were placed in Australia, the density per sq. mile would approximately equal to that of Bangladesh (1).

The area constituting the country was under Muslim rule for five and a half centuries from 1201, and passed into British hands after the defeat of its last sovereign ruler, Nawab Shirajuddoula at the battle of Plassey, 1757. The British ruled over India for nearly 190 years (from 1757 to 1947) when the region was a part of the British Indian provinces of Bengal and Assam. With the termination of the British rule in August 1947 it constituted the eastern wing of Pakistan and was one of her five provinces, separated from other four by 1,100 miles of Indian territory.

Bangladesh appeared on the world map as a sovereign state on December 16, 1971, following the war of liberation from March 25 to December 16, 1971, which claimed supreme sacrifices of blood and gold; About 1,500,000 people died and property worth millions of Taka was destroyed (2).

The country is still predominantly rural. Only slightly more than 13 million of its roughly 87 million people lived in urban areas in 1981. Dhaka, with a population of about 3.4 million is the capital and largest city.

1.1.1 Physiography

Bangladesh is fringed on the south by the huge expanse of the Bay of Bengal and on the south-west by the marshy deltaic forest, Sunderbans.

The most significant feature of its landscape is provided by hundreds of important rivers and rivulets, which have moulded not only its physiography but also the way of life of the people. A network of rivers, among which the Ganges or Padma (said to be "the pivot of the deltaic river system of Bengal"), Jamuna, Teesta, Brahmaputra, Surma, Meghna and Karnaphuly are important and their distributaries (numbering about 230) with a total length of about 15,000 miles covering the country flow down to the Bay of Bengal in the south.

The country has always been subject to frequent cyclones including tidal surges; in some areas, particularly in the coastal belt the wind speed may rise upto 100 miles or more per hour. Tidal surges caused by cyclones play havoc in the coastal belt, resulting in great loss of human lives over and above the enormous loss of properties in the affected areas, almost every year.

The occurrences of the annual flooding are also severe. For example, recently, the country faced one of the greatest disasters it has experienced within the last 40 years, followed by the monsoon flood in this year (1987). With the loss of thousands of human lives in 47 districts affecting 15,000 sq.miles area, more than 24 million people -- about a fifth of the country's population -- were either homeless or without food; 2 millions of the country's bamboo and mud homes were destroyed by waters (5 ft. or 6 ft. in places) and crops on about 4.3 million acres has been devasted (The Times, 1987); in

the capital city about 500,000 people were affected (3).

1.1.2 Climate

The climate of Bangladesh is generally sub-tropical, the hot-humid summer and the rainy season being the most prominent of the six seasons. Maximum temperatures are reached around April/May ranging between 90 to 98 F, occassionally rising upto 105 F or more; high temperatures may remain upto September/ October. Winter begins from the end of November and remains until February; temperatures at that time are moderate, rarely falling below 50 F.

The monsoon season starts in June and lasts until October. This period accounts for about 80% of the total rainfall; the average annual rainfall varies from 47" to 136" inches (about 120 to 345 cm.) (4), maximum of which is recorded in the coastal areas of Chittagong and northern part of Sylhet district, while the minimum is observed in the western part of the country. There may be heavy rainfall in short time; periods of rainfall remain almost same throughout the whole country. Upto 20" inches (or 50 cm.) can be reoprted within a period of 48 hours.

The relative humidity ranges between 80% to 90% during the most humid months of June and July. During September and October humidity level remains within 80% on average whereas during the winter months it varies from 70% to 80%.

Solar radiation is very strong in Summer months; the sun stays directly overhead in June / July. Due to the accumulation of long wave radiation caused by the cloud cover (which also blocks the radiation reflected from the earth surface) an excessive amount of heat is generated. Winds are generally moderate, but when associated with rainfall, gathers high velocity. At that time they may attain a maximum velocity ranging between 60 to 100 miles/hour(or about 96 to 160 km/h) during the pre-monsoon months, associated with violent nor'wester storms.

1.1.4 Administration

Bangladesh is governed by a unitary form of Government of presidential type. For the convenience of the adminstration the country is divided into four administrative divisions, each placed under a Divisional Commissioner. Each division is further subdivided into districts. After the adminstrative re-organisation carried out by the present Government the number of districts in the country has risen from 23 to 64. The newly created districts are basically former sub-divisions. The administration of each district is headed by a Deputy Commissioner.

Each district consists of several 'upazilas' which were formerly known as thana (police station) areas. There are 495 upazilas, which

are now being upgraded and the set-up has been reorganised and expanded; the adminstration is claimed to be more responsive to the needs of the people since it has been taken to their door-step; under the reorganised set-up upazila is called the focal point of public adminstration of the country (BBS, Statistical Year Book, 1984-'85). All but a few of the former thanas have been upgraded into upazilas; the remaining thanas which mostly fall in the metropolitan cities or other urban areas have been excluded.

1.2 DHAKA--THE CAPITAL CITY

Dhaka, the country's primate city and capital was lifted out of its shadowy existence and given historical prominence in 1608 A.D., when the Mughul viceroy Islam Khan made it the capital of Bengal, Bihar and Orissa. Dhaka rapidly developed into one of the greatest emporiums in south Asia.

In order to pacify the opposition in Calcutta the capital was shifted to Calcutta in 1911; its status was changed again in 1947 when it became the capital of the then East Pakistan. And since the end of 1971 after the emergence of sovereign Bangladesh it has been the capital of the country.

Located just north of the river Burhiganga, the city is virtually bounded by three rivers on three of its sides: by the Burhiganga (one of the minor arms of the Ganges) to the south, by the Turag to the

west, and by the balu to the east. Dhaka lies between 23 35' and 23 55' north latitude and between 90 19' and 90 35' east longitude.

The city is extends as far as Mirpur to the north-west, and is bounded by the Rayerbazar and Hazaribag belt at the west. The presence of a large cantonment area and an international airport at the north accounts for an unspecified boundary of the city in this part. At the east and south-eastern part the city extends as far as Madartek and Goran areas. The area of Dhaka municipality covers 62.4 sq.miles or 161.6 sq.km.

1.3 DEFINING THE SCOPE OF THIS RESEARCH

The research attempts to focus on the shelter problem of the economically weaker section of the population, having low incomes in the metropolis, covering certain other aspects and various determining factors associated with it.

During the last two decades, the liberation war and the recurrent natural disasters have dramatically increased the pressure on the urban areas and on Dhaka in particular, to an almost intolerable degree. While in 1961 the population of the city was about 0.5 million, it had increased to more than triple this number in 1974 to 1.6 million (BBS, 1985).

The unprecedented population growth has proved to be extremely hazardous. Development in the sense of greater productivity and higher incomes has been slow, physical conditions are deteriorating alarmingly as urban services can not keep pace with the demand. Previous studies on expenditure and income distribution determined that about 85% of the city's population were estimated to be living below the poverty line of Tk. 220/00 (or 4/50 pound sterling) monthly household expenditure per capita and about 50% are below an extreme poverty line of Tk. 115/00 (or 2/30 pound sterling) per capita per month.

Inner city growth has now been increased to such an extent that over the past few years it has reached the level of saturation. Primary health services and food distribution programmes are not reaching the mass of the urban poor. Inadequate maintenance and control of urban infrastructure result in the risk of collapse of the water supply, drainage and sanitation systems. Around 1 million population are estimated to be suffering from extremely critical living conditions. Without taking any account of the need to rehouse this population, the requirement for new housing opportunities to satisfy the city's growth alone will average around 50,000 units per year.

The Government is unable to allocate enough funds in order to resolve the lower income shelter problem, principally because of the resource shortage and pressing needs of some priority sectors.

Besides, there still prevails unfortunately an ignorant attitude among many of the upper level bureaucrats and politicians with respect to the extent of the housing crisis. Most of the city development authorities are able only to carry out orders of their upper level decision makers who have hardly adopted any substantial policy in this regard. Therefore, the number of the economically weaker section of the population have been increasing to such an extent throughout the past decades that they are now in urgent and desperate need of appropriate shelter provision in or around the metropolis.

In particular the lowest income group, being the victims of the situation as the inner city's densely built-up areas fail to respond to their growing needs, are forced to disperse to the peripheries in search of mere shelter where the land conditions are low-lying, unprotected and are liable to inundation following the monsoon every year; they dwell in dilapidated shacks, provided without any basic infrastructural amenities and are quickly worn-out.

An important aspect of this research thus includes the question of availability of land high enough to be free from inundation during the annual river floods. Virtually all of such land which does exist close to Dhaka has already been zoned or developed for industry, formal housing or other urban uses (5).

Within some parts of Dhaka city itself, which stand on higher land, and within similar areas to the northern part of the city,

urban development opportunities are restricted by the large number of valleys which penetrate the higher land and which are also inundated for several months every year, bringing flood waters into the urban areas. To the south and west lies the flood plains of the rivers Burhiganga and Turag; to the east are the flood plains of Balu. All of these areas are flooded 5 ft. to 12 ft. (on average) for several months of the year.

The hypotheses underlying this research can be summarised as follows:

--- the lower income population, unable to obtain housing in the inner city areas, are forced to seek shelter in uncontrolled slums and squatter settlements around the fringe areas which are low-lying, unprotected and are liable to annual inundation;

--- the income and level of affordibility of this sector of population is appalingly low to contribute effectively in the housing investments;

--- with the present increase in the density of city's population, it will need to reclaim large tracts of the peripheral land for housing;

--- many of the factors associated with the development of housing, including the highly speculative land values have

effectively priced the lower income group out of the land market;

--- the amount of living space generally occupied by this sector of population is considerably below the minimum required level;

--- the lower income households are capable of increasing the number of rooms available to them, through transformation of the units they occupy, and if appropriate incentives are provided it is possible these transformations may have a positive effect on housing in general;

--- finally, means are available without exerting unacceptable strain on the economy, for tackling the shelter crisis of the lower income population of the metropolis.

1.4 PURPOSE OF THE STUDY

Most of the academic studies that have been made so far into the urban development issues of Dhaka, have not focused especifically on the housing problems of the lower income sector.

In the context of the housing problem of the metropolis, this research attempts to investigate the developmnt of Dhaka in terms of its physical growth, political adminstration and the extension of the lower income settlements within the peri-urban fringes of the city. The important aspects include:

I. the study of income and expenditure of the households in determining their ability to afford future housing options

II. examination of developments and changes in implementing housing policy, with respect to the lower income population

III. analysis of the existing physical pattern and other aspects of peri-urban growth, that has taken place around the metropolis over the recent decades through:

a) the documentation of the characteristic features and evolution of the settlements

b) an investigation to the response of the dwellers in their housing needs in terms of making transformations of the dwelling units they occupy

IV. an examination of the existing characteristics of the land market along with an analysis of the laws and ordinances that apply to land acquisition and how these affect the multiple aspects of land availability for the target group

V. a comparative study of the types of tenure and their effect on the response of the dwellers

VI. also, the research concentrates on the probable constraints and barriers while outlining the appropriate system and dynamics in future.

1.4.1 The research methodology in outline

With a view to explaining the context in which peri-urban lower income housing developments are taking place, a fieldwork and household survey was carried out in Dhaka, Bangladesh during the months of February to June, 1986. This was also the time for the procurement of finance required for the fieldwork. Three selected peri-urban housing areas were surveyed, investigated and analysed, with a view to identifying the dynamics of self-help development and the constraints of local financial and administrative institutions and their effect on the physical development of housing.

The study is organised in 11 chapters.

The initial chapter defines the problem and describes the demographic pressures that affects the shelter process (chapter 2); with the analysis of the trend of urbanization within the past few decades, this part deals with the overall urbanization characteristics of the country. The growth of urban population in view of the housing crisis of Dhaka city has been dealt with in chapter 3, describing some of the characteristic features of existing housing situation and finally focusing on the future housing need of the

metropolis. Chapter 5 includes the historical overview of the city starting from the time of its establishment (in the 17th century) covering different aspects of its growth with subsequent changes in its political status. Chapter 4 makes the assessment of the income situation of the lower income households and investigates their ability to afford housing investments.

The major issues with respect to the inner city's high density that has resulted in the peri-urban growth propensity of the city have been covered in chapter 6; measures adapted in response to the needs for peripheral development strategies by different urban development agencies are also evaluated.

In chapter 7 characteristics of the urban land market are described; application of commonly considered measures, in order to control the market effectively are critically evaluated; a few other alternatives are also examined in the context of urban land economy and existing land policy of Dhaka.

Inadequately developed institutional frameworks are also attributable for the absence of an effective housing policy. To cope with its urban problems, the improvement of the institutional framework in the urban sector must begin. Responsibilities for urban planning are clarified, roles played by the different agencies and organisations related to housing and urban development are compared and different aspects of their conflicting role are identified in

chapter 8.

The details of the household survey, carried out in three peri-urban areas of the metropolis are described in the following chapters. While chapter 9 deals with the fieldwork and methodology of the survey, the findings are included in the next one (chapter 10). Major findings of each of the surveyed areas are compared and crosstabulated in order to determine the future strategies and decisions.

Finally, chapter 11 attempts to outline a strategy in terms of the way we envisage the metropolitan area should develop. The investigation of physical constraints and opportunities and the process of identifying, and evaluating alternative strategies are presented along with a detailed analysis of the cost implications. While outlining the strategies in the context of the objectives and assumptions, we have stated some of the key aspects of the planning process involved.

Since imperial units are generally followed in mesurements, as found in most of the publications in Bangladesh, they are cited in the same way with metric conversions in many cases.

1.5 REVIEW OF THE RELEVANT LITERATURE

1.5.1 Discrepancy in statistics

The discrepancies in official statistics in the context of the country's growth performance in major sectors raise important questions about their accuracy and adequacy; this has also been recently reported by the World Bank in its final report on the economic situation of Bangladesh (1986)(6). Even the new statistical methodology --introduced by the official agency, Bangladesh Bureau of Statistics (BBS), only in November, 1983 -- contains deficiencies in several areas (7).

While the discrepancies were encountered in many stages of this research, we have attempted to explain those wherever possible; in other cases they were cited with the sources mentioned.

Throughout the different stages of this research statistical figures which are quoted from the sources of the Bangladesh Bureau of Statistics include, the Statistical Year Book of 1981-'82 and that of 1984-'85. Also a pocket book of statistical information has also been taken into account. Although these are from the same sources, discrepancies about the population, household and housing characteristics were found with respect to different regions. It should be noted here that a comprehensive population census was undertaken in 1981 and thus, it was extremely unlikely to find any

discrepancy in the statistics for that year in the year books. For example the population figure for the metropolitan area (statistical) of 1981 is shown 3,440,147 in the Bangladesh population census (Dhaka SMA) published in 1985, whereas the same is cited in the statistical year book of 1982 as 3,458,602 and in that of 1981 as 3,430,312. Although the differences may not be great even they may mislead the reader in different ways.

Similar examples are also present in statistics of other sources. In the master plan report published in 1959 for the Dhaka Improvement Trust it is shown that the cantonment area, which now exists within the city, covers 6,840 acres; the same area is described as only 3,100 acres in the later edition of the same report reprinted by the Trust (8).

Discrepancies are also commonly apparent in defining the city's area. We have made an elaborate investigation of this issue in chapter 6, where the density of the city has been analysed. The statistical metropolitan area of Dhaka was formed in 1981; population and area before and after '81 will obviously be different not only due to the time but also due to the change in the city's area. In some cases statistical comparisons could not be made because of these changes.

1.5.2 Contributory publications

Absence of relevant literature on different aspects of urban development forms a formidable problem of research on Bangladesh associated with the statistical discrepencies mentioned above.

Application of contemporary theories are, therefore, absent particularly in the field of housing and settlement planning. Academics and policy makers are yet to come forward with a view to pointing out the ills of planning development issues. Only recently some of the organisations related to housing are coming up with some useful publications. Among the most important of their publications studied in this research, are the following:

== Housing Developmant Project (1985): the feasibility studies (prepared by the Kinhill Stearns and others); the project includes the feasibility studies of a number of upgrading schemes in the peripherial regions of the city and was involved basically in three adjoining fringe areas -- Islambagh, Shaheednagar and Rasulpur around the adjacent peninsula and across the tributary of the city's main river Burhiganga. Basically, these are low-lying and flood prone areas mostly occupied by the lower income group.

The issues related to the development of these low-lying areas were of important consideration in the long term urban development, upgrading and land reclamation strategies for Dhaka. The broad

concepts of integrated upgrading in the selected project areas and possible land reclamation options are thus evaluated and critically overviewed in the context of formulating future development strategies for land in urban peripheries.

== contemporary publications on peripheral developments of the Dhaka Improvement Trust (DIT); being one of the most important organisations involved in the urban development practice, the DIT has recently formulated proposals in order to extend the city boundary in many adjacent locations of the city. Several development options were proposed in their feasibility study of 'New township developments from Mirpur Bridge to Kamrangir Char'. each of these are examined and evaluated critically in view of the practicality and accessibility of the lower income population in the proposed scheme.

Publications related to the expansion of the city are taken into account in an order to establish and justify the necessity for such developments and also in addressing the issue.

== Most of the development issues undertaken by the Trust were usually based upon the master plan designed and formulated in 1958, considering a projection of about 20 years. Analysis of the master plan was therefore an essential consideration in the research in order to determine the relevance and accuracy of certain underlying assumptions.

== Many of the developing countries are now suffering from the problem of consuming the agricultural land for urban development purposes; this is said to expose the risk of gradual decrease of peripheral agricultural land. The issue is addressed through the examination of the soil survey reports of the Soil Survey Interpretation Division, where the zoning of the areas are shown with respect to the potentiality for agricultural use of such areas.

The agricultural potential of the land in general and the performance of an important peripheral irrigation project are investigated with the help of the feasibility study reports of the Agricultural University, Bangladesh and the Agro-economic evaluation report of the Dhaka-Narayanganj-Demra Irrigation project (1984).

== One of the most important determinants, the urban land is scarce and subject to intense market pressures which are already imposing severe constraints on urban development projects. A wide range of literature was reviewed in an attempt to examine this phenomenon in different situations. These can be grouped as follows.

: several policy papers of Urban Development Directorate, including the ones undertaken by the section of Urban Housing Policies and Programme (such as 'Policies for urban land') and importantly the reports prepared by Mr. David Willcox, Housing Advisor in the early eighties (Urban Housing Policies and Programmes) of the Urban Development Directorate.

: contemporary researches reviewed on urban land issues include several unpublished works and theses from the department of Human Settlement of the Asian Institute of Technology (Bangkok), department of Urban Planning of the Bangladesh University of Engineering and Technology (BUET), Centre for Urban Studies, department of Geography, University of Dhaka and the BUET-Sheffield joint Masters degree programme. The Centre for Architectural Research and Development Overseas (CARDO), of the University of Newcastle upon Tyne, provided opportunities for the foundation and development of the research work. Among the dissertations are those of S.Awal (AIT), S.M.Yamin (AIT), M.Ahmeduzzaman (BUET-Sheffield), S.Bhuiyan (BUET), Habibur Rahman (Newcastle), Emdadul Islam (Newcastle), A.H.Khan (MIT) etc.

: a comprehensive study of land use planning was made by an ex-Secretary of the Planning Commission under the Ministry of Planning ('Land Use Planning in Bangladesh'), -- which provided an overview of the existing system of land use planning at local level and in urban areas including the adminstration of the local authorities. Regulations for land acquisition are compared with the previous acts and examined with the role played by the related agencies; function of the acquisition committee was also evaluated.

: in order to relate Bangladesh practice to contemporary theories, several other concepts are briefly described and evaluated. With respect to the urban land policy in the context of housing development in Dhaka, some of the commonly considered mesures are

examined through the literature mentioned below.

:the controlling of the rights along with the application of unearned increments in land values are discussed with David Willcox in the respective report of the Urban Development Directorate. Issues related to the land banking concept along with the consequences in its application are drawn from the experiences in Delhi (India); In the book 'Low Income Housing in the Developing World, the role of Sites and Service and Settlement Upgrading' (ed. Geoffrey K. Payne), some authors illustrated that it was not possible to protect the land in future and eventually the consequences were found to be adverse. Potentiality of land banking in Bangladesh was finally ascertained in the light of the above in the research.

: the contemporary studies of a few other authors like Roger Zetter and Peter M. Ward have been taken into consideration in evaluating the implications of fiscal management and other financial methods. The mechanism advocated by Peter Ward in the form of a land subsidy to home developers has been initiated in Mexico. The pros and cons of his proposition have been studied and details of the same are drawn from other publications of the author related to the financing of land acquisition for self-building housing schemes(9). It was evaluated that the concept positively utilised the unavoidable components that existed in the urban land market. Later with some modifications the concept is examined in the context of metropolitan

Dhaka.

== the DMAIUDP report prepared for the Government of Bangladesh with the help of Asian Development Bank and UNDP was submitted in 1981. In this report for the first time, some of the urban development strategies are established on the basis of related socio-economic facts and figures and adminstrative realities. This involved the projection and distribution of employment and population, the formulation of sectoral policies and selected development programme and proposals for institutional changes required for the efficient implementation of the strategy. Also, the income and expenditure situation of the households are carefully examined and a classification of the household groups ranging from lower expenditure to higher, subdivided in deciles has been made, with maximum monthly per capita household expenditure in 1978-'79 corresponding to each category.

In the description of the strategies (in the DMAIUDP report), the study included few generalised development guidelines; these include, massive mobilisation of community and individual resources in self-help activities employing labour-intensive techniques, every available opportunity for infill and for relocation of inappropriate land uses in order to absorb additional population into the existing urban areas with every attempt being made to conserve and improve the existing housing stock, rerecording of public sector investment programmes to ensure that the basic mass of the urban poor are given

priority, reformation of land adminstration in order to increase the supply of land for development and reformation of the urban management institutions. Finally, as a part of the detailed evaluation of different concepts the project has tested variations of these general concepts within a more specific set of 9 options mentioned in the appendix-R.

The studies on the income and expenditure situation of the households are considered as fundamental and their findings are examined with a view to ascertaining the affordability of lower income group in this research. The strategies drawn in the report are also scrtunised according to their relevance of the present study.

One of the most comprehensive and carefully constructed accounts, probably first of this kind on urban development and planning of Bangladesh, is provided by Charles L. Choguill with respect to his practical experiences as an insider on the failure of certain urban development projects in Bangladesh, is published just recently; since the book had been released too late (at the end of '87) it was not found possible to review it in this research work (10).

1.6 REFORMATION OF THE DHAKA IMPROVEMENT TRUST

During the later part of this research (in the middle of '87), the most vital organisation associated with the city's urban development, the Dhaka Improvement Trust, was recently reformed and the name was changed to 'Rajdhani Unnayan Katripakhya' or RajUK, through the amendment of a town improvement bill in the parliament on 30th of June, 1987 (11).

Since much about its adminstrative set up and functioning are not known and presumably not well-formulated yet, evaluations are not made of the performance of this newly reconstituted authority. However, the activities and performances of the Dhaka Improvement Trust, which was so far responsible for the city's planning and development are described and critically evaluated in chapter 8 with a view to understanding its role in housing development issues.

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FIG. 1.1 CLIMATIC FACTS : Bangladesh

CHAPTER TWO

THE URBANIZATION CHARACTERISTICS/CURRENT URBANIZATION POSITION

2.1 INTRODUCTION

Bangladesh cities are already experiencing an accelerating rate of growth of their urban population. The percentage of urban population rose to 15.18 in 1981 as against 3.38 in 1941 --- an increase of about 450% over the past 4 decades.

Both of the factors of rural to urban migration and natural population increase contribute to the rapid urbanization. According to a recent World bank survey, the number of people migrating from rural to urban areas increased to five-fold between the census period 1951-'61 and 1961-'74 from an average 40,000 people per year, during the first period to 200,000 people per year during the second period. (1).

In this chapter, we will attempt to evaluate the trend of urbanization within the major urban centres, in order to draw a comparison to illustrate the extent of the phenomenon and in which the country's primate city Dhaka is effected thereby.

2.1.1 Identification of urban areas

In the 1981 population census, as well as the previous ones of 1974 and 1961, an urban area had the following connotations: It normally included identified areas having an accumulation of at least 5000 people with either a municipality or a town committee (or a Cantonment Board). The Bureau of Statistics of Bangladesh defines:

> "In general an urban area will be a concentration of population of at least 5000 persons in continuous collection of houses where the community sense is well developed and the community maintains public utilities such as roads, street lighting, water supply, sanitary arrangements, etc. These places are generally non-agricultural and having non-agricultural labour concentration and a high literacy rate. An area which has urban characteristics but has less than 5,000 population may in special cases be treated as an urban area. All thana (2) headquarters have also been considered as urban area in the 1981 population census."..(3).

2.2 THE TREND OF URBANIZATION BETWEEN THE YEARS 1901-1974

Although Bangladesh is not highly urbanized in character, it showed a marked increase in the rate of urbanization particularly after liberation of the country in 1971. The rate of urbanization was significantly higher, particularly during the intercensal period of 1961-'74 and 1974-'81. The percentage of the total population living in the urban areas increased to 15.18 in 1981 from 5.19 in 1961 and 8.8 in 1974 (Table 2.1 below).

The average annual growth rate of urban population was 6.7% in 1974 as against 3.7% in 1961. The growth rate was higher than the comparable growth rates of neighbouring countries like Thailand or India. As for example, the average annual growth rate of urban population in Thailand and India was 4.8% (1960-'67) and 4.0% (1961-'71) respectively. (4).

Table:2.1 : Percentage distribution of urban and rural population and average intercensal growth rates, 1901-1981

Census years	Percent of population		Average ann. growth rate		
	urban areas	rural areas	urban pop.	rural pop.	total pop.
a) 1901	2.43	97.57			
1911	2.55	97.45	1.4	0.9	0.9
1921	2.61	97.39	0.8 *	0.5	0.5
1931	3.01	96.99	2.0	0.6	0.7
1941	3.66	96.34	3.6	1.6	1.7
1951	4.34	95.66	1.7 *	0.0	0.0
1961	5.19	94.81	3.7	1.8	1.9
1974	8.87	91.22	6.7	2.3	2.7
b) 1981	15.18	84.82			

Sources:
a): (I)Ministry of Home Affairs, Population census of Pakistan, 1961, vol.2 (Karachi, Home Affairs Division); (II): Bangladesh Population Census report, national volume Bangladesh Bureau of Statistics, Dacca, 1977; cited in S I Laskar, Urbanization in Bangladesh, 1901-1981.

b): 1984-'85 Statistical Year Book of Bangladesh by Bangladesh Bureau of Statistics (Dec., 1985).

The level of urbanization was in fact low (varied from 2.4 to 3.7 percent between the years 1911 and 1941), before the partition of India. One of the possible reasons may be due to the absence of industrialisation in the area which presently comprises Bangladesh;

the other reason, which is probably the more cogent one, is the establishment of a massive industrial and commercial agglomeration in the West Bengal city of Calcutta, the foremost capital during the British period in India (1858-1947). A substantial decrease in the urban population can also be observed in the years 1911 to 1921; this was due to the plague epidemic which caused a large scale reduction in population of the urban centres. On the other hand the partition of India, the second world war along with the 1940 famine are the reasons behind the declining rate of urbanization between 1941 and 1951 (indicated with * marks, Table 2.1).

The trend of urbanization, since 1901 can also be assessed from table 2.2 next. The table shows the number of urban areas and their distribution in groups, graded by different range of population between the years 1901 to 1974. For example in 1901, among the 48 places designated as urban areas, 10 had fewer than 5000 people; 15 places had population ranging between 10,000 and 25,000; and there was no urban centre having population between 25,000 and 100,000.

The findings of the above table are as follows: With the drift of population, particularly the urban areas with 50,000 to 100,000 population shows a substantial increase of 13.0% in 1974 from 3.2 % in 1951 and 6.4% in 1961. Two more places are added with population more than 100,000.

Table : 2.2
Distribution of urban areas and population (1901-1974)

	over 100,000 (pop).	50,000-99,999 (pop).	25,000-49,999 (pop).	10,000-24,999 (pop).	5,000-9,000 (pop).	under 5000 (pop).	total no. of urban places(%)
1901	2	--	--	21	15	10	48
	4.2%	--	--	43.8%	31.2%	20.8%	100.0%
1911	2	--	--	23	13	10	48
	4.2%	--	--	47.9%	27.1%	20.8%	100.0%
1921	2	--	5	20	13	10	50
	4.0%	--	10.0%	40.0%	26.0%	20.0%	100.0%
1931	2	--	7	21	17	11	58
	3.4%	--	12.1%	36.2%	29.3%	19.0%	100.0%
1941	2	2	13	20	19	3	59
	3.4%	3.4%	22.0%	33.9%	32.2%	5.1%	100.0%
1951	2	2	14	20	18	7	63
	3.2%	3.2%	22.2%	31.7%	28.6%	11.1%	100.0%
1961	4	5	16	23	20	10	78
	5.1%	6.4%	20.5%	29.5%	25.6%	12.8%	100.0%
1974	6	14	23	49	12	4	108
	5.5%	13.0%	21.3%	45.4%	11.1%	3.7%	100.0%

Source: I. Population census of Pakistan,'61, vol.2. Ministry of Homes and Kashmir affairs;
II. 1974 Bangladesh population census report, national volume, Bangladesh Bureau of Statistics, Dacca, 1977; cited in the "Population of Bangladesh", the country monograph series no.8; (ESCAP/United Nations). p.-25.

2.3 GRAPHICAL ANALYSIS OF THE TREND

Figure 2.1 (I to VIII) shows the curves drawn based on the information of table 2. The curve is determined by locating the points denoting urban places with inhabitants (in thousands) on the abcissa and percentage of urban places on the ordinate. Each curve

is drawn at every 10 years interval starting from 1901 to 1961 and finally one for 1974. The curves illustrating the situation of 1901, 1911 and 1921, roughly show almost similar characteristics; for the following years the character changes with the steepness of the curves gradually decreasing while the base line gets detached from the abcissa (completely in 1941). An extreme condition can be observed from the 1974 situation,(where the apex reaches upto 45.4, while the base rises to the corresponding mark of 13.1) showing the trend of migration detected from the small town centres to the large cities quite distinctly.

2.4 DISTRIBUTION OF URBAN POPULATION

The country is broadly classified into four divisions on the basis of its administrative set-up namely Chittagong, Dhaka, Khulna and Rajshahi divisions, which are also referred to as Central, Eastern, Southern and Northern areas respectively by some researchers (as followed by Lasker, 1983). Divisions are further sub-divided into several districts. During the 1981 census the divisions mentioned above included the corresponding districts :

Chittagong Division: Bandarban, Chittagong H T, Chittagong, Comilla, Noakhali and Sylhet. Dhaka Division: Dhaka, Faridpur, Jamalpur, Mymensingh and Tangail. Khulna Diviion: Barisal, Jessore, Khulna, Kushtia and Patuakhali. Rajshahi Division: Bogra, Dinajpur, Pabna, Rajshahi and Rangpur.

It has already been mentioned that a very low percentage of the total population lived in urban areas which remained stagnant till 1931. Between 1951 and 1961 a steady growth in urban population is recorded with a subsequent rapid increase during the intercensal period of 1961-'74 and a significant increase is also registered during the following period of 1974-'81.

Patterns of urban structure in the table mentioned above can be observed growing evenly upto 1950 (Table 2.3). By the year 1974, the share of urban population of different areas was remarkably disproportionate. The table above shows that, between 1951 and 1981, the central area accomodated 35.76 to 47.08 percent of the total urban population of the country, which is higher than the corresponding urban concentration of any other region at that time. In view of the above, it is rightfully observed that Dhaka city has not only been the focus of this region but also the focus of the country as a whole. The primacy of the greater Dhaka can therefore be visualised for the future.

As revealed from the above table, the percentage changes of urban population for the whole country was maximum during the intercensal period of 1961-1974 (137.60). For Dhaka division the percentage was even higher (170.27) as well as being the maximum in relation to the whole country.

Table: 2.3:Percentage distribution of total urban population of the country in different sections

Year	Central	Eastern	Southern	Northern
a) 1901	37.51	27.18	15.21	20.09
1911	38.15	27.51	14.22	20.12
1921	39.00	26.61	14.81	19.57
1931	36.68	29.44	13.81	20.06
1941	36.70	28.31	14.69	20.28
1951	35.76	27.20	15.35	21.68
1961	40.62	24.21	16.30	18.86
1974	46.22	22.40	16.72	14.66
b) 1981	47.08	22.94	16.19	13.79

Sources :(I) Census of Pakistan vol.2, 1961; (II) Bangladesh Population Census, vol.2, 1974. (III) The preliminary report on Bangladesh Population Census 1981 (covering only 75 major urban centres).
Cited in Serajul Islam Laskar, Urbanization in Bangladesh 1901-1981. Research report no. 34, pub. Bangladesh Institute of Development Studies (May, 1983). Table 1; p.-7.

note: the urban population of 1981, was calculated with preli -minary population report covering 75 major urban centres only.

Table : 2.4: Percentage changes of urban population between the intercensal years :

Period	Nation as a whole	Central (Dhaka)	Eastern (Chittg)	Northern (Rajshahi)	Southern (Khulna)
a) 1901-1911	14.96	16.90	16.33	15.10	7.49
1911-1921	8.85	11.29	5.31	5.88	13.36
1921-1931	22.20	14.93	35.17	25.29	13.91
1931-1941	43.20	43.28	37.73	44.77	52.34
1941-1951	18.38	15.32	13.73	26.53	23.68
1951-1961	45.11	64.84	29.16	26.22	54.08
1961-1974	137.60	170.27	119.73	84.68	143.76
b) 1974-1981	108.50	-- --	-- --	-- --	-- --

Sources :(a): (I) Census of Pakistan, vol.2, 1961; (II) Bangladesh Population Census 1974, Bulletin-2; (III) Preliminary report on Bangladesh Population Census, 1981. Cited in S I Laskar, Urbanization in Bangladesh 1901-1981. Table 3; p.-9.
:(b): enumerated from table 2.62, 1984-'85 Statistical Year Book of Bangladesh, BBS (dec., 1985).p.-130.

It should be noted that the unprecedented percentage change which is found to be the maximum in the central sector upto the period of 1974 (170.27%) is attributable to several important factors. The most significant among these are the emergence of Bangladesh as an independent country in December, 1971, resulting in an unprecedented inflow of migrants to the newly established capital city with reinforced hopes and aspirations; this was again compounded by an undeclared state of famine prevailing throught the country from the begining of 1974.

2.5 GROWTH OF URBAN POPULATION IN DHAKA REGION

2.5.1 Comparison of other urban centres

The four adminstrative divisions of the country as mentioned in the previous section, are further sub-divided into districts. After the adminstrative reorganisation carried out by the present Government in 1983/'84, the number of districts in the country has risen from 23 to 64 (the newly created being former sub-divisions). Therefore the areas which are referred to as 'regions' in this section are basically former districts during the census count of 1981.

Over a period of seven years from 1974 to 1981 the five most urbanized areas of Bangladesh grew significantly. The 29.56% of urban population living in Dhaka region in 1974 has been increased to

38.52% in 1981. Similarly, the 20.97% of urban population living in Chittagong region in 1974 shows an urban concentration of 31.14% in 1981 (Table 2.5 below).

Population concentration in different regions reveal that the growth of urban population for Dhaka has always been the maximum in comparison with the other regions of the country. For instance, 6.58% of the population were urbanized in 1941 within Dhaka region (276,000 out of 4192,000), which was increased to 29.56% in 1974 and an higher percentage of 38.52 in 1981.

Table: 2.5 : Growth of urban population by region (in '000's).

Regions	1941			1951		
(Former Districts)	urban	total	%	urban	total	%
Chittagong	98	2153	4.55	296	2512	11.78
Dhaka	276	4192	6.58	411	4072	10.09
Khulna	66	1944	3.39	59	2075	2.84
Kushtia	--	----	----	40	884	4.52
Rajshahi	61	1571	3.88	85	2205	3.85

	1961			1974			1981		
	urban	total	%	urban	total	%	urban	total	%
Chitt.	373	2983	12.50	905	4315	20.97	1710	5491	31.14
Dhaka	754	5096	14.79	2250	7611	29.56	3857	10014	38.52
Khulna	173	2449	7.06	520	3557	14.62	970	4329	22.41
Kusht.	63	1166	5.40	157	1884	8.33	333	2292	14.53
Rajsh.	120	2811	4.27	247	4268	5.79	545	5270	10.34

source: Bangladesh Bureau of Statistics; 1984-'85 Statistical Year Book of Bangladesh (Dec., 1985).rendered from Table: 2.62, p.-130.

note : The urban figures for the year 1981 represent unadjusted census counts.

Equivalent percentage increase :

	1951-61	1961-74 (13 years)	1974-81 (7 years)
Chittagong	93	167.76	148.49
Dhaka	66	199.86	130.31
Khulna	209	207.08	153.28
Kushtia	--	154.25	174.42

source : Statistical Year Book.

In Dhaka region population increased by about 200% during the first period eventually leading to a 130.3% increase in the later period. The first inter-censal period (1961-74) is of 13 years while the second period (1974-81) is of seven years.

Although the second period shows a relatively lower percentage increase in 7 years with respect to the previous one of 14 years, the percentage of urban population in this region sees a marked increase in average household size upto 6.08 (1981) from 5.82 (1974).

2.6 URBAN CONCENTRATION IN THE CAPITAL CITY

Equally, during the period of 1951-61 Dhaka's population increased with an annual growth rate of 5.63, which was further accelerated to 8.08 during the inter-censal period of 1961-74. Although the growth rate was lower to 7.26 during 1974-81 it was still high and was accompanied by a steadily increasing population in the metropolis from 2,068,353 (1974) to 3,440,147 (1981).

Table : 2.6 : annual growth rate

	1951-'61	1961-'74	1974-'81
Dhaka Statistical Metropolitan area	5.63	8.08	7.26

source : BBS; Bangladesh Population Census, 1981 (Dhaka SMA);
: p.- XXXVII.

Thus the population of the city is found to be increasing at the average rate of about 196,000 per year. A recent newsbulletin claims

it to be 225,000 per year.(5). Recognising the Bangladesh capital of Dhaka as a town planner's nightmare, the Far Eastern Economic Review (1987) emphasized that:

> "Ill-equipped and overcrowded, this sprawling maze of shanty town slums, narrow dusty streets and low rise offices and flats has grown tenfold from a town of just 500,000 in 1957 into a metropolis of more than 5 million".(6).

2.7 CONCLUSION

From the above statistical overview, it can be recognised that the total urban population of Bangladesh, if it maintains its present growth rate -- about three and half times the total population growth rate -- is expected to more than double to 20 million by the year 2000, putting enormous strain on this nation's already over-stretched resources.(7).

The continuing nature of migration of population towards cities has made a tremendous claim on the already over utilised civic facilities and has already created a state of disequilibrium in the urban environments. The rural exodus, associated with the stagnant economic conditions and lack of employment opportunities in the rural areas, brings in its wake a whole series of social, economic and adminstrative problems.

Dhaka and most other large cities are likely to bear the brunt of this enormous growth of urban population unless this can be contained by effective future policies regarding their control. A study in the Harvard University Population Centre (HUPC), has suggested that even if there is a drastic decline in the fertility rate, the number of urban residents will increase by ten-fold by 2003. This is equivalent to adding 29 cities the size of Dhaka over the next 24 years.(8).

REFERENCES

[1] Cited in the World Bank Report, 1980.

[2] "Thana" is the Bengali word for police station.

[3] Bangladesh Bureau of Statistics (Dec.,1985). Statistical Year Book 1984-'85. pub. Statistical Div. B.B.S. p.-129.

[4] Cited in 'Population of Bangladesh' (1981). Country monograph series no.8. pub. ESCAP, Bangkok and UN, New York p.-23.

[5] The Dainik Bangla (1987). "Dhakay 37 shotangsho lok bostite bash kore". p.-1 & p.-5.

[6] The Far Eastern Economic Review (6 Aug.,1987)."No Place Like Home ; Dhaka faces upto its chronic housing shortage". Vol.-137, no.-32. p.-51.

[7] The Far Eastern Economic Reviewop. cit.

[8] Charles L. Choguill. (1980). An analysis of Implementation in Dacca :Past and Future. TRP 17 pub. Deptt. of Town and Regional Planning University of Sheffield.

TABLE I 1901 DISTRIBUTION OF URBAN PLACES AND POPULATION

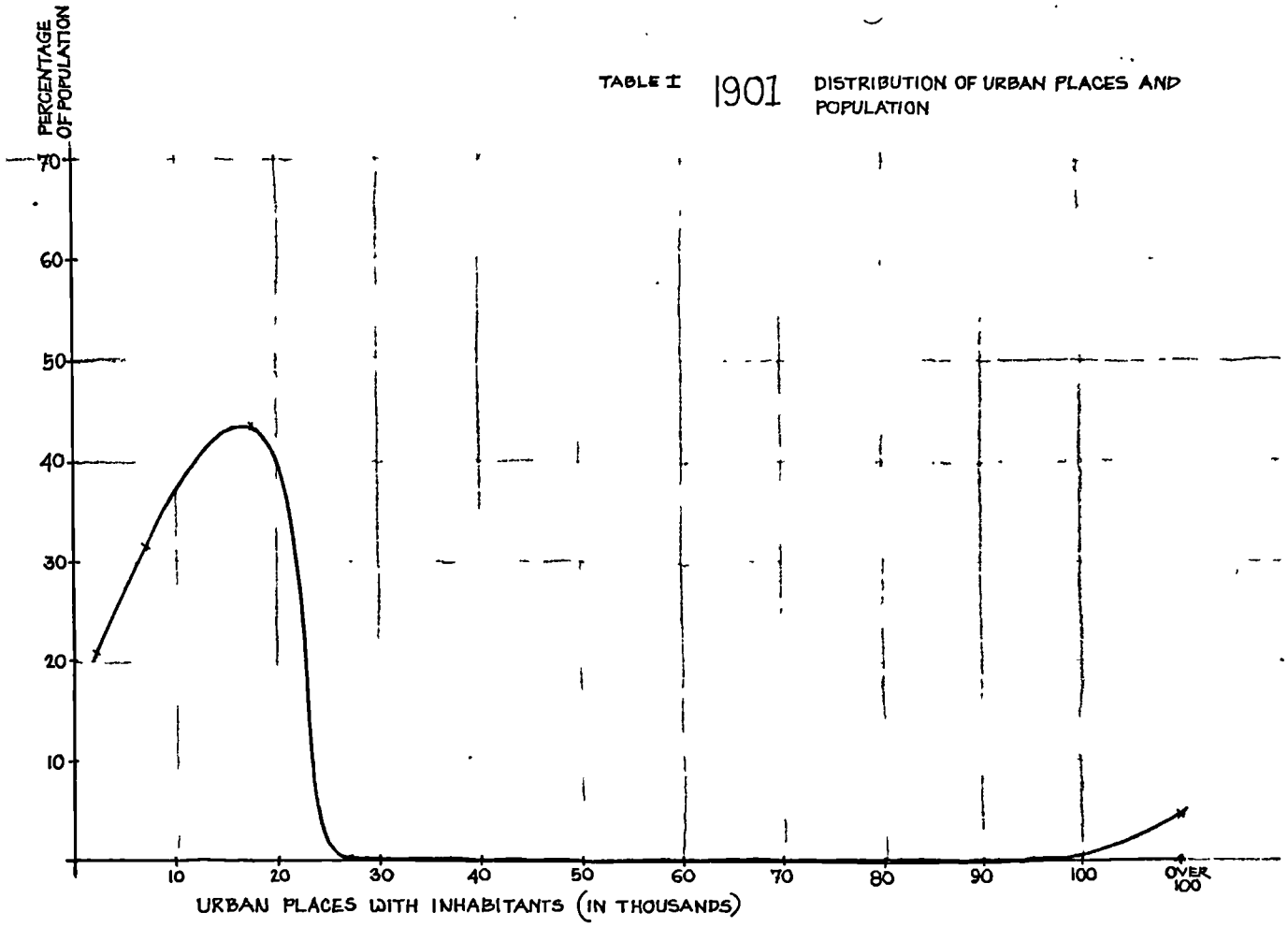
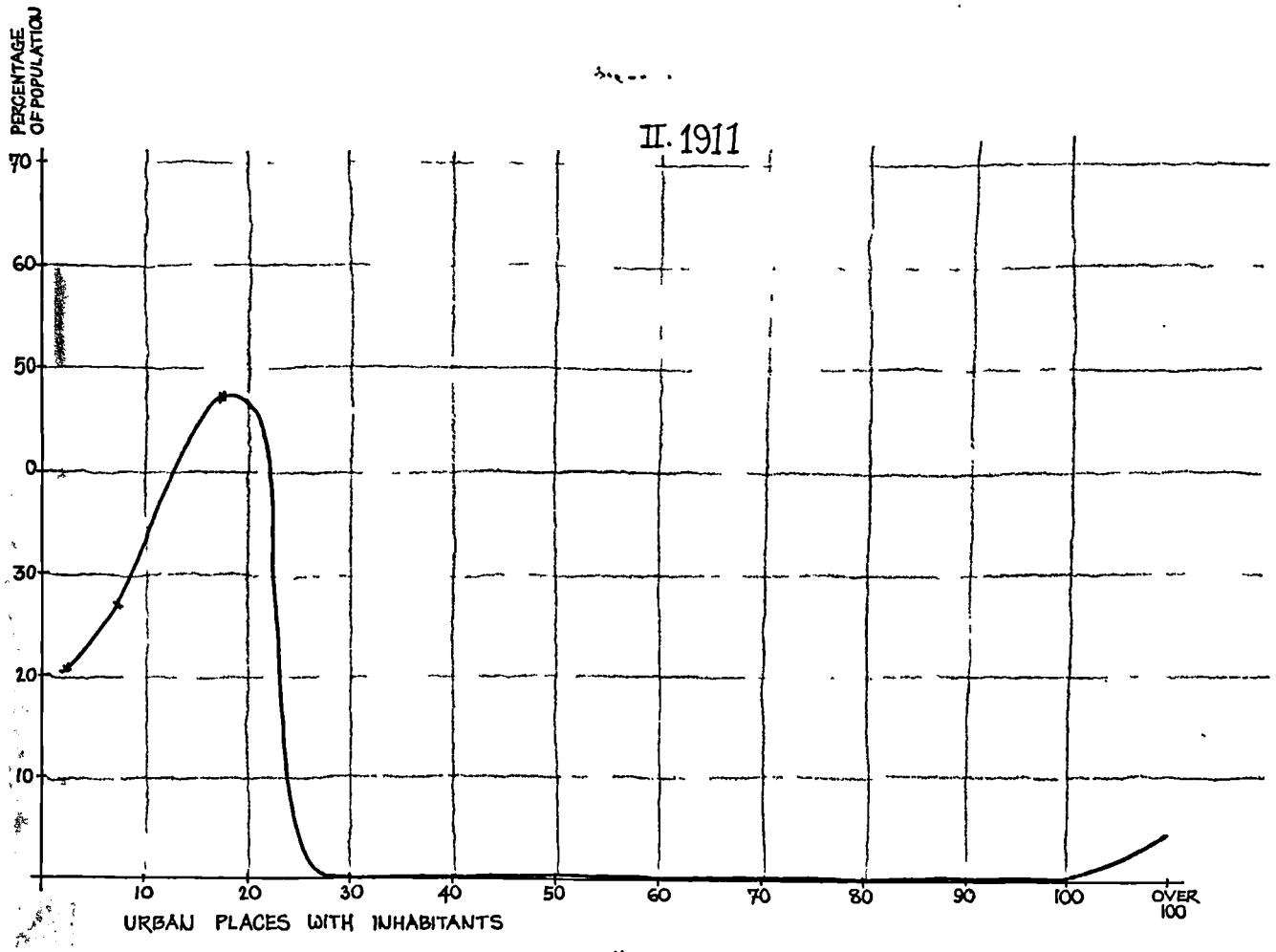
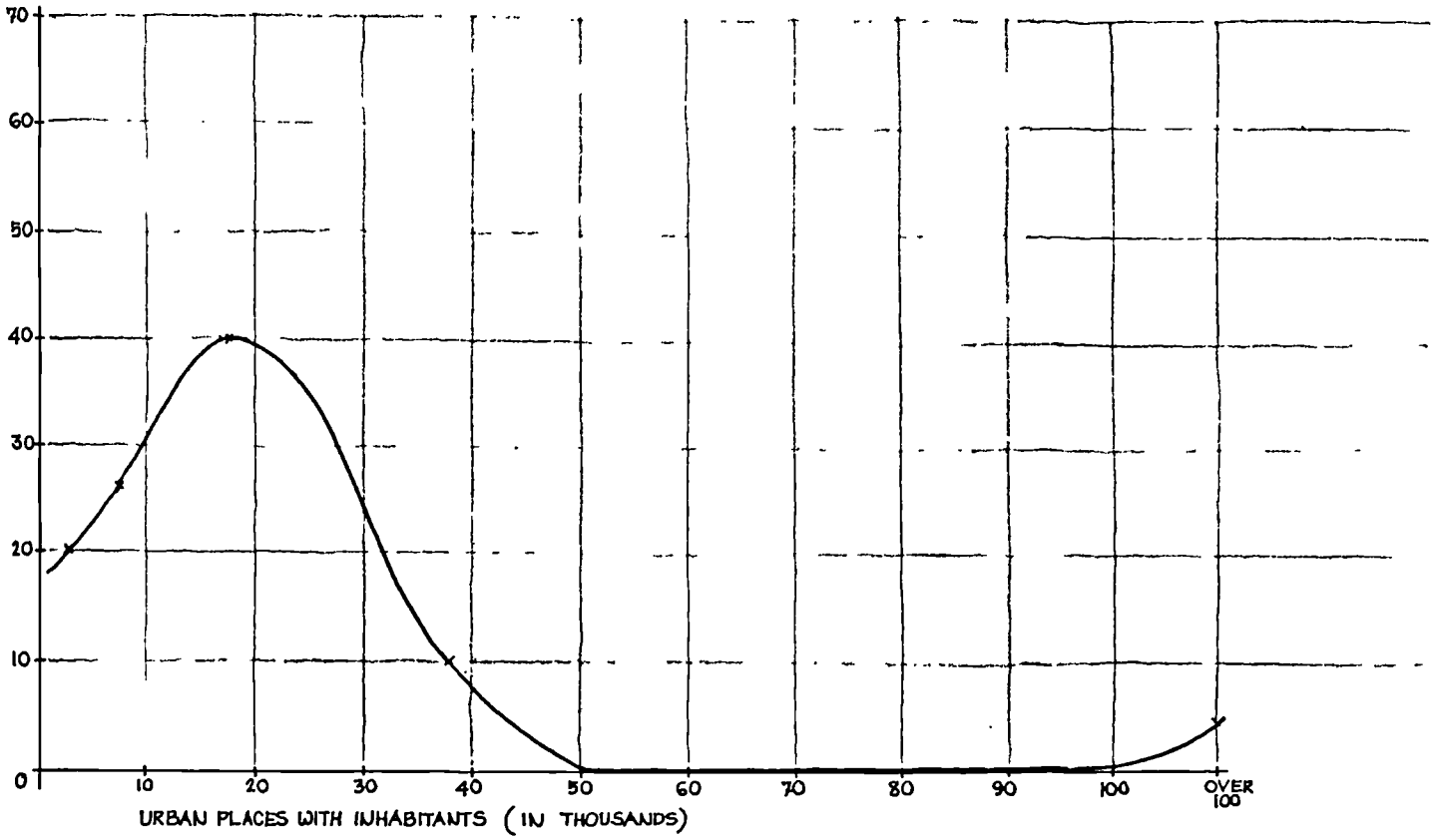


FIG. 2.1 : I to VIII

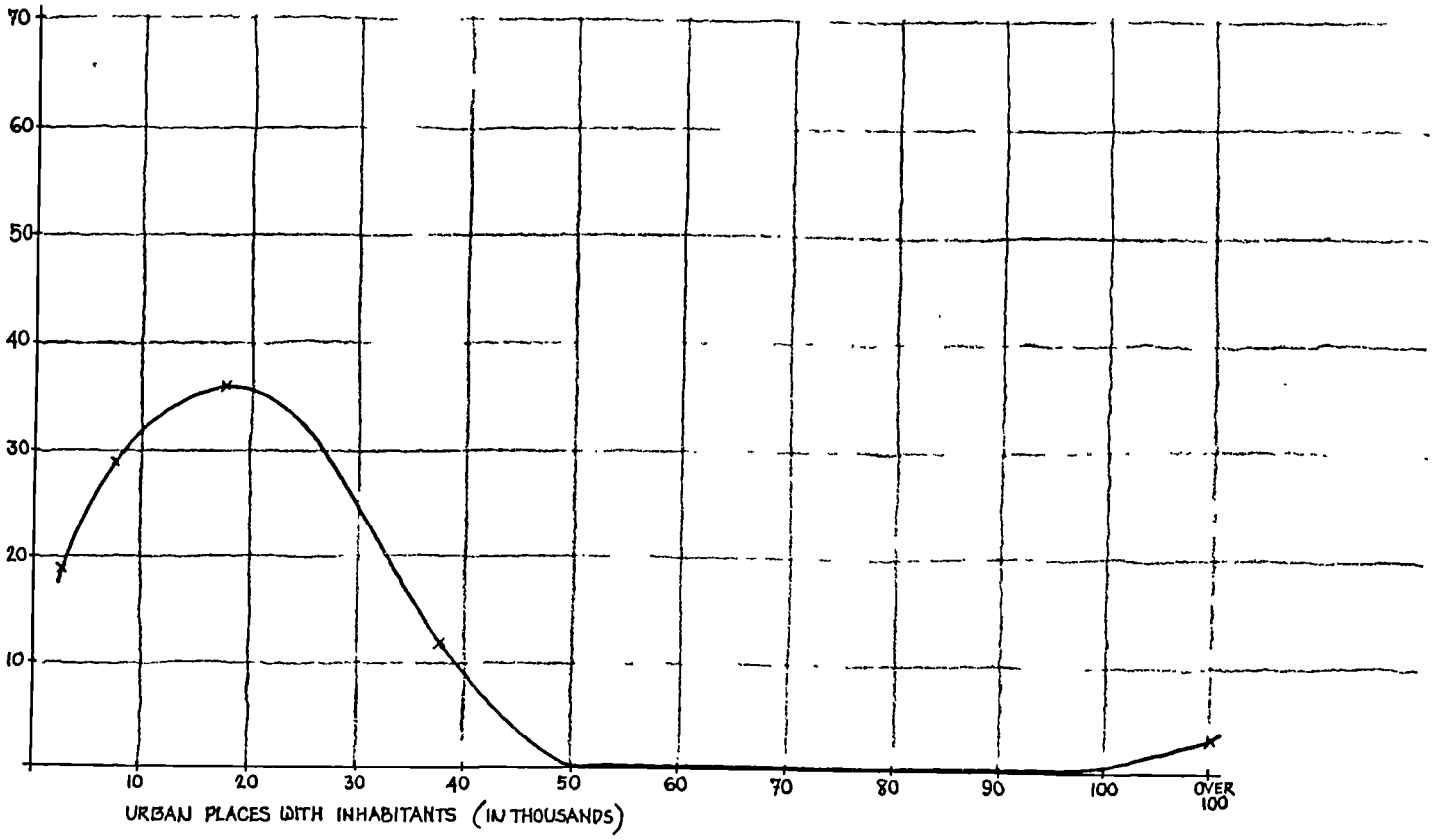
II. 1911



III. 1921 DISTRIBUTION OF URBAN PLACES AND POPULATION



IV. 1931



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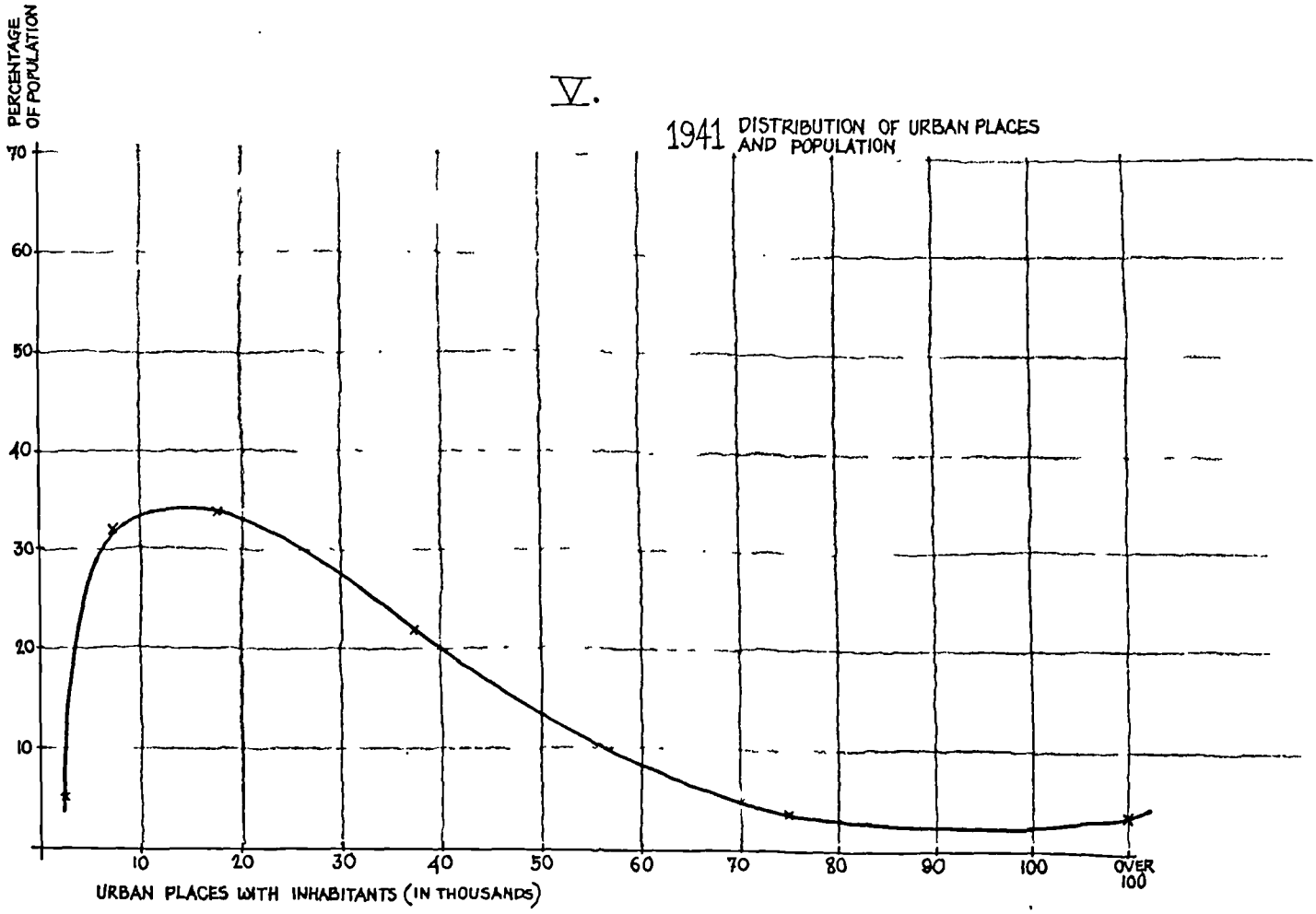
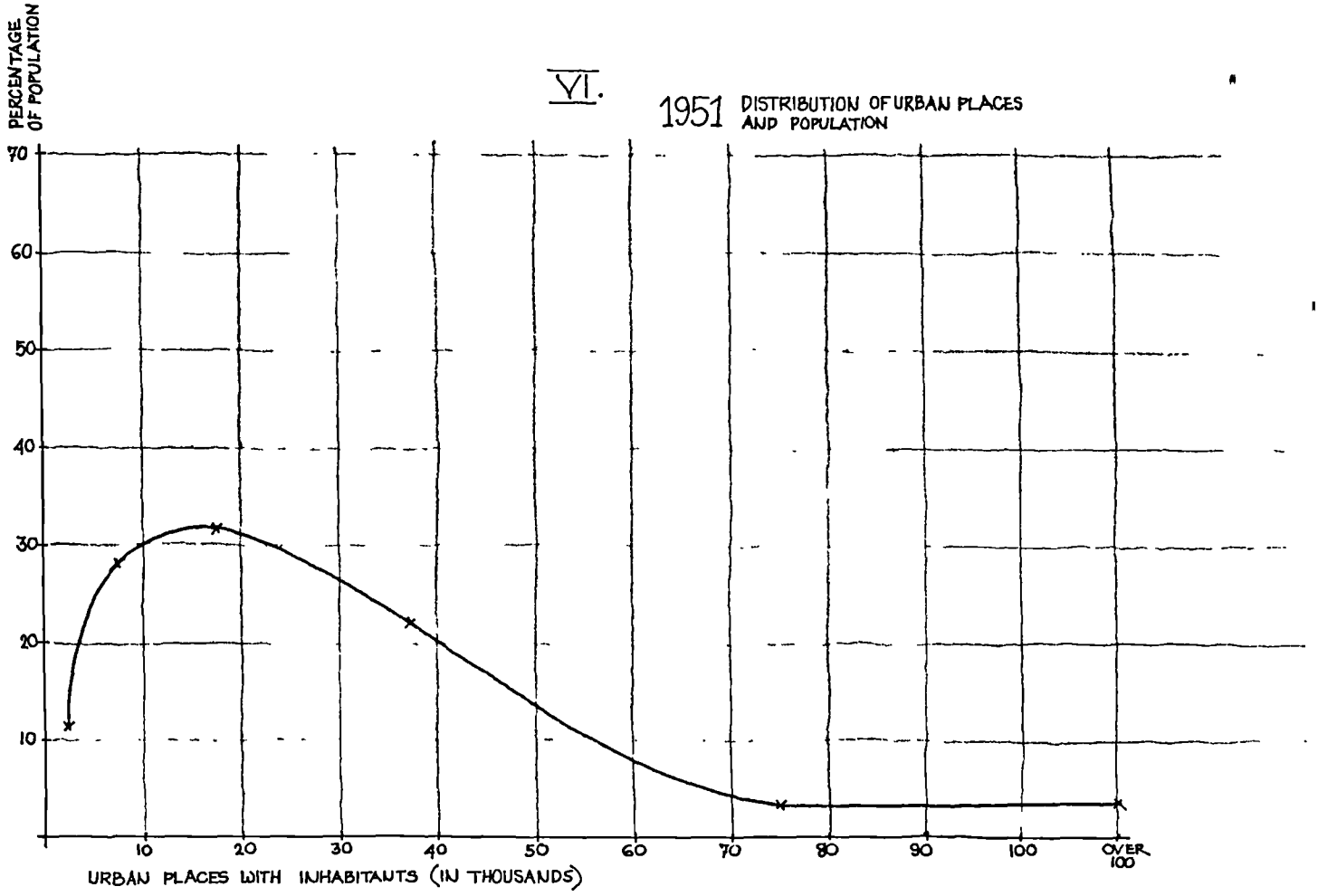
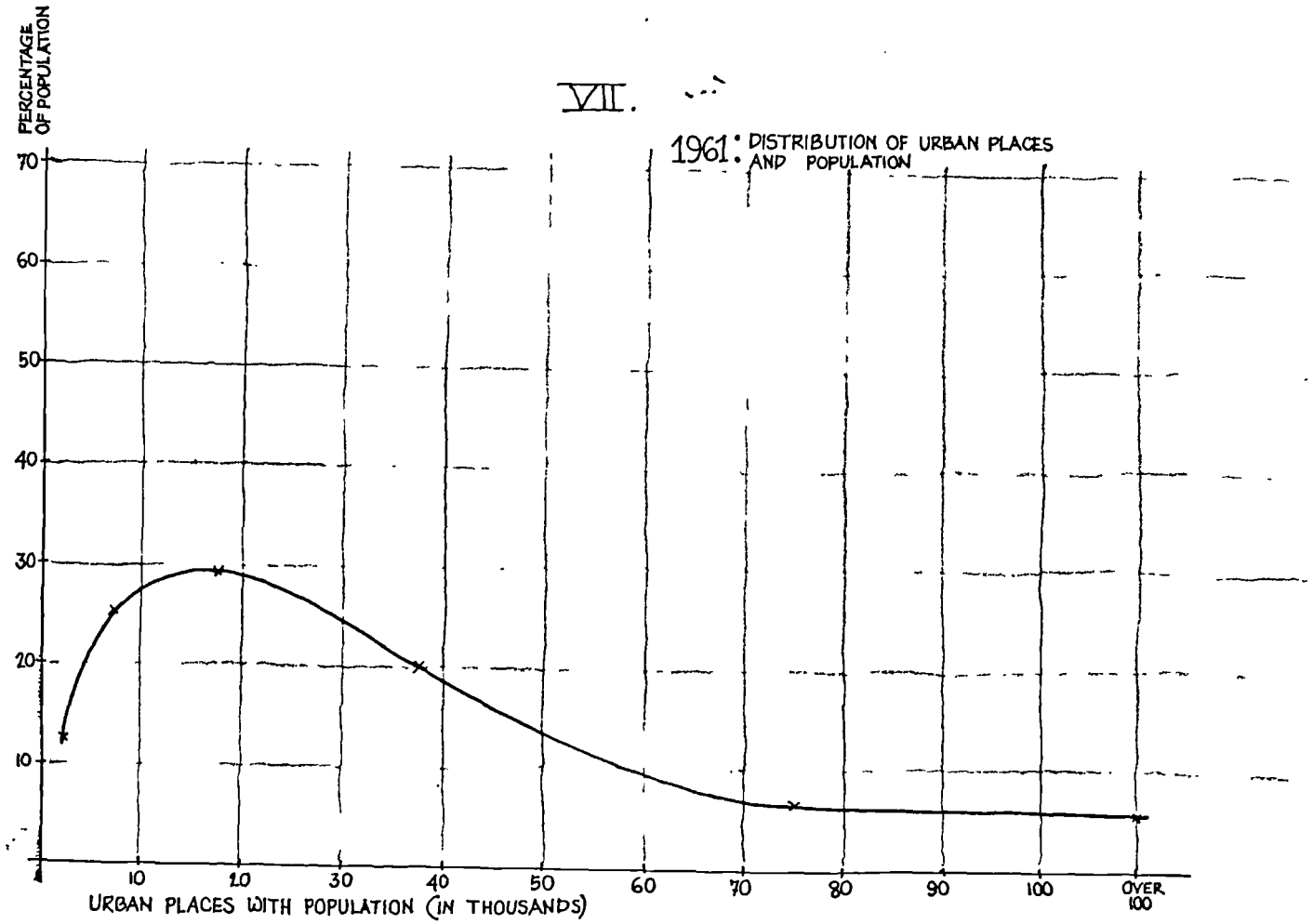

1941 DISTRIBUTION OF URBAN PLACES AND POPULATION
PERCENTAGE OF POPULATION
70
60
50
40
30
20
10
10
20
30
40
50
60
70
80
90
100
OVER 100
URBAN PLACES WITH INHABITANTS (IN THOUSANDS)

VI.


1951 DISTRIBUTION OF URBAN PLACES AND POPULATION
PERCENTAGE OF POPULATION
70
60
50
40
30
20
10
10
20
30
40
50
60
70
80
90
100
OVER 100
URBAN PLACES WITH INHABITANTS (IN THOUSANDS)

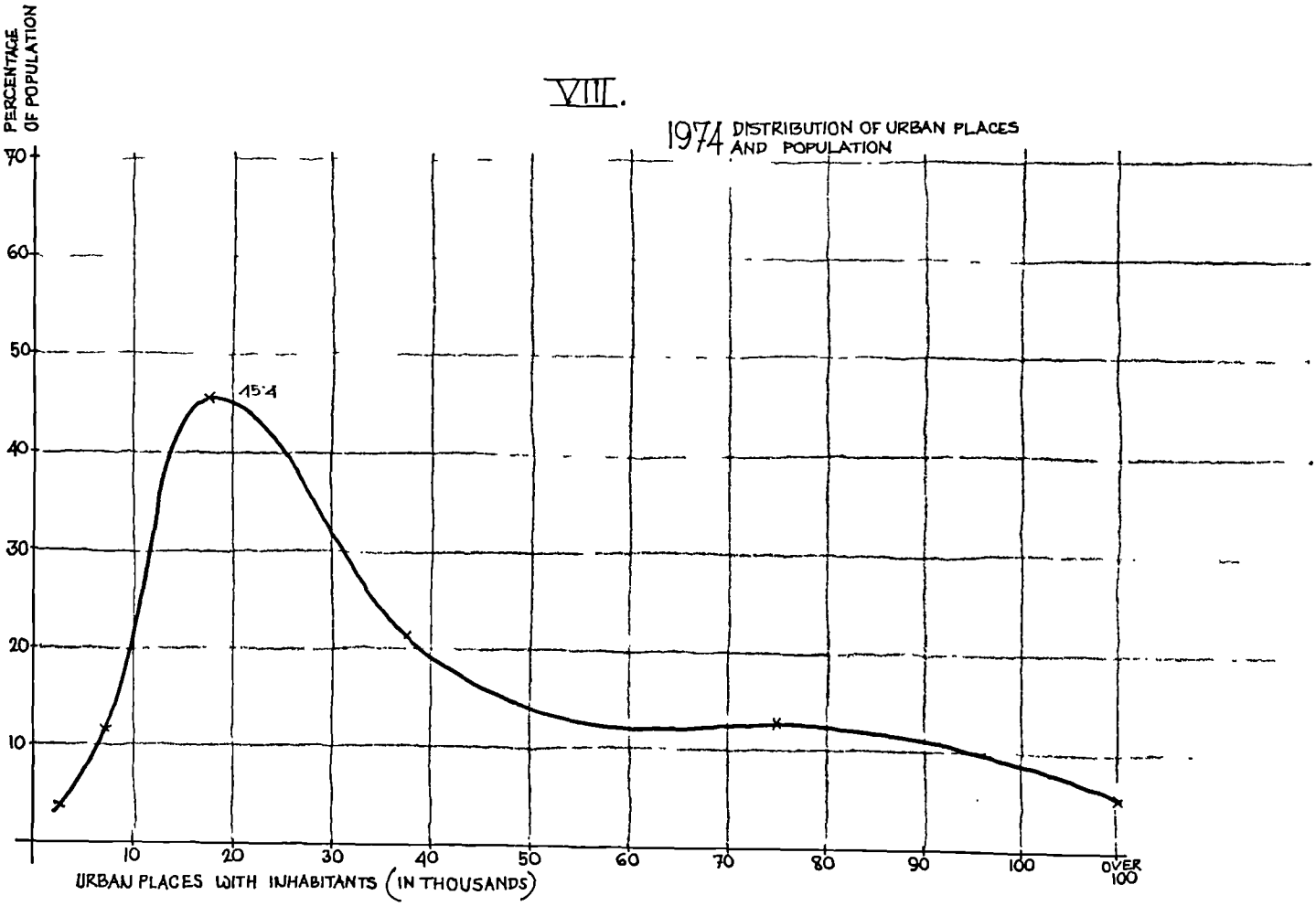
VII.

1961. DISTRIBUTION OF URBAN PLACES AND POPULATION



VIII.

1974 DISTRIBUTION OF URBAN PLACES AND POPULATION



CHAPTER THREE

THE URBAN HOUSING QUESTION

3.1 INTRODUCTION

In dealing with the quantity and characteristics of the existing housing stock, either for the country as a whole or especifically for the Dhaka city area, availability of reliable and dependable data are found very limited.

In 1973 for the first time after the liberation of the country, comprehensive information on different aspects of housing was gathered by the census commission but unfortunately much is not easily available; also they are now too outdated to be of much value for future reference or use. In most of the cases appropriate and accurate comparison can not be drawn due to lack of statistics of similar nature and kind.

Although in 1981 census report of Dhaka statistical metropolitan area (SMA), some information about the number of households and dwelling units is provided nothing substantial is revealed regarding the backlog of housing units thereof. Anomalities with the city's population of 1974 and 1981 are found in the figures quoted in section 3.3 and table 3.6.

3.2 URBAN HOUSING SITUATION

Increasing growth of population in Bangladesh over the past decades has resulted in the corresponding growth in household formation. Comparison with the data of the years 1960, 1973 and 1981 shows that the population has increased by about 41% (1960-1973) and 22% (1973-1981), during the intercensal period (Table 3.1).

Table : 3.1 : Growth of population : Bangladesh

	1960	1973-'74	1981	% increase '60-'73	% increase '73-'81
Total population	50,840,235	71,479,071	87,120,119	40.6%	21.8%
Urban:	2,640,726	6,273,603	13,228,163	137.6%	110.8%
Rural:	48,199,509	65,205,468	73,891,956	35.3%	13.3%

source: (i) Statistical Year Book, 1981-'82.
(ii)1981 figures are cited from Statistical Year Book, 1984-'85, p.-84.
note : figures in the 1981 statistical year book were shown against the years 1960 and 1973 instead of 1961 and 1974 in other statistical books.

Table : 3.2 : Growth of households

	1960	1973	1981	'60-'73	'73-'81
Total households	9,602,852	12,675,583	14,785,048	32.0%	16.6%
Urban:	470,795	1,065,353	2,041,933	126.3%	91.6%
Rural:	9,132,057	11,610,230	12,743,115	27.1%	9.8%

Sources:(i): Housing Census, 1973; Bangladesh Bureau of Statistics; (ii): Cited in the Population of Bangladesh, country monograph series no.8. (iii): 1981 figures are cited from the Statistical Year Book, 1984-'85, p.-156.

It can be observed from Table 3.2 that the total no. of households has increased from 9,602,852 in 1960 to 15,135,000 in 1981, showing an increase in percentage of 32.0 ('60-'73) and 16.6('73-'81). Especially alarming is the growth rate for urban areas, which shows a percentage increase of 126.3 for the period of '60-'73 (13 years) and 91.7 for the period of '73-'81 (6 years). For the country as a whole, the average size of household has increased from 5.4 (1960) to 5.6 (1973) and finally to 5.7 in 1981, the percentage increase being 3.7 for '60-'73 and 2.67 for '73-'81.

3.2.1 Comparative analysis of the situation with other cities

We have seen from the experience of the urbanization situation in Bangladesh , in the previous chapter that there is a continual migration of rural population to the cities in desperate search for means for survival. Each influx is further increased by frequent occurings of flood, drought or other similar disasters.

The cities which are already overburdened in terms of utilizing the civic facilities , immediately face a tremendous problem like over-crowding, housing shortage, deteriorating environmental conditions of slums or squatter settlements etc., associated with uncontrolled growth.

The four major cities in Bangladesh where the situation is already of alarming dimensions are Dhaka, Chittagong, Khulna and Rajshahi.

Table :3.3 : Metropolitan population in 1981 compared with 1974

Major Metropolitan areas	1981	1974	variation over '74 number	percentage
Dhaka metro. area	3,458,602	1,679,572	1,779,030	105.9
Chittagong metro.	1,388,457	889,760	498,716	56.1
Khulna metro. area	623,184	437,314	185,870	42.5
Rajshahi metro. area	171,600	132,909	38,691	29.1

Sources:(I) preliminary report on population census, 1981
(II) Statistical year book of Bangladesh, 1981; p.-54. Bangladesh Bureau of Statistics.

From table 3.3 it is observed that the population of Dhaka marks a percentage increase of 105.9 against the rise of 56.1, 42.5 and 29.1 percent for Chittagong, Khulna and Rajshahi metropolitan area, during the inter-censal period of '74-'81.

The upward trend of over-crowding to the major urban centres can also be established from Table 3.4, which shows a comparison of the increase of population in terms of percentage during the years 1951-'61 and 1961-'74. The highest magnitude stands for Khulna, a port city in the southern part of Bangladesh, is one of the most prominent pull factors of the region, shows an alarming increase of 242.7% percent in the years 1961-'74. The metropolis of Dhaka shows 222.4% increase and Chittagong, another port city shows 144.3%.

The situation of average no. of persons per house in the large cities are revealed in table 3.5. All of the four cities mentioned in the table shows the number above 6; and for Dhaka it was 7.65 in

Table : 3.4 : Percentage Increase of city's population

Name of the city	% increase 1951-1961	% increase 1961-1974
Dhaka	66.0	222.4
Chittagong	93.0	144.3
Khulna	209.0	242.7
Narayanganj	123.5	67.0
Rajshahi	42.0	133.7

source: Census Commission, Govt. of Bangladesh, Dacca; cited in "An Approach to Investigation of the Urban Housing Problems of Major Urban Centres of Bangladesh (1978); HERC publication no.2, p.-2.

Table: 3.5 : Average no. of persons per house

Name of the city	1960	1973
Dhaka	5.50	7.65
Chittagong	4.99	6.42
Khulna	5.51	6.68
Narayananj	----	6.10

Source: Housing Census, 1973. Government of Bangladesh, Dacca. op. cit., p.- 4.

1973 as against 5.5 in 1960. It can be mentioned here that, although it is not possible to determine precisely the desired number of persons per room that would ensure the maintenance of health and privacy of occupants, a recommended rate adapted for tropical countries is a maximum of three persons per room (Perera, 1976 .. 1 On the basis of that criterion the average number of persons per room for the low-income group in particular is more than 3, as most of them in Dhaka have no more than a single room in which to dwell.

A report published by the Housing and Environmental Research Cell of the Department of Architecture (BUET), in 1978 observed:

"Not to speak of small and medium size urban centres, in any of the four or five cities, we hardly find any organised housing development, except for some insignificant number of ventures by the Government and semi-Government agencies. All we see are sub-standard houses, slums, squatters and street dwellers -- a settlement of stagnation and misery".

3.3 HOUSING SITUATION IN METROPOLITAN DHAKA

Dhaka, the capital city was formed as a metropolis a few years ago, in the '80s. The city had a population of 1,679,572 in 1974 which was increased to 3,458,602 in 1981 showing a variation of 1,779,030 or a percentage variation of 105.9 over 1974 (BBS, Statistical Year Book, 1982). (The year book of 1984-'85 shows a variation in the population of the metropolis to 3,430,312 in 1981. (2).

It should be noted here that the area which corresponds to Dhaka in 1974 included areas covered by the following police stations : Cantonment, Demra, Dhamrai, Dohar, Gulshan, Keraniganj, Kotwali, Lalbagh, Mirpur, Mohammadpur, Motijheel, Nawabganj, Ramna, Savar, Sutrapur, Dhanmandi and Tejgaon (Poulation Census report, p.-24).

In the 1981 population census, Dhaka corresponds to larger area including Narayanganj, Mirpur, Gulshan and Tongi municipalities; the areas covered by the police stations of Siddirganj, Demra and Gulshan, part of Keraniganj, Fatullah, Bandar and Savar areas and the entire cantonment area are also included . As per the decision of the

census authority the above areas thereafter refer to Dhaka Statistical Metropolitan area (Bangladesh Bureau of Statistics, 1985).

3.3.1 The informal sector

Our approach in this section is to concentrate on the existing housing conditions which now exist in a critical state within the metropolis. They fall broadly within the two categories of squatter settlements and slums; being mostly similar in their physical characteristics, they are discussed commonly in the informal sector.

After the liberation of the country in December, 1971, the drift of rural population to Dhaka city started to rise. It was a continuous process of unauthorised urban agglomeration since the partition of 1947 and was reinforced by :

(I) successive natural calamities of the late sixties, which are very common with the vulnerable deltaic land of this country and are associated with the seasonal flood [for example an estimated number of 300,000 lives were lost by a catastrophic cyclonic storm in Novm., 1970 alone (3)];

(II) the genocide of 1971 along with the political turmoil and liberation struggle [about 1,500,000 people died and property worth millions of Taka was destroyed (4)];

(III) the prevailing condition of famine of 1974 [which allegedly claimed about 500,000 lives (5)];

In Dhaka metropolis at the end of 1974, about one-eighth of the total city population was living in squatter settlements under extremely deteriorating physical and environmental conditions. No-one knew exactly how many squatters actually lived within these areas; the most likely figure was about 200,000 (Choguill, 1980)(6). During the first week of January, 1975 the squatters of Dhaka were expelled by the police, forced either to return their native villages or to settle in one of the three camps located on the outside of Dhaka city. In an attempt to live near their places of work, many of the squatters, particularly those who were sent to more distant camps like Duttapara or Demra, moved back to the city.

Unlike many other third world cities in Dhaka, squatting is not concentrated in selected pockets on Government land or land with disputed ownership. The distribution of squatter settlements is of fragmentary nature and in the early eighties the majority had less than 100 households and the largest no more than 415 (DMAIUDP report, 1981) (7). Many dwellings consist of lean-to structures within the inner city areas made of sackings on bamboo frames Other squatters are inevitably found camping along the railway track and other Government areas in fragile tent like shelters (plates 3-1, 3-2).

In 1981, the report concerning with the urban development of Dhaka city (DMAIUDP report) identified 240 isolated slum areas within the boundary of Dhaka municipality. The largest concentration was within the old Dhaka area with a largest contiguous one at Islambagh on the northern bank of river Burhiganga, with approximately 11,000 households (see chapter 6, for more). Most areas had no more than several hundred households, which indicates that these are also characterized by fragmentations. Many of the clusters are also found with having 10 or more contiguous units. It should be noted that since no existing regulation is effectively applicable in order to control the growth of the deteriorating, haphazard and hazardous environments, it is found highly profitable for the landowners, (without any or with a very little investment) to offer their small piece of land for the development of extremely overcrowded slums.

The shelter conditions are similar to those of the squatter settlements. Mostly made of temporary and dilapidated materials they are vulnerable to floding or inundation and are quickly worn out immediately after the advent of the monsoon. Community services are absent in these areas and infrastructure facilities are almost nil or grossly inadequate. In terms of the usage common in Dhaka, conditions in slums are characterised by the dilapidation of materials, overcrowding within rooms, inadequate water supply, sanitation, refuse disposal, drainage and vehicular inaccessibility.

Several analyses indicate that the total number slum-dwellers were lying between 700,000 and 750,000 at the early eighties which, added to the population of squatters forms around 850,000 or more. This represented about 30% of the urban population in 1980 (DMAIUDP report, 1981) (8). Similar conclusions can also be drawn from other sources identifying 771 slums or bustees within Dhaka metropolitan area itself with an approximate population of 730,000 roughly concentrated in 600 acres of land (Choudhury, 1985). The average density of population in slum areas is over 1200 persons per acre (9).

3.4 HOUSING PERFORMANCE OF THE PUBLIC SECTOR

Urban development authorities have not been able to respond to the needs related to the shelter problems of the squatters, slum-dwellers and the lower-income groups, because of fiscal limitations (as they are supposed to have self-liquidating projects for urban developments).

Most of the public sector housing schemes are currently designed in the form of multistoried flats; they are constructed specifically for public servants and the rent is recoverable as a percentage of their salary. Rent is recovered from them at the rate of only 5% of

the basic salary (in case of a basic salary of Tk. 400/00 or below) and 7.5% (in case of others). Thus, the Government accomodation is subsidised provisions and the privilege is enjoyed by the public servants only. In a few cases where it is made available for general public are usually later taken over by the Government departments as a result of political and inter-departmental pressures.

A somewhat dissapointing performance is observed during the first five year plan period (1973 to 1978), when only 1,152 flats were constructed nationally. At the end of the seven year period in 1979/80, about 8,456 housing units were constructed, 2000 plots were developed and 300,000 shallow drinking tube-wells were sunk (The Second Five Year Plan: 1980-'85, 1983).

If the three squatter resettlement camps set up in 1975 are added to the stock, the national public sector average output,at the begining of this decade, would still have not produced more than 6,000 new opportunities per year in the form of serviced units (DAIUDP report, 1981). It was revealed by the Planning Commission in 1983 that for about 465,000 Government employees in the country there were only about 20,000 housing units. This covered only about 4.3 percent of the employees (The Second Plan, '80-'85) (10).

An estimate was made by the UDD/UNDP National Housing Policy and Programme project, in order to ascertain the quantity of housing constructed by the public agencies within the Dhaka city. It was

reported in their preliminary report that the total units ever constructed was in the order of 35,000, of which 10,000 are core units and 15,000 are medium rise flats; the remainder being bungalows, hostels and dormitories.(11).

In Mohammadpur, the area which was lying at the north western outskirt of the city during the '60s, one of the largest single comprehensive housing development works was undertaken. The project was originally intended to rehabilitate the refugee families displaced by the partition of India in 1947. A total number of 2,292 core houses were built in Mohammadpur between 1959 and 1964 in order to resettle the destitute refugees; 288 one-roomed flats, 90 two-roomed flats and 24 three-roomed flats (varying in size from 200 to 600 sq. feet) were also built for the low and lower-middle income population. In addition 1,600 serviced plots intended for all income groups (size varying from 144 to 1000 square yards) were also provided (Khan, 1980). After the liberation in 1971 most of the non-Bengali refugees left Bangladesh and the housing was gradually occupied by the local citizens. As a demonstration of a self-improvement housing scheme, the project is considered to be a successful one by some observers; however,most of the plots are now fully developed usually with multistoried dwellings and the housing estate is now almost wholly occupied by upper-middle income and upper-income groups who are mainly owner-occupiers and are renting out the whole flats or rooms for residential or commercial purposes or for both.

3.4.1 The Bastuhara project

Another housing scheme executed by the Housing and Settlement Directorate in the mid '70s is probably the first one for the lower-income group in the history of the country, through which a total no. of 4,304 single roomed units were provided in different sections of Mirpur area located around the northern periphery of the city. The population of Mirpur is predominatly low-income and many of them are now living in these overcrowded public sector single-roomed units and in uncontrolled slums. (Growth of the township along with the details of the project are described in chapter 10, section 10.1). According to a press report circulated by the Ministry of Works last year, the Government has taken up a similar housing scheme of constructing 'pucca houses' (permanent units), for the slum-dwellers of Duttapara rehabilitat ion area. It is stated that about 15,000 people will benefit from this project (Observer, 1986) (12).

3.5 HOUSING NEED AND EFFECTIVE DEMAND

Rapid growth of urban population associated with very limited economic opportunities and the high cost of land have combined to create a serious housing problem in the cities of Bangladesh, particularly in Dhaka. In between 1973 and 1981 about 600,000 new households have been added to the urban population, the vast majority of whom have very limited incomes.

It is difficult to measure precisely the present housing need because of the incomplete data base, but it is certainly especially acute in Dhaka. With the data available from the 1973 housing census the backlog of housing units is estimated as outlined in table 3.6 below:

47,195 housing units were required to be added to the stock in that corresponding year. The table also expresses the estimates of the backlog of houses for the cities of Chittagong and Khulna. 4,607 units in Chittagong city were required to be built as well as 9,500 for Khulna. It should also be taken into consideration that the backlog numbers are gradually going up since a little has been added to the existing housing stock from 1974.

As revealed from the 1981 census there were about 576,956 households distributed all over the statistical metropolitan area against 527,311 accommodated in dwelling units, which quantitatively demonstrates a deficiency of 49,654 units existing at that time.

According to the estimation made in 1981 by the World Bank, the housing need will almost inevitably become more critical with the high expected rates of future urban growth. Table 3.9 outlines the housing needs anticipated in urban areas during the next 20 years, based only on the expected increase in the urban population and calculated on the basis of a medium growth rate of 6.5 persons per unit in 1980 declining to 5.5 persons per unit by 2000.

Table:3.6 : Total population, residential house, estimates of required number of residential houses and estimated number of backlog of houses in the municipalities of Dhaka, Chittagong, Khulna and Narayanganj in 1973/'74.

Municipalities	Total population	Total no. residences	Estimated required houses	Backlog of houses
Dhaka	1310,976	171,301	218,496	47,195
Chittagong	416,733	64,848	69,455	4,607
Khulna	437,304	63,384	72,884	9,500
Narayanganj	176,495	28,963	29,441	478

sources:(I) Government of Bangladesh; Bangladesh Population Census, Bulletin 2. (II) Office of the Census Commission; Mimeo, 1974. (III) Choudhury, R H ; Managementd of migrants to urban regions of Bangladesh in National report on Human Settlements, Bangladesh, 1976; -- cited in M M Ali and S A Hasnath; An approach to investigation of the urban housing problems of major urban centres of Bangladesh (1978)

Table : 3.7 : Population and households by use of structure in Dhaka SMA

	Total	Households dwelling	Insti-tutions	Business/ Industry	Floating/ Transient
Households:					
Number	576,965	527,311	22,463	27,191	---
Percent	100	91.4	3.9	4.7	---
Population:					
Number	3,440,147	3,054,060	169,308	118,672	98,107
Percent	100.0	88.8	4.9	3.4	2.9

source: Bangladesh Bureau of Statistics; Population Census, 1981; Table HO1. p.-1 (1985).
note : This table shows households and poipulation by use of structures. 'Institution' includes educational and religious institutions, hospitals, jails etc. 'Business/Industry' includes those households which carry out business and manufacturing activities in some premises where they live. Persons enumerated in railway stations, launch/steamerghat, boats, open spaces, hostels etc. on the census night are included in 'Floating/Transient' population.

Table : 3.8 : Population and Households in dwelling units classified by tenure status, in Dhaka SMA

	Dwelling Units			
	Total	Owned	Rented	Rent-free
Households:				
Number	527,311	178,485	294,942	53,884
Percent	100.0	33.8	55.9	10.2
Population:				
Number	3,054,060	1,200,985	1,568,142	284,933
Percent	100.0	39.3	51.3	9.3

source : as Table 3.7, above.

Table: 3.9 : Estimated new shelter requirement : 1980-2000

	1980		2000		1980-2000
	popln. (millns).	h'holds ('000)	popln. (millns)	h'holds ('000)	new housing units reqd.
Dhaka	3.35	515	9.30	1,691	1,176,000
Chittagong	1.43	220	4.00	727	507,000
Khulna	0.70	108	2.30	418	310,000
Other cities (100,000)	0.19	121	3.50	636	515,000
Cities (50,000-100,000)	1.03	158	3.70	672	514,000
All other	4.54	698	16.30	2,963	2,265,000
Total urban	11.80	1,820	39.10	7,107	5,287,000

source: The World Bank, urban sector memorandum; Table III-2.

It shows that over 5 millions new shelter units will be required in Bangladesh, during the period of next 20 years, among which Dhaka alone would require a supply of 1,176,000 units to the existing stock.

3.5.1 DMAIUDP report: population growth and household formation

The Dhaka Metropolitan Area Integrated Urban Development Project (1981) obtained the following projections for the population of the metropolitan area:

Year	Population	Number of Households
1980	3,375,000	709,000
1985	4,532,000	935,000
1990	5,879,000	1,324,000
2000	9,037,000	2,152,000

The average size of households in 1980 is considered 4.76 which appears to be rather low, because according to the report in Dhaka there are many single person households, mainly unaccompanied male migrants, which reduce average household size. However, considering the model household size at Kallyanpur and comparing it with some other inner city areas, and taking into account the increase in overcrowding dwellings likely to occur with increased pressure on inadequete housing stock leading to more joint households, the average household size is later assumed to 5.5 for the purpose of calculating the gross housing need. Rounded to the nearest thousands the number of new households formed would then be in the order of :

Period	No. of Households	Average per year
1980-1985	210,000	42,000
1985-1990	245,000	49,000
1990-2000	574,000	57,000

3.6 CONCLUSION

According to a World Bank report forecast, Bangladesh will have to build at least 300,000 housing units a year at an estimated cost of Taka 30 billion (US $ 1 billion) to keep pace with the population surge. By the end of the century it is estimated Dhaka will have to house at least 11 million people (13). Accordingly, during the period to 1990, the city will require more than 50,000 units to be built annually to meet the housing need of the metropolis. During 1990 to 2000 the requirement will be to turn-up about 57,000 units per year. All agencies of the public sector put together at their best can not cope with more than 2000 units, against this massive requirement.

Absence of a well defined settlement policy thus will see Dhaka extremely overcrowded with resulting effect of urban blight. Doston reviewed the housing policy in the south-east Asian countries and labelled it as : "unconscious, partial, uncordinated and negative. First, it is unconscious in that the decision makers are unaware of the policies of proportions and features; it is partial because the Government do not use it effectively; it is unco-ordinated because it is formulated apart from existing urban and housing plans; and it is negative because many public instruments and interventions are aimed at diverting, retarding or stopping urban growth rather than

increasing housing supply for low income groups"(14).

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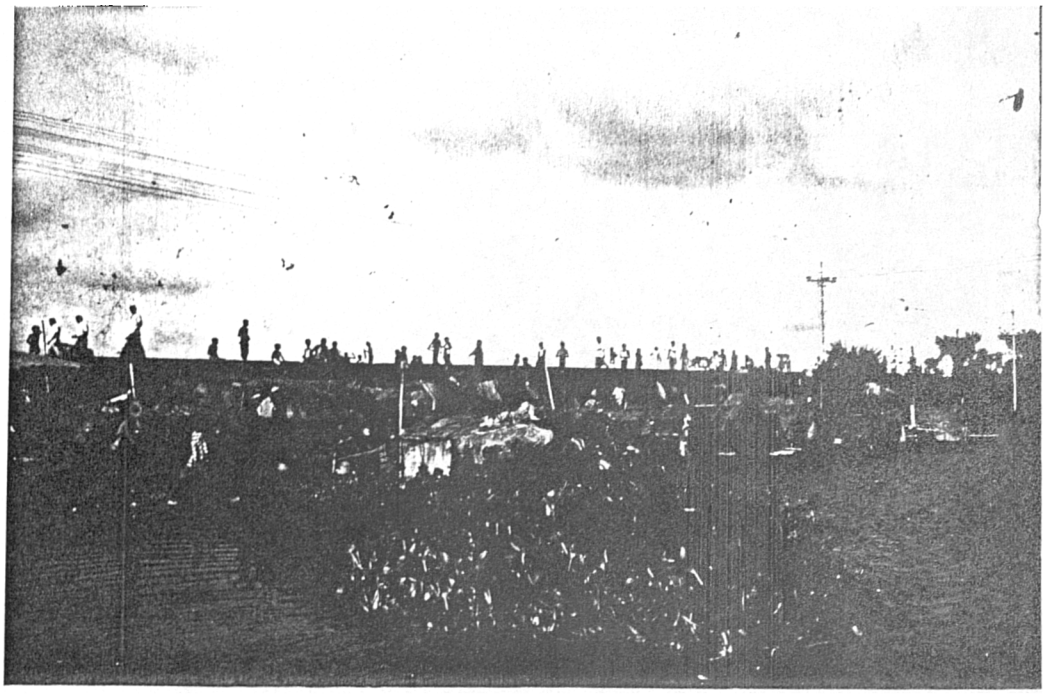

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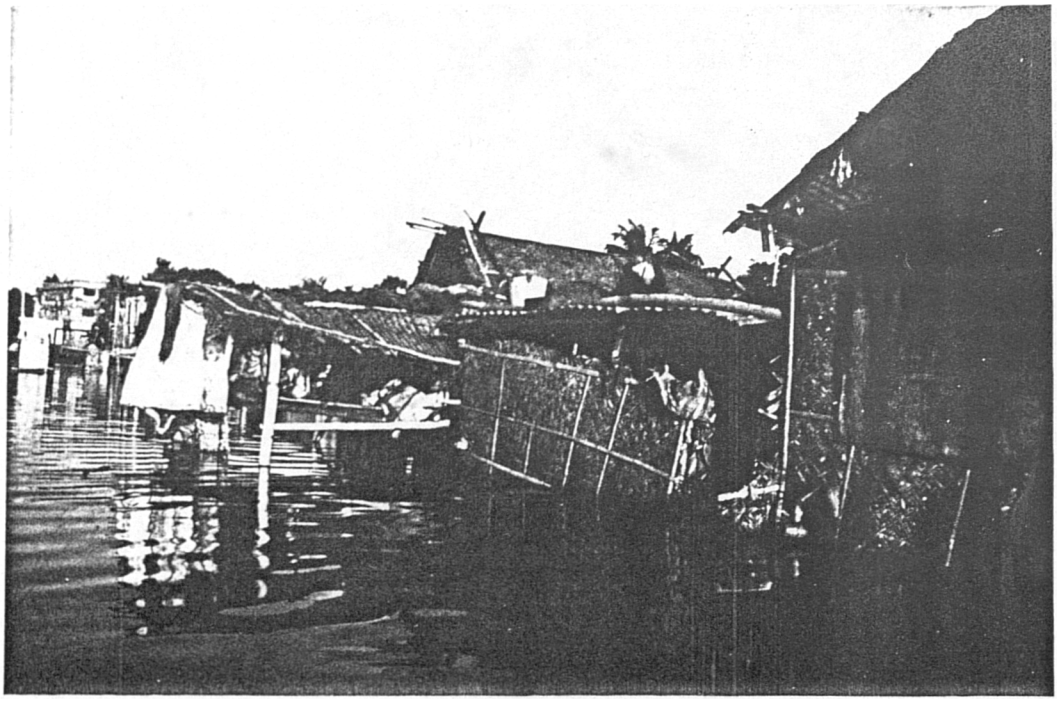

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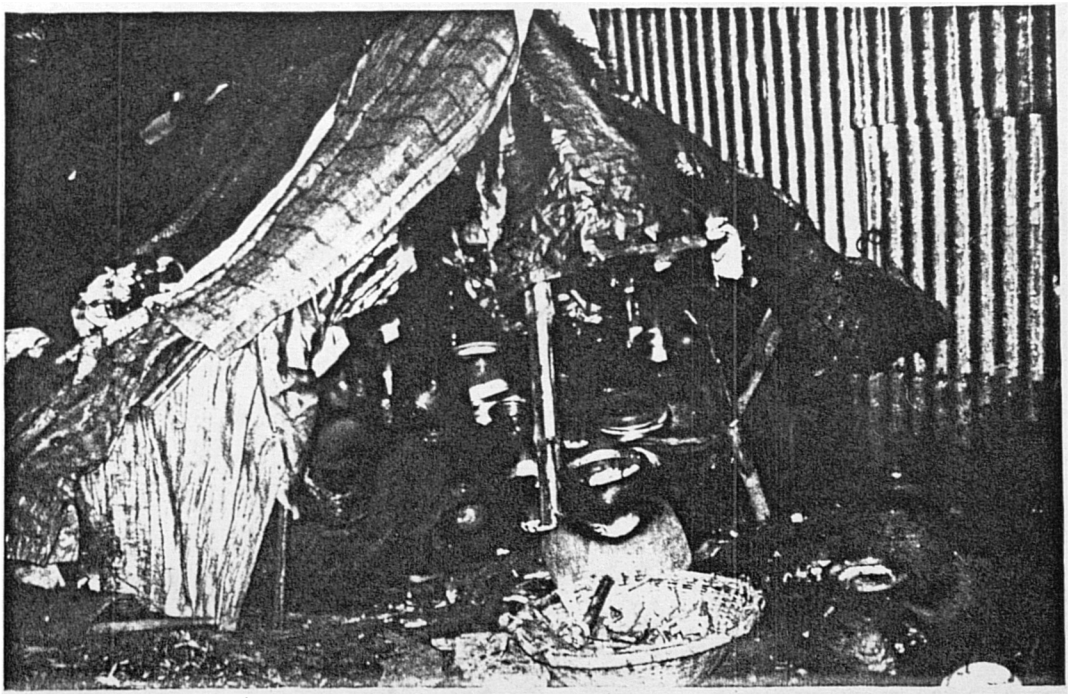

c

PLATE : 3-1 a b c

SQUATTERS BESIDE THE RAILWAY LINE and TEJGAON, 1983

a.

b.

PLATE : 3-2

THE INNER CITY SQUATTERS (1986).

CHAPTER FOUR

INCOME DISTRIBUTION PATTERN

4.1 INTRODUCTION

The main reason for embarking on this chapter is to illustrate in general the income and expenditure situation of the households of the city, defining the poverty threshold and finally to identify the lower income group with a view to determine their affordability in housing investment.

In order to do so, the issues are addressed initially through different aspects of the distribution of national income and the inequalities in its distribution. Comparisons of household income and expenditure in the city are drawn with the help of the consumer price indices; some of these statistics and tables are included in the appendix.

Previously, a study of the aspects of household expenditure of different sectors of population and their affordability in housing investment was undertaken by the Dacca Metropolitan Area Integrated Urban Development Project in 1980. Their findings are evaluated and reviewed in analysing the affordability of the lower income population with respect to this research, in the concluding section.

4.2 ISSUES RELATED TO THE DISTRIBUTION OF NATIONAL INCOME

The economy of Bangladesh has passed through very difficult stages since the early '70s. Various reasons like rapid increase in oil prices and declining export prices, particularly in case of the chief exporting crop jute, the terms of trade deteriorated by 30% within two years. Due to extremely difficult short term and long term development problems, the Government finds it very hard to achieve improvements in the levels of distribution of income. In the fiscal year 1983, the per capita gross national product was equal to US$116 only.

4.2.1 Income differences and inequalities

Of about US$ 10.50 billion GDP [World Almanac, 1984 (1)], which constitutes a significant proportion of the national income, 42% of the wealth are consumed by the highest quintile of the society, allocating only 7% for the lowest quintile, thereby creating a kind of inequality severe in magnitude and dimension.

In urban areas correct information about inequalities are not available. Even so, there is certainly no doubt about the existence of inequality. Maniuruzzaman (1982), observes :

> "There are large income differences between various categories of Government servants, between managerial staff and wage workers in the industrial sector, between affluent trading and professional groups and slum dwellers. The present Government strategy on industrial

development serves only to accentuate the inequalities".....(2).

4.2.2 The income situation

The well being of the population of Bangladesh is generally highly sensitive to the agricultural situation. Prices of essential commdities decline with a good harvest and a reverse situation is experienced with natural disasters.

With the world wide inflation in 1970 and the inevitable political turmoil in 1971, the economy of Bangladesh was severely affected because of her high dependence on imports of capital as well as consumer goods and basic raw materials. As a step to protect the rate of inflation the Government had to devalue the currency in 1975. Between 1973 and 1980 money supply increased by 148 percent when GDP grew by 44 percent at constant prices.(3).

4.2.3 The growing rate of consumer prices

Prices continued to rise by a bigger margin than the money supply. The consumer price index for the middle class group [as mentioned by the second plan (4)], in or around Dhaka city rose up from 181.5 (base 1969/70=100) in 1972-'73 to 408 in 1974-'75; it went down to 380 in 1975-'76 due to the reason might be attributed to a good harvest in that year. Since then the prices havebeen rising

continuously upto a new height of 561 in the year 1979-'80 (see table 4.a, appendix-A).

4.2.4 Trends in real wages

Inflation and the short supply of essential consumer goods seriously affected the standard of living of the people generally in the mid '70s. Industrial and agricultural wages failed to keep pace with price levels during the early years.

The improvement in wage conditions started to take place after 1975-'76 (with an exception in the fiscal year 1977-'78), although the rate of recovery was very low. In 1979-'80, the working class had still a real income of about 20 percent below the 1969-'70 level (table 4.b, appendix-B).

In rural areas the working population faced a yet degrading material life with the further accentuation of poverty. In 1963-'64, 96% of the rural households had income less than Rs.37/00 per head, a monthly required income to meet the internationally accepted minimum nutritional requirement. About 52% of the households and 40% of the population in rural areas were under absolute poverty level, with 10% of the households and 5% of the population under extreme poverty level. Definations of absolute poverty and extreme poverty are given in reference (5).

4.2.5 Change in poverty level

Table: 4.1 : Change in poverty level

	1963/64	1968/69	1973/74	1975/76(*r)
(a) Absolute poverty :				
% of households :	52	84	87	46
% of people :	40	76	79	
(b) Extreme poverty :				
% of households :	10	35	54	35
% of people :	5	25	42	

source : Bangladesh Bureau of Statistics
: Nutrition Survey of Bangladesh (*r) = rural

A household expenditure survey conducted by Bangladesh Bureau of Statistics in 1973/74 shows a significant deterioration in poverty levels (table 4.1 above). Although the country became independent in 1971, the trend towards the gradual degradation of material life of common people was noticeable evenprior to independence. In 1968/69 the proportion of absolutely poor people turned out to nearly double (76%) the corresponding figure of 1963/64 (40%). The percentage of households facing extreme poverty also shows a sharp increase from only 10% to 35% and from 5% to 25% in case of common people facing extreme poverty in the year 1963/64 and 1968/69 respectively.

In 1973/74 there was no sign of economic recovery. The percentage of households in case of absolute and extreme poverty increased to 87

and 54 respectively. However in 1975/76 a nutrition survey of rural areas arrived at a rather improved situation. An extreme poverty level of the households was determined to be 35 percent while the absolute poverty level was estimated at 46 percent. It has been stated that the improvement in absolute poverty level was likely because of good harvest of 1975/76 and the declining nature of general price level (table 4.2).

The household expenditure survey also reveals that with the possibilities of some degree of land, income and welfare between income groups of rural areas in mid '70s, some changes in the relative position of rural and urban income distribution could be observed.

4.2.6 Rural-urban income distribution

Between the years 1973/74 to 1976/77 the average household income in urban areas has gone up from Tk.629.5 to Tk.962.8; a similar upward trend can also be observed in rural areas from Tk.463.7 to Tk.679.9 for the same period. Without considering the depreciation of the home currency (which ultimately lead towards its devaluation in 1975), these figures determine an increase in percentage of 46.6 in rural and 52.9 in urban areas.

Table: 4.2 : Rural-urban income distribution
[Average household income per month]

Surveys	Rural	Urban	Ruralincome as % of urban income	% increase 73/74-76/77
1963/64	Rs.148.3	Rs.208.9	71.0	
1973/74	Tk.463.7	Tk.629.5	73.7	46.6% rural
1976/77	Tk.679.9	Tk.962.8	70.6	52.9% urban

source: The Second Five Year Plan 1980-'85.

4.3 COMPARISON OF THE HOUSEHOLD INCOME AND EXPENDITURE SITUATION IN DHAKA

In order to determine how much the income, although increased considerably in terms of percentage, is influenced or affected by the rise in expenditure, the issue is investigated through the consumer price index of 1969/70 to 1982/83 (table 4.c, appendix-C).

Considering the base 1969/70=100, it illustrates an increase in the index mark to 828.7 for food, 674.3 for housing and 797.7 for overall index in the year 1982/83.

The other aspect of the table shows the distribution of weights in the consumption of essential commodities for the year 1973/74. Being a very typical one it establishes the fact of spending more than 62 percent of the total expenditure on food alone, about 6 percent on clothing and keeping provision for spending only 11.85 percent in

HOUSING. The nature of this distribution, a distressing one, is one of the major determinants of the housing crisis in the country.

Concerning the other table about the consumer price index for Government employees in Dhaka (table 4.d, appendix-C), between the year 1970/71 and 1982/83 reveals probably a worse pre-dicament. A base of 1969/70=100 shot up to an index mark of 725.47 and 792.56 respectively for food and clothing in 1982/83. In housing sector the table demonstrates a big jump of rising the index from 100 to 1040.85, the highest ever in magnitude in 1982/83. Figures in this table refers to non-gazetted Government employees who have monthly salaries between Tk.100/00 to Tk.400/00 in 1969/70. The coverage of items and distribution of weights are based on the findings of a Family Budget survey of 1955/56.

A comparison has been made with curves plotted from food, housing and overall indices (figure 4.1, 4.2), which shows an increase in price index in more or less the same manner of the above metioned components. It is also revealed from the figure that due to the crisis of 1974 (6), the internal economy was severely affected; the consequence became very prominent in the rise of food and overall index curves.

In the second instance, a curve of building construction cost overlapped on those of housing and food [with consumer price indices for Government employees in Dhaka, 1970/71 - 1982/83, (table 4.e.

appendix-C)]. Here the effect of the 1974 crisis has been reflected in the construction cost, which was increasing in almost a similar manner to food, showing a remarkable increase in 1975/76, the subsequent year. As because there is a little or no control over the market situation by the authorities concerned, this price increase did not come down in the later period; instead it may have been a major force to retain the inclination of the housing curve throughout the year.

4.4 RELATIONSHIP BETWEEN THE HOUSEHOLD EXPENDITURE AND AFFORDABILITY OF LOWER INCOME GROUP

The lower income group of people in Bangladesh generally live at the level of subsistence, which means they can hardly afford to procure food and other essential commodities to fulfill the minimum nutritional requirement and basic needs, not to speak anything about the standard of living.

In the report of DMAIUDP, prepared for the Government of Bangladesh in 1981, by foreign consultants on the integrated urban development of the metropolis (7), some generalised aspects of the household expenditure and affordability during the period 1978-79 were covered with respect to the income situation of a wider range of population.

In this section we are attempting to make an overview of the findings on the above, eventually to draw a comparison with respect to the present situation in determining the income threshold and affordability of the lower income group in the following section.

4.4.1 Household expenditure classification

Their expenditure pattern, in general is strongly limited by the boundary of the small income they can make; since details of income status either not available or unreliable, in this event, the project considered the expenditures as virtual substitute for the incomes.

A classification of the household groups ranging from lower expenditure to higher, subdivided in deciles, has been made, against maximum monthly per capita household expenditure in 1978-'79 corresponding to each category.

For example the poorest 10% of the households make a maximum monthly per capita expenditure of Tk. 90/00; where as household groups upto the 8th decile make a maximum monthly per capita expenditure of Tk. 180/00.(Table 4.3).(8).

In order to make an assessment of the housing affordability, representative of these income groups, total monthly household expenditure is required; this is calculated with the average

Table: 4.3 : Distribution of household expenditure
(urban areas 1978-'79)

household groups (deciles)	maximum monthly per capita household expenditure (Taka)
poorest 10%	90/00
11-20	100/00
21-30	105/00
31-40	110/00
41-50	115/00
51-60	125/00
61-70	140/00
71-80	180/00
81-90	250/00
richest 10%	not available

source : DMAIUDP (draft) report, 1981

household size corresponding to each decile of the table. Figures related to the average household size, are derived from a household expenditure survey (BBS, 1973-74) (9), and placed beside after making necessary adjustments (10) to make it applicable in the period under consideration. With this addition the table illustrates the maximum monthly household expenditure corresponding to each of the deciles (table 4.4 below).

For example, the poorest 20% of the households have annual expenditure less than Tk. 8160/00 (or an approximate equivalent of 272/00 pound sterlings at that time), while the lower 40% and 60% of the households make an annual expenditure less than about Tk. 8880/00 (or an approximate equivalent of 340/00 pound sterlings at that time). Expressed in 1978-'79 prices and for all groups, expenditure is regarded as identical to income, in the study.

Table: 4.4 : Household expenditure 1978-79

Household groups (deciles)	Max. monthly per capita hh expenditure	Average hh size*	Max. monthly household expenditure	Max. annual household expenditure
	(Tk)		(Tk)	(Tk)
poorest 10%	90	7.1	640	7680
11-20	100	6.8	680	8160
21-30	105	6.7	700	8400
31-40	110	6.7	740	8880
41-50	115	6.8	780	9360
51-60	125	6.8	850	10200
61-70	140	6.5	910	10920
71-80	180	6.4	1150	13800
81-90	250	6.3	1575	18900
richest 10%	n.a	5.5	n.a	n.a

note : * from 1973-74 household expenditure survey, after necessary adjustments
source : DMAIUDP (draft) report, 1981.

It has also been identified by the household expenditure survey in 1973-'74 that only households having a monthly per capita expenditure of Tk.200/00 or above in the same year could employ servants treated as non-family members.

4.4.2 Growth of income

Due to the unusual combination of inflation and recession in developed countries and the occurrence of the natural disaster of 1974 which brought the country to the verge of a colossal famine as well as the deteriorating terms of trade in the world market which sapped her resources, Bangladesh had to face a very slow recovery of economy; the GDP reached its 1969-'70 level in 1975-'76 in per capita terms. Between 1975 and 1980, GDP registered an increase of about

5.2 percent per annum. The first five year plan (1973-'78) aimed at an annual growth rate of GDP at 5.5 percent, which due to the similar constraints mentioned above was limited to 4.0 percent a year at that period.

With regard to the growth of income certain assumptions are considered in relation to the economy of Dhaka city :

a) It has been assumed that the rate of increase in gross domestic product would average 5% annually, during the 1980s. Gross domestic product would accelerate to an estimated amount of 7% annually, during the years 1990-2000.

b) After examining the consistency with the increase in population of the country, the growth rates would imply :

I) increase in incomes per head of about 3% annually in 1980s and

II) increase in incomes per head of about 5% annually in 1990s;

to increase investment and accelerate growth it is a pre-requisite that consumptions should rise slower than the output, allowing savings and domestic resources to rise.

c) Because of the present consumption level which is very low, it is judged that it would be impossible in the short term for

Government to restrain increases in consumption in the face of higher output per head. It is therefore assumed that during the 1980s, expenditure per head will rise at an average rate of about 3% annually, which is equal to the same rate of increase as expected for output. For the years of 1990s, it is assumed that the expenditure would rise at 4% annually, slower than the indicated rise in output.

In this analysis, the growth of income of Dhaka's population is assumed to be the same as the national growth rate.

4.4.3 Distribution of expenditure

Along with the estimation of the likely rate of increase in expenditure at personal level, it is also equally important to take account in the distribution of expenditure. It is expected that in future years potentially viable re-distribution policies will be implemented to enable the expenditure of the poor households to be increased.

This expectation is reflected in the following table 4.5. The maximum monthly per capita expenditure of the poorest 10% households shows a predicted increase of about two and a half times over 20 years.

Expenditures to be incurred after considering its annual rise of 3% per head as mentioned before, are shown in the 1990 column.

Column (1) of the year 2000 shows a predicted per capita expenditure of each decile group, assuming no change in the 1978-79 distribution; column (2) is placed after considering a 'modest degree of redistribution betweeen 1990 and 2000. With this calculation a monthly per capita household expenditure of Tk. 90/00 would be increased to Tk. 120/00 in 1990 and Tk. 180/00 by the year 2000 or Tk. 215/00 (if the re-distribution is favourable) for the households as expected. The significance of this set up is, for example, the expenditure of the households of the upper deciles starting from the 60th percentile, would be doubled (from Tk. 140/00 to Tk. 280/00) over the next twenty years.

4.4.4 Determination of affordability with respect to the expenditure

The expenditure situation analyzed in the preceding section is now further examined to determine the affordable amount of money, each household group can provide for housing.

Two levels of percentage equivalent have been taken into consideration as affordable :

a) a minimum expenditure of 8% annually conforming to the current behaviour

Table: 4.5 : Projected future household expenditure, 1978-79 prices

Household groups (deciles)	Max. monthly per capita hh expense ?(Tk.'78-'79 pr.)				
	1978-79	1990	(1)	2000	(2)
poorest 10%	90	120	180		215
11-20	100	135	200		240
21-30	105	140	210		245
31-40	110	150	220		250
41-50	115	155	230		250
51-60	125	170	250		250
61-70	140	190	280		280
71-80	180	240	360		360
81-90	250	335	500		450
richest 10%	500(est)	670	1000		900

Note :column (1) indicates per capita expenditure in each group in the year 2000 assuming no change in the 1978-79 distribution
:column (2) shows the implication of a modest degree of re-distribution between 1990 and 2000.
Source :DMAIUDP report, 1981.

b) a likely upper limit of expenditure of 15% annually

The next table 4.6, in the series of household expenditure illustrates the same with the calculated figures of annual expenditures on housing in terms of 8% and 15% stated above. The lowest decile, whose maximum household expenditure is Tk. 7680/00 is expected to provide Tk. 610/00 at the rate of 8% and Tk. 1150/00 at the rate of 15% as annual expenditure on housing, and so on.

Table: 4.6 : Housing expenditure, 1978-79

Household groups (deciles)	Maximum annual hh expenditure (Tk.)78-'79 pr.	Annual expenditure on Housing (Tk.) 8%	15%
0-10	7680	610	1150
11-20	8160	650	1220
21-30	8400	670	1290
31-40	8880	710	1330
41-50	9360	750	1400
51-60	10200	820	1530
61-70	10920	870	1640
71-80	13800	1100	2070
81-90	18900	1660	2840
91-100	--	--	-

source : DMAIUDP report, 1981.

4.4.5 Comments and evaluations

Although the study (DMAIUDP) has revealed the expenditure situation of urban households in general, certain anomalies are apparent within their findings; therefore its effectiveness, in relation to the expenditure pattern and affordability of the lower income sectors in housing developments, appears to be uncertain.

Firstly, it is not mentioned clearly in the above calculations as to what basis the affordability range, varying between 8% and 15%, has been decided upon.

Secondly, the income of the low income group is such that they are unable to cope effectively with the essential demands for the

existence of their life. It is revealed in the distribution of weights (in the consumer price index for the middle income families, table 4.c, appendix-C),that 62.74% in food and 11.85% in housing constitute the major components of their expenditure..

For the low income sector the distribution of weights is not exactly similar; it is certain that usually almost all of their small income is spent on food with a smaller proportion in paying rents. In other words their spendings mostly constitute two major aspects of food and shelter, while they are unable to attend other important aspects of their expenditure like healthcare, medicine, clothing, education etc.; the situation is more appropriate with the poorest 10% to the 70th percentile of the population.

Hence, the amounts considered to be affordable assuming an annual expenditure of 8% to 15% on housing, starting from Tk.610/00 to Tk.1100/00 (alternatively from Tk.1150/00 to Tk.2070/00, with an assumed upper limit of 15%), which equals Tk.50/83 to Tk.91/66 per month (then equivalent to a maximum of 3/00 pound sterlings only), appears to be so small when compared with their unattended demands, that it seems to be unreasonable to consider these smaller sums available for the annual expenditure on housing, particularly from the households of lower deciles upto the households of 70th percentile.

Thus the practical situation is, even assuming that the amount could be made available as an excess after meeting the expenses for food and shelter, this will certainly be demanded by other sectors responsible for uplifting their condition in order to reach upto the level of subsistence. Therefore, it should more appropriately be considered that with the existing source of their income the affordability prospects of this sector of population, generally tends towards zero. However, to increase their investment potentials in housing, it is to be approached through providing proper incentives for generating additional income sources; upon which the foundation of their shelter process can be laid and flourished.

4.5 IDENTIFICATION OF THE LOWER INCOME GROUP

I) With reference to the consumer price index.

From the consumer price index (table 4.c, appendix-C), it is evident that the costs of food for the year 1984/85 and 1983/84 have risen to 3.88 and 3.50 times higher than the costs of food in 1973/74.

While consumer price indices are not available for the low income families specifically, assumptions are made with the food indices for middle income families in determining the income equivalents of the lower income population in the metropolis; differences which can

emerge due to the calculation with middle income index (in absence of a low income one), are not large enough to assert that any assumption(s) made, other than the way it is in the consumer price index would provide better results. Since the low income families spend most of their earnings on food it is reasonable to compare the income situation with CPI food index for middle income families, which can provide a fairly clear picture of devaluation of the economy within a period of 12 years(1973 to 1985).

Whilst the income ranges for middle income families (in determining their cost-of-living index), were assumed to remain within Tk.300/00 to Tk.999/00 and that for low-income families below Tk.300/00 respectively [see foot note (2), table 4. ,appndx.-C], it helps to establish hypothetically that the low-income ceiling of Tk.300/00 as identified in 1973/74, can be considered equivalent to Tk.1050/00 in 1983/84 or Tk. 1164/00 in 1984/85 with respect to the price indices for food.....(a).

According to a recent news bulletin, it is revealed that the consumer price index for middle-income families in June, 1986 has risen to 464.67 against base 1973-74=100 ("Janomot" - May, 1987), which accordingly increases the amount equivalent to Tk.1395/00.....(b).

In these references, however the family sizes in determining the index values are not revealed.

II) The catagorisation of Urban Housing Demand Survey.

The survey, conducted for the Urban Development Directorate by the Institute of Statistical Research (University of Dacca) in 1970, dealt with the comparison of housing demands of various income groups of urban people. In classifying the sample households by income groups, the report mentions :

> "In order to get a broader picture of the income distribution, the urban households have been re-classified into 5 income groups, designated as low-income, lower-middle, middle, upper-middle and upper class income respectively. ... ... A household of a rickshawpuller or of a class IV employee has income between Tk.100/00 and below Tk.200/00 a month and taking such a household as belonging to the low-income class, the first income group has been decided upon.".(11).

In an attempt to decide the low-income bracket, we are investigating the issue with the next income range--the middle income group (starting from Tk.200/00 and above in this survey)- later verified and compared with the overall index figures for the same middle-income families. In order to do so, the index values are converted and corresponding values are calculated with respect to the base 1969/70=100; this shows increased index figure of 874.9 in 1983/84 and 971.6 in 1984/85 (table 4.c, appendix-C). These refer to an equivalent amount of approximately Tk. 1750/00 and Tk. 1945/00 for the years 1983 and 1984 respectively, the overall index figures for 1986 being unavailable.....(c).

While the amounts suggest the threshold of what is identified as the middle income range, simultaneously they also determine the upper limits of low-income range, in this survey which is equivalent to Tk.1945/00 per month.

With respect to the food index, which showed a marked increase from 100.00 in 1969/70 to 1028.08 in 1984/85 and 1230.00 in June, 1986, shows an increase of the equivalent amount upto Tk.2460/00 for the year 1986.....(d).

III) Supporting evidences in contemporary studies.

a) Some of the recent studies emphasising aspects of household income and affordability illustrate the income catagories.

Table : 4.7 : Socio-economic groups of Dhaka city inhabitants

Average income Taka per month	Socio-economic groups of the inhabitants of Dhaka city
upto 1500	Lower income
1501 to 3000	Lower middle income
3001 to 5000	Middle income
5001 to 7500	Upper middle income
7500 to above	Upper income

Sources: I. Centre for Urban Studies; Urban Housing and Shelter Process in Bangladesh; Department of Geography,Dhaka University, 1980; (Table 3). II. M.A. Khan; Country Report on Housing Situation of Bangladesh; paper presented in the seminar on Low cost Housing, organised by the Association for Science Co-operation in Asia in Tokyo, March, 1980.

*: Cited in S.M.Yamin; Closing the affordability gap in Dhaka: proposals for making private sites and services projects affordable to lower middle income households; unpublished Masters thesis of the AIT, Dec., 1985.

While identifying the target group in making a proposal of a private sites and service project for lower middle income households, the classification of households with respect to the socio-economic groups of the inhabitants of Dhaka city was illustrated as above.

II) Determining income with the trends in real wages.

Studies of agricultural wages revealed that although due to high incidence of landlessness almost half of the rural population depends on employment from sources other than their own land, the agricultural wages were however remaining at the subsistence level; in 1983/84 the daily average wage of an agricultural labourer could hardly support a family of two for a day at the poverty threshold income levels of living.

The per capita poverty threshold income level is considered as an income level which permits recommended daily minimum per capita intake of 2,122 calories and related necessities of life. Ultimately for the fiscal year 1984, the income level meeting the above requirements was calculated at Tk.300/00 per month. (12). Thus assuming an average number of 5 persons in a family, the poverty threshold income per family amounts to Tk.1500/00 in 1984.

With an average inflation range of 10 to 12% for Bangladesh currency the above figure of 1984 can be considered equivalent to Tk.1800/00 approximately in 1986.(13).

III) Government scale.

Low income group has been identified as the employees categorised in class III and class IV Government servants which correspond to the existing scale of Tk. 500/00 - 860/00 and Tk. 550/00 - 965/00. respectively.(14).

4.6 CONCLUSION

From the findings made with respect to the different income groups and income equivalents in (a), (b), (c) and (d) above, one can fairly identify the lower income range in the metropolis. While it would certainly vary with the household size, on average it tends to remain within the upper limit of Tk. 2000/00.

Hence, the target group in this research is identified as that particular sector of city's population characterised by :

I) the inability to earn the poverty threshold income level that is required for a minimum per capita intake of 2,122 calories of food and other necessities of life, as identified by the World Bank, or

II) having income equivalents around Tk.1800/00 per month for the year 1986 -- identified as the uppermost earning limit of the lower income group or the economically weaker section of the population.

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[2] **Talukdar Moniruzzaman** (1982).The States of South East Asia Problems of National Integration Jeyaratnam Wilson and Denis Dalton(eds.) London. C.Hurst and co. p.-279.

[3] **The Planning Commission.** (1985).The Second Five Year Plan(1980-'85) Review of Planned Development Ministry of Finance and planning.

[4] **The Planning Commission.** (1985).op. cit.

[5] 'Absolute poverty' and 'extreme poverty' are alternative concepts to signify poverty. In 1963-'64 prices, the term 'absolute poverty' stands for a income figure of Tk. 23.61, needed to satisfy 90 percent of the calorie requirement and 'extreme poverty' is for Tk. 17.02, required to satisfy 80 percent of the calorie requirement per person per month ---- as described in relation to income of the households in the review of planned development of the Second Five Year Plan.

[6] Series of natural disasters including seasonal flood, led to an undeclared famine in the country in 1974 which, as stated previously, might have claimed 500,000 lives; see Bangladesh an Unfinished Revolution, by Lawrence Lifschultz (Zed press, London); and also Population of Bangladesh , country monograph series no. 8 (the United Nations, New York, 1981).

[7] Shankland Cox Partnership in association with Binnie and partners and Bureau of Research Training and Consulting Services, BUET; Dacca Metropolitan Area, Integrated Urban Development Project, vol.I and vol.II; sponsored by Goverment of Bangladesh, Asian Development Bank and United Nations

Development Programme; submitted to the Ministry of Planning in 1981.

[8] In relation to the pound sterling, the external values of Bangladesh currency (TAKA or Tk. in short), had been fixed to Tk.28/00 = 1/00 pound sterling in the year mentioned therein. It should be noted that the values are subject to change.

[9] **The Bangladesh Bureau of Statistics** .Housing Expenditure Survey. 1973-'74.

[10] The adjustments probably have been made accordingly, but not explained properly in the study which has been referred here in determining the income and affordibility relationship.

[11] **Institute of Statistical Research and Training.**University of Dacca; Urban Housing Demand survey in Bangladesh-1970; pub. by Urban Development Directorate, Ministry of Public Works and Urban Development in 1974 p-8.

[12] The World Bank; Bangladesh: Economic and Social Development Prospects; vol.III : Population Growth and Long-Term Development Issues. Report No. 5409; pp 17-19. April 2, 1985.

[13] **Far Eastern Economic Review.** (10th July, 1986)."Still a long way to go : Despite growth, Bangladesh faces many financial hurdles."

[14] **Goverment of Bangladesh, Ministry of Finance** (Aug., 1985). Services (Pay and Allownces) Order, 1985. p.-5492.

[15] note: Weight : One of the co-efficients assigned to items of a frequency distribution that are analysed in order to represent the relative importance.

FIGURE : 4.1

Consumer price index for MIDDLE INCOME FAMILIES IN DHAKA— 1969-70 TO 1982-83 base 1969-70 = 100

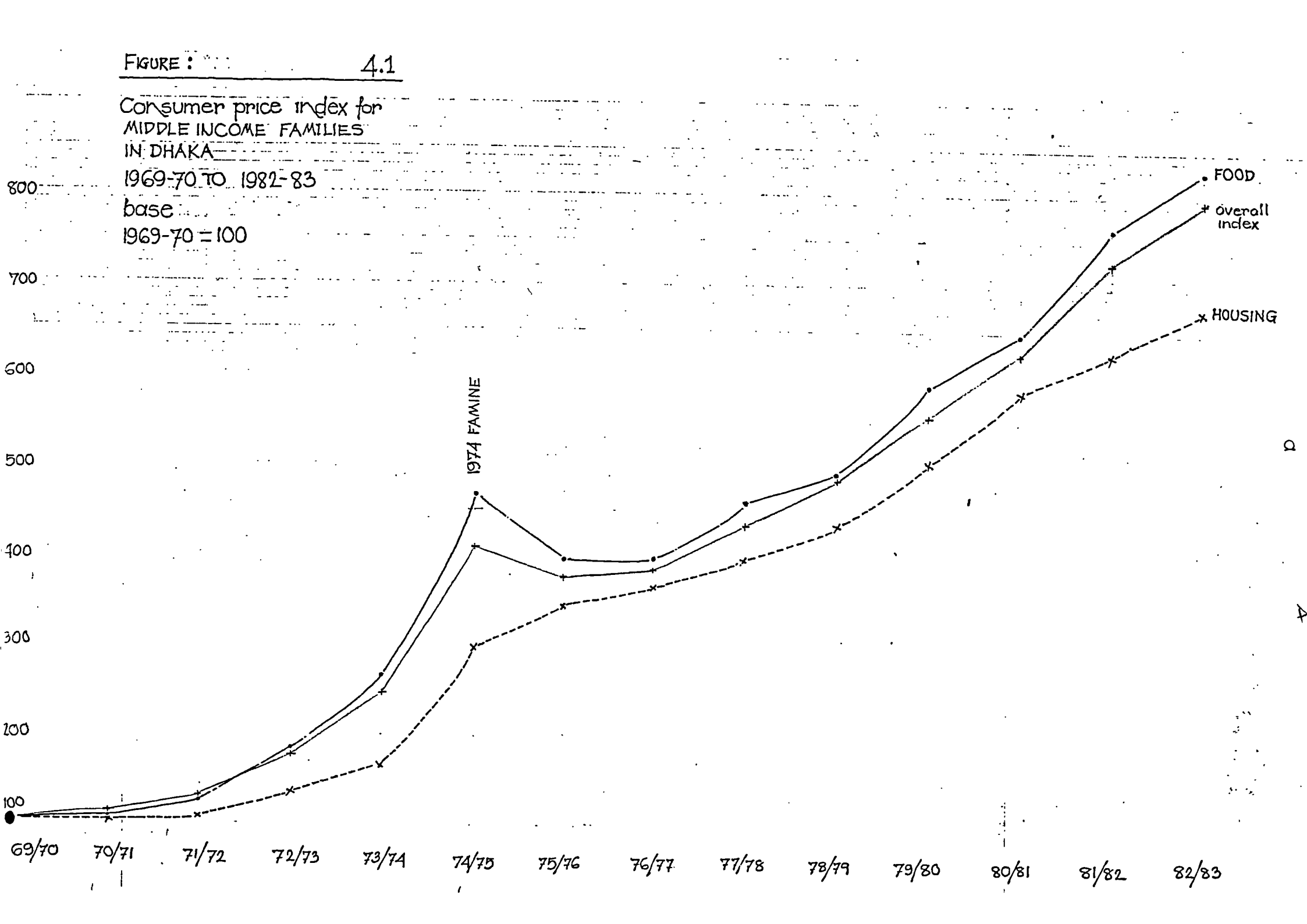
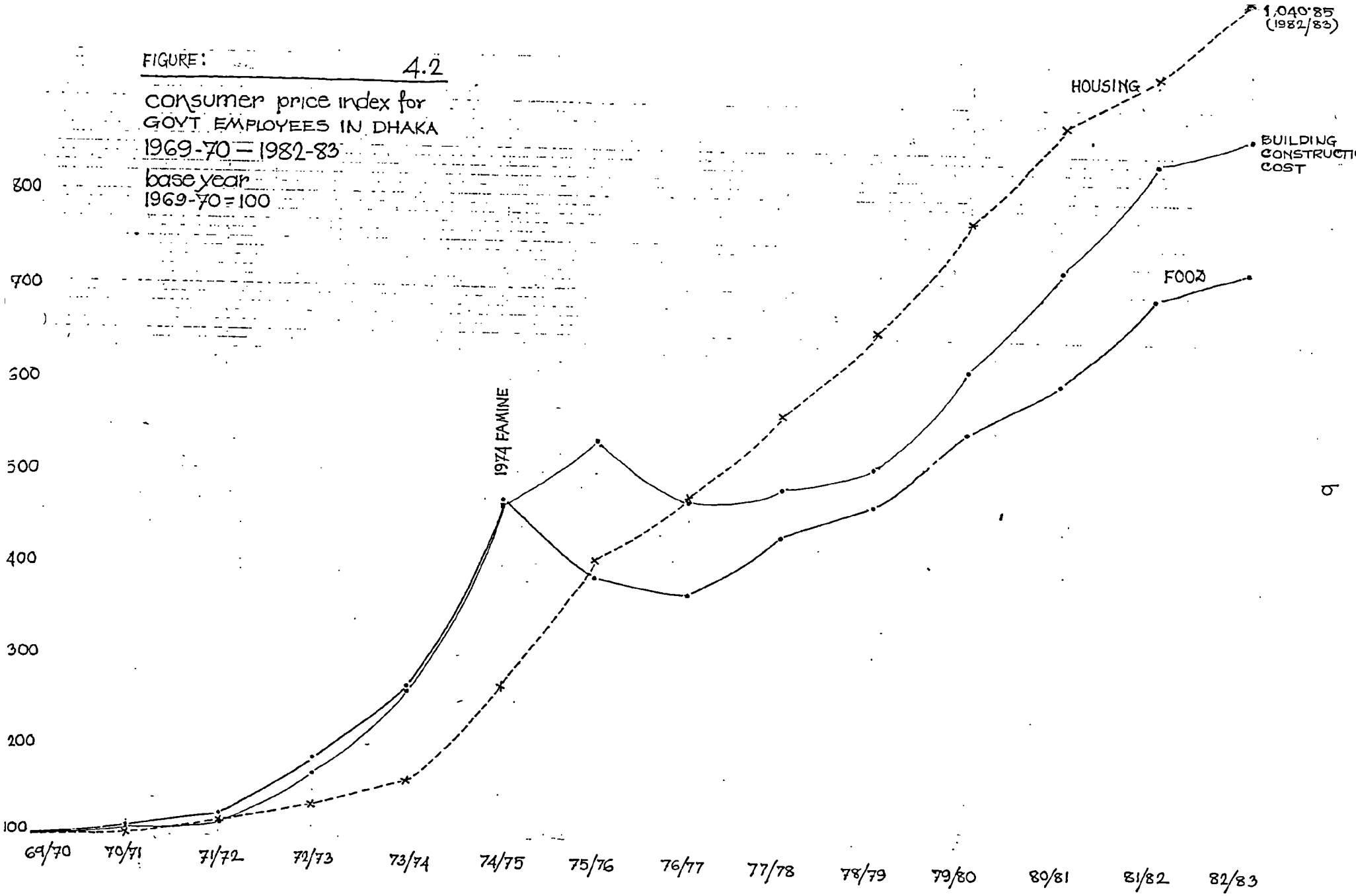


FIGURE: 4.2

consumer price index for GOVT EMPLOYEES IN DHAKA

1969-70 = 1982-83

base year 1969-70 = 100



CHAPTER FIVE

DEVELOPMENT OF DHAKA:FROM A TOWNSHIP TO A METROPOLIS (1608-1980)

5.1 INTRODUCTION

Dhaka, previously spelled as Dacca, located just north of the river Buriganga, a channel of Dhaleshwari, is the capital and largest city of Bangladesh, containing 38.5% percent of the total population of the region in '81. (BBS, Stat. Year Book '85).

5.2 POLITICAL ANTECEDENTS

Although Dhaka as a city did not rise to prominence until the 17th century, its history can be traced back to the 1st millenium A.D. It has been claimed by some historians that there are records suggesting even as early as eleventh century, "a thriving township existed in the same place and that around the late 11th century, Dhaka was the most populated city in the world".(1).

Dhaka was established as the Mughul capital of Bengal province in the year 1608, by Islam Khan, the 1st Viceroy appointed by the Mughul emperor Jahangir. The province torn by the long struggle between Afgan and Mughul, was then exhausted and disorganised. In order to cope with the danger of the area he decided to shift the capital from Rajmahal (in West Bengal of India) to a safer place. Arriving

opposite the spot where Dhaka now stands, Islam Khan was struck with its strategical position and facilities offered by the wide stretch of land that lay beyond it, and at once determined to build his capital there.(Bradley-Birt,1914).(2).

After the name of the emperor Jahangir, he named the capital as 'Jahangir Nagar'. This name of the town was eventually abolished during the time of subsequent rulers and presently it is only mentioned with the history of the city. Dhaka remained the Mughul capital of Bengal between the years 1608 to 1639 and 1660 to 1704. During that period it was a centre of a flourishing sea trade, attracting the English, French, Portuguese and other European traders. Manrique, who journeyed through India during the 1640's described it as a very cosmopolitan trading city:

> "Many strange nations resort to this city on account of its vast trade and commerce in a great variety of commodities, which are produced in profusion in the rich and fertile lands of this region. These have raised the city to an eminence of wealth which is actually stupefying; especially when one sees and consider the large quantities of money in the houses are in such quantity that, being difficult to count, it used commonly to be weighed."(3).

Dhaka entered 'a period of decline' with the subsequent decline of the Muslin industry when the provincial capital was removed to Murshidabad in 1704.

It was brought under British control in the year 1765. In 1780, J. Rennel was commissioned by the East India Company in Bengal between 1764 and 1777 to compile a set of maps of Bengal. In 1780, Rennel published his work: "Plan of the environs of the city of Dacca" in an original scale of 1:280,000. As revealed in his work, enormous changes are observed with respect to the growth and settlement pattern of the city from that time. The striking elements of the changes that have taken place since then are:

a) the development of Dhaka city from south-east to north and north-west direction; b) change in course of the Sutrapur and Turag river channels; c) spreading of roads along the old river valley; d) reduction of the Burhiganga river bed, relatively smaller changes in the Dhaleshwari river and drying up of the southern part of Dhaka region; e) emerging road network from north-south and east-west direction. (figure 5.1a, b).

After about one hundred years of political domination by the Company The British Crown took over the administration of the country in 1856. During this period of 18th and 19th century, Dhaka'a importance further declined as Calcutta forged ahead as the British capital of Imperial India.

Eventually, Dhaka became, as observed by Reginald Heber, while he visited in 1824, merely the wreck of its ancient grandeur, since the trade was reduced to a sixtieth part of what it was; the palaces of

the Nawabs, the factories and churches of the Dutch, French and Portuguese nations were all sunk into ruins and overgrown with jungle. Still, the cotton produced in the district was mostly sent to England, and the manufactures of England were preferred by the people of Dhaka themselves for their cheapness.(Birdley-Birt; op.cit. p.-184).

A municipality of Dhaka was constituted in 1864.

The early 20th century brought a brief revival of Dhaka's significance as an adminstrative centre. It was designated as the capital of Eastern Bengal and Assam province, between the years 1905 and 1912. By this time, a railway link had been established with Chittagong, the second most important city and a port, located at the south-eastern corner of the province. During this period Dhaka served as a commercial centre and seat of learning. The state-supported Dhaka University was established in 1921.

After the partition of India in 1947, Dhaka became the capital of the eastern province of Pakistan.

Suffering serious damage during the liberation war of Bangladesh, Dhaka eventually emerged as the capital of the new country in 1971.

As it contains more than 700 mosques from its early appearance in history upto the recent time, Dhaka is also known as the 'city of

mosques'.

5.3 GEOPHYSICAL POSITION

Located in the central region of the country, Dhaka is bounded by the fortunate combination of physiographic features, favourable to both land and water communications.

Dhaka district is a level plain bounded by major rivers like Meghna, Padma (Ganges) and Jamuna (Brahmaputra) rivers. The chief physiographic character of the site is the prong of relatively high ground extended from the elevated Madhupur jungle to the bank of Burhiganga river. This is also surrounded and crossed by many low-lying flood-lands created by rivers and rivulets in between (for example the Turag river at its west and Balu at the east). These characteristics in fact determined the direction of the growth of the city. Johnson, in his book on Bangladesh remarks :

> "The prong of flood free terrace averages about 4 miles in width (appx 6 km.) and has strongly influenced Dacca city's growth, which has been generally northwards from the old nucleus of the pre-Mughul riverport on the Burhiganga levee".(4).

The land use map of Dhaka suggests the hierarchy of spaces including its use as commercial adminstrative and residential areas. It is interesting to note that the irregular shape of the flood free high land of the city is bounded by evenly distributed low-lands, which are liable to inundation during the rainy season and in fact

are out of consideration for major physical growth without landfilling on a large scale.

5.4 PHYSICAL FEATURES

Dhaka is often described as 'three cities in one' (Kingsbury, 1981.(5)), showing the distinctly different character of its physical form and features in different parts.

5.5 OLD DHAKA : THE 1ST CITY

I. Pre-Mughul : The pre-Mughul Dhaka existed with market places and localities of traders who lived in areas identified as 'mahallas'. Represented by a specific class of professionals in each type, each of these 'mahallas' was a 'residential entity with homogeneous population'. There were numerous channels within the city and no such road system. The boat was the major means of communication (Hossain, 1976).(6).

II. During the Mughul period : Old Dhaka started to emerge as an organised city under Mughul rule (1608). The Mughuls contributed to the gradual change in the city's physical appearance; roads were developed for transportation by mainly horses and elephants. Eventually, this resulted in the creation of very narrow street widths (sometimes as little as 8'-0" to 10'-0" or approximately 3m in width). During its later period, these alleys were flanked by

two or four storied high buildings alongside. Many buildings having no windows at the sides, extended upto 20 to 30 feet (appx. 6m to 9m) backwards, usually with a light well at the centre of the building block, creating an inner court.(7).

Mughul Dhaka, stretched along the river for about 6 miles (about 10 km.), with several fortified gateways located close to the river. Forts were erected mainly to repel the local rebels and pirates who were, in fact, good navigators; the largest one, Lalbag fort (Red garden), which was built in 1678 is still prominent in the vicinity of Old Dhaka (fig. 5.2a, b).

III. During the British period: Overlaid by the network of narrow streets and alleys, Dhaka, at that time was characterized by closed localities of residential houses, villas for the nobles and bazaars, some of those beside the river bank. Later in the British period (1765-1947), several administrative buildings, educational institutes, public structures like the North Brook Hall, Baptist Mission Library etc., churches and open spaces like Victoria Park etc., contributed to change the city's physical appearance significantly (fig. 5.2c).

With the increase in population throughout the period of 19th and early 20th century, this area did not display pronounced physical growth horizontally and gradually became overcrowded causing maximum stress on the civic facilities. The highest density of people (

incredibly as high as 348,000 per sq. mile equivalent to 544 per acre), is found in this part of the city, which still exhibits the spatial characteristics of the 17th century : narrow streets choked with pedestrian, animal and vehicular traffic, crowded bazars and decaying slums (Johnson, 1975).

One of the manifold reasons behind the high density of this belt might be primarily the location of the central business district along the river banks (for example, Sadarghat, Swarighat, Badamtalighat or the like). Moreover, since the river still plays a very important role in the public transportation system -- as it did in old days; the 'ghats' are also the main approach to the city for many riverine people of the country.

IV. Establishment of Dhaka Municipality : With the establishment of the Dhaka Municipality in 1864, urban infrastructure facilities were introduced. One of its first upgrading steps was the establishment of a separate graveyard to stop the practice of burying within the residential compound. The 'Dacca Conservancy Act VII' came into operation in 1870 to ensure the improvement of the sewage disposal system, with the introduction of sweepers passages in residential localities. In 1879 cleaning of the public latrines became the resposibility of the Municipality.

5.6 RAMNA AREA DEVELOPMENT : THE SECOND CITY

The relatively modern section Ramna, was laid out in 1905, when Dhaka was made the British provincial capital of Bengal (1905-1912) by Lord Curzon, then Viceroy of India. Development in this period led to the layout of stately adminstrative buildings, comfortable European bungalows in large garden compounds and small railway structures and wider roads in open spaces in the Ramna area around the alignment of the old railway lines.

During the later years before the partition (1947), the main business district started to move from the vicinity of Sadarghat to the adminstrative district, east of Ramna. This part of the city, Gulistan and Motijheel Commercial Area, has now become the biggest central business district (CBD) as well as the commercial and adminstrative area of the metropolis. Dacca's CBD, should not be thought of as a replica of shopping areas in western cities. There are virtually no large stores, but rather a vast number of shops of different varieties. It is only in the offices, banks, business corporations and other Government departments that the CBD resembles more closely its western counterparts [Johnson, 1975.(8)]. Recently certain city centre functions, particularly offices have moved to Karwan Bazar and Tejgaon area, located further north.

Characteristically the old railway line arrives from the north. After taking almost a semi-circular bend circumbulating the Ramna

area, it swings south-east to skirt the built up areas of Old Dhaka en route to Narayanganj; (see figure 5.2d: old and new railways). The old railway track, when no longer in use, gradually turned into a belt of extremely congested squatter settlement, exposing a seriously deteriorating environment. Including other sites though most of them occupying this abandoned railway line, the number of squatters grew to approximately 200,000, which was about one-sixth of the city's population in 1974. With the help of the UNDP, which undertook a reconnaissance and feasibility study to examine the situation, the Urban Development Directorate assigned the responsibility to the Dhaka University Centre for Urban Studies. The purpose was 'to collect and analyse socio-economic data on the existing squatter settlements and to make suggestions as to realistic solutions to the problem'. A total of 418 household interviews were carried out between August and December 1974, at twenty one sites in this regard.(9).

But before the analysis and recommendations of the survey could be completed, during the first week of January, 1975, the Government started an operation to clear unauthorised slums within the city, and the squatters became the first victim of this action. About 200,000 squatter dwellers were expelled by the police, forced either to return to their native village or to settle in one of the resettlement camps (Hasnath, 1980).

5.7 THE THIRD CITY : NEW DEVELOPMENTS

The third part of Dhaka, much of it built since the 1947 partition, consists of industrial and residential communities, further north and west of Ramna. This region also locates other prominent sites including the old airport and a newly built up National Assembly Building and Adminstrative complex (Sher-e-Bangla Nagar).

The industrial zone is established along the railway line and road connections in Tejgaon (Tejgaon Industrial Estate, fig. 5.2d). Dhaka now houses the major industrial concentration of the country, together with its river port of Narayanganj, located 10 miles (16 km) south-east. The independence of Pakistan (1947) brought new enthusiasm to the city which became the capital province of East Pakistan, freed from subservience to India's Calcutta. Because of the water transport which is essential to the jute trade, the jute industry continued to expand along the rivers of Buriganga and Lakhya. In addition, new manufacturing plants were set up in the industrial areas of Tejgaon.

With the growth of the city and its increase in population throughout the last three decades the industrial zone, which was merely a site at the outskirt then, is now included in the greater city area and can hardly be identified as a periphery of the city.

5.7.1 The Abandoned Airport

The airport was also located within the vicinity of the city at Tejgaon. As it was only meant to handle the traffic of a provincial capital, it failed to cope with the increased airline traffic generated after the liberation of Bangladesh. The use of the site as a civil airport ceased in September, 1980 when a new airport was opened at Kurmitola about 12 miles away.

The move to a new airport has opened up a vast area of approximately 530 acres within the old-airport precinct. With the exception of many adjoining areas, this site is free from flooding and is situated centrally, in the expanding part of the new city. This area is also largely free of structures and is of great value and importance. A study by foreign consultants (DMAIUDP, 1981), on the urban development strategy of Dhaka, suggested:

> "The site is prime development land and those parts with commercial potential could have value of between 7 and 10 million taka per acre.....we recommend that the Tejgaon airport site should be made available for urban development as soon as possible".(Note: the amount is equivalent to 200,000/00 approximately).(10).

The study also proposed the following elements as potential development structure of the site :

I) A new office development area extending upto the centre of the site

II) An extension area of Government buildings adjoining the new capital area

III) Residential development on the northern half of the site, divded between a medium-income area beside the existing cantonment and a low-income area to the north-west.

With the possibility of its continued use as a military air field in future, this area with its maximum development potential, has been waiting for an appropriate planning decision regarding its use. But according to reports received recently, the Government is now considering actively to develop this area as a ceremonial parade ground. (Dainik Bangla, 1987).(11).

5.7.2 The Adminstrative Complex at Sher-e-Bangla Nagar

Importance has been assigned to this part of the city, largely due to the proximity of Sher-e-Bangla Nagar, previously known as the 'Second Capital' during the Pakistan era.(12).

The foundation of the then Second Capital was laid during 1962-63, by the Government of Pakistan, which wanted to place the seat of the administration nearer to the people of the eastern province. The idea was to provide the seat of the Government alternating between Islamabad -- the main capital -- and Dhaka as the second.

The master plan of this large project along with the majestic National Assembly Building at its heart was designed by the American architect Louis I. Kahn. With the harmonious and strong display of pure geometric forms, by means of 'huge free-standing screens pierced by circles, squares and triangles', the buildings exhibit an unparalleled architectural disposition through its extraordinary simplicity and megalithic grandeur.

But it is also interesting to note the impact of this project generated on the hard-hit poverty-amidst economy of Bangladesh. James Dunnet, in his architectural critique in 1980, evaluates :

> "It is calculated that at constant prices less than half of the total expenditure on the Citadel of Assembly has yet been made; ...this expenditure appears to be equal to building modern housing for 50,000 people .....and the energy requirements for its 16 lifts and full air-conditioning is equal to half of the rest of Dhaka".(13).

Despite suggestions of abandoning the project from some quarters and of constructing something more modest, the Assembly Building however, was finally declared open in 1983, after 20 frustrating years of its construction. Except for the residential enclaves of the MPs and a hospital in part, nothing more has been built of the master plan.

5.7.3 Peri-urban growth propensity of the city

Adjacent to the end of the old airport area, lies the southern border of the cantonment of Dhaka. The cantonment area (about 6,840 acres), with most of its structures built after the '47 partition, was located at the outskirts of the city at that time, now occupying a huge area -- of a much extended and grown up metropolis -- out of public use. It can be observed from the map (figure 6.7), that the physical growth of the city has always been towards the north. It is at this point, just outlying the boundary of the cantonment which shows the limit of the city's high land. Areas beyond this line are, more or less low-lying and are liable to inundation during the rainy season. Hence the natural, physical growth of the city was inhibited by the existence of the cantonment itself and by the subsequent low-lying areas beside.

Being retarded by these factors, the growth of Dhaka was gradually directed towards the peri urban areas of Mirpur at the north-west, towards Uttara or Goran at the north and east which are located on relatively high areas across the low lying, flood prone belt.

Obviously, the growth of the peri urban areas thus exhibited a characteristic difference in physical appearance from the inner city areas. The inhabitants who started to settle down here, were people of low-income, and the settlements they built were mostly of low rise house forms with very few civic facilities. Lacking in the amenities

of the main city, these areas, started to grow -- more or less -- as isolated townships, dependent on the main city in different aspects of business, adminstration, shopping, health facilities or recreation. (see chapter 10, background of Mirpur township).

5.7.4 The High Income Areas

The general northward growth, however, did not affect the north-eastern peripheral part of the city. This suburb of Gulshan model town now includes the most modern residential bungalow developments under private ownership. Execution of plans and implementation of this 'model town' was made in early '60s, when the residential plots were distributed among the elites of the city. After the successful achievement of the implementation of the scheme other areas have also been developed in the same fashion (Banani and Badda etc.). Purely representative of a very high income residential area, which is even rare in western industrial societies, this kind of development, obviously, made no significant contribution towards solving the housing crisis of the teeming millions of the city. Rather, with the lofty space standards, about 50 to 60 percent of houses of this area are serving the diplomatic missions, offices of foreign organisations and embassies. Compared to the inner city houses, the rents of these high standard houses are 300 to 400 pecent higher; their owners are mostly civil servants, high ranking officials of different organisations, wealthy merchants and other urban elites.

Further north at Uttara, adjoining the new international airport of Kurmitola, both sides along the Dhaka-Tongi highway, another residential area was laid out by the Dhaka Improvement Trust(DIT) several years before, which is gradually taking shape.

5.7.5 Further Growth: north

It has been suggested emphatically that for all planning purposes, Dhaka should not be considered confined within the limits of the municipality -- rather it should be considered as a continuous conurbation from Tongi to Narayanganj. The report on Dhaka's urban development (DMAIUDP, 1981), suggested regarding the strategy :

I) Continuing growth is expected in the peripheral areas of the existing city in the short term; in the longer term a new employment location and a new direction of urban expansion should be deliberately created in the northern corridor.

II) It is recommended that the Government adopts a strategy for the development of the metropolitan area, whereby the northern corridor of Tongi and Joydevpur becomes principal channel for urban growth in the long term.

III) During the short term period (of 1980-85) Government policies would be re-directed to the promotion of the Tongi corridor as the location for new industrial and commercial developments. This policy

would include the relocation of large employment establishments displaced by redevelopment or shortage of space in the existing city.(14).

5.7.6 extent of Dhaka at present

It is difficult to describe the existing boundary of the city as nobody knows exactly where the present city limit lies (Islam, 1987). However, it is apparent that the city is extended upto the following cardinal points:

At the south while influence of urbanization is distinct in some parts across the river (particularly in Jinjira and Keraniganj) the limits of the city are defined by the river and extended upto Jurain-Postagola at the south-east. Along the eastern border, it is spread out upto Ahmedabad, Madartek or Goran and at the north-east upto Ullan-Badda and Shahjadpur (figure 5.3); although because of zoning regulations individual plans are not passed by the local development authority (Dhaka Improvement Trust), in many parts of these areas. Thus the areas are not fully developed and are with erratic or incomplete infrastructure provision.

At the north the growth is severely interrupted by the Cantonment, which is occupied by the army establishments and barracks; the city's extension has reached upto the suburbs of Mirpur at the north-west.

From Mirpur bridge, covering the entire western belt the city is bounded by Shamoli and Rayerbazar-Hazaribag belt. The boundaries are pointed in figure 5.3. Further investigations with respect to the city's area are described in the next chapter.

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[11] Dainik Bangla(The Daily Bangla) (26 Feb., 1987)"Parade square nirmane teen koti taka bay hobe" p.-8.

[12] Literally the meaning is 'the city of the tigerof Bengal', so named after the nationalist political leader A.K.M. Fazlul Haque, popularly known as Sher-e-Bangla.

[13] James Dunnet (April,1980). City of the Tiger: Work of Louis Kahn at Dacca, Bangladesh Architectural Review, 167. pp.230-234. Masters thesis Catholic University of Leuven Belgium, 1982.

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DHAKA CITY AND ITS ENVIRONS IN RENELL'S SURVEY (c 1780)

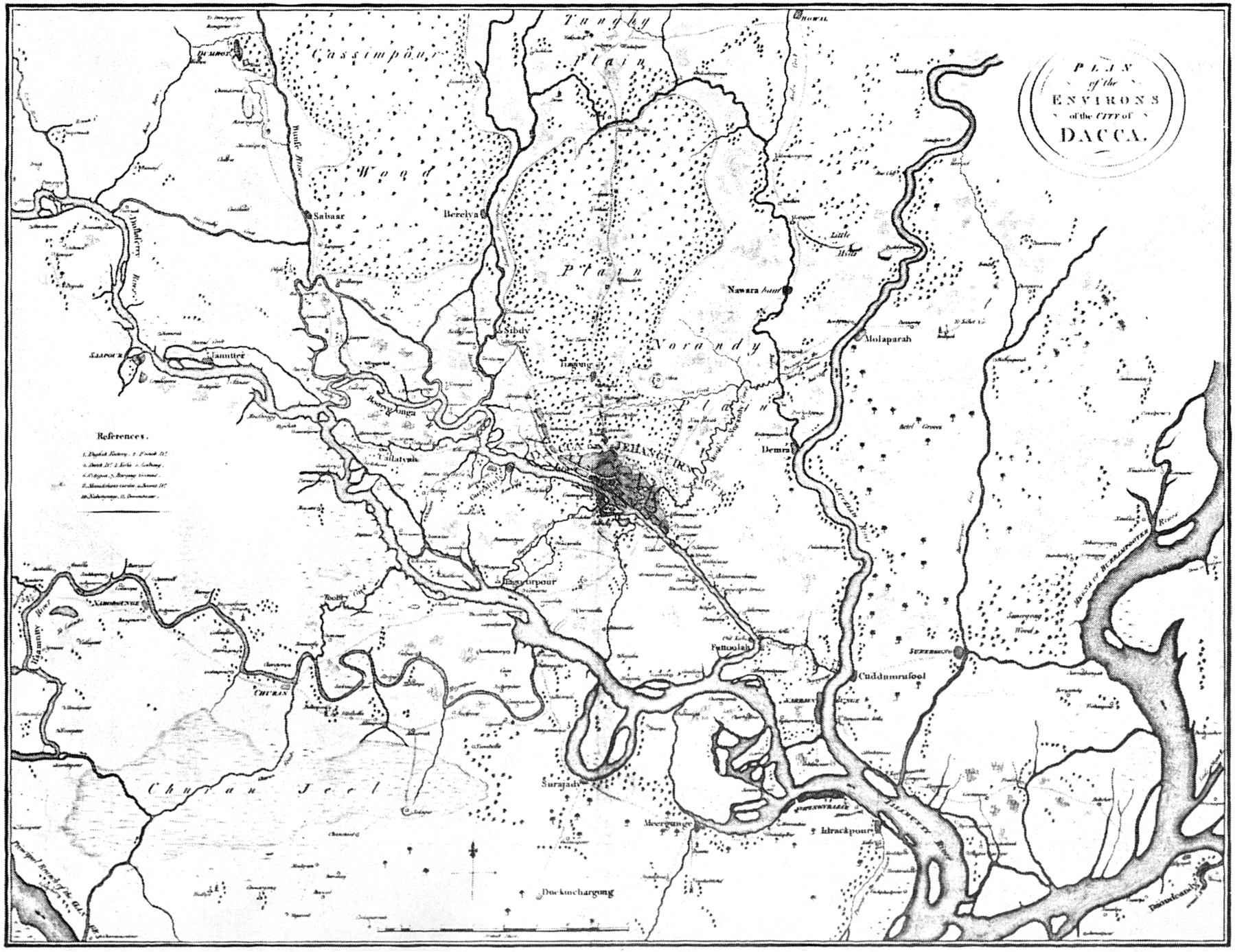


FIG. 5. 1C

SOURCE : STATISTICAL YEAR BOOK : '84-'85

a

DHAKA CITY AND ITS ENVIRONS (c 1980)

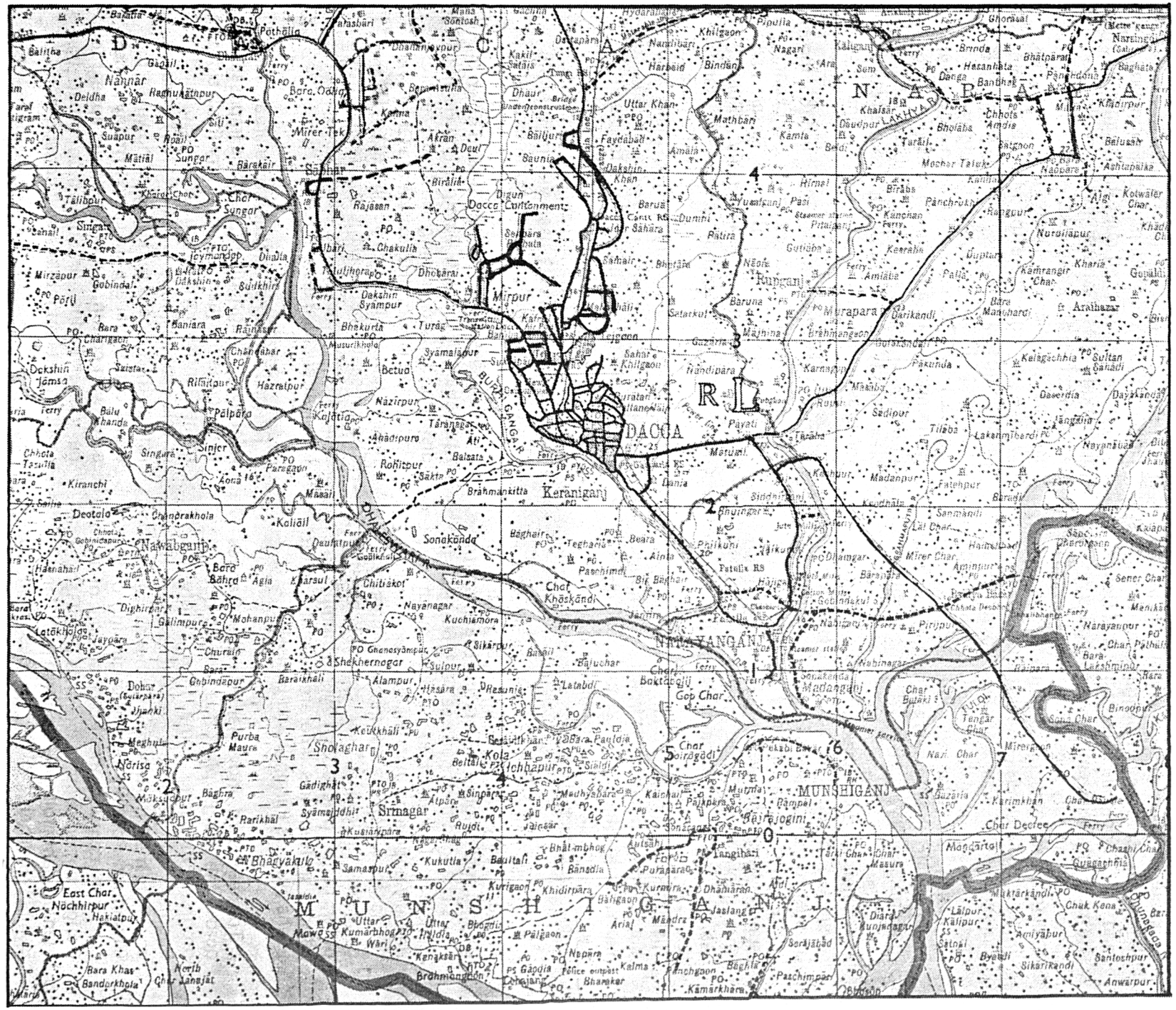
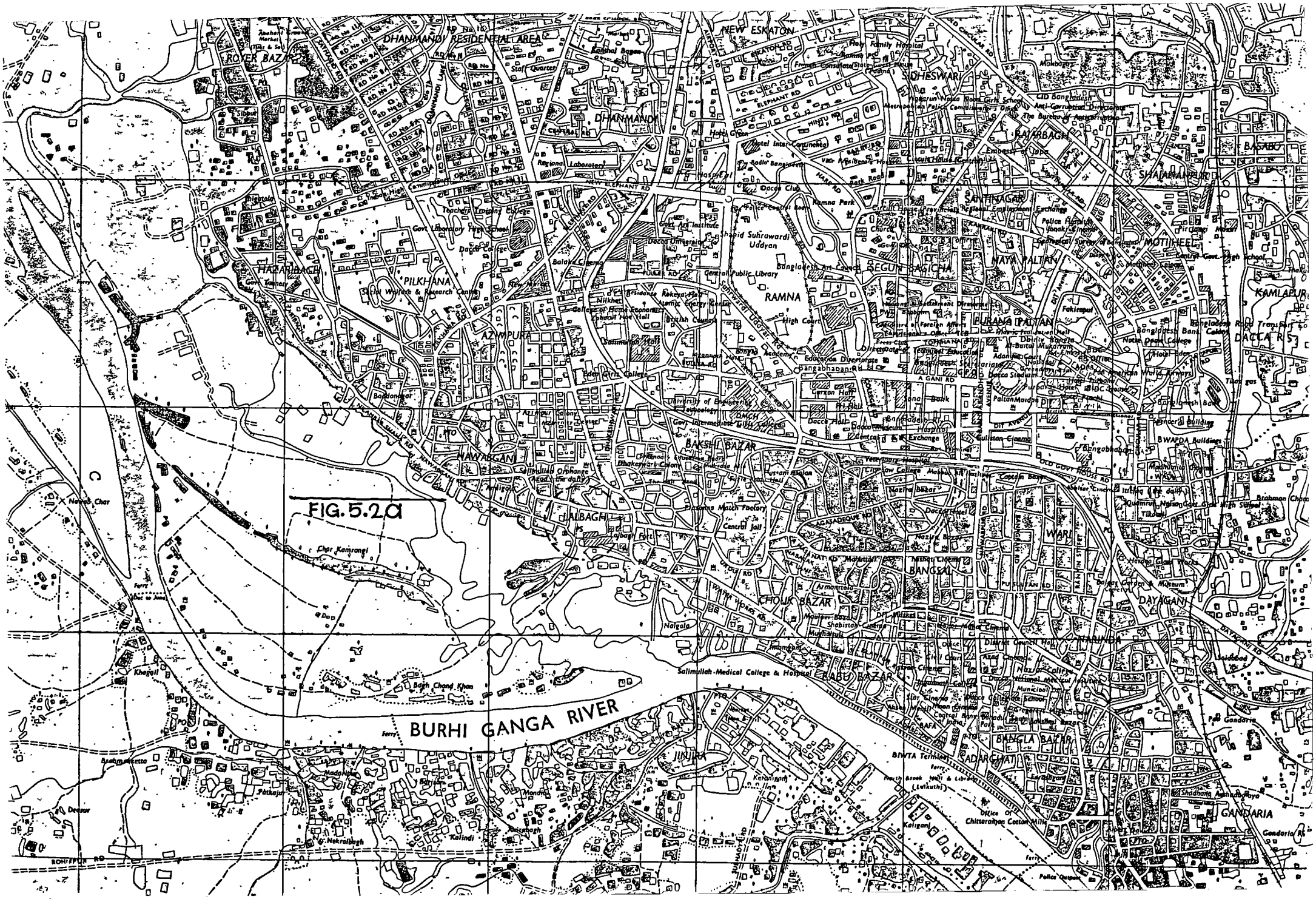
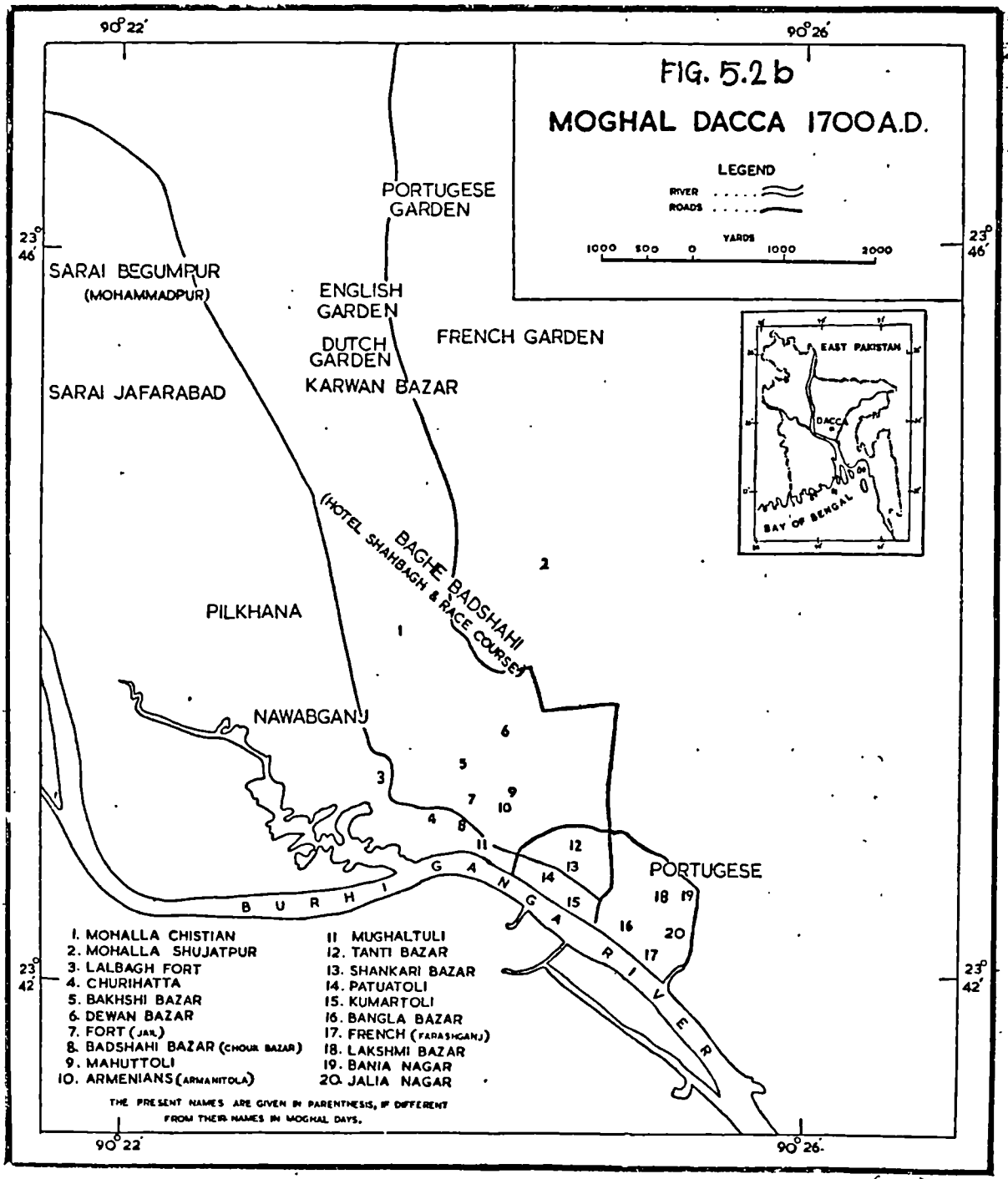


FIG. 5.1b

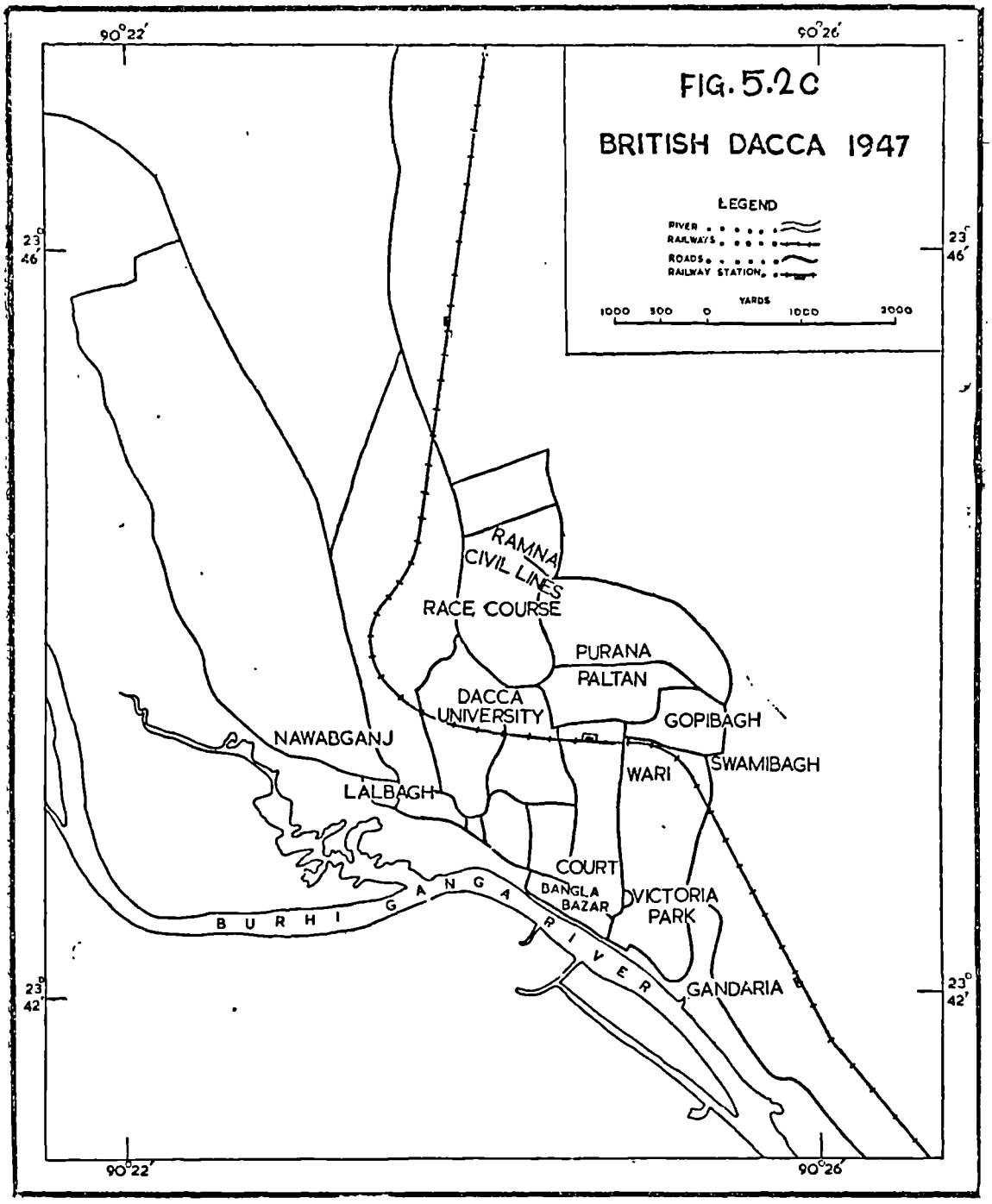
b


DHANMANDI RESIDENTIAL AREA
NEW ESKATON
ROYER BAZAR
DHANMANDI
SIDHESWARI
RAMNA
PILKHANA
AZIMPURA
HAZARIBAGH
BEGUN BAGICHA
NAYA PALTAN
PURANA PALTAN
KAMLAPUR
MOTIJHEEL
SHAHJAHANPUR
BASABO
SANTINAGAR
RAJARBAGH
BAKSHI BAZAR
NAWABGANJ
JALBAGH
CHOUK BAZAR
BANGSAL
WARI
DAYAGANJ
SABUJ BAZAR
BANGLA BAZAR
SADARGHAT
GANDARIA
JINJIRA
BURHI GANGA RIVER
FIG. 5.2a



Moghal Dacca : 1700 A. D. SOURCE: ATIQULLAH and KHAN. (1965).

d



British Dacca : 1947

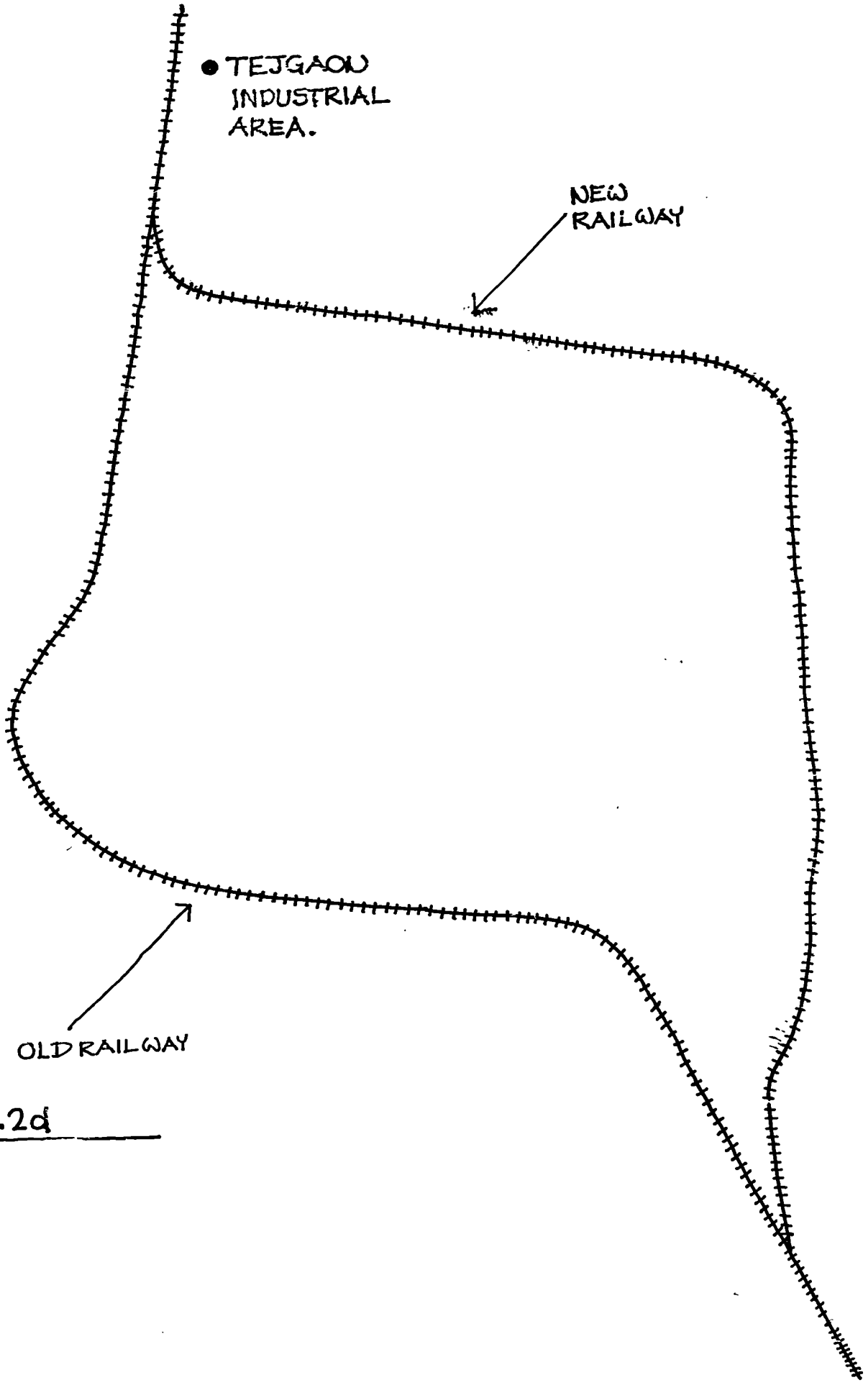
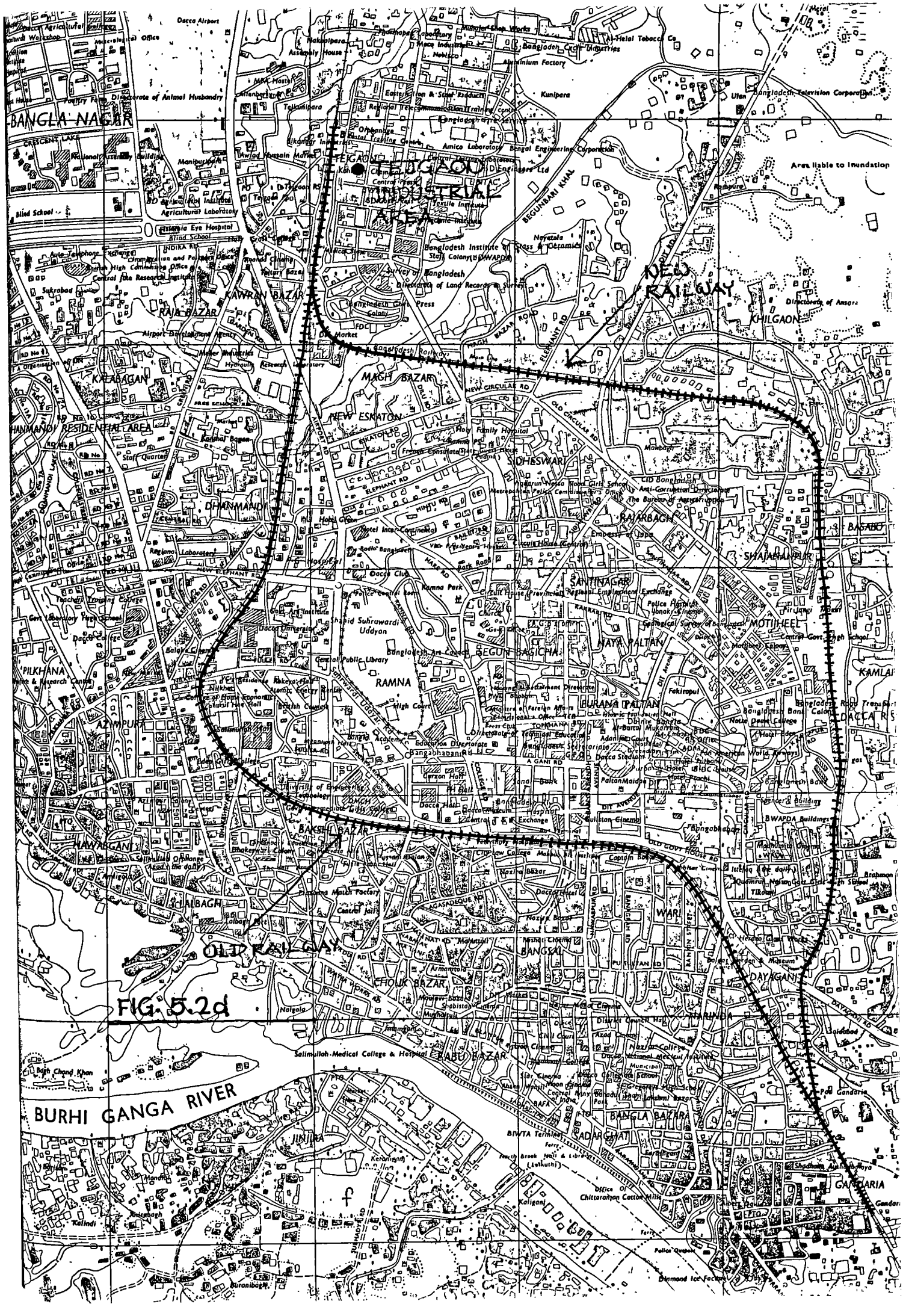


FIG. 5.2d


BANGLA NAGAR
TEJGAON
TEJGAON INDUSTRIAL AREA
KAWRAN BAZAR
RAJA BAZAR
KAKRAIL
MAGH BAZAR
NEW ESKATON
DHANMANDI
SHANTINAGAR
RAJARBAGH
SIDHESWARI
MOTIJHEEL
NATA PALTAN
BARA PALTAN
RAMNA
BEGUN BAGICHA
PILKHANA
AZIMPURA
NAWABGANJ
BAKSHI BAZAR
CHAWK BAZAR
BABU BAZAR
WARI
BANGSAL
DAYAGANJ
TIKATULI
BANGLA BAZAR
SADARGHAT
JINJIRA
GANDARIA
KALINDI
OLD RAILWAY
N.E.R. RAILWAY KHILGAON
BEGUNBARI KHAL
BURHI GANGA RIVER
Area liable to inundation
FIG. 5.2d

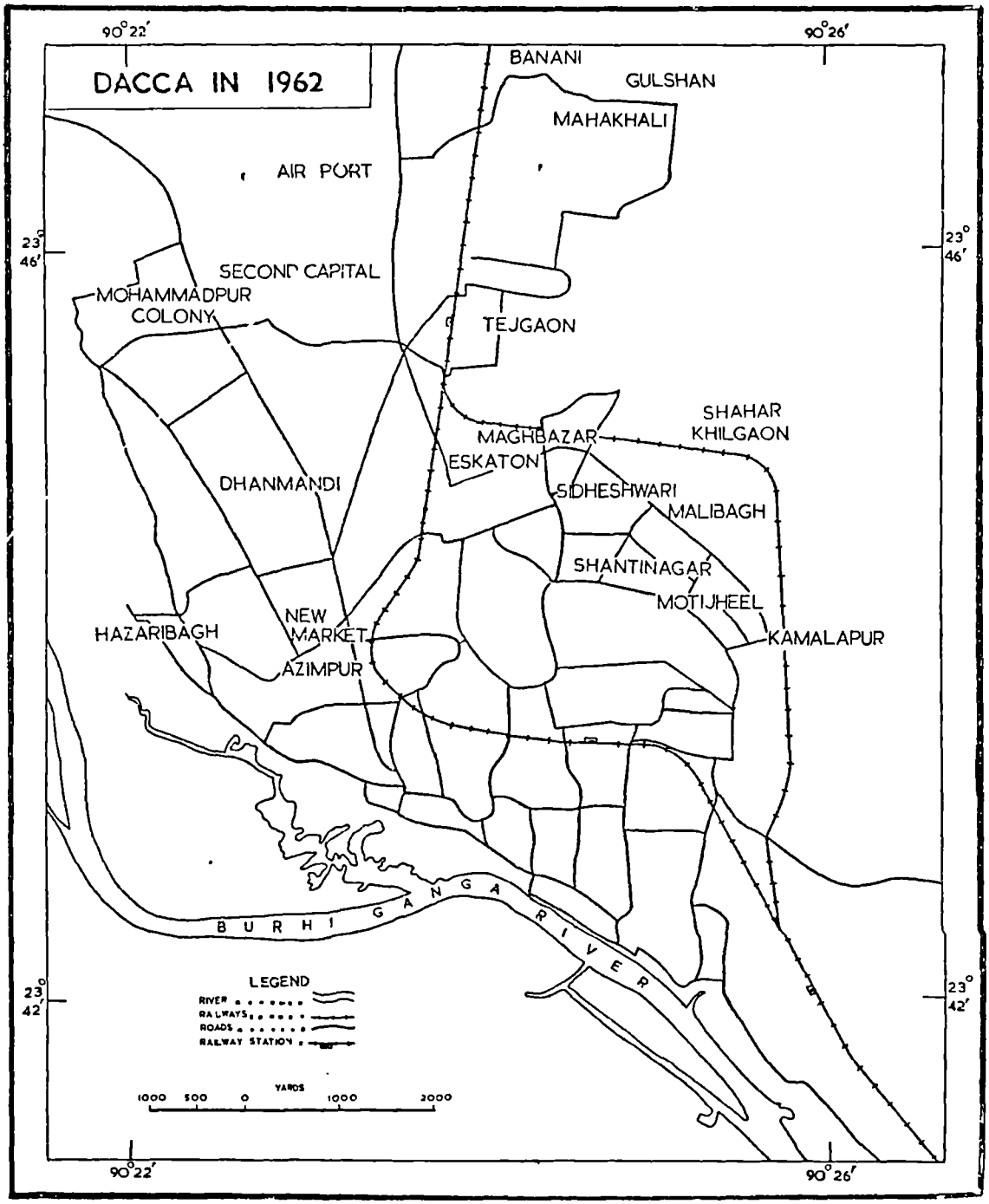
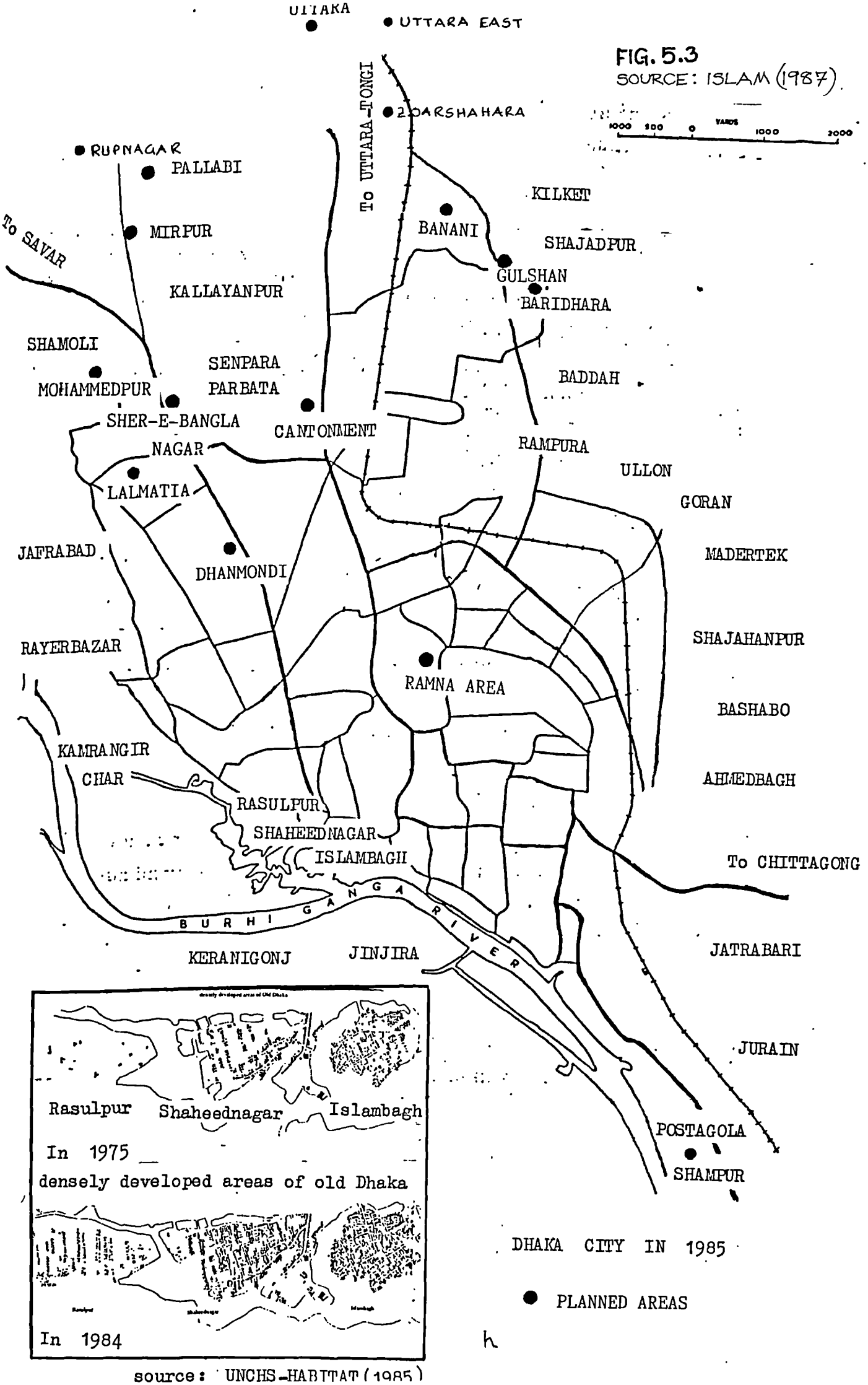


FIG.5.2e **Dacca in 1962**
SOURCE : ATIQULLAH and KHAN (1965).



source: UNCHS-HABITAT (1985)

CHAPTER SIX

PERI URBAN RESPONSE IN THE CONTEXT OF URBAN DEVELOPMENT AND LOWER INCOME HOUSING PROBLEM OF DHAKA

6.1 INTRODUCTION

This chapter attempts to focus on multiple aspects of the issues regarding the peri urban developments around the metropolis. The issues are addressed through four major aspects:

1. the gradual increase in the city's area over the past few decades

2. the analysis of density in terms of its area, in order to demonstrate the immensely high inner city population pressure in the core areas; as the city has become unable to expand further, and has already achieved saturation level over the past years, the consequence is the proliferation of the informal sector in the peri urban areas

3. the evaluation and overview of the development policies formulated by the urban development agencies; the alternatives considered in relation to the peripheral development are also examined

4. besides, the question of consuming the peripheral agricultural

land for future urban development and housing purposes is also investigated

6.2 STRATEGY JUSTIFYING THE NEED FOR PERI-URBAN DEVELOPMENTS

6.2.1 Population distribution and growth of Dhaka and its surrounding areas

Dhaka was hemmed between the Dholai khal and Burhiganga river at that time when the town was established and consisted of the important business centres of Bangla Bazar, Lakshmi Bazar, Shankhari Bazar and Tanti Bazar.(1). With the growing trade and expanding industry both the area and population of the city increased; it stretched for 4.5 miles along the Burhiganga river and had a population of about 200,000 excluding the Europeans and the visitors (Manriques, 1640). Other studies suggest that the population of Dhaka at that time increased to about 1000,000 in 1700 A.D. (Taifoor, 1952), which was roughly double of the same population the city had in 1961. By 1800, Dhaka's population declined to about 200,000 -- the same population which it had 160 years before (Ghosh, 1950) (2), with the rise of Calcutta as the capital of British India. The decline in its economic and adminstrative importance resulted in the gradual shrinkage in the area of the city; the continuous decline in its population started from 1764 and reached the lowest magnitude in 1867 which was reduced to 51,636. Since 1872 the population has recorded a continuous growth. The growth of population and urban

expansion is illustrated in the following table.

Although the area of the city was stated to be 12 sq. miles in 1941, Atiqullah and Khan (1965) observed that the growth of the city's area during the seven decades from 1872 to 1941 was not so obvious as the growth of the population. The population more than tripled during this period (1872-1941) and the urban limits approached to 6.8 sq. miles. (3). Again, the census reports suggest that after 1947, when Dhaka was formed the capital of East Pakistan, the urban limits stood approximately at 28.0 sq.miles in 1951 and 35.0 sq.miles in 1961, with population 335,928 and 550,143 respectively. From 1961 onwards, sufficient information in relation to the urban extension of the city corresponding to each census year has not been available. And then there was a wide gap of 13 years, formed by the inter-censal period of 1961 to 1974; changes in the city's area within this period were accordingly unrecorded.

However, the study of the growth of the city undertaken by the Social Science Research Project in 1965 (4) assumed that, for Dhaka city, "the rate of change in area relative to population change was inversely proportional to a factor of total population". (The relationship between the area and population was expressed with the equation $A = a+b \log P$, where A = area and P = population; the estimates of the constant a and b followed from the table below, by usual estimation method as a= -212.04085; b= 43.16982)

Table : 6.1 : Expansion of the city area : 1600 - 1961

Year(A.D)	Period	Area(sq.m.)	Population
1600	Pre-Mughul	1	not known
1700	Mughul	50	C.900,000
1800	British	8	C.200,000
1867	do	8	51,636
1872	do	8	69,212
1881	do	8	80,358
1891	do	8	83,358
1901	do	10	104,385
1911	do	10	125,733
1921	do	12	137,908
1931	do	12	161,922
1941	do	12	239,928
1947	Pakistan	12	250,000
1951	do	15	338,762
1961	do	25.5	566,712
1974	Bangladesh	40	1679,572

source: Centre for Urban Studies;
: Urban Housing and Shelter Process in Bangladesh -- A study in seven cities -- Dacca, Chittagong, Khulna, Sylhet, Chandpur, Patuakhali and Takurgaon. : Table 13:(Population growth of Dacca city).

Table: 6.2 : Population and area estimation

Year	Population(P)		Area (A)
1901	104,385	(actual)	5 sq. miles
1921	137,908	(7)	10
1951	335,928	(28)	27
1961	550,143	(35)	36
1966	-- --		40
1971	-- --		45
1976	-- --		50

source: Atiqullah and Khan; Growth of Dacca city; p.-29.

A very general area statement made through the above thus estimated that the urban area of Dhaka was around 45 sq. miles in 1971 and 50 sq. miles in 1976.

It seems reasonable to consider the city's expansion in this manner. Since an extensive urban development study later in 1980 illustrated the city's area to be similar to the one mentioned above as 52 sq. miles. (DMAIUDP report, fig. 5.1, vol. 2, 1980).(figures 6.2 and 6.7).

While the city was expanding gradually, it was always doing so towards the north (particularly along Mymensing and Mirpur road, the major two axial roads of the city), as flood free areas were available in greater percentage in that direction. As the city continued to experience physical growth in the extreme, the high lands were consequently engulfed resulting in high densities in most of the inner city areas, around the middle of the '70s. The city's present population with respect to the area in question is discussed in the following section 6.2.3.

6.2.2 Topography and flood situation

In analysing the effect of flooding on the surrounding areas of the city, the DMAIUDP report classified the topography into three main types, as illustrated in figure 6.3, and are as follows:

I) High land (type A): these areas have a general level of 20 to 25 ft. above the Survey of Bangladesh sea level datum (SOB); also it includes re-entrant valleys, whose floor levels are at about 10 ft. SOB. Most of such land is above maximum flood level or experience

shallow flooding.

II) Medium height (type B): generally at a level of between 9 and 11 ft. SOB, the areas are intersected by broad valleys whose floor levels are at about 4 or 5 ft. SOB. Type B areas are susceptible to flooding for relatively shorter periods annually. There are some isolated small mounds rising to about 15 to 18 ft. SOB which were constructed and enlarged over many years as land for small clusters of dwellings.

III) Low land (type C): these areas comprise flood plains which are typically at levels ranging from about 4 to 9 ft. SOB. Such land is inundated for up to 4 months every year; mostly the land is used for agricultural purpose during the dry season.

The main urban area of the city and the northern part comprise type A land. To the west and south lies the flood plain of the Burhiganga river chracterising land of type C. To the east lies the flood plain of Balu river; there is a fringe of type B land here varying in width along with type C land further east. Both of these areas are flooded 5 to 12 ft. for up to 4 months of each year. Thus, the important truth about the regions topography is that, there is only a small proportion of land high enough to be free from inundation during the annual river floods; virtually all such land which exist close to Dhaka, has already been developed for housing industrial or other urban use (DMAIUDP report, vol.4. p.-297).

6.2.3 Issues related to the use of peripheral lands for agricultural and/or urban development purpose

There is also growing concern with respect to the vulnerability of agricultural lands in developing countries and their expropriation for urban development purposes. This is particularly true for many countries having only a limited percentage of land suitable for agriculture, for example in Egypt where only about 4% of its total land is suitable for the purpose and there the Government is rightly concerned about ensuring its protection from other uses.

6.2.3.1 Agricultural potential: the country as a whole

In Bangladesh the situation is distinctly different in relation to the growth of urban areas gradually consuming the surrounding agricultural lands. Unlike Egypt, and some other African and Asian nations, Bangladesh comprises a huge expanse of deltaic land since the most significant feature of its landscape is provided by hundreds of rivers and rivulets, which have moulded not only its physiography but also the way of life of the people.

Most of the soils in Bangladesh are alluvial -- fine grained and fertile, consisting of mud silt and sand. About 89% soils belong to this category (including 16% sandy loam, 7% leached soil and 4% peat or humus soil). The remaining 11% are coarse soil (comprising 10% loamy sand and 1% sand) (5). These are the primary indicators which

illustrate the rich potentiality for agriculture of the whole country, and reveal no significant proportion of land which appears to be unsuitable for agricultural development.

Out of the country's total land area of 36,000,000 acres (or, 15 million hectares) a major proportion of 23,000,000 acres are agricultural land (63.88%), rest of 13 million acres cover mostly rivers, 'bills' (depressions), forests and hilly regions in the districts of Mymensing, Chittagong and Sylhet (6). Of the country's total land area, more than 20,000,000 acres are cultivated. Being overwhelmingly agricultural, more than 77 percent of the population are engaged in farming. The soil has been fertile for centuries; travellers from the 7th century onwards have consistently 'testified to the richness of Bengal's soil and the abundance of its harvest'(7).

Therefore, it is evident that development activities, whether urban or any other type, will have to be accommodated on lands which are inevitably agricultural. In other words, almost no development actions can be proposed on lands which are not agricultural.

6.2.3.2 Agricultural potentiality of the city's peripherial land

Some primary information concerning the present uses of land are revealed through the surveywork done by the Soil Survey Interpretation Division (Department of Soil Survey) in 1975, where the areas are zoned with respect to the potential for agricultural use of such areas (Fig. 6.4).

The areas thus covered in the survey are later classified into two major divisions : highland and floodplain land. Each of the two categories is again sub-divided into three sections according to their degree of agricultural potential such as high potential, moderate potential and low potential(identified as areas 1a, 1b, 2 and 3 for high lands and 4, 5a, 5b and 6 for floodplain lands in the base map).

Most of the peri-urban regions of the metropolis are found lying within the zones identified as 5a and 5b, signifying that these areas are of moderate agricultural potentiality. Among which areas identified as 5a indicate that those are deeply flooded land suitable for IRRI Boro (8) or Aus type of rice crop provided irrigation facilities are ensured. Areas marked as 5b usually are deeply flooded basins only suitable for the production of IRRI Boro but then again with proper irrigation facilities. None of the high lands, which are not liable to inundation and well suited for diversified cropping, are found located adjacent to the existing urban area in

any of the cardinal points. Some of the mainly leveled, high potential land (type 1b), which are suitable for the production of two rice crops are zoned at the farthest north. A little proportion of type 1b along with a fraction of type 2 (valley soils together with soils similar to 1a), is located at the north-eastern end of the existing urban boundary.

Thus, the important features can be summarized in the context of the above as :

1. that all of the high lands which are basically flood free and therefore most suitable (with high, moderate and low agricultural potentiality), are not located along the entire west and eastern periphery, ranging from Mirpur bridge to Kamrangir char and Zoarshahara to Postagola, of the existing urban boundary

2. that one of the most suitable areas for diversified cropping and high potential agricultural lands is located at the extreme north through which the once emphatically advocated northern corridor and the main railway lines towards Brahmanbaria and Mymensing are passing.

3. that almost all of the surrounding peri-urban areas of the metropolis are low-lying flood plains with lands characterized by moderate agricultural potentiality

(Report on: Zoning of land for agriculture and urban use in Dacca District, 1975)...(9).

6.2.3.3 Comparison of earnings in relation to the use

One of the most vital issues of utilizing the agricultural lands is emphasized by the enormous difference in earnings made from a piece of land used for two different purposes; one for agricultural and the other one for urban development activities.

For example, the production of rice -- the chief and major value earning agricultural crop (which is also grown in many parts of the low-lying fringe areas of Dhaka)-- was 851,000 tons in 1982-'83 and 801,000 tons in 1983-'84 (Table 6.a, appendix-D), showing the per acre yield rate of .594 tons (or 1332.02 lbs) and .618 tons (or 1386.35 lbs) for the years 1982-'83 and 1983-'84 respectively. Assuming a maximum yield rate of 1400 lbs per acre, this is equivalent to 635.04 kg or 17.01 'maunds'(10). Considering the selling rate of paddy for the year 1983-'84 at Tk. 150/00 per 'maund', this equals to Tk. 2550/00 in total for the quantity of crops produced per acre. ...(a)(11).

It should be considered that this seasonal earning is valid for only one production, and there may be two or a maximum of three crops

in a year depending on the topography and the availability of the required level of water and other favourable conditions from that land. Thus, the amount calculated in (a), could be increased upto Tk. 7650/00 ('83-'84), when the production level is three times higher in a year. ...(b).

Again, in some cases, the production rate could be much higher. For example, in the DND project area, which is fully flood controlled and irrigated from the time of its execution in 1968 (details in the following section), the per acre yield is increased upto 43.25 maund, with high yielding varieties of Tosa aman -- a special type of rice crop (Table 6.b, appendix -D). Reducing the cost of production from the value of this output, the return per acre amounts to Tk.3,244/00 -- which is a maximum . Again, considering three crops per year, this sum can be considered equal to Tk.9,732/00 per year. ....(c).

At this stage we are attempting to make comparisons with the unearned values associated with the increasing rate of land values around the metropolis. A recent survey of Urban Development Directorate shows that in the fringe areas increases in land values are not less than 12.7 percent annually as the following table reveals.

Annual return : It can therefore be demonstrated from the above tables that a one acre piece of land located for example in Jurain area (in the southern periphery of the city), with its value

Table : 6.3 : Trends of Land Values in Dacca city 1974-'78

Catagories of Land Use	LAND VALUES per acre Taka in mllns.(000,000) 1974(1)	1978(2)	Rate of annual increase in current price '74-'78,in % (3)
Central Business District	12-18	60-90	40.2
High class Residential use	10-13	40-80	34.65
Industrial use	10-12	35-50	31.3
Fringe area(including Agricultural use)	3-4	5-22	12.7

Notes:1 Centre for Urban Studies, Squatters in Bangladesh Cities; September, 1979.
2 The Urban Development Directorate; spot survey,1979. Cited in: Policies for Urban Land; UDD Dacca, 1979.
3 Cited in Awal, S; A study of the impact of the overseas workers remittances of the land market in Dacca,Bangladesh; Msc. thesis, AIT, Bangkok, 1982.

Table : 6.4 : Trends of Land Values in Dhaka city 1978-'83.

Categories of land use	LAND VALUES per acre Taka in mllns.(000,000) 1978		1983	area	Rate of annual increase in current price '78-'83 in %
Central business district :	60-90	(/bigha) (100)	302	Motijheel	32.12%
High class Residential Use :	40-80	(50)	151	Banani	20.27%
Industrial use :	35-50	--	---	-----	-- --
Fringe area (including agricultural use) :	5-22	(10.0)	30.20	Jurain	17.31%
		(8.5)	25.67	Mirpur	13.71%
		(15.0)	45.30	Hazaribag	27.39%

Note: The percentage figures are calculated with the mean values of 1978 with the equation : $A = A_o (1+r)^t$ where, A = current year land price; r = rate of increase; A_o= original price; t = period (no. of years).

Source:
The land values with respect to the year 1983 are cited from the Ministry of Works, vide memo no. SEC-V/1M-42/83/153 (dated: 27.3.84) and SEC-V/1M-42/83/979(3) (dated 26.12.83) from the Section Officer addressed to the Superintending Engineer, Abandoned Houses, Circle.

increasing at the rate of 17.31% percent (Table 6.4) annually, can earn safely Tk. 173,100/00 in 1983 without being used for any kind of production purpose. ....(d).

At the same time, compared to the return that could be made through its use in agriculture, which amounts to about Tk. 7,650/00 (referred in (b)), the unearned value mentioned in (d) thus becomes 22.62 times higher than that of (b).

Similarly, if it amounts to Tk. 9,732/00, as it was in (c), the annual unearned amount in (d) equals 17.78 times higher.

These figures suggest that it is highly unlikely that the undeveloped peripheral lands will continue to be used for agricultural purposes, and that with the growing demand for land for urban development these will be grasped automatically by the private or public sector for development at a faster rate, to keep pace with the city's physical growth.

6.2.3.4 Experiences from the D-N-D project

In this section, we are investigating the performance of the Dhaka-Narayanganj-Demra irrigation project, the use of which was protected for agricultural purpose. The area covered by this project lies on the south-eastern periphery of the city.

As mentioned in the agro-economic evaluation report of BWDB (12), the project area is divided into two sectors: area-I, bounded by the Dhaka-Narayanganj-Demra road having a gross area of 12,740 acres and area-II, located at the north of Dhaka-Demra road -- having a gross area of 6,100 acres. (About 15,000 acres of cultivable lands, out of a total gross area of 18,840 acres, area-I covers a total cultivable area of 10,000 acres and area-II 4,900 acres).

In the project area all the lands were low and used to be flooded by 9'-0" to 15'-0" (or 2.73 to 4.56 metres) deep water during monsoon. Under this condition, the major crop of the area was deep water Aman paddy only and after the harvest the fields use to lie dormant in winter due to lack of water.

In order to ensure protection of the area from flood as well as to increase food production, facilities for irrigation and drainage were implemented for area-I; also irrigation facilities during the dry season were ensured for area-II. A dual purpose pumping plant having a capacity of 600 cusecs provides irrigation water for the entire project and drainage for area-I. Area-II is drained by gravity flow through improved natural channel.

6.2.3.5 Use of land within the project area

It has already been shown in tables 6.a, 6.b, appendix-D, that the yield rate is found to be much higher in comparison with the average production rate for Dhaka region. Hence, there is no doubt about the fairly good performance of the project, the main purpose of which was to boost agricultural production with the provision of adequate irrigation water and flood protection as required in different season. However, apart from this a relevant question also is apparent with regard to the amount of agricultural land available within the project area, which shows a subsequent decrease in its quantity over a consecutive period.

While the amount of land made available for cultivation in 1962 was 18,840 acres at the time of execution of this project, it was followed by the rapid withdrawal of 4,108 acres of land within 1972 and 5,822 acres within 1981 (which is 30.90% of the total land), reducing the amount of land available for cultivation to 13,018 acres. (Figure 6.5, barchart : land use of D-N-D irrigation project).

In the context of the rapid expansion of the urban population of Dhaka and Narayanganj, the project land is being rapidly annexed, mainly for homestead and industrial projects including brick-fields and other associated developments. Mentioning the location of the area which happens to be within the city's periphery, the evaluation

report of 1984 comments :

> "For the particular location of the project between the two big cities, agricultural front line of this basically agricultural project is shrinking every year to meet the demand for dwelling houses by the project people and city dwellers. Initially the command area was reduced by about 2,400 acres for development by DIT, WASA and the Directorate of the Roads and Highways. The construction of Asian Highway (13), through the area-I may, in course of time, change the agricultural horizon by the gradual construction of dwelling houses and the possibility of the establishment of small and medium type of industrial concerns".

The recently completed by-pass of the Asian Highway linking Kanchpur towards the city, has already claimed a significant part of the project area.

Given the evidence that complete protection of agricultural land could not be assured in an adequately funded and duly protected project area and that land were subsequently withdrawn for different types of urban development purposes by the dwellers as well as by the responsible authorities themselves, it is therefore extremely unlikely that the other adjoining open areas will retain their use for agricultural purpose sacrificing higher returns through exploiting the land for urban development or housing.

6.2.4 Investigation of the density question of Dhaka

It is very often argued that Dhaka,when compared to the cities of other developing countries appears to be thinly populated.An investigation on the question of Dhaka's density, therefore, forms an integral part of this research.

Dhaka, unlike other cities of the developing countries could not in actual fact grow in accordance with the growth of population. "Bangladesh has not been typical when compared with other large developing countries in that its primate city,Dhaka,has not grown to the dominant size that some of the capital cities of the region have. "(DMAIUDP report, 1981).(14).

There is strong evidence of a shortage of available land for development in or around Dhaka. This is partly because of malfunction in the operation of the land market, and partly because of the real physical constraints on the existing land. Due to these reasons, Dhaka's physical growth has always been restricted and in recent years it has reached saturation point.

The most recent offical census of Dhaka(1981) reveals an upsurge of density with the increase in city population.(From 2,068,353 in 1974 to 3,440,147 in 1981, a percentage increase of about 66.32 in the last 7 years).

6.2.4.1 Density with the respective police station areas

Each area of the city is centred around a police station and the area thus covered by the jurisdiction of the police station is therefore referred to as police station area; the census counts are also followed in accordance with the same areas.

From the very beginning of the city's establishment,urban agglomeration occured around the oldest part of the city, covering the areas of Sutrapur, Kotwali and Lalbag. These areas are maintaining their congested character with their business activities overlapped by residential uses from very ancient times. Characterised by their narrow alleyways, choked with vehicular traffic and pedestrians,each having an area of about only 1.2 sq.mile, (or 3.1 sq. km.), Sutrapur and Kotwali,contain about 204,000 and 348,000 population respectively. This is followed by a population of 98,500 per sq.mile (2.5 sq.km) in Motijheel and 115,000 in Lalbag area. Density of these areas are very high when compared with that of Gulshan(7,563 per sq.mile) or Cantonment(8,571 per sq.mile) -- which are occupied by the high income urban elites, and the armed forces respectively The comparative densities of the various areas of the city are shown in Table 6.5.

There are apparent discrepancies in describing the density of the city, mainly derived from the inaccuracy in determining Dhaka's area. Attempts are made in this section to account for these discrepencies.

1. The built-up area of the city : Firstly, let us examine the built up area of the city. A common city map of Dhaka (figure 6.6) clearly identifies the major urban built up areas. The total area thus covered in this map is about 80 sq.miles. It should be noted here that these areas include not only major built up areas but also a significant amount of un-inhabitable low lying areas.

Table 6.5 : Densities in various city areas

	Population		Density		
	1981	1984	1981	1984	Area
Cantonment	110,000	120,000	7,857	8,571	14.4
Dhanmondi	97,000	106,000	48,500	53,000	2.3
Gulshan	222,000	242,000	6,938	7,563	32.0
Kotwali	187,000	204,000	187,000	204,000	0.8
Lalbagh	317,000	345,000	105,667	115,000	3.0
Mirpur	343,000	373,000	14,913	16,217	23.0
Mohammadpur	240,000	262,000	48,000	52,400	4.5
Motijheel	362,000	394,000	90,250	98,500	3.5
Ramna	115,000	125,000	38,333	41,667	2.6
Sutrapur	319,000	348,000	319,000	348,000	1.1
Tejgaon	193,000	210,000	96,500	105,000	2.2
Total	2505,000	2729,000			89.4

Source : Bangladesh Bureau of Statistics.
Statistical Pocket Year Book of Bangladesh (1984-'85).

Particularly noticeable are the areas across the river Buriganga and the adjoining areas along the bank of the river Turag, at the north-west, which form a significant proportion of the frame. Eliminating these virtually unoccupied areas,Dhaka's built up area is reduced to about 72 sq.miles approximately.

2. Police station areas : Now it is useful to note that,in the table 6.5, some of the police station areas are shown as very large. For example Cantonment,Gulshan and Mirpur P S areas (14, 32 and

23 sq. miles or about 36.2, 82.8 and 60 sq. km. respectively) altogether cover about 69 sq. miles (or 179 sq. km.),ωhich seems to be quite out of proportion to the actual built up area of Dhaka mentioned before.

It is therefore obvious that much larger areas are included in those P S areas beyond the city boundary --- which obviously included a larger population as well. Spreading over an area of 89.4 sq.miles (or 231.5 sq. km.), the police station areas of Cantonment, Dhanmondi, Gulshan, Kotwali, Lalbagh, Mirpur, Mohammadpur, Motijheel, Ramna, Sutrapur and Tejgaon contains a total population of 2,729,000 at an overall density of 30,525 per sq. mile.

3. Area considered in the DMAIUDP report : In the report on the urban development of Dhaka (Dhaka Metropolitan Area Integrated Urban Development Project, 1981, prepared by foreign consultants for the Govt. of Bangladesh),the city area has been shown as only 52 sq. miles with an estimated population of 3,375,000 in 1980 (see figure 6.7). For 1985 the population has been shown as 4,545,000 against an area of 65 sq.miles.This gives rise to the population density of appx.65,000 per sq.mile in 1980 and 70,000 in 1985.(15).

It has already been found in 1984 that, an existing population of 2,729,000 was living in eleven P S areas covering 89.4

sq.miles (Table 6.5) and in 1980 this population was 2,505,000. This shows that the calculation of a population of 3,375,000 -- which is far more than the above figure -- within an specified area of 52 sq.miles can not be accurate.

4. The Municipal Area: In the census report of Dhaka Statistical Metropolitan area published in July 1985, Dhaka's corresponding population has been shown against its municipal area. In Table 6.6, we have referred to the population figures with the areas of their respective police stations, specifying the wards they cover.

The Dhaka Municipality consists of the areas served by the following police stations : Cantonment, Demra(P), Dhanmandi, Gulshan(p), Kotwali, Lalbagh(P), Mirpur(P), Mohammadpur, Motijheel,Ramna,Sutrapur and Tejgaon. Only parts of the area served by the police stations of Demra,Gulshan,Lalbagh and Mirpur are included in the municipality. This in total covers an area of 62.4 sq.miles (161.6 sq.km.)with a population of 2,475,710--which produces a density of 39,675 per sq.mile or 15,320 per sq.km.(16).

5. The statistical metropolitan area : the area by which Dhaka is often described covers a relatively greater area .The boundary of this area is extended far beyond the present urban outline and in most cases does not comply with the actual existing urban built

Table : 6.6 : Population with respect to the police station areas of within Dhaka Municipality

THANAS with their Wards	Households(1)	Population(2)	AREA (3) sq.km	sq.mile
Cantonment Thana (wards 1,2,3)	19,765	107,432	37.3	14.4
Gulshan Thana (*) (wards 1,2,3 & Rampura)	24,164	136,882	35.7	13.8
Mirpur Thana (*) (wards 1,2,3)	53,962	314,821	34.4	13.3
Mohammadpur Thana (wards 1,2,3,4,5,6)	39,074	232,817	11.7	4.5
Dhanmandi Thana (wards 7,8,9)	13,898	94,047	6.0	2.3
Lalbagh Thana (*) (wards 10,11,12,13, 14, 15, 16, 17, 18)	43,675	278,760	4.4	1.7
Kotwali Thana (wards 19,20,21,22,23,24)	25,158	181,068	2.1	0.8
Sutrapur Thana wds.25,26,27,28,29,30,31)	48,160	308,816	2.8	1.1
Demra Thana (*) (wards 32,33,34)	34,856	172,597	5.7	2.2
Motijheel Thana (wards 35,36,37,38, 39,40,41,42, & 43)	57,057	350,000	9.1	3.5
Ramna Thana (wards 44,45,46)	15,122	111,206	6.7	2.6
Tejgaon Thana (wards 47,48,49,50)	29,038	187,282	5.7	2.2
Dhaka Municipality :	403,929	2475,710	161.6	62.4

Sources:(1),(2): Figures related to the no. of households and population are enumerated from Table 6.16, report on the 'Bangladesh population census 1981, (Dhaka SMA)'; pp-LXXXV to LXXXVII, pub. by Bangladesh Bureau of Statistics.
: (3) : Corresponding municipal areas are from Table:6.1 op. cit; p-LXVII.

Notes : (1) : The actual total figure appears to be 2475,728; yet we have taken the figure 2475,710 as it has been widely quoted throuhout.
: (2) : 'Thana' is Bengali word for police station.
: (*) : Indicate part of the police stations.

up area and therefore should not be taken as the area of the city.Its purpose was to define the population census in 1981 :

> "For the convenience of conducting censuses and surveys and dissemination of information of the compact urban area,the concept of Statistical Metropolitan area (SMA) was introduced in 1981,by the Bangladesh Bureau of Stat., in connection with the 1981 population census of Bangladesh. Dhaka SMA thus constitutes Dhaka Municipal Corporation(including and Gulshan), Dhaka Cantonment Board, Tongi Pourashava, Narayanganj Pourashava and 12 other urban townships viz. Uttar Khan, Dakshin Khan, Beraid, Satrakul, Demra, Shyampur, Matuail, Siddirganj, Adamjee Nagar, Fatullah, Keraniganj, Amin Bazar(Savar) and their adjoining sub urban areas".(17).

6. The area of the Dhaka Improvement Trust : In order to execute its power with respect to the plan and development of the areas under its legal authority, the Trust took the responsibility of preparing a master plan immediately after it was formed (1956).

At the time of formulation of the master plan the approximate urban area in use was about 20 sq. miles. Projected for a period of 20 years, the master plan also entrusted the DIT to take control over an area of 240 sq. miles ultimately increasing the same to 320 sq. miles. (details in the following section of 6.4 in this chapter).

It is therefore apparent that there have always been ambiguities in defining the city's area, varying from 52 sq. miles to 240 sq. miles as per the offical requirements framed by different institutions and organisations.

Therefore, in order to get the correct picture of the city's density, the figure should refer to the actual built-up and habitable areas of the city, where most of the population is crammed; and thus it is consistent to address the issue through the municipal area and the population it holds.

6.2.4.2 Density in other cities

In discussing the density it is probably necessary to look into the population pressure of other cities of the developing world.

The highly populous Mexico City ,covers an area of 147 sq.miles(380 sq.km), but the greater metropolitan area where some 14,000,000 people lived, stretches over 779 sq.miles (2,018 sq.km.),with a population density of 19,775 persons per sq.mile or 7,650 persons per sq. km.(18).

Calcutta, the capital of West Bengal and India's largest city--holds a population of over 7,000,000 in its entire metropolitan area. The density of poulation is about 78,000 per sq.mile or 30,115 persons per sq. km.(19).

Cairo, had a metropolitan population of 8,000,000 in early 1980; the population density in 1973 was 23,000 per sq. km. which shot up to a population density of 27,642 per sq. km. in 1980. This is also one of the highest population densities among African cities. (20).

Said to be the seventh largest city in the world,Bombay,holds a population of more than 7,000,000 within an area of 233 sq. miles. "The city has one of the highest population densities of the world,with an average of 35,317 persons per sq.mile in Greater Bombay; in the older part of the city the density is about 116,000 persons per sq. mile or 181 persons per acre" (21).

In the light of the above it seems reasonable to state that,quite distinctly,the situation in Dhaka has already exceeded the levels of "one of the highest population densities of the world". The density in the Dhaka municipality shows that it has only been surpassed by that of Calcutta and Cairo.

As far as the growth of population within the boundary of the city is concerned, the urban problem of Dhaka including the immense housing shortage are partly attributable to its density of population.

6.2.5 Commencement of a peri urban growth response

Except in the south,where the Buriganga flows,Dhaka's geographical position is such that it is surrounded by low lying lands in an irregular manner in almost all directions.The growth of the city is thereby restricted to these limits.

The inner city areas were already built up to its maximum while the population grew at an increased rate.It was more than 7 percent

per annum, during the intercensal period of 1974-'81. Without getting any access in the inner city area both the private and public sector development activities, either in formal or informal capacity, are started in the accessible areas of the peri-urban regions.

For example Mirpur,the suburb which was originally developed as a new satellite town in the 60s,grew subsequently upto its present boundary in the fringe area.Its population is predominantly low income living in squatter settlements and in overcrowded public sector single room units.These units,some 4304 in number were built in different sections of Mirpur by the Housing and Settlement Directorate, for those people who were staying in squatter areas within the city as Bastuhara.Among the major reasons for such a scheme, which eventually lead the authority to approach the peri-urban region, was the non-availabilty of land in the inner-city area.

6.3 EXTENSION OF THE TERRITORIAL BOUNDARY OF DHAKA IMPROVEMENT TRUST

The question of the extension of the city's boundary thus attained active consideration. A report from the Dhaka Improvement Trust remarked: "At present Dhaka city is failing to accomodate the growing population and urban activities.Urbanisation is spilling over to fringe areas. ..... Nowadays more and more people commute to Dhaka city everyday for employment and housing purposes. Efficient communication facilities encourage people to live in the fringe areas

where land values and house rents are still low.But in absence of proper planning and control over construction, haphazard and unplanned developments are becoming the order of the day in these areas."(DIT report,1986)...(22).

6.3.1 Peri urban Trust boundary

It has already been mentioned that the master plan of the Dhaka Improvement Trust entrusted it to take control over an area of 320 sq. miles in 1959.

After the period of mid.70s,when the validity of the master plan had already expired,DIT observed phenomenal increase in private and informal sector activities across the boundary of the urban area. This kind of growth activity had within a few years increased to such an alarming extent that the Trust had to take strong action to increase its area. Emphasizing the need for the development of the fringe areas,DIT highlights the benefits in the following manner:

1. It will make possible control over use of land and construction in growing settlements to ensure a planned and controlled development.

2. It will make possible rational and planned allocation of lands for future urban use and, at the same time, preservation of valuable agricultural lands of high potentiality inter spaced

between urban centres.

3. It will enable DIT to make more lands available, in a planned way,for residential, commercial,industrial, recreational and ancillary uses to meet future demands.

4. It will help lower the costs of future urban development,as potential urban lands can be acquired at lower prices to accommodate future public and private activities.

5. It will help create a planned,healthy,convenient and attractive urban environment,where future citizens of the city can live,work and enjoy themselves in the same way as dwellers of the other cities.(DIT report, 1986)...(23).

In order to facilitate the extension of its boundary, the first move taken by the trust was in 1974, when The Dhaka Metropolitan Development Authority Ordinance was promulgated to provide legal support,which was felt necessary for the better management of the planning and development of the metropolitan city of Dhaka. The Ordinance proposed the future territorial boundary far beyond the existing DIT boundary.

6.3.2 Recommendations of DMAIUDP report

The study report 'Dhaka Metropolitan Area Integrated Urban development Project', determined the future development strategy for Dhaka metropolitan area by suggesting that, a much larger area should immediately be included within the present DIT boundary,including even Savar and Joydevpur, for integrated planning and development.As proposed,extension of the DIT boundary would cover an area of 1050 sq.miles,bounded approximately by the river Meghna in the east river Bangshi in the west,river Lakhya in the north and river Dhaleswari in the south.

Following are the police stations and Upazilas in areas formerly outside the city, as well as those within the old adminstrative district of Dhaka,which will make up the proposed DIT boundary:

1 Sutrapur *	2 Kotwali *	3 Lalbagh *	4 Ramna *
5 Mohammadpur *	6 Tejgaon *	7 Cantonment *	8 Dhanmondi *
9 Motijheel *	10 Demra *	11 Gulshan *	11 Tongi *
13 Keraniganj *	14 Savar	15 Joydevpur	16 Fatullah *
17 Narayanganj *	18 Mirpur *	19 Bandar *	20 Siddhirganj *
21 Kaliakoir(P)	22 Sripur(P)	23 Kaliganj	24 Kapasia(P)
25 Narsingdi	26 Polash	27 Araihazar(P)	28 Rupganj *
29 Sonargaon(P)			

* Police station areas and Upazilas already under the DIT jurisdiction.
(P)indicates part of the police station area.

In the middle of '86 DIT proposed the extension of the following areas for the approval of the Ministry,which would duly extend its area from 240 sq.miles in 1958,to an estimated amount of 683.57

sq,miles now :

Areas proposed to be included :

	acres	sq.miles
Tongi	5632	8.80
Joydevpur	33263	51.97
Kaliganj	11434	17.87
Rupganj	26729	41.76
Sonargaon	12298	19.22
Savar	131469	205.42
Keraniganj	11862	18.53
Total	232687	363.57

It stands,therefore,after the implementation of the extension proposal,the area under the jurisdiction of the DIT will be : 320.00 (1956 area) + 363.57(proposed) = 683.57 sq miles.

SOURCE:Letter to the Deputy Secretary,Ministry of Works.from the Town Planner, DIT, memo no. DIT/T.P/21-7/251-Stha, dated 17.5.86

Finally in October, 1986 the proposal was approved with minor alterations by the Head of State and the area of the trust was eventually extended to 650 sq. miles.(Dainik Bangla, 1986).(24).

6.4 INVESTIGATION OF THE VALIDITY OF 1958 MASTER PLAN

The master plan was formulated by the Dhaka Improvement Trust (DIT) -- formed in 1956 and was entrusted with the responsibility to plan and develop the areas of the city within its jurisdiction. In 1957, the first major work the trust undertook was to prepare this master plan under the then technical cooperation scheme of the Colombo Plan. Accordingly, a British consultant (Messrs Minoprio,

Spencely and P W Macfarlane, London) was appointed in August, 1957, to formulate and design the master plan for Dhaka city which would indicate the future land use proposals and zoning therehereon.

In the early '50s the approximate urban area was about 20 sq. miles only (DMAIUDP report, fig., 2.2, 1980). At the early stage of the establishment of the trust, the area under its jurisdiction was part of the great plain of the Ganges and the Brahmaputra delta, covering 240 sq. miles This area was later extended to 320 sq. miles in 1959 (Short report, DIT, 1986).

While an elaborate description of the master plan would be unnecessary, we need to refer some of the underlying assumptions, which reflect their limitations in undertaking future urban development strategies:

1. That the existing population will continue to rise at the rate of approximately 1.75 percent per annum;

2. That the Dacca cantonment, extending for some six miles north-wards from Dacca along the Mymensing road and occupying approximately 6,840 acres of mostly high land, will be retained for military use;

   Similarly, that it will be necessary to retain the Pilkhana cantonment for the East Bengal Rifles;

3. That no substantial alleviation of the annual flooding which occurs during the monsoon season will be possible;

4. That the central area of Dacca (the old town) will be maintained as the principal business and shopping centre, particularly for the small scale enterprises

(Report on the draft Master Plan for Dhaka, 1958).(25).

6.4.1 Evaluations

1. Being the most important determining factor for the future growth of the city, the rate of population increase as predicted leads to serious contradiction in this regard.

For example, within a projected period of 20 years (starting from 1959) the assumed growth rate of 1.75 percent per annum, in real terms, increased to 5.63 percent during 1951-'61 and 8.08 percent in between the intercensal period of 1961 and 1974. The unprecedented growth rate in fact increased the city's population to 1,403,259 in 1974 and 2,475,710 in 1981 (in relation to the municipal areas only) against a predicted population of 1,440,000 for 1979 - which was nearly equalled almost five years before in 1974.(26).This unexpected population increase has already exerted tremendous pressure on the saturated built-up areas of the city; consequently the issues of encroachment upon the peri urban areas

need to be addressed.

While the city's inevitable future growth could not be visualized beforehand, the consultants, out of precaution, suggested a periodical review of the master plan, since its proposals were based entirely upon assumptions and existing conditions at the time it was prepared. Later, this led to an urgent need for the adaptation and re-vitalisation of the master plan; but the master plan has never been reviewed. Willcox remarks :

> "As written, it required the precise definition of all permitted uses of land in a 240 sq. mile area. This was beyond the capacity of the original master planners and of their successors. Since most existing uses did not conform to the uses allowed in the original single purpose zones prescribed for Dhaka, subsequent attempts at regulation had no reasonable point of departure. Moreover, the rapidity at which Dhaka has grown since the master plan was prepared in 1958 -- at a rate far outstripping that predicted in the plan itself -- has meant that the information on which it was based became quickly outdated."..(27).

2. At the same time, it has been established through the assumptions that the cantonment area, occupying approximately 6840 acres of valuable urban high lands lying only within 6 miles of the city, would retain its military use. Since the cantonment lay such a short distance from the existing built up areas of the city at that time, it seems preposterous that its relocation was not visualized somewhere outside the city's suburban perimeter. The same comment applies to the barracks of the Bangladesh Rifles (previously East Bengal Rifles) being located at the heart of the city, adjacent to the Hazaribag belt.

In other words, allowing the cantonment to remain rigidly in its present location,the future growth and development of the city was forced into further northern peripheral areas even before 28 years ago. Figure 6.8 illustrates how the city's growth propensity was directly encountered by the cantonment and the old airport areas, ultimately initiating it towards further north.

3. However, the concerns of the common people had been apprehended. While discussing the possiblities of residential developments further north (e.g. Faydabad and Tongi region), in response to the future population growth, the report recognised the communication problem of the population's dependence on the city core:

> "Many people will not wish to move out so far, particularly if their employment is centred on the old town and they are accustomed to the way of life of the river side areas."...(28).

Despite the realisation of the above fact, the plan did not emphasize long term land reclaimation potentialities for the areas located near to the central city region.

Again, although no long term policy for the substantial alleviation of the annual flooding was envisaged, the proposal could not evade discussing briefly some short term land reclamation issues in two or three selected low-lying areas (e.g., near Gandaria, east of Narayanganj road and Keraniganj), conveniently situated near to the old town in order to permit their use for housing (29). Except for a small portion in

Gandaria, the suggested reclamation areas were not proposed for implementation. Nor was reclamation as a long term urban development strategy duly considered. Inability to anticipate the need for such a strategy certainly led to a long term distressed effect on the future growth of the city.

Besides, development proposals were usually turned down by the Trust, since many areas of the master plan had been earmarked as low lying areas, causing serious interruption of the natural pattern of urban development. A recent report of the Trust establishes the fact that, in the master plan about 2/3rd of the planned area was zoned neither for housing nor for ancillary development (DIT report, 1981).

Observers presently believe that there is usually a woeful gap between planning and action which is the single most important reason for the demise of traditional master plans. Whether or not the objectives of such plans are laudable, this type of planning strategy is necessarily being abandoned because of its patent failure to achieve results (McNeil, 1983).(30).

In spite of that, the outdated master plan of Dhaka still remains as an obsessional document for the city planning and management authorities. The city has sprawled in such a way that the urbanites are highly dubious about the competence of the planners. Simultaneously, the master plan theory puts stress on the physical

aspects of planning; in the case of Dhaka it was also restrictive in land uses or changes to other purposes. Thus, on the face of Dhaka's present urbanization pattern, it seems that this traditional theory of planning, particularly with the lack of effective control and management, would not impart solution to the problems rather than worsening. It is needed, therefore, to update the whole plan for any changes in the given provisions.

6.5 OVERVIEW OF THE EXISTING SITUATION PREVAILING WITHIN THE PERI-URBAN REGIONS OF DHAKA

While formal developments were not encouraged beyond the limits of urban development defined by the master plan, (due to the identification of most of the areas as 'low-lying' in the master plan which did not allow development proposals to be approved by the authority), varied types of spontaneous and informal development started to occur. These are described briefly below along with other important existing uses of the peri-urban areas as shown in the figure 6.9.

1. Low-income informal housing is irregularly scattered throughout the area in the following locations:

   a. occupying land alongside the north-eastern belt of Zoarshahara continuing upto the certain portions lying immediately beyond Baridhara or Badda;

b. irregualrly distributed through the fringes of Rayerbazar, Hazaribag and Nawabganj;

c. on either side of the railway line crossing through Mirhazirbag, Jurain and Gandaria proceeding further east mostly close to the main axis running from Jatrabari to Kantchpur bridge; (the most densely populated inner city squatters are located along the entire run of the railway track passing through Kamlapur, Shahjahanpur, Karwanbazar and Tejgaon).

2. The Cantonment area associated with the old airport forms the longest stretch of suitable peri-urban high lands located at the north; starting from Tejgaon the area is extended as far as the new airport at Kurmitola covering not less than 6,840 acres. Being located entirely on high land the area is of high value for urban development purpose.

3. The suburb of Mirpur, originally developed in the '60s as a new satellite town mainly for the non-Bengalis now occupied by a population of between 250,000 and 300,000. The population of Mirpur is predominantly low-income, a significant proportion of which live in overcrowded single-roomed units (Bastuhara, without any facilities for water supply and sanitation etc.), provided by the Housing and Settlements department or in uncontrolled squatter settlements in different sections of Mirpur.

4. The Mirpur Resettlement Project:

The resettlement project area is located at the north eastern suburb of Mirpur. While many decision makers and urban development authorities (including the Dhaka Improvement Trust) commonly think about land reclamations around many low-lying areas of the city proposing embankment construction or dyke protections, the following example demonstrates the drawbacks and limitations in the execution of such schemes with probable catastrophic results, as was experienced in the resettlement project of Mirpur in the late '70s.

In 1975, in a massive squatter removal operation in Dhaka, about 1,73,000 squatters were policed out and were resettled at the outskirts of the city in three areas : Demra, Duttapara and Bhasantek (located in Mirpur). About 3,000 families were relocated in an unimproved 88 acre site. But, part of the area belonged to the Dhaka Cantonment nearby -- therefore, Bhasantek was taken as a temporary settlement site.

Later a scheme was taken under active consideration stating that the settlement would be removed to a permanent site about 2 miles from the east of the present location in Mirpur to provide plots of about 55 sq. yards for about 2,300 families.

The then United Nations Centre for Housing Building and Planning got involved with this project and an amount of $673,000/00 was ensured. Afterwards it was discovered that only the total cost of landfilling of the site to above flood level would amount to as much as $1,440,000/00. Therefore as an alternative approach it was suggested to construct an embankment around the site, with pumping facilities of water during the monsoon. The cost was estimated as $452,662/00 (Choguill, 1982). The site was proposed to be expanded to 87 acres with an ultimate objective to be expanded to house 3,500 families. But the story about the implementation of this scheme was miserably a failure.

Initially, the target was to complete the work by the begining of the monsoon of 1978; the monsoon is certainly an important factor to be considered for any development project; the aftermath of which is flood, a very common annual occurrence in the country.

As the work was continuing -- it was discovered that "a serious slippage had occured at a number of points, along the embankment and that in effect the dyke, built on low-lying land (used for crop production) was sinking" .

During the following months of continual crisis several measures were undertaken to overcome the crisis; these included bamboo piling and others. But nothing could prevent the dyke

from crumbling further during the 1979 - 1980 monsoon. Choguill, an insider of this project (as an UN consultant) remarked:

> "Throughout the autumn of 1979 half-hearted pumping operations were maintained to clear the accumulated water -- but it was plainly apparent that the high hopes of many expatriate and local planners and engineers would never be fulfilled in Mirpur. ..... And with the realization that the entire project was on the verge of a possible disaster - it was finally abandoned". (Charles L. Choguill; Linking planning and implementation: the Mirpur resettlement project. Ekistics 292; Jan.-Feb., 1982. p.-42.)

The project lay in that state for the next few years (plate 6-1).

Some of the recent development activities, in relation to the low-income housing in Mirpur, include integrated development aiming at providing serviced plots for lower-income group proposed by the UNCHS experts and other associates (Standley, 1985)(31), evaluation of which appears in the section 6.6.5.

A household survey focusing part of this research has been carried out among the lower income population living in the public sector single-roomed units (Bastuhara) in Mirpur (details are discussed in Chapter10 and 11).

5. Fringe areas spreading over the western flood-plains of Rayerbazar and Hazaribag to Kamrangir char at the south, display low-income settlements irregularly sprawling over the lands

increasingly less used for agricultural purposes. Mostly these settlements are slums, in form of clusters located on filled up land on low-lying areas or on the edges of the higherland alongside brickfields and other small scale workshops or industries.

In response to the rapid urbanisation of this area including the southern fringe of Kamrangir char, urban development authorities are now actively considering the land reclamation possibilities of the entire belt starting from the north-western point of Mirpur bridge to the above mentioned Kamrangir char; evaluations are made on this proposal in section 6.6.7.

6. Further south an upgrading scheme is now under active consideration for the areas of Islambagh, Shaheednagar and Rasulpur. These areas are in different stages of a similar process of recent urbanisation. Population pressure during the last ten years have resulted in rapid densification within Islambagh, Shaheednagar and Rasulpur (at Kamrangir char). Aspects of these upgrading measures are also discussed below.

7. Development potentials for Jinjira :

Located at the extreme south across the river Burhiganga is Jinjira, a union within the police station area of Keraniganj. The population is about 100,000 but it is assumed that the union

serves a much wider population catchment which could be around 150,000 to 200,000. Within the older parts of the area, the environment is decidedly urban although the fringe areas have the peri-urban agricultural character of the eastern periphery of the metropolis (DMAIUDP report, vol.3, 1981).

Jinjira has got the reputation for flourishing as an informal, small scale manufacturing sector along with the development of a dockyard in another part of the union. Besides, along the river bank there lie small establishments for the timber and bamboo wholesale trade. All these, in fact rely on labour intensive handling techniques and are therefore successful business sectors important to the construction industry and related activities. These aspects of Jinjira have resulted in accommodating a high density low-income population depending on this sector for employment, adjacent to the commercial enclave parallel to the river bank. A significant proportion of the population also depend on the commercial and trading activities located around the old Dhaka (i.e Badamtali, Mitford, Swarighat and similar other areas along the river). Further south, across the river, low-income housing occurs in lesser densities. Proceeding further south-east, the areas along the river bank are mostly taken over by brick-fields and other industrial establishments.

Seasonal flooding effects most of the areas of the union, ground levels of which are below 18' SOB. A study team observed that

the September 1980 floods rose to just over 21' SOB and inundated almost the entire area with the exception of a small section of the bazaar (DMAIUDP report,1981).

With respect to its present urbanisation and the physical growth of the metropolis, Jinjira is of significant importance because of its high development potentials of its manufacturing and trading sector along with the population it serves. But despite its role in the commercial life of the city and the fast growing and rapidly urbanising population, this area is still considered as outside of the city both geographically and functionally by many of the planners and policy makers. The area is not included within Dhaka municipality and the Water and Sewerage Authority. No supply of gas yet been installed despite the high demand of the same in its manufacturing sector.

6.6 EVALUATION OF THE CURRENTLY PROPOSED PERI-URBAN DEVELOPMENT SCHEMES

6.6.1 New DIT township proposals between Mirpur bridge to Kamrangir char

In response to the problem of the tremendous increase in the inner city population, exerting serious pressure in order to spread out the city boundary in many locations, the Dhaka Improvement Trust (DIT), was finally able to recognise in its project proforma (1984),

-- that the vast low lying lands around the city, particularly on

the east and west of the city's periphery have been lying vacant and unutilised for years

-- that one of such areas of the city is situated in between Mirpur bridge and Kamrangir char (32), covering nearly 3800 acres of land

(Proposals for Development of New Township between Mirpur Bridge and Kamrangir char, 1984).(33).

In order to make lands available for urgently needed city expansion DIT has recently published a report proposing reclamation of low-lying areas adjacent to the city mentioned above.

As the lands in the area are low and are subject to annual flooding, these have to made flood free before developments for urban expansion are undertaken; the report proposed urban expansion by one of the three alternative means :

Alternative I :

by acquiring the entire project area and developing the low lands with earth filling.

In order to do so, an embankment is proposed to be constructed along the river Turag and Burhiganga from Mirpur bridge, located north-western corner to the south-western Kamrangir char, in an

attempt to reclaim the entire western peri-urban belt adjacent to densely built up areas of old Dhaka and Hazaribag (figures 6.10a, b).

Secondly, the entire project area is proposed to be filled with earth from river beds.

The entire project area is divided into three sectors and to be developed into three phases from 1985 to 2000; to be noted also that until the present time no progress has been made.

Costs: including the cost of construction of embankment and roads --- (which incurs Tk.4890.00 lacs or 489 millions alone), its total implementation cost is estimated to Tk.67200 lacs or 6720 millions(eq.Tk. 672 crores).

Alternative II :

By providing necessary embankment and ancillary facilities :

Anticipating alternative I would prove too expensive, requiring a longer span of time for its full execution, alternative II proposed construction of an embankment along the river for land reclamation and some basins for pumping out the rain water; no filling is considered within the proposed area under protection.

Costs: total estimated cost including construction of a 200'-00"

--- wide embankment and other equipment costs for pumping facilities is about Tk.13800 lacs or 1380 million (eq.138 crores).

Alternative III :

By providing a zonal plan for the area indicating the proposed road networks and various land uses including utility areas

Like others, alternative III also includes embankment construction of similar specification and development of road networks etc. in order to promote planned private developments by means of a zonal plan which would provide a basis to regulate and control such developments; to ensure that co-ordinated devlopment, expenditures for minimum land acquisition and compensation are also included, forming a total cost of Tk.31200 lacs or 3120 millions (eq.312 crores).

Through land reclamation various objectives are intended to be met. As has been stated : 'the area will primarily be developed for residential purpose with more than 2000 acres (out of 3754 acres forming 57.76%) of land made available for residential developments' (34).

In an attempt to evaluate the scheme we are trying to analyse the programmes through which residential developments are proposed to be carried out; three types of alternatives mentioned in this regard:

1. sites and services scheme

2. flats for sale and

3. co-operative housing

Out of 1937.75 acres of residential land (rounded up to 2000 acres elsewhere in the report), about 60% is considered as net residential area (1162.65 acres), the rest of 40% is for generally provided open spaces including roads and other community facilities. Out of 1162.65 acres 50% (581.32 acres) would be developed under sites and services scheme, 25% (290.66 acres) under flat for sale programme and the rest of 25% under co-operative housing.

1. 11,626 number of plots, each having 3 kathas or approximately 2150 sq.ft., are proposed to be made available for distribution in the sites and services scheme, expecting an estimated population of 279,024 will be accommodated; considering the average family size of 6 persons, such a high figure implies that they will be accommodated in multistoried buildings (11626X6X4=279,024).

2. To provide for the proposed flats for sale, 290.66 acres of land will be reserved in different selected spots. Considering 40 flats per acre 11,626 number of flats are specified for sale for 69756 persons (average household size being 6), among different

income groups.

3. Finally in the co-operative housing programme, 290.66 acres will be made available for distribution among 348 co-operative groups (at the rate of 10 kathas or 7200 sq.ft. for each group), through which 5568 families are expected to be accommodated; ---- but then again, this implies from the number of families that multistoried walk up units are envisaged.

6.6.2 Drawbacks and limitations of the DIT new township proposal

As the affordibility of the lower income population to pay for housing is extremely marginal (see chapter 4) and their income is barely able to reach the level of subsistence, it will be virtually impossible for them to get access to any of the three high-cost multistoried flat schemes. Also, the generally considered economies in favour of multistoried developments (for example, savings on land by increasing densities and savings in construction) can also be questioned.

Studies already made have shown that building costs rise about 1.5 times per sq.ft. as building height increases (Angel and Benjamin,1976) (35). Besides, multistoried construction will certainly call for high cost provisions such as piling in a land filled site like this, which will certainly increase the construction cost.

Hence, although a significant number of people will probably be accommodated, this will include neither low income nor any weaker section of the population.

Despite the unrealistic nature of such an ambitious emmbankment scheme, it can be anticipated from other previous experiences that since most of the benificiaries will be from the upper income population, the concerned authorities will be able to find out a way to procure resources (like the previous Mirpur embankment, which was financed by the then UNCDF in 1977).[1]

Although vital issues of urban developments of the metropolis are dealt with land reclamation options in the scheme, but it is distinctly evident that no measures are taken to provide shelters for the lower income population.

6.6.3 UNCHS/UNDP sponsored Housing Development Project

Recently the UNCHS and UNDP have jointly sponsored feasibility studies of a number of upgrading schemes under the Housing Development Project (subcontract -- A). The project is involved basically in three adjoining fringe areas -- Islambagh, Shaheednagar and Rasulpur -- around the southern river belt of Burhiganga.

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[1] (It is to be noted also that some parts of the embankment work is lying incomplete when the work was initiated in the sixties; plate 6-1).

Out of the three areas Shaheednagar and Islambagh are located on the adjacent peninsula of the north-west, while Rasulpur is across the tributary of the river.

Mostly occupied by the lower income groups, the areas commonly lack local employment. This is principally because of their proximity to old Dhaka, where many employment opportunities exist; some of these also spill over into Islambagh. Few work opportunities are available in Shaheednagar and Rasulpur. Population densities in these areas varing from 800 persons to about 1500 persons per acre.

Although there are some permanent dwellings on land above flood level, some of the poorest, densest and most insanitary living conditions exist in the low-lying flood prone areas here. Dwellings are grouped around the few small portions of non-inundated land and are usually elevated on bamboo stilts to overcome the flood problem. During the flood season inundated roads can not be used for access. People at that time have to rely on boats to reach their dwellings.

The issues of development of such low lying areas, planned for the first time in the history of the metropolis, is of serious importance in the long term urban upgrading and land reclamation strategies for Dhaka. In their interim report (36), the consultants discussed the broad concepts of integrated upgrading in the selected project areas including main principles of integrated upgrading and analysis of possible land reclaimation options; finally proposals were made with

respect to the views mentioned above.

One of the most important aspects of the report includes several options for land reclamation in these peripheral low-lying areas through which upgrading principles are presented. Besides the generally considered land reclamation options, that is I) major landfilling and II) dyke protection --- both of which involve high costs impossible to be recovered from the households (table 6.7), two other innovative options are also proposed and analysed accordingly; these are : III) embankment piers or finger principle and IV) landfilling through garbage dumping. Short description of the proposed options are cited in the following.

Option I : Major landfilling : This is one of the most common land reclaimation options generally considered. Although extremely cost involving, major landfilling results in the creation of high quality land for general urban development purpose. To cover over 1 hectare (or 2.47 acres) of land the cost comes about Tk. 2100,000/00 (or approximately 42000/00 pound sterlings) for standard filling with earth and sand for an assumed average depth of 10'-0" or about 3 meters. This option also requires several years (about 3-5 years for completion).

Option II : Dyke protection : With this option includes the formation of a dyke or an embankment wall around the low-lying land above maximum flood level, with internal storm water drainage and

pumping facilities. Although involves less volume of landfill, it is observed that it involves high risk of breaching and slippage followed by devastating results. It also requires expensive construction and significant equipment cost and needs constant high level maintenance and upkeep.[1]

Option III. Embankment piers or "fingers" The pier or finger principle is described as developing a number of embankment piers arranged like those of fingers, at the early stage of development. The embankment piers would slope down towards the riverbed. Landfilling work would be limited within the embankment borders and therefore is expected to involve less cost [see figure 6.11a, b.].

It is claimed that the 'pier' or 'finger' principle can grow incrementally over time. It attempts to establish a circulation network along the fingers above flood level which would allow year-round vehicular and pedestrian access and provision of services. and as the services are upgraded and access improved development along fingers would densify.

Option IV. Landfilling through garbage dumping: This option included draining out stagnant foul water when the rivers are low and also the team has identified a possibility of land fill using garbage collected by the Dhaka Municipal Corporation covered by river sand.

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[1] (as an example, see description of the failure of Mirpur embankment in section 6.5, pt.4).

It was argued that this method would cost roughly a third or less than the standard fill methods and is most appropriate for ditch filling.

Through the cost analysis investigation of each of the options with respect to the economic constraints of the population the report concluded that option IV has good potentials for application in certain parts of Islambagh, principally on the west low-lying lands of Shaheednagar, with possibilities for connecting into the existing utility services network. The report demonstrated that this method costs roughly a third or less of standard filling methods (table 6.7) and pointed out that sites filled by the standard method must settle over a period of many years before being available for low rise pucca construction buildings. (Interim report, 1985)..(37).

For Rasulpur and low-lying areas of Shaheednagar, site conditions precluded considering option IV, where construction of either a dyke or piers was suggested. In any case, the dykes costs can not be recovered from existing residents. Piers are concluded to be the only potentially feasible option and therefore option III was provisionally proposed for the areas.

We have made further critical evaluations with the comparison of these options with respect to the financial opportunities, environmental conditions and physical constraints of the lower income population and their neighbourhood respectively in the final chapter

Table : 6.7 : Model costs per Hectare for land reclamation and flood control options (based on mid'85 DMC rates)

Options	Costs per Hectare (Taka in thousands)
I) Major landfilling	2,100
II) Dyke protection	1,600
III) Piers construction	300
IV) Drainage and partial landfill	90

source : Interim report, Housing Development Project.

notes :
I) Preliminary estimate, average depth of fill 4m of compacted earth with an assumed 2-year filling period for moderately large sites, with 5% real interest.

II) Preliminary estimates derived as for option I *and checked* against the results in appendix A of the interim report of DMAIUDP; the estimate also contains drainage development allowances, pumping costs maintainance and replacement of pumping equipments etc.

III) Preliminary estimate with 5m high piers and 6m roadway; 3m wide roads and footpaths are proposed.

All estimates exclude costs of lands purchased from private owners.

of this research (ch.11).

6.6.4 Housing Development Project: Mirpur

The study which leads to the current feasibility study of a project at Mirpur was the strategic plan of DMAIUDP, where it was recommended that Mirpur should be given high priority in Government plans for the

urban sector. The current feasibility study finds the major justification for the project centres around the growth of Dhaka's population, projected to increase to 6.2 million in 1990. Since much of the area is undeveloped and there exists significantly underutilised infrastructure, Mirpur represents a good opportunity to provide housing at a relatively low cash outlay for Government. There are three major groups of people in Mirpur without formal housing rights: squatters, stranded Pakistanis, and the occupants of the Bashantek resettlement camp.

In their final feasibility report(38), the consultants outlined a development strategy for Mirpur including the following key factors:

1. the extent of land in Government ownership (about 600 Ha) and not yet committed or planned at Mirpur as compared with the relative lack of it elsewhere in the metropolitan area

2. the likelihood that Mirpur will occupy an increasingly central position within Dhaka's urban area as the city grows

3. the presence of 87,000 people living in critical housing conditions in Mirpur

4. the existence of underutilised infrastructure and the need to upgrade the infrastructure to accomodate the potential population increase (from 267,000 to a possible 500,000)

In the light of these considerations it is proposed that Mirpur be developed as a high density residential suburb. A strategy for obtaining the maximum number of housing units from the area at appropriate standards of provision is presented. Generally the strategy comprises:

1. reclamation and provision of low-income sites and services on low-lying vacant land

2. filling and servicing of low areas in the existing area for mostly low-income sector with some for the middle-income sector

3. upgrading existing infrastructure

4. provision of improved sanitation for a number of Government owned houses

5. sale of Government houses after the completion of upgrading partly to allow private investment in house extensions and redevelopment

6. resettlement of people living in squatter clusters and camps

A detailed hydrological assesment and costing of reclamation options has been carried out to arrive at recommendations for flood protection criteria and reclamation techniques.

6.6.5 The reactivation of Mirpur resettlement scheme

During the middle of this decade UNCHS experts once again got interested in this project and other associated upgrading schemes around the southern areas of Dhaka.

With an objective to resettle the once resettlement scheme, the project was reactivated again, when the attention of the head of the state was called on the subject. As described in the formulation report, it was decided by the execution committee, in 1985, to complete the repair works of the embankment and fill up the site to RL 24' (with a peripheral levee at RL 27.70), which would ensure flood protection against 25 years flood reccurance. The site would be equipped with the basic infrastructures (such as: drainage, roads and footpaths, water supply by shallow tubewells etc., street lighting and basic community facilities).(39).

Also it was proposed that, on each of the 2600 plots to be developed in an average size of 15'-0" X 30'-0"(or about 41.4 sq.m.) a core house of 8'-0" X 12'-0"(or about 9 sq.m.) and a water sealed pit latrine would be built. The core houses would be of concrete foundations and corrugated iron roofings with external walls and partitions to be built of bamboo mats.

The development cost to be incurred at the final stage of the project are as follows. In the formulation report, the cost per

household was shown as the total project costs divided by the number of plots. With 2,592 developed plots this resulted in a total project cost of 178.3 million (comprising the previously incurred amount of Tk. 23.6 millions + Tk. 150.8 milions for the new development). Thus the cost becomes equivalent to Tk. 68,800/00 per household.

Only the land development cost proposed to be incurred were also significantly higher. The components were given as follows:

Table : 6.c : land development cost

Components	Tk.(millions)
1. Earthwork and embankment repair	68.511
2. Drainage system	9.546
3. Roads and footpaths	3.115
4. Plot demarkation	0.220
5. Streetlighting, transformer	3.270
	84.642

Afterwards, the expenditure already incurred previously were added to the above figure. The existing embankment and existing partial filling and grading are genuine components of the approved reclamation approach in the sense that the embankment acts as a retention levee and the previous fill reduces the amount of new earthworks required. How much of the total of Tk. 23.6 million (sanctioned previously) already spent was difficult to isolate. However, at the time of the first estimates in 1978, the figure was given as Tk. 17.17 million for the embankment and Tk. 3.1 million for thr grading. The total of say Tk. 20.0 million could be added,

although, if accounted for correctly, this should be brought forward to 1985 prices. Thus the total land development cost including the previous works is: Tk. 84.642 millions + Tk. 20.000 millions = 104.642 millions.

The above amount is averaged out to Tk. 40,000/00 per household, as land development cost only.

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[19] **The New Encyclopaedia Brittanica.** (1984)Vol. 3, 15th edition. Chicago Encyclopaedia Brittanica Inc. and others.p.-589.

[20] John Waterbury: Cairo, Third World Metropolis.

[21] The New Encyclopaedia Brittanica op. cit. vol.3 p.-15.

[22] **Dhaka Improvement Trust** (Jan.,1986).Proposal for the Extension of Territorial Boundary of Dhaka Improvement Trust p.-3,4.

[23] Dhaka Improvement Trust op. cit.

[24] **Dainik Bangla (The daily Bangla).** (23rd October, 1986) "Mahanagar Dhaka bistrito hochche Savar o Sonargaon Porjonto". p.-1.

[25] **Minoprio and Spencely and P W Macfarlane.** (Dec., 1959).Report on the Master Plan for Dacca. London.

[26] **Minoprio and Spencely and P W Macfarlane** op. cit. p.-3. the predicted population in their report is compared with the population figure presented in the Bangladesh Population Census, 1981 report. p.-XXXVII.

[27] **Willcox David L** (1983).Urban Land policy where the Population Bomb has Already Exploded Habitat International vol. 7 number 5/6 pp. 41-42.

[28] **Minoprio and Spencely and P W Macfarlane op. cit. p.-25.**

[29] Proposals were made with respect to the reclamation of the following areas : a) Gandaria and Postagola (between the old railway and the Narayanganj road) -- 285 acres; most of the lands lying between 10'-0" and 15'-0". Contours suggested to be raised upto the level of 20'-0", above the height of the average flood which has been taken as 18'-6". b) East of Narayanganj road (between the Demra road at the

north and Narayanganj road at its south) -- an area of approximately 1540 acres; the height varies between 8'-0" and 15'-0". c) Keraniganj area at the south bank of Burhiganga; the report commented that : "Had Keraniganj been high land and provided with bridge communication with Dacca, it would have been an ideal site to accomodate overspilled population. Its proximity and close association with traditional water front activities would make an attractive settlement for many Dacca citizens".

[30] McNeil, Desmond (1983). The Changing Practice of Urban planning Published in Habitat International vol.7, number 5/6. pp.117-129.

[31] Standley Terry (Dec.,1985). Bangladesh: Meeting the Urban Crisis in Dhaka UNCHS Habitat News. Technical Co-operation p.-13.

[32] Kamrangir char, located at the south-west hinterland of the city across the main river.

[33] Dhaka Improvement Trust (1984).Proposals for Development of New Township between Mirpur Bridge to Kamrangir Char. p.-1.

[34] Dhaka Improvement Trust(1984). op. cit. p.-21.

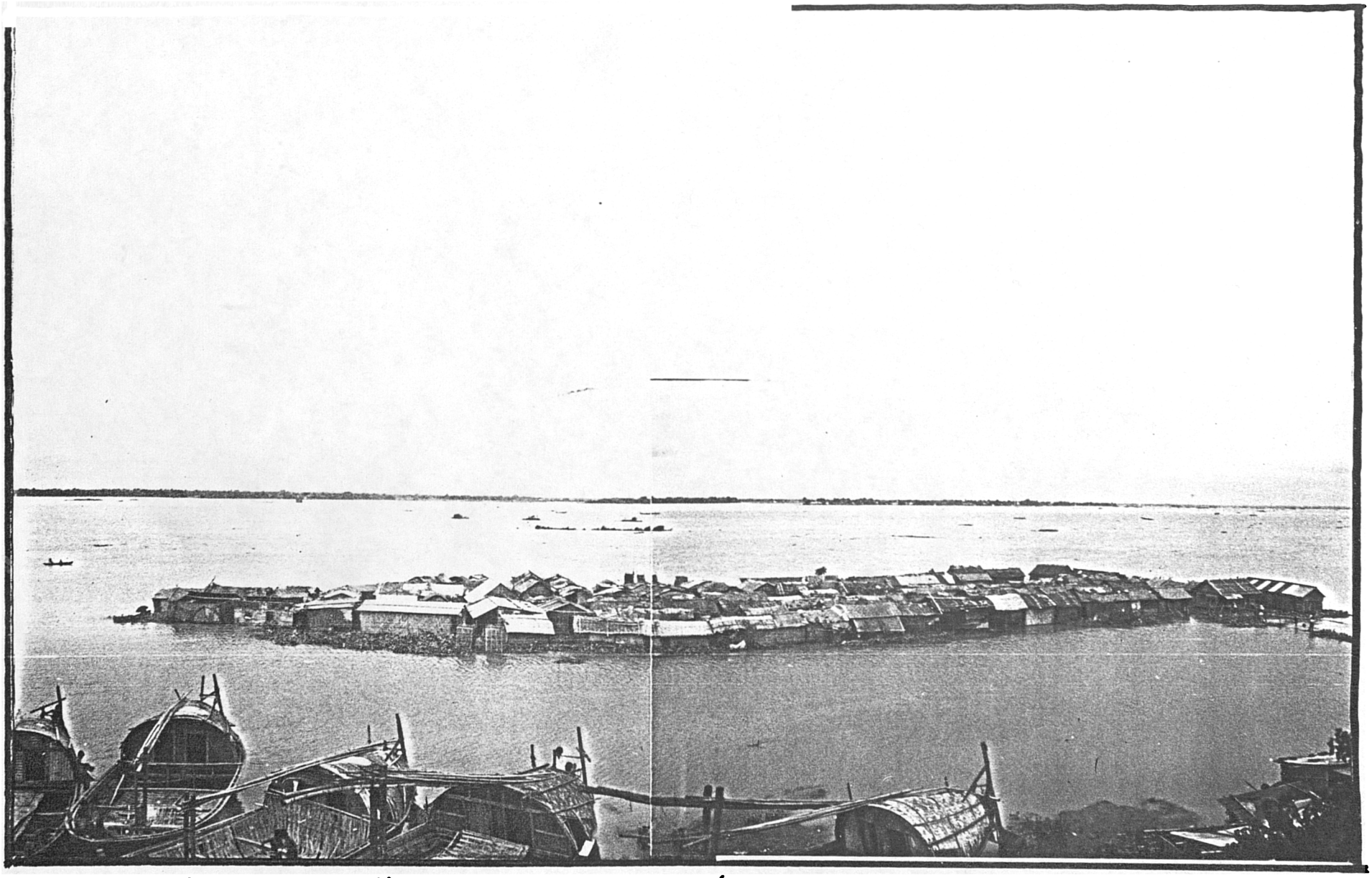
[35] Shlomo Angel and Stan Benjamin (Jan.,1976)Seventeen reasons why the squatter problem can't be solved. Ekistics 242 p.-20.

[36] Consulting Engineers, Bongaerts, Kuyper and Huiswaard B.V., Institute of Housing Studies-BIE, Culpin Planning, Aqua Consultants and Associates Ltd (July, 1985).Housing Development Project: Subcontract "A".

[37] Consulting Engineers and others op. cit. p.-3.3/5.

[38] Kinhill Stearns and others (1985). Housing Development Project. Subcontract B - Mirpur. Final feasibility report. Section 1.3. p. 1-3.

[39] G. Lemarchands and others (1985). Formulation report. The United Nations Capital Development Fund. p. 11.



LOWER INCOME SETTLEMENTS IN HAZARIBAG / DURING FLOOD

PLATE 6

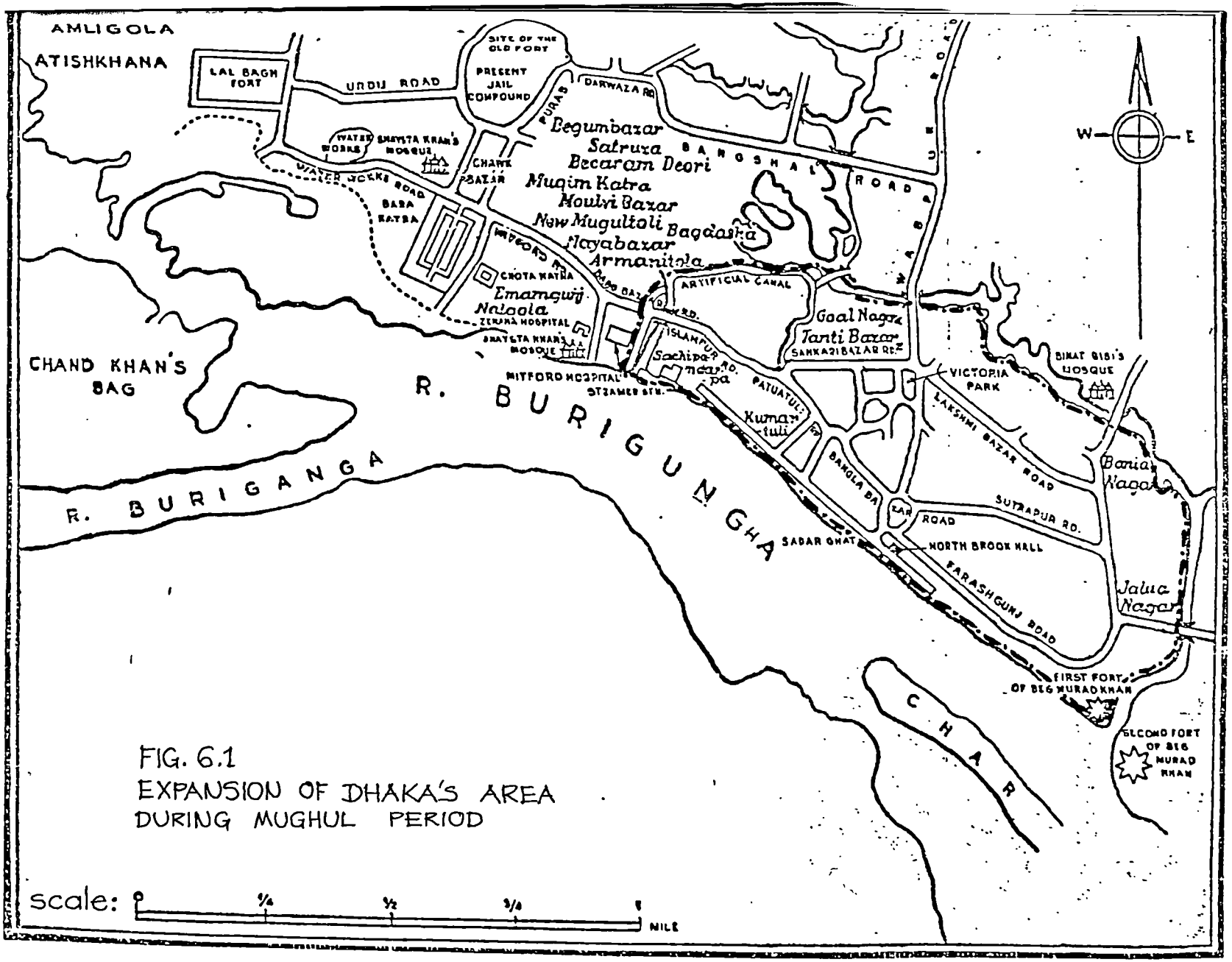


FIG. 6.1
EXPANSION OF DHAKA'S AREA
DURING MUGHUL PERIOD

source: Dani (1962) : cited in ISLAM (1987).

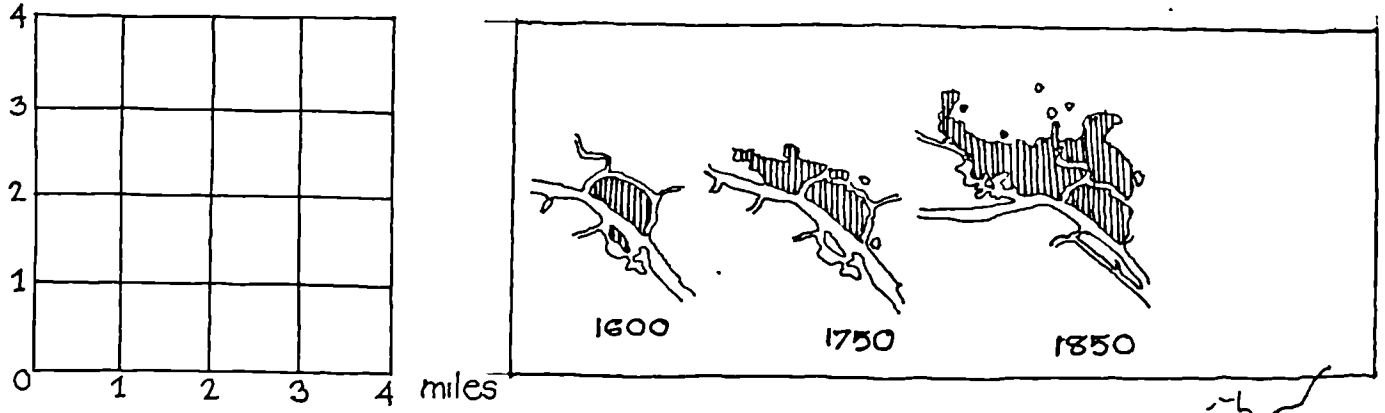


FIG. 6.2

GROWTH OF DHAKA
source: DMA/UDP REPORT. FIG. 2.2.

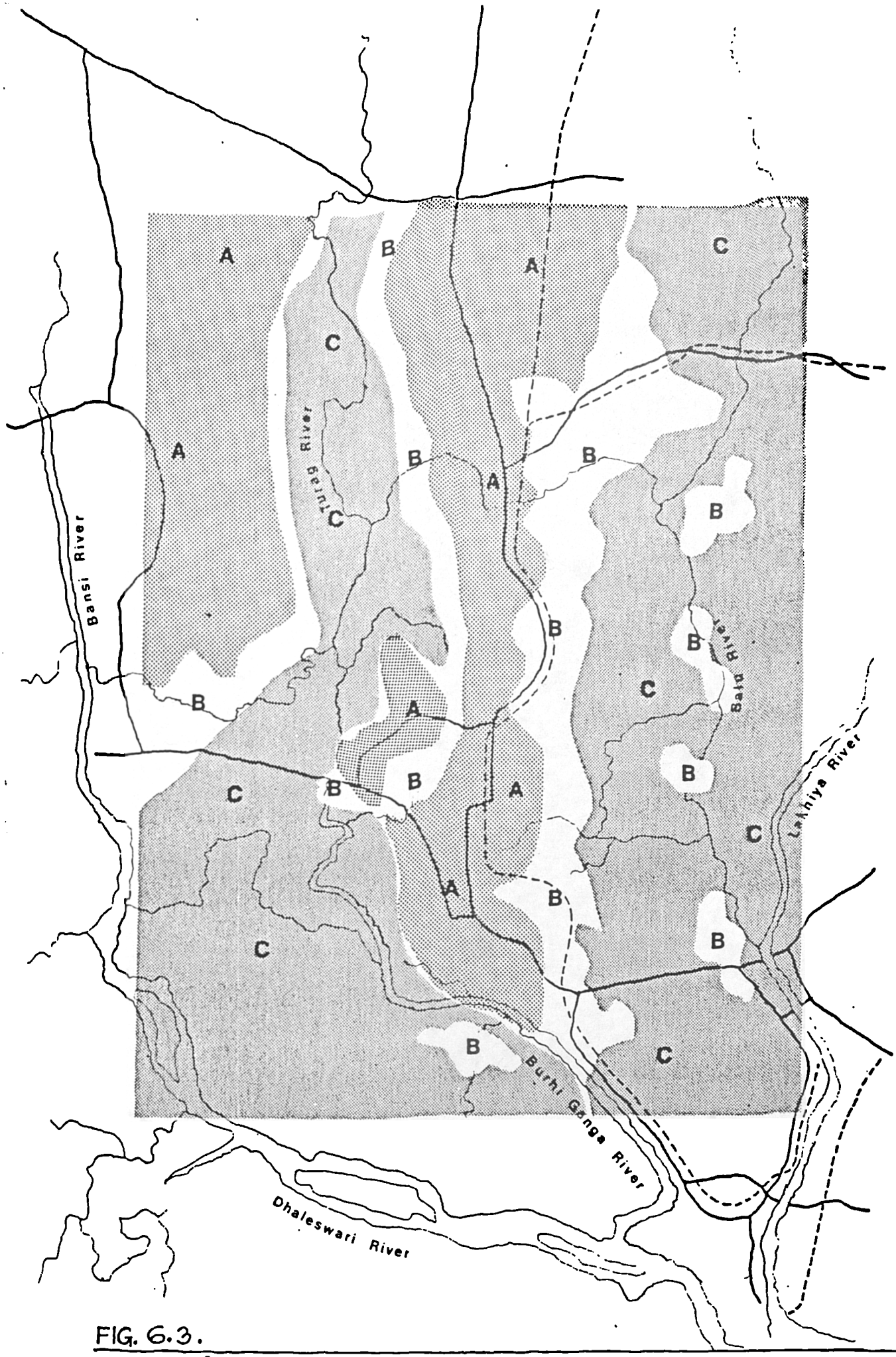


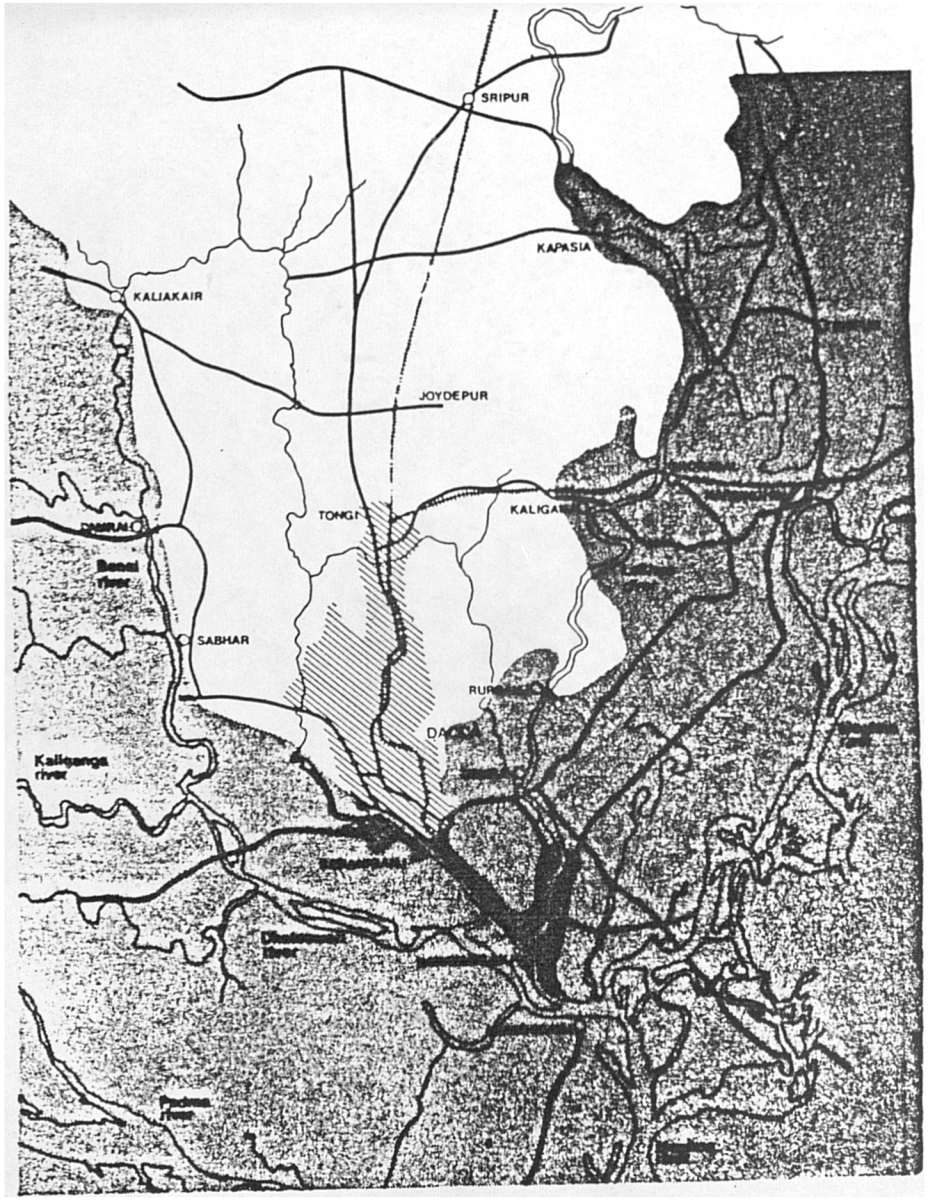
FIG. 6.3.

LAND TYPE A
LAND TYPE B
LAND TYPE C

REFER TO TEXT FOR DISCRIPTION OF EACH TYPE OF LAND.

TOPOGRAPHICAL CONDITIONS: GENERALISED MAP.

SOURCE:
DACCA METROPOLITAN AREA
INTEGRATED URBAN DEVELOPMENT PROJECT



A – Areas affected by major flood plains

SOURCE: DMAIUDP REPORT. (1981).

FIG. 6.3a

B – Areas affected by major flood plains, valley flooding and poor drainage (superimposed on major flood plains)

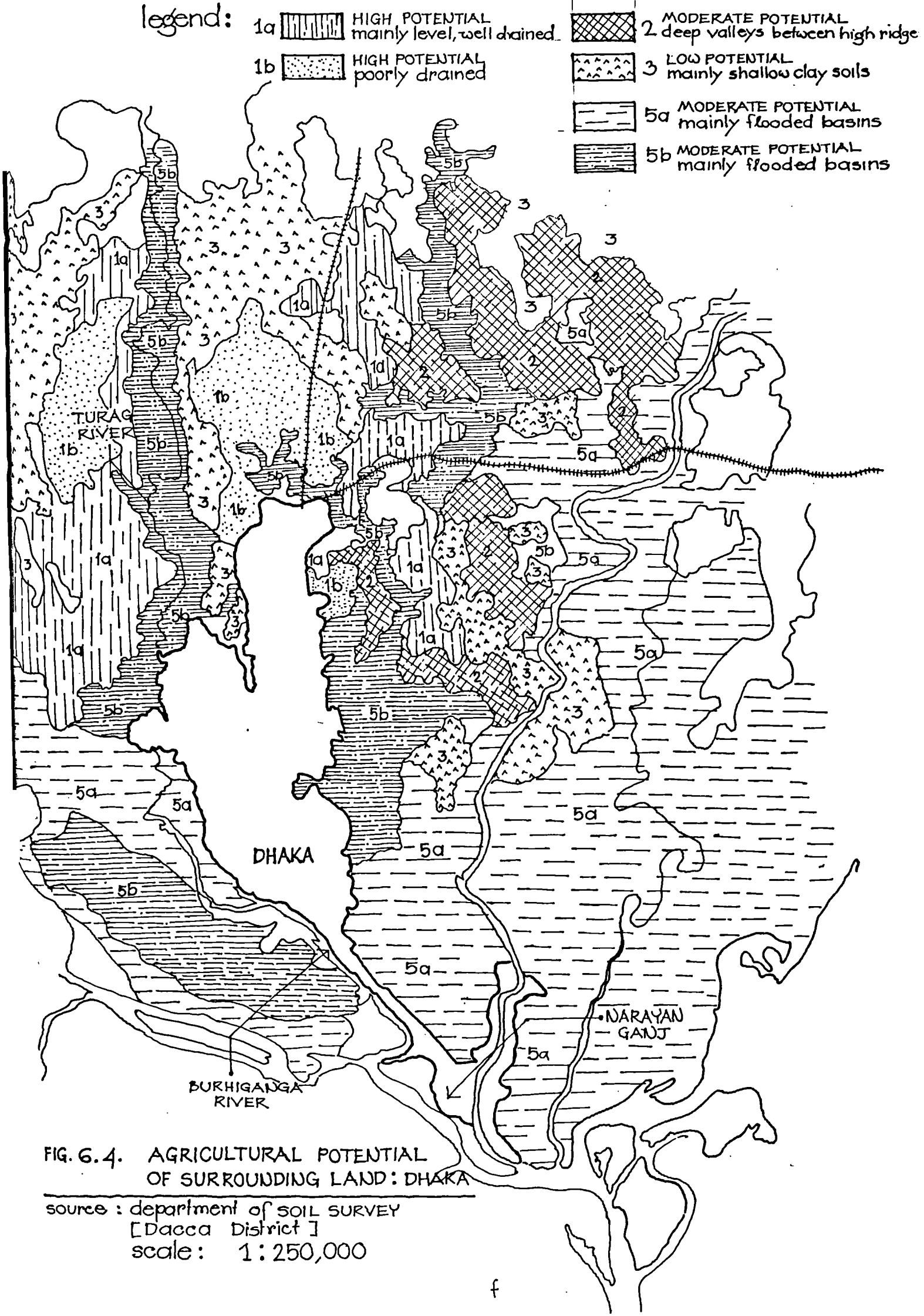
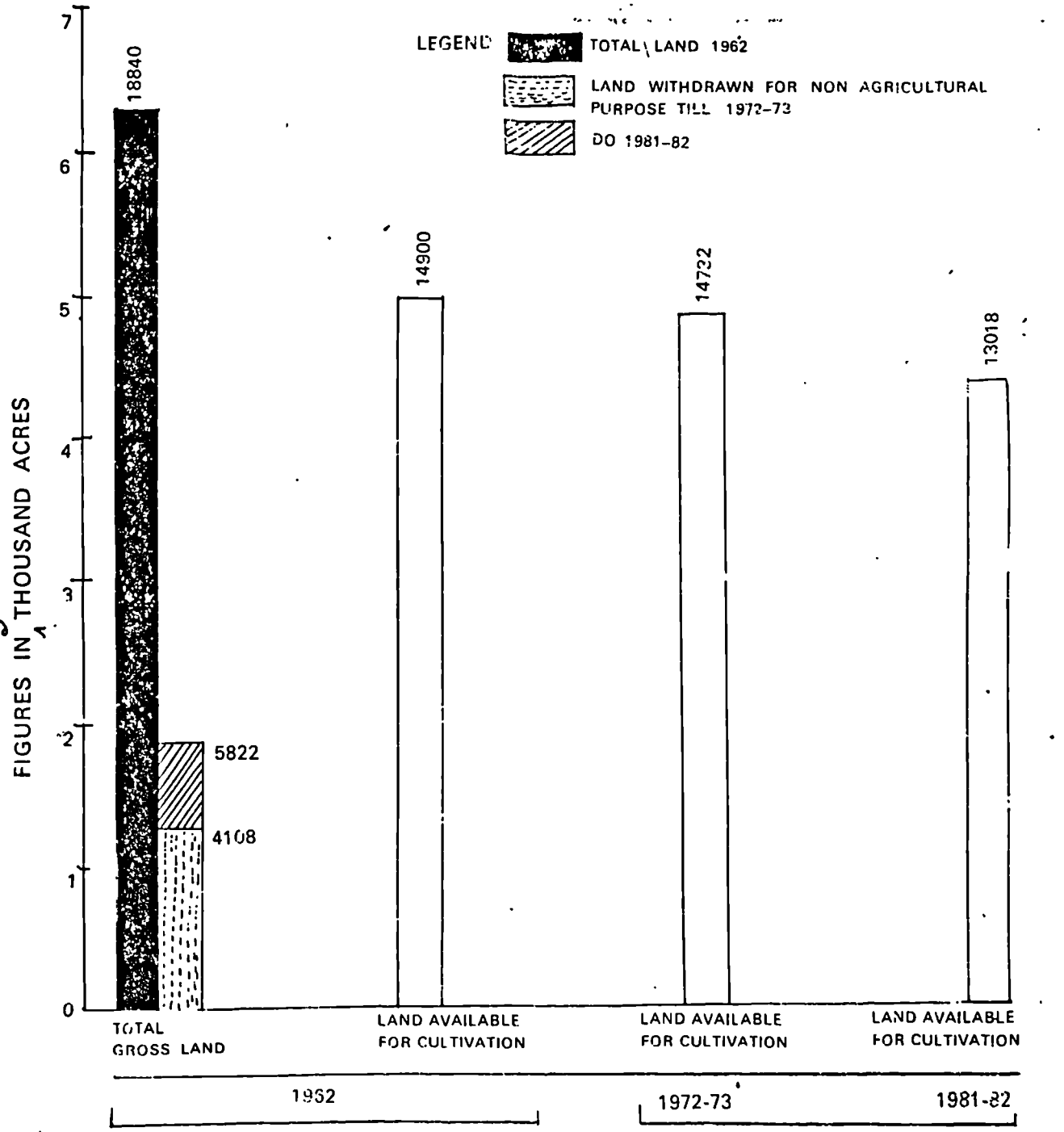


FIG. 6.4. AGRICULTURAL POTENTIAL OF SURROUNDING LAND: DHAKA

source : department of SOIL SURVEY
[Dacca District]
scale : 1:250,000

FIG. 6.5.

LAND USE
OF D-N-D IRRIGATION PROJECT
SCALE : ONE DIVISION = 3000 ACRES



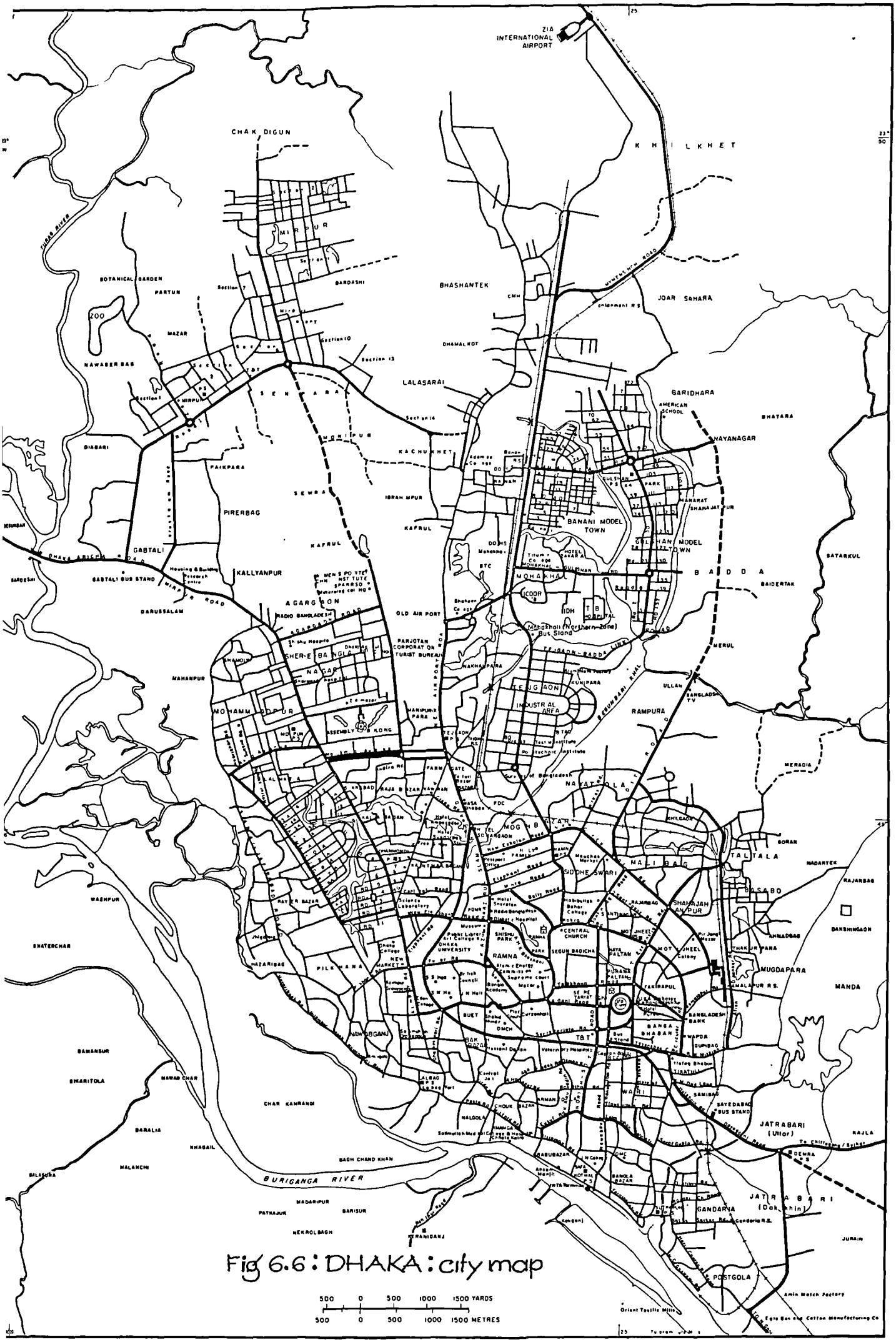
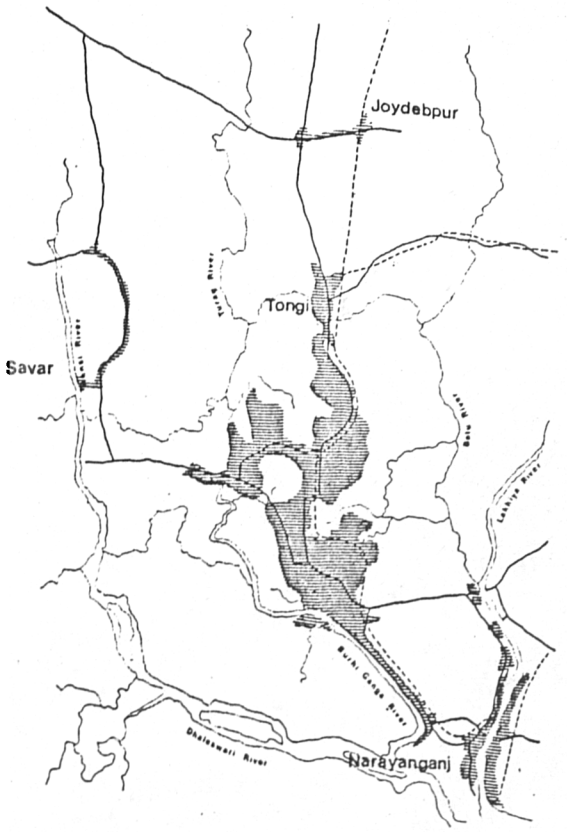
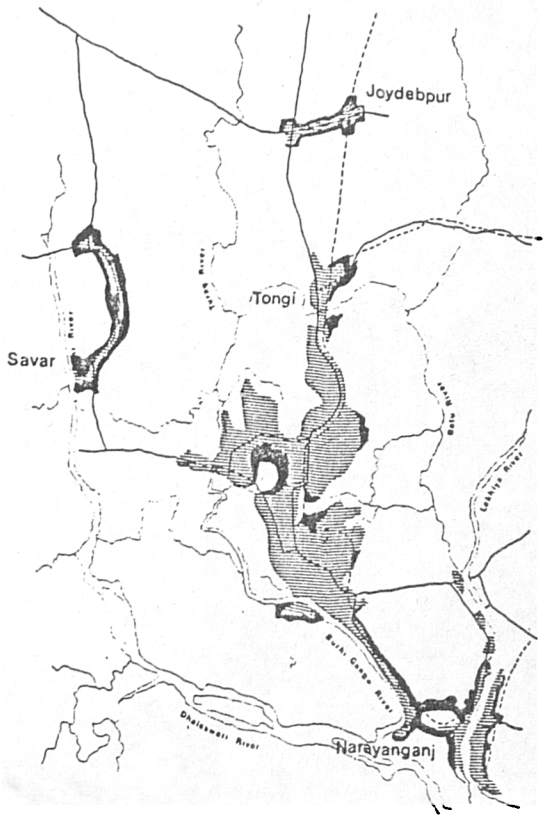


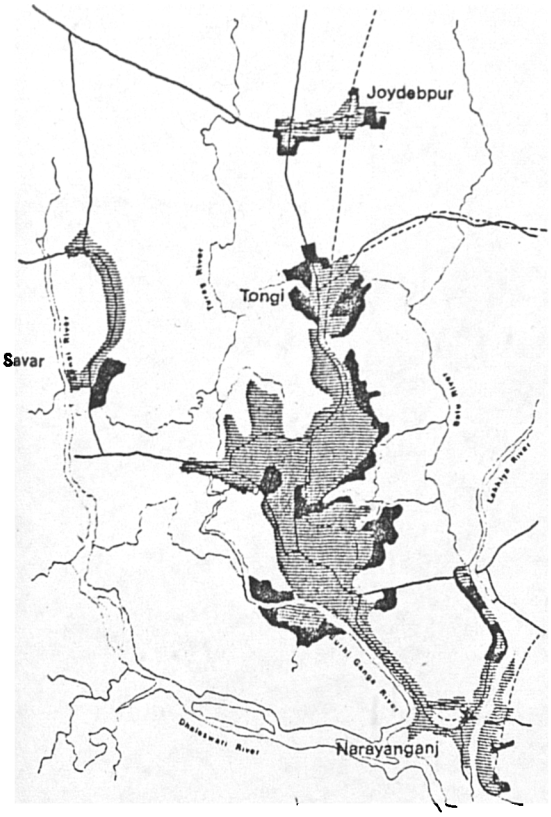
Fig 6.6 : DHAKA : city map



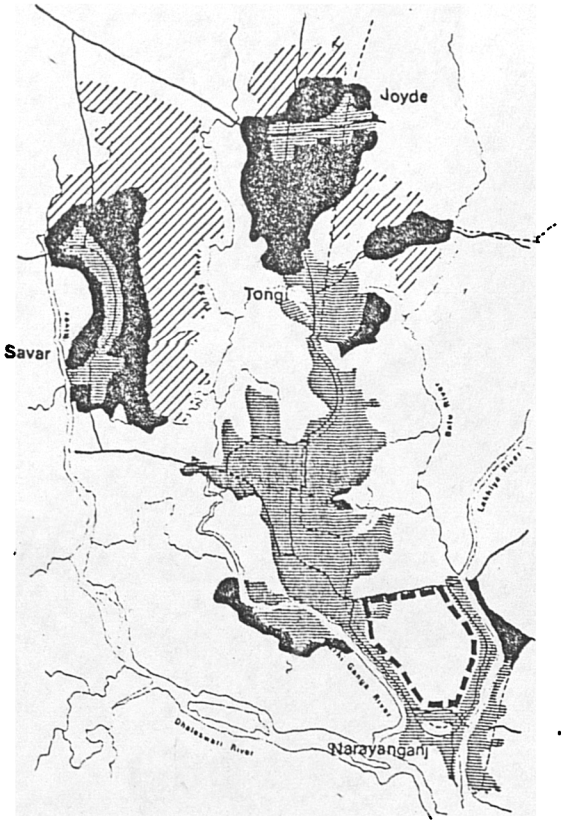
1980 Population – 3,375,000
Approx Urban Area – 52 square miles



1985 Population – 4,545,000
Approx Urban Area – 65 square miles



1990 Population – 5,880,000
Approx Urban Area – 75 square miles



2000+ Population – 9,040,000
Approx Urban Area – 124 square miles

Urban Areas at start of each Phase
Additional Growth during each Phase
D.N.D. Optional Development Area
Opportunities for post 2000 Growth

——— Projected Growth 1980 – 2000+

FIG. 6.7 DACCA METROPOLITAN AREA
Integrated Urban Development Project

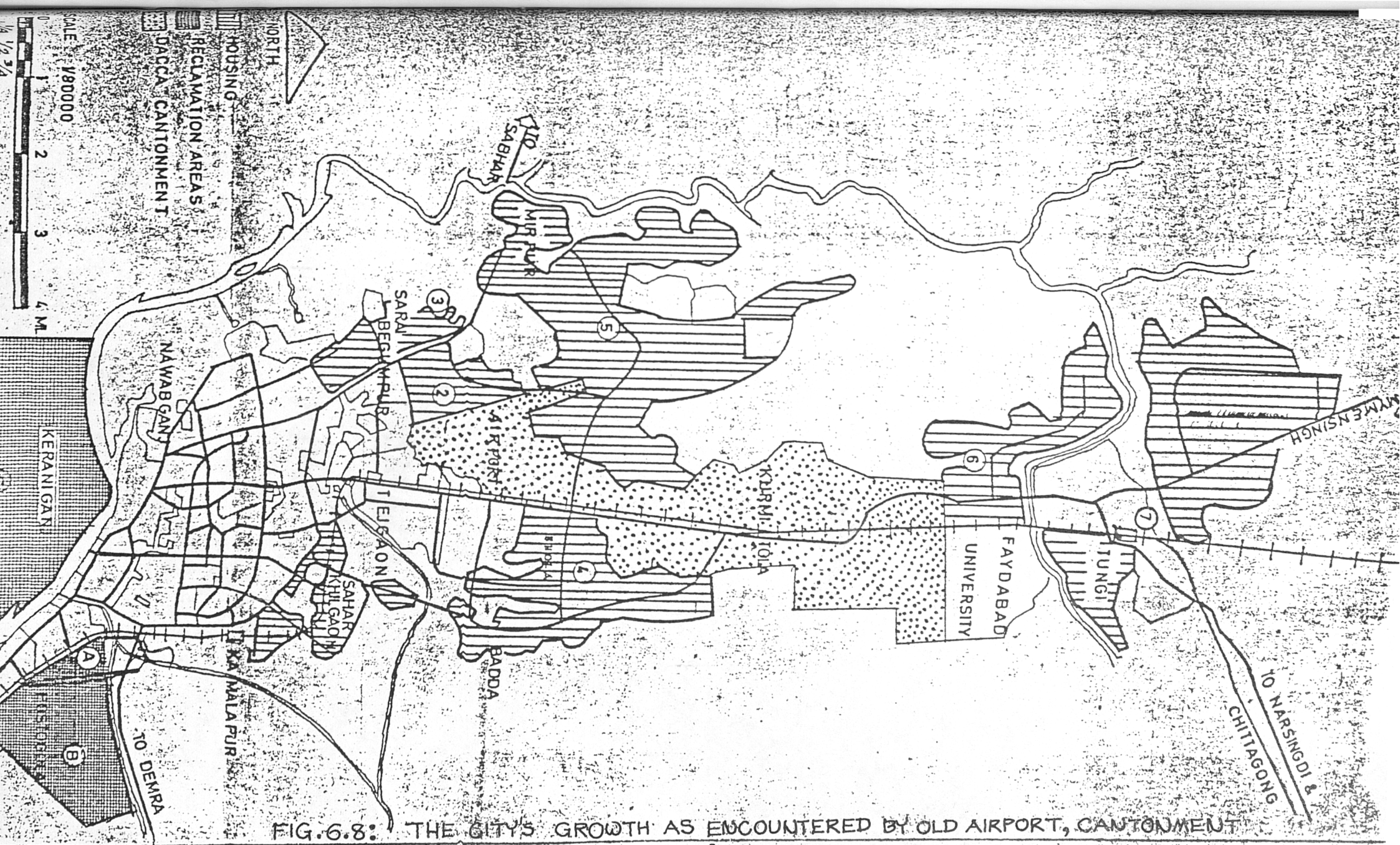


FIG. 6.8: THE CITY'S GROWTH AS ENCOUNTERED BY OLD AIRPORT, CANTONMENT

SOURCE: The DIT Master plan for Dacca

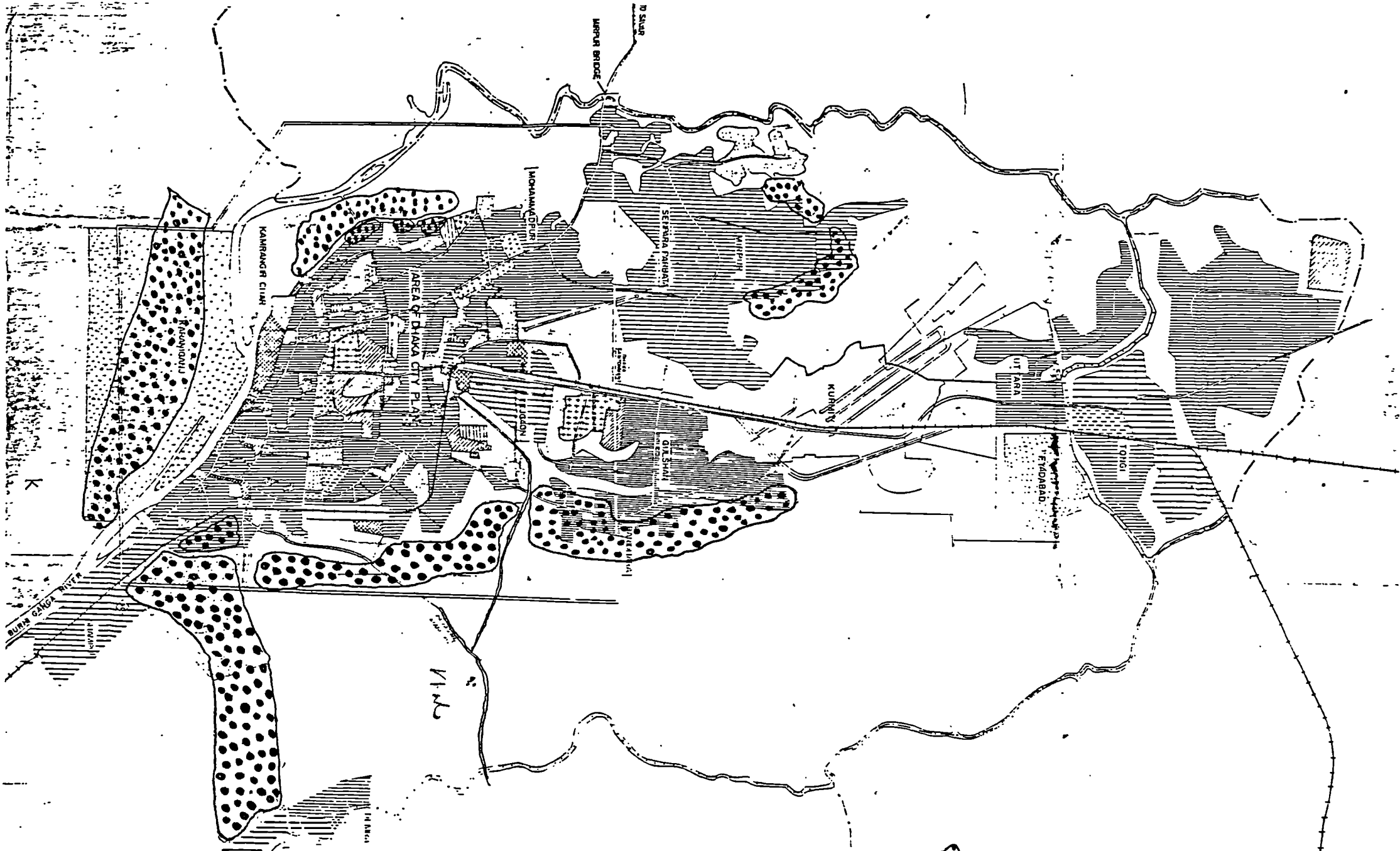


FIG. 6.9: INFORMAL PERI-URBAN GROWTH AREAS

SOURCE: ~~AS IDENTIFIED~~ BY THE TOWN PLANNER, Dhaka Improvement Trust, 1986.

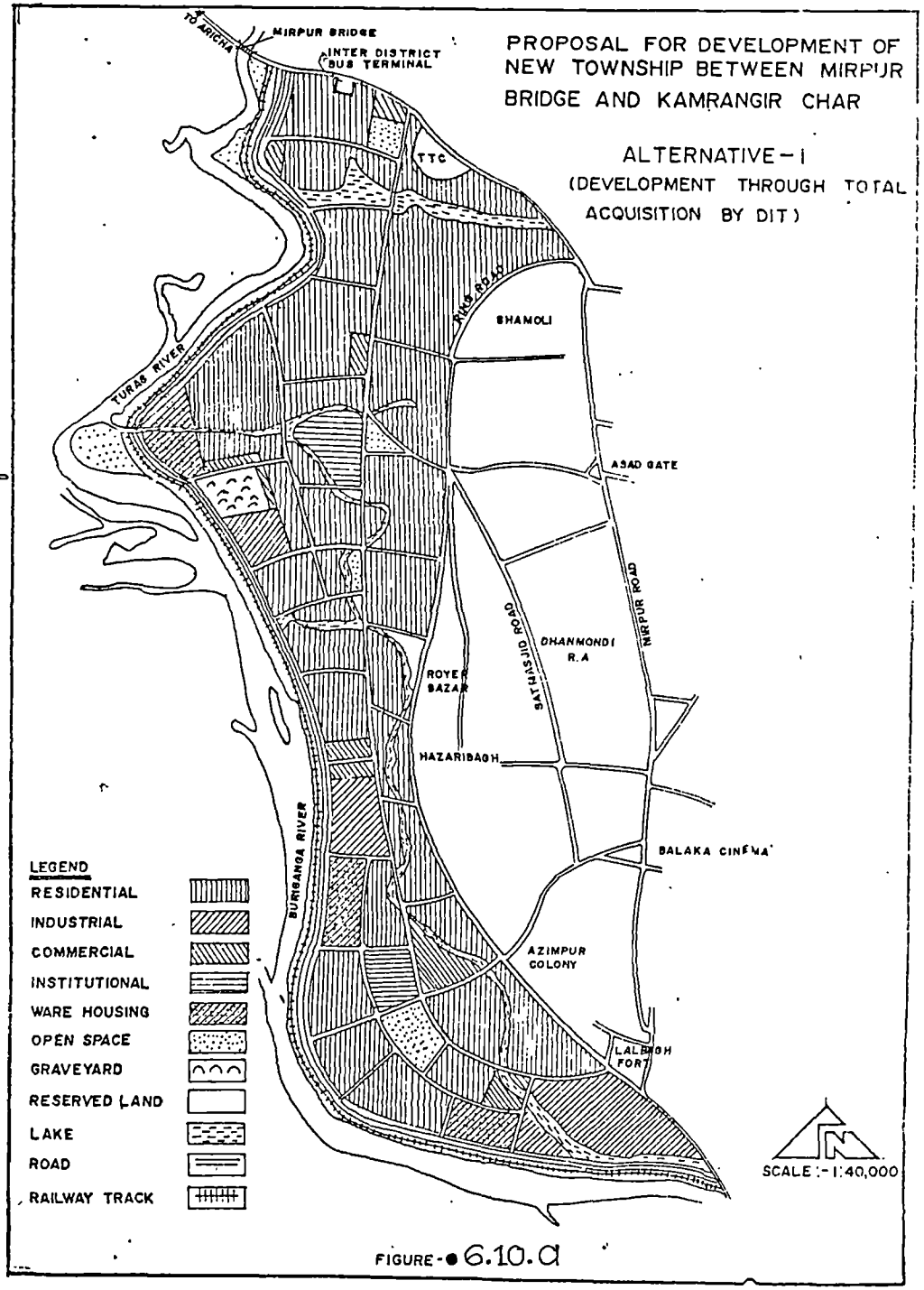


FIGURE-● 6.10.a

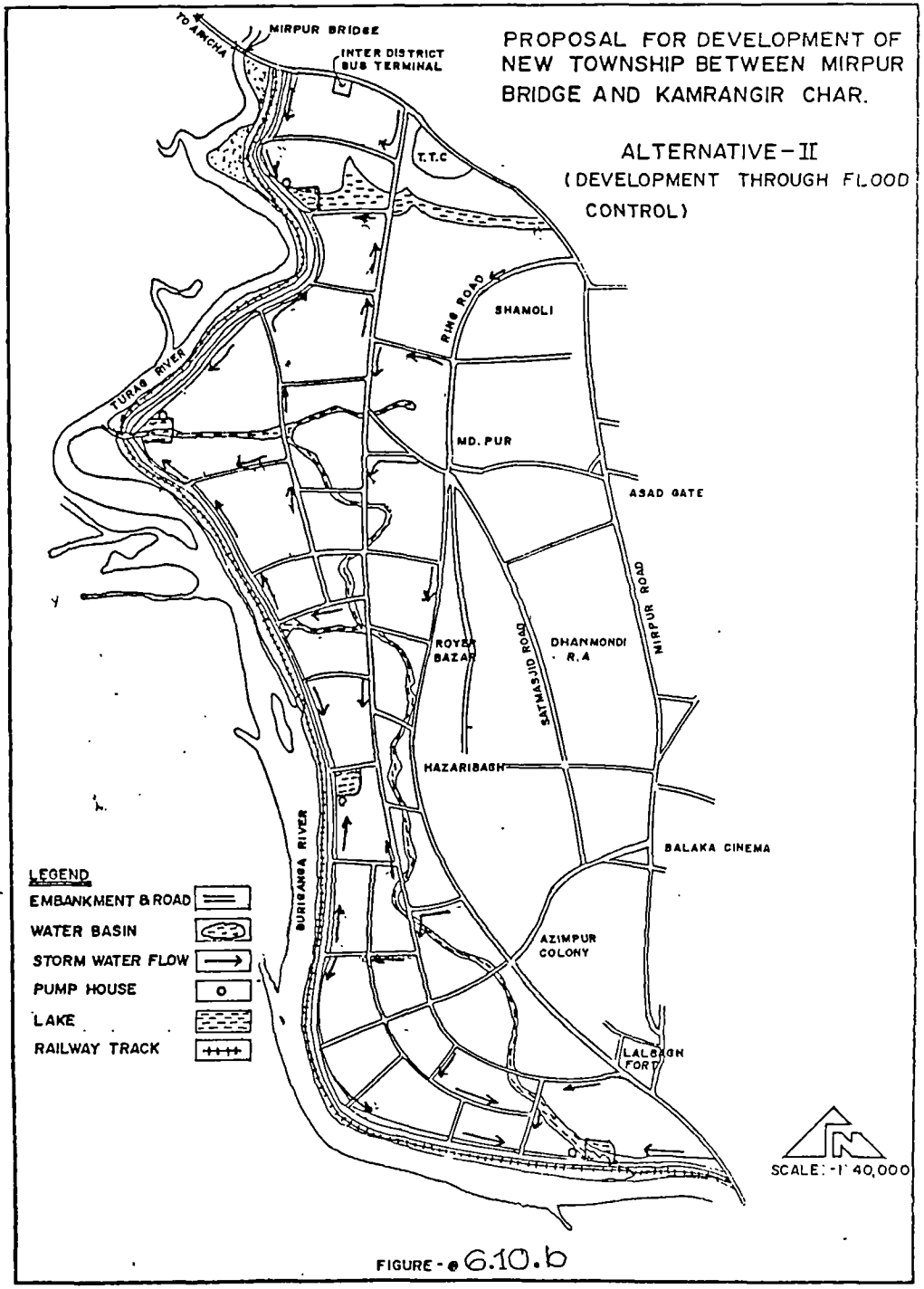
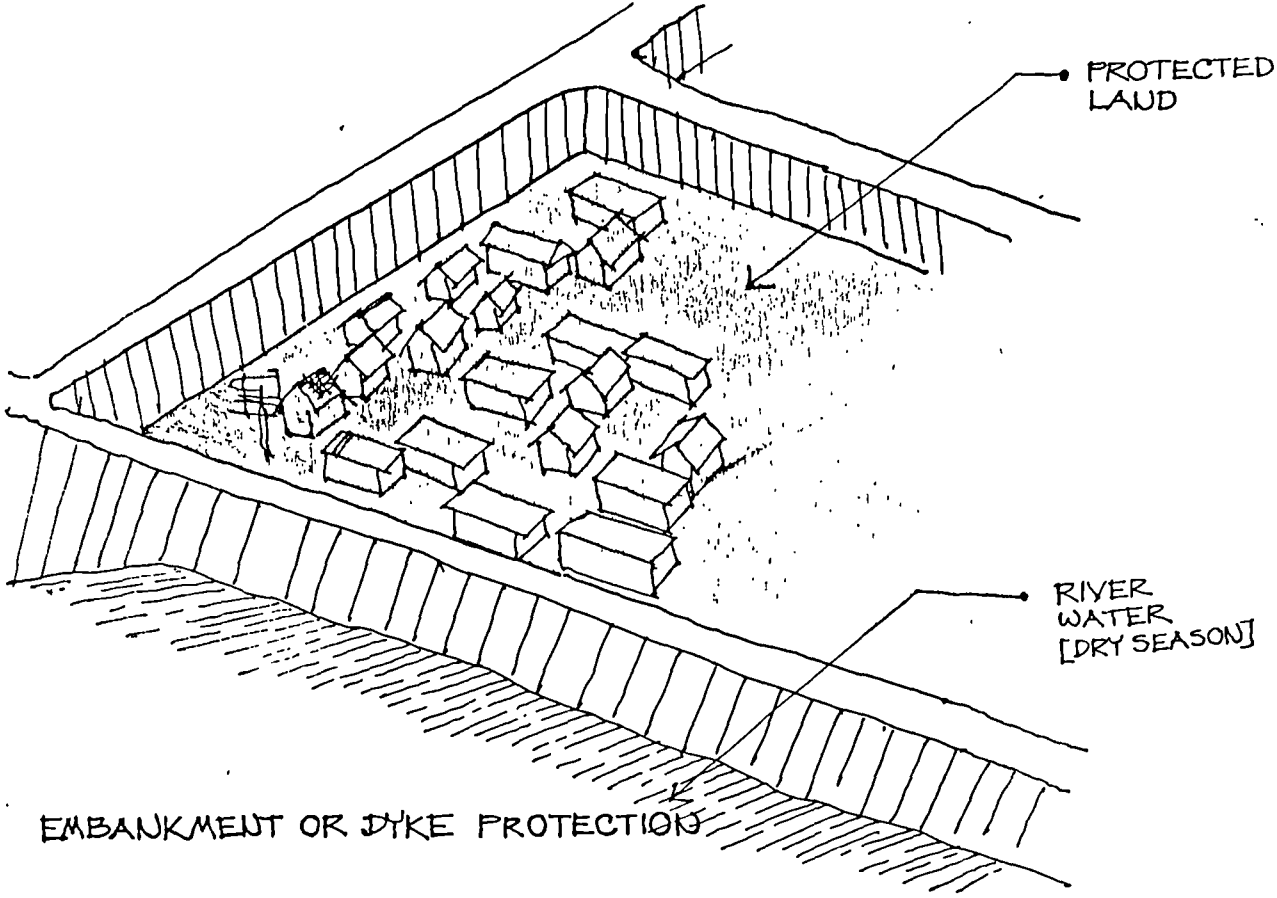


FIGURE-● 6.10.b

SOURCE: DHAKA IMPROVEMENT TRUST



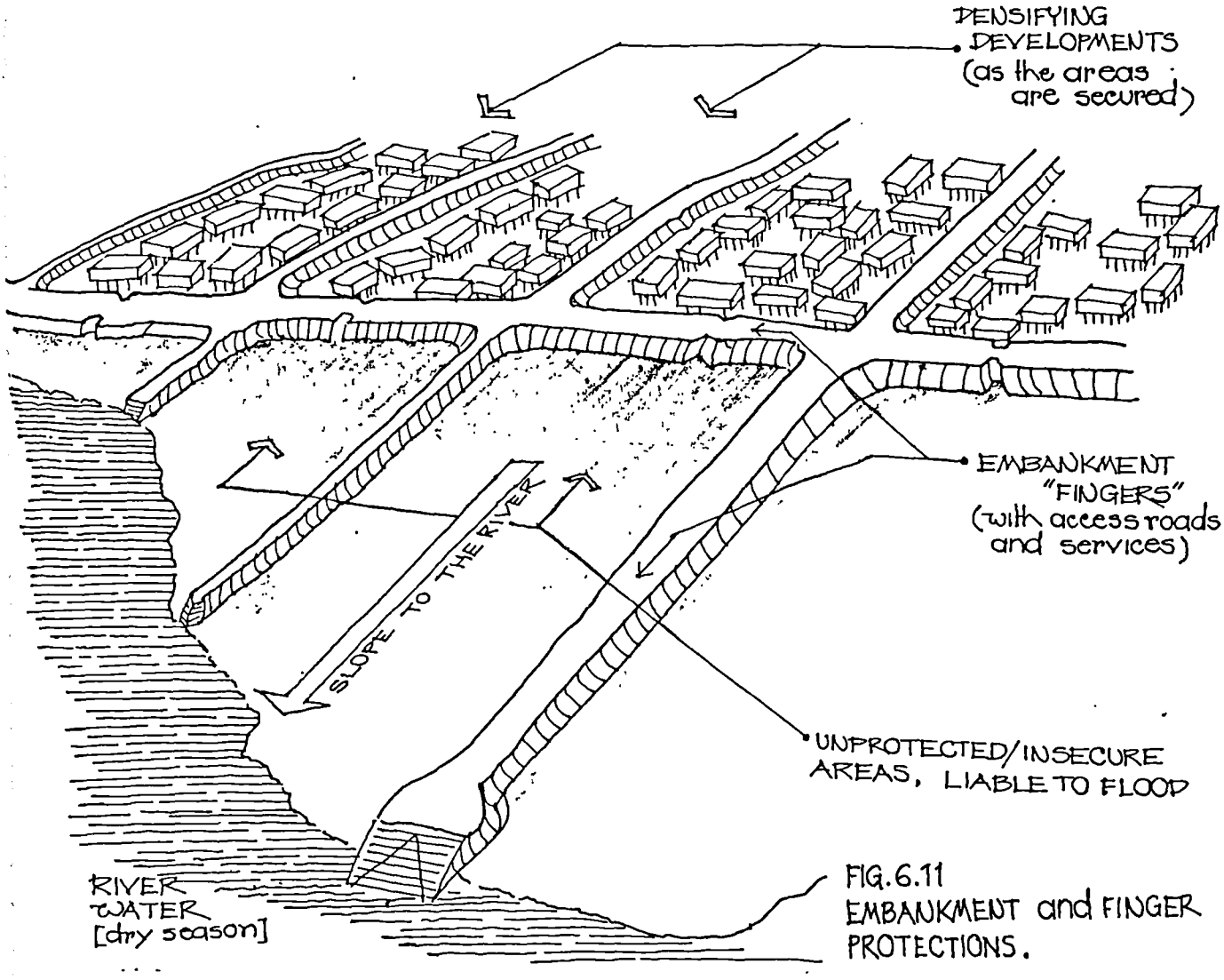
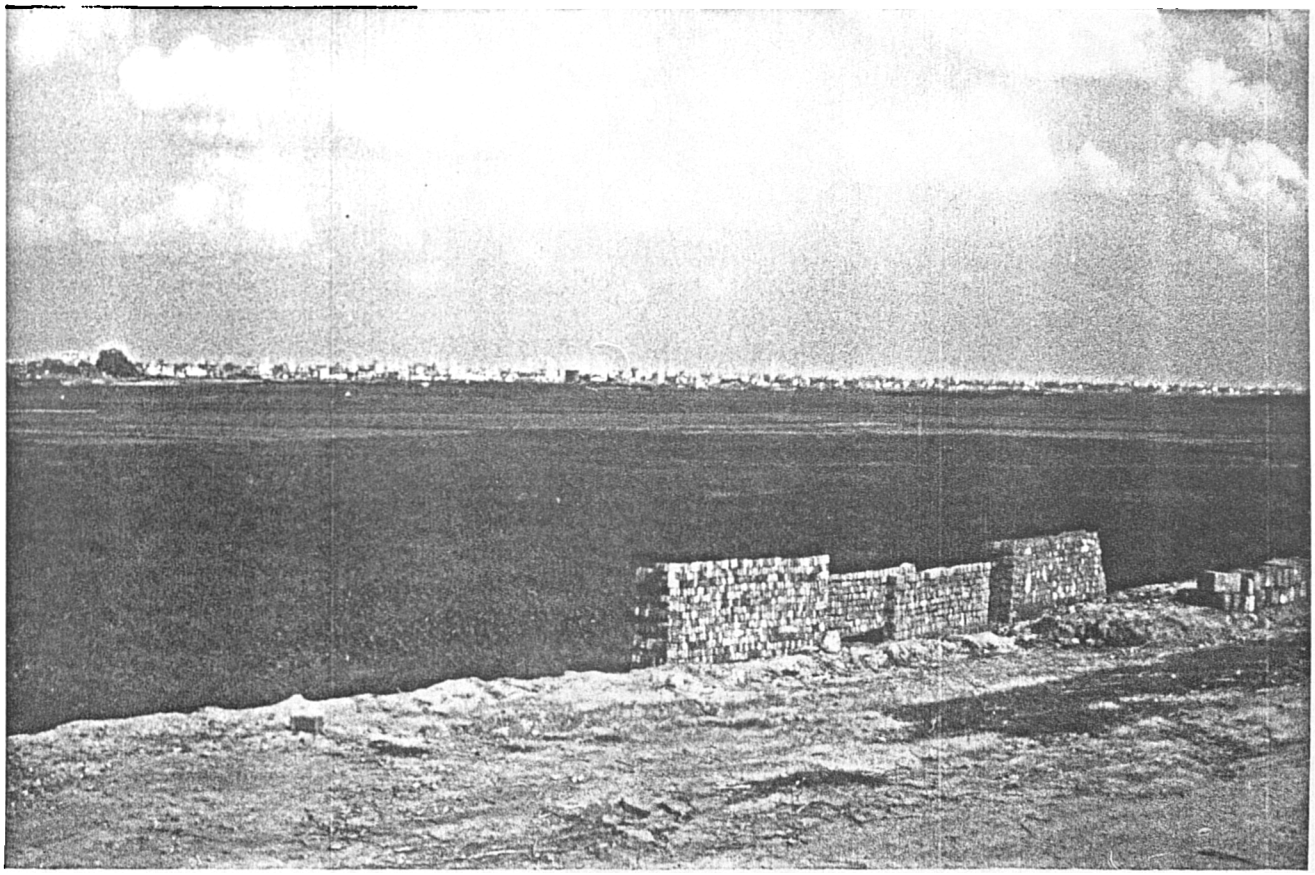


FIG. 6.11
EMBANKMENT and FINGER PROTECTIONS.



PLATES: 6.1 a,b : embankment failures

a. THE EMBANKMENT OF MIRPUR RESETTLEMENT PROJECT : as it exists now

b. THE INCOMPLETE EMBANKMENT SCHEME FROM MIRPUR BRIDGE PROCEEDING FURTHER SOUTH.

CHAPTER SEVEN

POLICIES FOR URBAN LAND IN RELATION TO HOUSING DEVELOPMENT IN DHAKA

7.1 INTRODUCTION

The urban population of Bangladesh is expected to increase by between 21 and 39 millions within the next 14 years. The situation is likely to get worse,because most of the urban migrants will be those who are poor, and pushed out of the rural areas due to shortage of land and employment. Competition for urban land is therefore intensifying sharply. Scarcity and the high cost of urban land is already imposing severe constraints on urban development projects.

In this section, we will attempt to examine the situation and the different dimensions of the problem,which underlines the urgency of addressing a whole range of policy issues about urban land.

7.2 EXTENT OF THE CRISIS

There is a great variation in the degree to which land is being efficiently used in urban areas. Distribution of density is not homogeneous in Dhaka, like many other cities of the developing nations of the world (see chapter 6, section 6.2.4). In Old Dhaka, for instance, densities exceed 2000 persons per acre in some areas, while 350 to 550 persons per acre are common. (UDD, 1979; app.-1).

Opposite extremes are found in some other parts of the city which have densities as as low as 60 persons per acre (eg. in Dhanmondi), or 15 persons per acre (eg. in Gulshan). Low densities like these are likely to become luxuries which a poverty striken economy simply can not afford.

At the other extreme, in order to avoid the re-creation of a situation like extremely overcrowded Old Dkaka, and to accommodate a population between 7 to 9 millons by the year 2000 A.D, between 66 and 122 sq.miles of urban land will be needed in addition to that already being used (UDD 1979) .....(1).

Considering different range of densities from 100 persons per acre, less than which is a luxury, it is estimated by the Urban Development Directorate that, for a population increase of 3.5 million, there will still be a need to create about 55 square miles of additional urban land.(Table 7.1).

In fact the size of the population may well be larger than it is estimated. It is certainly hoped that the slums and squatters will not be replicated on such a vast scale. Still more land will be needed and thus can only be met by expansion and by intensifying the use of existing urban land.

Table : 7.1 : Potential urban land requirements for projected population increase in Dhaka Metropolitan Area

Assumed average density per acre	Population increase in millions			
	Low 1.5m	Medium 2.5m	High 3.5m	
100	23.5	39.0	54.6	required area in square miles
150	15.6	26.4	36.4	
200	11.5	19.5	27.3	
250	9.3	15.6	21.8	
300	7.8	13.0	18.2	
350	6.5	11.1	15.6	
400	5.8	9.7	13.6	
450	5.2	8.6	12.1	
500	4.8	7.8	10.9	

Assumptions : considering population projections of 4m, 5m and 6m (low, medium and high) with assumed increases of 1.5m, 2.5m and 3.5m.

Note : average density of population in Dhanmondi is as low as 30 persons per acre; Shuritola area in old Dhaka is as high as 800 persons per acre.

Sources : 1 Policies for Urban Land; a policy paper,Urban Dev. Directorate (Urban Housing Policies and Programme), pp-A12; April, 1979.
2 Shuritola: an inner city slum in Dacca,Bangladesh; a case study report; p-16; Dec., 1977.

7.3 STATEMENT OF THE PROBLEM

The subject of land and its high price implication have already been examined by some writers (Khan, 1976; Wilcox, 1978; Awal, 1982). They have tended to give much more detailed accounts of the factors involved, than is presented here. In this section, however, it is our intention to show the extent of the crisis on the availability of land,as it effects its acquisition for housing.

In this regard, it is necessary not only to make suggestions but also to identify the characteristics of the urban land market, which generates its ill performance.

7.3.1 Characteristics of the urban land market

Some of the operational characteristics of the land market can be enumerated as follows:

1. With the size and rate of the urbanization forecast,the demand for land is continuing to rise very sharply and dramatically in or around Dhaka and other major urban centres of Bangladesh.

2. Investment in land is considered to be very safe,because by simply retaining the ownership for several years,owners stand to profit from the inevitable rise in the land price.

3. Since all the urban land values are supposed to climb,ownership of urban land which is particularly desirable for a potential purpose, can bring windfall profits.

Investment in land is also attractive because :

a.the expected return is very high and the cost of holding land is very low;

b.there is a lack of other easy investment opportunities with such a minimum risk;

c.there is little or no cost for maintenance of an immovable property like this;

d.land holding is a form of social security and prestige.

4. Land is a major outlet of private investment and the primary form of security for the family. It is often sought as an asset and frequently occupied by those who have few other resources available to develop it.

5. Lands of high development potential are anticipated by the private speculators beforehand. Without waiting for the announcement of a scheme, they immediately raise the price,anticipating the future use of any identified land for a particular scheme.

6. If, selection of one particular piece of land is madepossible for development use, the value of adjacent land is effected; this ultimately reduces the access of future urban activities in those lands.

7. Vacant lands are, generally, more attractive speculations than those which are built up, since, in the vacant state they hold

the maximum possibility of the most profitable use.

8. Since most of the high land is already in use within the city area,land is presently purchased in the low lying fringe areas which are mainly agricultural.

9. The profits thus made through land speculation can influence and distort the price of available land in the area and the whole land market. The direct consequence of this influence is that the land price in a potentially developed area is raised so high that the Goverment can not afford to buy it.

10. It can also keep land vacant for an unspecified period which could be used for immediate development purpose.

7.4 LAND VALUE PATTERNS OF DHAKA CITY

One of the comprehensive studies into the city's land values was carried out in the Department of Geography (Dhaka University) in the mid '70s (Khan, 1976). This study was probably the first one to analyze the land value patterns of the city.(2).

The objectives were mainly achieved through a detailed study and descriptive analysis in order to establish the land value profiles in different directions from the city centre (e.g. OA, OB, OC, OD etc. in figures 7.1 and 7.2) together with the study of the contour map,

land map and the knowledge of the city's ethnic character and history.

It was revealed from the curves that the pattern conformed to the classic value-distance relationship; a general decline in value was observed with locations away from the centre of the city. However, the decline was not uniform in every directions from the city centre. If the distance from the city centre was the only value determinant the relationship could have been shown with the help of a uniform slope; instead, the graphs are curvilinear with reasonably high and low frequencies along all of the profiles examined [figure 7.2 (a), (b), (c), (d), (e)].

The broad characteristics of the city's land values were summarised as follows:

1. Two peak value zones were identified; one centred around the Gulistan intersection located exactly on the city centre while the other one occupied the Islampur road extending around the Chawk Bazar area. This accounts for the occurance of the high peak featuring OI in the curve (d). These zones showed values over Tk. 35/00 per sq. ft. (or Tk. 376/00 per sq.m.).

2. Low values were obtained with the low-lying lands in almost all of the directions excepting the northern sector. Low-lying lands with values of Tk. 0.50 per sq. ft.(or Tk. 5.38 per sq.m.) were

found in the eastern, southern and western sectors within two miles from the city centre. The ratio between the central and peripheral land values in these three directions was 1:20 (while in the northern sector this was 1:18). This also represented the sector of the growth of the city.

3. Planned commercial areas rose abruptly as high value zones. Apart from the central business district other commercial zones included New Market area and Karwan Bazar, where they were valued over Tk. 25/00 per sq. ft.(or about Tk. 269/00 per sq.m.). due to the potentiality of getting high rent in commercial use of the land.

4. In the planned residential localities the values were found to be uniform by the study. The residential areas of Dhanmondi showed values at the rate of Tk. 6/00 per sq. ft., in Mohammadpur it was of Tk. 10/00, in Mirpur Tk. 5/00 and in Gulshan Tk. 4/00 per sq. ft.

7.4.1 The peripheral land values

The cost of land in locations closer to the city is bound to be more expensive than in peripheral areas (Khan, 1978). Investigation made in this research on the trends of land values over the years between 1974 and 1983, shows that the land values in the fringe areas had always been the minimum. For example, the per acre value of land

in the fringe was less than Tk. 4 millions (against Tk. 12-18 millions in the central area) in 1974; less than Tk. 22 millions (against Tk. 60-90 millions in the central area) in 1978; or less than Tk. 45 millions (against Tk. 300 millions in the CBD) in 1983. Details of the values have been compared in table 6.3 and 6.4, chapter 6.

7.4.2 Factors contributing to the high cost of land in Dhaka

7.4.2.1 Description of the basic factors

Increased land prices are caused by the interactions of a number of factors:

1. Since there is an increasing demand for land to accommodate the increasing urban and rural population plus other development activities,and since the supply of the available land is limited, prices inevitably rise in response to the demand. However, in practice,the urban land market does not reflect the free interaction of supply and demand.In an article on urban land, Koenigsberger observes (1975):

> "Urban land is the first and foremost of the subjects that can not be left to private initiative and self-help.Its value depends more on its location in relation to urban functions and activities than on simple laws of supply and demand."".....(3)

In Dhaka, the supply of land is usually restricted,and occurs at irregular points at different times of the year. In contrast, the demand is raised for lands in specific locations.Land values and the rates of increase always vary with land location and condition. For example, the price for a 1'bigha'(note below) in or around the central business area of Motijheel is at least 12 times higher than that for the same amount of land in the northern periphery of the city (Table 7.2).[1]

2. Much of the land within or around the urban areas of Dhaka is essentially low lying and bounded or hemmed in by water bodies or rivers and thus subject to annual flooding.It usually requires substantial expense in preparation work to make that land buildable or usable for development activities.

Developed sites which are located near the existing urban activities are very expensive either owing to their location or to the heavy cost incurred in developing those, or both. Simultaneously, high land which can be built upon without extensive investment in site preparation,increases in value.

3. Two value determining factors are apparent in the land market:

---

[1] ('Bigha' is a unit for the mesurement of area, used locally; 1 'Bigha' comprises 20 'katha's and is equivalent to 14,400 sq. ft. approximately).

Table : 7.2 : Goverment recommended current market price of land in the inner city/peripheries of Dhaka

Region	Location	Price per 'Bigha' in Taka '000,000'	sources
north, western periphery	Mirpur	8.50	(1)
	Mohammadpur	10.00	
	Rayerbazar	15.00	
	Hazaribag	15.00	
central business district	Motijheel comm. area	100.00	(2)
	Dilkusha comm. area	100.00	
	Nawabpur	100.00	
	Bangabandhu Avenue	100.00	
	Fulbaria	100.00	
eastern inner city	Kamlapur	17.00	(3)
	Khilgaon	17.00	
outh-eastern periphery	Jatrabari	10.00	
	Jurain	10.00	
old town	Old Town (main road side)	20.00	(2)
	Old Town (bye lane)	15.00	

Note : 1'Bigha'=14,000 sq.ft. = 1,322 sq. meters appx.
Sources : 1 Section Officer, Ministry of Works; Memo no. SEC-V/IM-42/83/979(3)
: 2 Circular issued by the Price Review Committee No. SEC-VI/IM-45/84/247; Dt. 29.3.86.
: 3 Section Officer, Memo no. SEC-V/IM-42/83/153; Dt. 27.3.84

a.value of a piece of land by its existing use

b.value of the land for some anticipated future use for development purpose

As soon as the Government decides to undertake a construction or development scheme,land prices go up from 'existing value' to a 'development value'.Private speculators,as a matter of fact, do not need to wait for the final decisions from the public development authorities.

> "Indeed,the slightest evidence that Government actions will make land available for urban use,can trigger off the speculative land market".(UDD 1979).....(4)

4. With the provision of infrastructural facilities, such as approach roads,land values are radically altered in a specific locality.

Besides,investment in industrial projects or Government offices or in employment generating activities occuring in an area,have similar effect on land values and prices.This is particularly true with Dhaka's sprawling pattern of development which can probably claim any area for Government development activities that exercise an enormous influence over land speculations and land values.

7.4.3 Impact of the overseas workers remittance on Dhaka land market

While the competition for a scarce supply of urban land is intensifying,the price rises have been accentuated significantly by the repatriation of funds from the Bangladeshi workers working in the Middle East.

Recent studies have shown that the remittances from overseas workers are being used for non productive activities, such as the purchasing of luxury goods or investment in land (World Bank,1981).(5). Since the purchasers remain abroad and consider their investment as long term,there is little pressure to develop their site after the purchase.The purchasers want to gain the profit from the inevitable rise in the land price by simply retaining the ownership throughout the years.

There were about 70,000 Bangladeshi workers working in the Middle East, which has been increased to about .20%..in 1985.

With a few exceptions,workers are now accepting job opportunities in the Middle East on fixed term contracts of around one to three years,with renewable opportunities.

7.4.3.1 Difference in earnings

An academic study from the Asian Institute of Technology reveals that out of a total 58,100 registered workers in the Middle East (between the period of 1976 to 1979), some 72.3% were construction workers and 8.7% belonged to the profession of technical occupa tions.....(6).

The salary received by the professionals and skilled workers were found to be about 8 to 9 times higher than that received in

Bangladesh.For unskilled workers,the negotiated amount showed 5 to 6 times higher salary than was received in Bangladesh as shown in table 7.3.

Each worker in the Middle East is allowed to remit not more than 25% of his salary but this regulation is not easy to reinforce. However,the percentage is found to vary from 25% to above 60% according to the situation and law enforcing mechanism of different countries.Overseas workers remittances during the financial year 1978-79 totalled about Tk.2,000 million(equivalent to 40 million pound apprx.), which ranked next to the receipts from export of jute -- about Tk.4,150 million (equivalent to 83 million pounds approximately).

7.4.3.2 Use of the remittance of the overseas workers

A report published in 1974 shows that, out of an investment of Tk.1.56 million by 189 workers interviewed, 54% of the remitted savings had been invested in land and buildings, 35% was kept in bank deposits,10% in business and industry, whereas only 1% was used in agriculture (Ashraf, 1974).

Another survey on the impact of the remittance on household expenditure illustrated that the overseas workers spend more than 50% of their remittance in buying land and in the construction of houses and their improvement(Islam,1980)..(7).The survey was conducted with

TABLE 7.3 :Difference in earnings at home and abroad

Professionals :	US$ 100-150	monthly salary in Bangladesh
	US$ 800-2000	expected salary in Middle East
Skilled workers :	US$ 50-120	monthly salary in Bangladesh
	US$ 400-700	expected salary in Middle East
Unskilled workers :	US$ 30- 50	monthly salary in Bangladesh
	US$ 150-300	expected salary in Middle East

source:S. Awal: A Study of the Impact of the Overseas Workers Remittance of the land market in Dacca, Bangladesh; unpub. Master's thesis (AIT), 1982. p.-4.

Table : 7.4 :

Type of investment	Investment amount as percentage of remittance Rural	Urban
1 Buying of Land	36.58	22.84
2 Construction of Houses and impr.	20.23	19.42
Total	56.81	42.26

source: S. Awal(1982); op. cit. Table 1.2. p.-10.

76 urban (51 from Dhaka and 21 from Chittagong) and 201 rural household samples and compared with the equal number of non-migrant households from the same area with comparable income levels(Table 7.4)

7.4.3.3 Comparison of Spendings

In practice the overseas workers are paying a much higher price for a piece a piece of land and there could be three possible reasons for this:

1. they purchase land in high land areas

2. they find a piece of land close to the city

3. they offer more for a piece of land to out bid local buyers

It has been found from the survey performed in 1979 and 1981 that the average price paid by an overseas worker for a piece of land is more than five times than that paid by a local buyer.The average price paid by a local buyer per plot was Tk.12,108/00 as against the average price paid by an overseas worker of Tk.69,294/00 .....(8)

As mentioned earlier, land values of Dhaka are also greatly affected by altitude. Overseas workers are also found to buy lands mostly in the high land areas,which are flood free in character,in exchange for high remuneration. Land values in low lying areas are quite low and local buyers are found to concentrate mostly in these areas. As shown in Table 7.5, 65% of the overseas workers were found to have bought lands in flood free high land areas,in comparison with

47.5% local local buyers in the low-lying areas.

It is also found from the tables that the average size of plots purchased by the two types of buyers are 3.2 katha (2304 sq.ft) and 8.5 katha (6120 sq.ft) for the overseas and local buyers respectively.

The prices paid by the two groups of purchasers show that an average price of Tk.1,424/00 has been paid by the local buyers. In comparison, average payments made by the overseas workers were Tk.21,654/00 --- an amount 15 times higher than that paid by the local buyers.

7.5 THE CONSEQUENCES

Several consequences are attributable to the malfunction of the land market :

1. The high prices offered for land are always a matter of temptation for the small landowners and poor farmers who are under constant pressure to sell their land. Purchasers are limited to the rich and upper class urban elites. Consequently, with the increasing growth of landlessness, only a narrow band in the overall population will get access to the land market.

2. This encourages unproductive private investment. Private

Table: 7.5 :Type of land purchased by buyers

Type of land	OVERSEAS No.	OVERSEAS Percent.	LOCAL No.	LOCAL Percent.
Low land	14	35.0	62	52.5
High land	26	65.0	56	47.5
Total	40	100.0	118	100.00

Source :S. Awal (1982). op. cit. Table 3.3 p.-28.

TABLE : 7.6 : Size of plots purchased by land buyers

Plot Size	overseas No.	overseas Percent.	local No.	local Percent.	Total
0 - 5 katha	29	72.5	73	61.8	102
5 -10 katha	9	22.5	27	22.8	36
10 -20 katha	1	2.5	8	6.8	9
TOTAL	40	100.00	118	100.00	158

Source : S. Awal (1982). op. cit. p.-30
note : 1 katha is equivalent to 720 sq.ft (66.1 sq.metres).

developers do not come forward to undertake development ventures when they gain an equal or even greater return by merely holding their land safely. Again, money invested in land encourages investment in the unproductive sector through which a developing economy suffers seriously.

3. Dhaka's land prices have increased at such a high rate that the compensation money to be paid for the compulsory acquisition, are

also very high. In many cases, this reduces the capacity of the Government agencies to undertake development programmes.

4. Finally, this stands as a major determinant in deciding the location of the project. At the cost of high expenditure for the installation of infrastructural facilities,maintenance and management, public projects have to be located far from the townships, thus causing problems related to human dislocation,increased traffic and imperfect communications.

On the whole, formulation and implementation of the overall urban planning and policy is now being encountered by the question of the availability of suitable land in an appropriate location.

7.6 COMMONLY CONSIDERED MEASURES AND THEIR IMPACT

Speculation in land in the manner that now exists in Dhaka by private holders is a social danger since it allows enormous profits to be retained by private persons. Different alternatives are being thought of to derive techniques for the controlling of the land price. The Urban Development Directorate identified two important principles in an attempt to outline a proposal to establish some form of an Urban Development Land Trust :

1. Individual landowners should be entitled and encouraged to retain

ownership of their land for existing use

2. They should be compensated in a manner that will not lead to the accumulation of personal wealth or add to inflation

It is now important to relate these principles to the concept of controlling the rights to use or to develop a piece of land owned by individuals.

7.6.1 Controlling the rights

The concept of existing use rights (along with development right) are in fact derived from the British experience when,by way of the "Town and Country Planning Act, 1947" the two terms were defined.

Although this is an old concept worked out in many developing countries, in Bangladesh, where new concepts are often proposed without awareness of their implications, it needs to be investigated carefully.

Existing use rights are "those of the bundle which permit its use (after a particular point in time), for the purpose it had been used before".

Development rights are "those of the bundle of rights over land which permit it to be used for a more productive use"...(UDD,1979).

The makers of this law believed that it is the development right and the anticipation of that right which causes inflation and speculation in the land market. Therefore, anyone who wishes to develop his land first has to seek permission and has to buy the development right from the Government by paying a "development charge". The development charge would represent:

a) the recoupment of the increased value of land which automatically results from the development permission;

b) that increased value in turn,will represent the amount by which the particular land is benefitted from the collective upgrading actions and decisions that render it attractive for its proposed new use.

Existing use rights and development rights will have values which will change over time. If, for example, the existing use is paddy farming and there is an increase in the price of rice,after a certain time period, the existing use value will certainly increase.

7.6.2 Course of actions of a land trust

Based on the above mentioned principles, the Trust would also outline the following course of actions:

I.the initial activities of the Trust would be limited to the acquisition of development rights only;

II.owners would be left with existing use rights until and unless the land is actually needed for construction;

III.compensation for these development rights could be paid in the form of bonds or, perhaps more attractively,in the form of some sort of equity interest in housing estates, commercial ventures or public corporations;

IV.at the time of acquisition of the development right, both the development right and the existing use right will be valued.

V.owners of the existing use rights will continue tooccupy and use the land and can sell it, if they wish;

VI.later, if the current owner plans to develop the land, he will have to seek permission and buy back the development right.

7.6.3 Actions on violation of rights

If someone planned to develop the land witout proper permission for doing so, he would be taking a risk that the existing use right would be subsequently acquired. In that case the compensation paid would represent existing use value only. Thus anyone who developed land without permission, would be in danger of losing his investment.

7.6.4 Regaining the unearned increments in land values

"Unearned increment" is the difference between the existing use value and development value of a piece of land, which results from the urbanization process and from actual or anticipated public improvements and which is gained by an owner through no efforts or risks of his own (Willcox, 1979).

In recent years, a number of developing countries have attempted to manipulate the determining factors aimed at the recoupment of unearned increments in land values. Basically, two fundamental techniques are found to be used :

a. The imposition of taxes; b) the power of compulsory acquisition of property.

Among the taxes, which are generally imposed, property taxes are very common. If assessments are kept up to date, this tax, which is

levied on all lands and buildings whether occupied or not, should be applied to all increases in value . In Bangladesh, in some form or other, one particular form of tax, the Capital gains tax, was imposed under the jurisdiction of the then East Pakistan Finance Act of 1966. This act is applicable on "profits or gains, arising from the sale, exchange or transfer of immovable property -- within towns or Municipalities"....(9)

Responsiveness of Tax imposition: The taxation system,if properly applied,certainly has some positive impact in the operation of the land market,particularly in guiding the growth and stabilizing the land prices.But in fact, in a very active land market or with rapid urbanization,as Roger Zetter(1984) observes, "those will only be effective,if property actions keep pace with escalating land values".

7.6.5 Comments and Evaluations

In Bangladesh, the most common form of evading taxes is found associated with the valuation system. Many of the valuation officers are guilty of manoeuvring the valuation of the property according to their dealings with the individual owners. This in practice, encourages the land owners in raising the land price further --- paying virtually no attention to the easily negotiable valuation procedure.

Moreover, although some of the urban adminstrative offices have all good intentions to reduce the high cost of land, they might also have interests in land values raising since, if taxes are efficiently levied,this would add significantly to the revenue earnings.

In a comparative study of various types of land taxation system and their responsiveness to the urban conditions, Roger Zetter (1984), further observes:

a) Local property and land taxes are generally regressive,since they form a disproportionately high element in the low income housing cost.

b) They also tend to increase land prices which the poor will have to pay

c) It is most difficult to levy land taxes outside city boundaries where speculation and future development occur.

Finally, he concludes that taxation alone is rarely used to influence the housing land market:

> "Influencing the price and supply of land by taxation can have confusing and contradictory effects and it is extremely difficult to find a consistent balance between the objective of penalty and incentive"....(10)

At best, through the exercise of taxation, the speed of price increases may only be reduced a little and investment released from land to more productive sectors.

As an economic good,land is of enormous significance in the urban markets of Bangladesh. Although there are other options like banking, industrial operations etc., for individual investment, land is very safe, and therefore is considered to be the principal choice. As a result,land speculation has been increasing steadily.Not only rich landowners but also officials among the policy makers are involved in the speculation process,which appears to be the major issue to be dealt with in land control. Looking into this as commonly occurring in developing countries, Rivkin cited a comment of one high urban offical:

> "How do you expect us to adopt control measures over land issues and land speculation when we the officals are speculators ourselves?" ....(11)

7.7 LAWS AND ORDINANCES FOR ACQUISITION OF LAND

7.7.1 Previous Acts

Basically two main laws for the acquisition of land were in operation after the partition of the sub continent in 1947:

1) The Land Acquisition Act, 1894;

2) The East Bengal (Emergency) Requisition of Property Act, 1948;

The first law, which came into practice during British rule had colonial characteristics and caused sufferings of the landowners, particularly by the lengthy, time consuming procedure of acquisition.

Later, to avoid the difficulties in making delays and enabling the requiring agencies to take control of land and begin development in relatively short order, the (Emergency) Requisition Property Act, 1948 was enacted. This law was immediately followed as the basic guideline of acquiring property.

7.7.2 Present ordinance

With the objective to cut short the lengthy procedure and ensure early delivery of land to the requiring bodies, modifications to the then existing law were felt necessary and, in 1982, a new ordinance entitled 'Acquisition and Requisition of Immovable Property Ordinance' was promulgated.

7.7.3 Other agencies related to acquisition

Apart from the above mentioned laws,two other organisational set-ups have been formed recently to control land allocation.

a) District Land Allocation Committee.

The District Land Allocation Committee (DLAC), under the chairmanship of the Deputy Commissioner, has been set up in each district, assigning the responsibility of considering and examining the land acquisition proposals from the Government, semi-Government autonomous as well as private organisations.

The duties of this Committee include:

I.To sanction proposals for land acquisition, after examining the minimum requirement of the land

II.To protect the good quality of farm land from encroachment and diversion to urban and non agricultural use

b) Central Land Allocation Committee.

The Central Land Allocation Committee has been set up in Dhaka. This committee is chaired by the Minister of Land Adminstration and Land Reforms, deals with all land acquisition proposals from the

Goverment and semi Goverment departments and sectors, including the private ones, covering the master plan area of Dhaka city. The Central Land Allocation Committee, as it includes representations from most of the concerned Ministries and Divisions,is essentially a broad based committee to co-ordinate among the office. Therefore this committee is expected to ensure the most intensive and economic use of land. .....(12)

7.8 PRESENT LAND ACQUISITION PROCEDURE

7.8.1 Main features

Land acquisition proposals in the public sector are initiated after the development projects have been considered for implementation and are included in the annual development programme. Acquisition proposals are supposed to be taken quite well ahead of time,to save time and delay caused by the lengthy process of the same. Steps of acquisition procedure are taken by the Deputy Commissioner and his office. Important aspects of the process which appear in the new acquisition ordinance of 1982 are as follows: (see also appendix-H, for other details).

7.8.1.1 Preliminary notice of acquisition of property

Whenever it appears to the Deputy Commissioner that any property in any locality is needed for any public purpose or in any public interest, he is directed to cause a notice to be published at convenient places on or near the property in the prescribed form and manner stating that the property is proposed to be acquired. (Provided that no property used by the public for the purpose of religious worship, graveyard and cremation ground shall be required)....(13)

7.8.1.2 Final decision regarding acqusition

(i)The Government, after considering the report submitted by the Deputy Commissioner, under section 4(3), should make a decision about the acquisition of property and such decision of the Government will be final.

(ii)When the Government makes a decision for acquisition of the property under sub section (1), such decision shall be conclusive evidence that the property is needed for a public purpose or in the public interest.

7.8.1.3 Matters considered in determining compensation

In determining the amount of compensation,to be awarded for any property,to be acquired under this part, the Deputy Commissioner takes into consideration the following :

I.The market value of the property at the date of publication of the notice under section 3. Provided that, in determining such market value, the D C shall take into account the average value, to be calculated in the prescribed manner, of the properties of similar description and with advantages in the vicinity during the twelve months preceding the date of publication of the notice under section 3;

II.The damage that may be sustained by the person interested,by reason of the taking of any standing crops or trees which may be on the property at the time of taking possession thereof by the Deputy Commissioner;

III.The damage that may be sustained by the person interested, at the time of taking possession of the property by the Deputy Commissioner, by reason of severing such property from his other property.

IV.The damage that may be sustained by the person interested at the time of taking possession of the property by the Deputy

Commissioner,by reason of the acquisition injuriously affecting his other property or properties,movable or immovable,in any other manner of his earnings;

V. The reasonable expenses, if in consequence of the acquisition of the property,the person interested is likely to be compelled to change his residence or place of business, incidental to such change; and

VI.The damage that may result from the diminution of the profits of the property between the date of service of the notice under section 6 and the date of taking possesion of the property by the Deputy Commissioner.

In addition to the market value of the property as mentioned in the above section,the Deputy Commissioner should in every case award a sum of twenty percent on such market value,in consideration of the compulsory nature of acquisition.

7.8.2 General effects of the acquisition process

At the time of acquisition,usually,the strongest resistance comes from the private landowners,who consider land acquisition more or less an instrument of confiscation.(Chowdhury, 1985).

7.8.2.1 Acquisition policy and the sufferings of the owners

Once a notice is issued for acquisition of a piece of land,the landowner -- as per the condition of the law -- is unable to dispose of the land in the existing manner...(14)

Notices thus issued under the land acquisition act,continue to remain valid for an indefinite period of many years. Meanwhile the development projects, for which the lands are going to be acquired, are often not implemented due to many reasons like lack of finance or delay in the formulation of projects from the appropriate department. Landowners, in the mean time, suffer from uncertainty over receiving compensation. Harrassment occurs in the form of lengthy court battles In some cases, the acquisition proceedings continue for 10 years or more. The situation is further aggravated by the role played by some of the land acquisition officers who are often susceptible to undesirable influences, and take the advantage of the acquisition laws and cause unneccessary trouble to the poor landowners and illiterate farmers....(15)

In most of the cases, the compensation offered by the Goverment authorities is quite low compared to the market price.Also,in an economy of high inflation,the compensation offered, after a procedure lasting several years,reduces substantially the real value of compensation.

7.9 THE ROLE PLAYED BY THE RESPONSIBLE AUTHORITIES

7.9.1 Malfunction of the acquisition committees

It is stated in some sectors that the concerned committee is not paying proper attention or contributing enough time in the investi gations required for land acquisition cases. In this context, Chowdhury (1985), observes :

> "However,experience shows that the District Land Acquisition Committee and the Central Land Acquisition Committee do not strictly examine the land acquisition proposals and each year large quality of good farm lands are being diverted from agricultural use for buildings, roads and highways, brickfields...."etc.

It has also been stated that these committees,through their official position,are also inclined towards justifying the need of acquiring land for public purpose :

> "Although in theory these committees are expected to allocate low lands unsuitable for farming purpose, in practice most of the agencies insist on getting high land suitable for their projects with a view to save their trouble at the cost of poor helpless farmers".(Choudhury; op. cit).

7.9.2 Extravagant use of the acquired lands

Acquiring land in excess of the requirement is yet another common practice allowed by the Government departments on the pretext of future developments or extensions.

Acquiring of more than 700 acres of land for Jahangir Nagar and Rajshahi University,of which less than half has been utilized so far, or acquisition of about 50 acres of land for training complex structures in Savar, are only a few examples to show the lavish use of scarce urban land for prestigious projects.

It is quite clear from the above that the formulation of space requirements for public projects is determined when there is no proper mechanism for doing so. Professionals, particularly architects and planners who can effectively help in this area, are few in number and are unable to contribute widely as they are concentrated in a few offices located only in two major cities.Even when the Planning Commission prepared the offical building standard in 1981, (now widely followed by the Government departments and others in the case of outlining a space requirement), no significant contribution from the Architects of the Public Works Department was included.(16).

Unless professional advice is considered throughout in deciding the requirements correctly, whimsical decision-making to acquire land in excess of their requirements is unlikely to be eliminated.

7.10 EFFECTS OF THE NEW ORDINANCE, 1982

The new "Acquisition and Requisition of Immovable Property Ordinance (ARIPO)", was promulgated in 1982 in order to rectify the disadvantages of the previous land acquisition act. But, in effect the new ordinance is found to be unable to recover from the ill-effects of the previous act on the following points :

7.10.1 Length of the acquisition procedure

At the time of its imposition,the 1948 act had two basic tasks to perform :

I.to clear away the difficulties which often occurred under the provision of the land acquisition act, 1894,

II.to enable the requiring agencies to take control of land and begin development in relatively short order.

An estimation made by the Ministry of Roads and Highways, in the above context,revealed that the acquisition process under the new ordinance (particularly sections 6,7,8 and 10),would take a minimum of eight months. Another UDD working paper mentions:

> The ordinance would "in effect repeal the quick taking provisions of the requisition act and reinstate procedures similar to those which now exist in the 1894 statute. ..... In fact, it could be well be far longer since every procedural step can be, and often is, an occasion for further delay".(17).

Although in this ordinance it is argued that enough care is taken to make sure that the dispossessed land owner receives full compensation prior to losing his land --- a basic policy question still exists:

Usually compensation is paid by the Government,lower than the market value. This gives rise to disputes about the amount of compensation and sometimes about the ownership.In many cases this may hold up an acquisition for years and frustrate public deve-lopment programmes.Unless this issue is addressed properly under an appropriate policy framework,disputes like this will continue and will produce similar effects of delayed implementation of urban development projects which the country can not afford.

7.10.2 Compensation formula

Previously, the amount of the compensation was calculated on the average prices in relevant transactions over a period of twenty four months before the date of notification.

In the new bill this period has been reduced to 12 months, considering that this period would represent the up to date open market price and thus fair treatment would be done to the landowners. But this amendment may have further repercussions :

To fulfill the preparatory requirements of the important public deve lopment projects, it takes more than one year in undertaking major decision making procedures. This period can and will certainly be utilized for speculative gains by large as well as small landowners.

The speculators can purchase lands from the small and medium income landowners, offering them higher than the market prices and ultimately registering the same at still higher prices for which they would be reimbursed from the public treasury. Anticipating the phenomenon,the UDD (1979) paper observed:

> "According to recent studies, land prices are rising so rapidly in some areas that land prices can double in the space of one year. In such a case the reduction in measuring period for determining compensation from 24 months to 12 months would automatically increase the cost of acquisition by 33.33%. As these costs go up, the projects which are first to suffer cut backs are those that benefit the public at large, or those portions of the public unable to reimburse the Government for its expenditure.".(18)

7.10.3 Limitation of compensation fund

One of the objectives of the new ordinance is to speed up the process of acquisition including the payment of compensation.Moreover,it has to be ensured that the landowners must receive their compensation before the property is taken.(19).

Generally, the compensation payment is made by the acquiring agency to the landowner through the general fund of the Deputy Commissioner concerned. This particular fund is also utilized for other various offical purposes under the authority of the DC. Therefore, if the compensation is paid out by the Deputy Commissioner in one case,immediate payments for other compensations in the queue are affected.

The adminstration is therefore,continuously in arrears,resulting in a long series of half completed acquisitions.In the present bill there is no positive suggestion to avoid this problem.

7.11 IMPACT OF OTHER ALTERNATIVES

7.11.1 Stabilization of land prices

In order to slow down the price spiral in the costs of land,the Urban Development Directorate, in its report proposed about a land price stabilization system. Highlights of the proposal are as follows:

I.A legal ban to be imposed on any gain from a transaction in real property which is greater than the value of such property in a "designated base year".(20)

The value of the property can be increased by a factor equal to the rise in costs from the base year (as indicated by an appropriate cost-of-living index).

II.If any improvements are made to such property after the base year that will be counted as an increase in its value from the date of completion of the improvements as its base year for measuring the increases in its value.

7.11.1.1 Comments and Evaluations

Arguments and advantages in favour of the concept of price stabilization can be stated as follows :

A price stabilization system like this is relatively easy to conceptualize and thus can easily be understood easily by the landowning public;

In addition it should slow the rate of increase in land costs for public development activities because the compensation payments could necessarily be limited to the price stabilization formula.

The principal drawback of the system is that,although a legal ban on any gain (greater than the value of the property)has been imposed

it is not clear about how the value of such property would be determined and by whose authority it should be done. It seems quite obvious that there will be a tendency to :

I. determine the valuation as high as possible on the part of the owners;

II. increase the valuation of improvements made to such property

Thus, the whole concept is based on the proper functioning of the valuation procedure of the departments concerned. We have already found in the operation of the taxation system (discussed in section 7.6.5) that very often the land acquisition officers are susceptible to undesirable influences. If property valuations are determined only by this system,properties will be overvalued in that designated base year and will continue to rise with that index factor each year.

A second effect may be like this : The parties concerned,most likely,may go for two different sets of transactions. The first one, quite apparently will show the correct valuation documents as per the demand of the law,while the second one might be a transaction occuring behind the counter which the purchaser would pay directly to the seller beyond the offical transaction.

Besides avoiding the correct valuation, this approach may also provide opportunities to the black money holders to expend their

black money safely into the open market.

7.11.2 Issues of Land Banking

Among a number of land policy programmes which primarily generate the power of compulsory acquisition, is land banking.

This practice,where land is acquired in the absence of the development requirements and subsequently held as a reserve for a future development programme,has been adapted in many developing countries.

In this part,we are attempting to investigate this issue through the Delhi experience,which is an important and constructive exercise in the region. Here important consequences can be observed of implementing the land banking concept in the acquisition programme undertaken in Delhi in the'70s. (Willcox, 1979).

7.11.2.1 Implications of the Delhi experience

Under the Land Acquisition Act 1894, a large scale scheme of land banking was undertaken in Delhi, where about 66,000 acres of land around the periphery of the built up area were notified for acquisition in advance of the urban development requirements. The Government intended to be the major supplier of land and so took firm control to dictate the price. It was also hoped that the measure would be able to combat inflation.

In 1973, about half of the land proposed to be purchased had been acquired and about one-fourth leased out to the public.

While this is true about such a huge land banking measures taken around a metropolis,it is argued that the Delhi example was done without paying attention to details,particularly on the following points :

I. It did not adequately count the external costs involved in relocating the occupants;

II. It was unable to apprehend the situation in protecting the lands from squatters; and

III. It was unable to maintain and manage the acquired areas .(21).

Eventually,the consequences were found adverse when the programme could not prevent the continued and rapid rise in land prices.

7.11.2.2 Comments and Evaluations

Several factors are assumed to draw out the reasons of the limitations of the Delhi programme :

I.The compensation was paid in cash. It is thought that this could have provided resources for further investment in land.

II.Adminstrative delays, were found latent in the acquisition process and also in the allocation procedure. It is also thought that the delays may have reduced the attractiveness of the Government's land to certain types of potential customers --- which in the long run,increased the demand of the limited supply of the inner city land.

III.Finally,the process as a whole was not a continual,on-going one, because of juridical limitations.

On the above observations,Willcox comments :

> "However, the Delhi experience suggests that,to affect prices a 'land bank' programme should be capable of continually acquiring more land to add to the urban market and should also be capable of acquiring land throughout the market.Only a very large and sustained effort will have any hope of success".(22)

7.11.2.3 Potential of land banking in Bangladesh

In Bangladesh, there has been no attempt to set up a land bank as part of policy to meet the long term needs of urban development. Advance acquisition of land for use in the future isimpeded by the reasons which are very common but here in the major urban centres are very serious :

a) The acute scarcity and high price of land adjacent to cities and towns

b) The speculative activities in the land market

Many decision makers believe that this approach is mostly appropriate in Bangladesh if some unavoidable complications could only be eliminated. In this context, the ex-Secretary of the Ministry of Planning and the Planning Commission comments:

> "In the Bangladesh context, land banking system would have been ideal to prevent speculation in land; but it is very doubtful whether efforts to set up a land bank would ever be sucessful due to opposition by vested interests. A proposal of the Urban Development Directorate for obtaining the land use right from the present landowners for upgradation of a low income area in Kallyanpur Dhaka city, without formal acquisition, have not recieved much support. Due to the high degree of land-lessness it would be difficult to acquire land for future use as it is likely to up-root large numbers of farmers which will be highly unwelcome socially and politically"...(23)

Although the long term land bank policies are logical in the sense that land can easily be acquired relatively cheaply and at least to

some extent it can influence the speculative land market, there are obvious drawbacks.Peter Ward (1984),observes these as :

a) scarce capital is tied up unproductively;

b) return on the investment is delayed for many years;

c) usually it yields no short term benefit to housing supply;

d) land reserves are also vulnerable to policy changes,so that a new Government may divert lands set aside for low income housing by its predecessors to other more commercial uses.(24).

The later drawbacks can be avoided in case of land acquisition for short term development,nevertheless it has got the effect of fuelling inflation because by purchasing land at the commercial prices the cost to be paid is certainly very high.

Moreover, quick expropriation of land for immediate development can cause antagonistic attitudes among the private landholders who may promote the quick sale of plots.

It is almost inevitable from the above experiences that the land banking practice in the context of Dhaka, would be vulnerable unless proper control can be ensured to preserve the land, lack of which resulted in the unsuccessful aspects of Delhi story.

The growth of informal sectors in or around the outskirts of the city would certainly promote similar type of haphazard growth, ultimately invading the preserved land.In a country with such a high rate of urban influx the invasion is unlikely to be avoided unless a very serious and effective policy can be drawn which will avoid the eradication of a settlement forcefully,rather would derive an effective protection formula.

7.11.3 The Korean experience of plot reconstitutions

As an alternative means to prevent the situation particularly to avoid the problems of inflationary outlays issues related to the reconstitution of plots are also considered in developing nations:

The concept involves acquisition of undeveloped lands which is suitable and urgently needed for development purpose.Land acquired in an area is then developed -- that is provided with infrastructural facilities and basic community needs.

The development cost is then estimated (sometimes excluding the land costs) and the number of plots that will be needed in order to reimburse the cost is determined. Finally, if any amount of land remains, it is then redistributed and reallocated among the original owners on the basis of the percentage each had originally.

This practice has been used quite successfully in fringe areas around the cities in Korea (and also in Taiwan). The concept has been viewed appropriate there because :

I. the unearned increment in land values is used to finance the improvements;

II. lands are provided for public uses;

III. owners are rewarded through the scheme;

While this is true, it has also been stated that, if the owners received plots equal in value to their original holdings, there would be more surplus plots which could be sold or leased out to generate a profit for the Goverment.

If the original holdings are too small, or too unprofitable to justify allocation of a new plot, the owners may be compensated in cash or in some form of joint tenancy arrangement with other small landowners.

7.11.3.1 Comments and evaluations

The concept of reconstitution of plots, apparently is suitable to be applied in built up areas, as well as undeveloped ones. However in low lying areas, implementation of this concept would obviously generate very high development cost,which would eventually produce plots of very high costs. In the context of Dhaka's land - many areas of which are flood prone and low lying -- this is a serious cost determining factor.Also,when the cost of reconstitution is too high along with the costs of development,those would only be affordable to upper income communities.

Observing the experience in Korea as well as in Colombia,Roger Zetter comments :

> "Both schemes permit effective control of land development and the recovery of betterment.These methods tend towards full cost recovery,but potentially offer considerable flexibility for meeting housing needs.For example,land appropriation could be varied in relation to land values and development costs. Land could be released at below market rates as a direct subsidy,or cross subsidies designed within the scheme"...(25)

7.11.4 Issues related to cross-subsidy

Among the alternatives that are often suggested for the effective control of the land crisis,yet another option--the cross-subsidy concept is considered in relevance to the fiscal management on the same question. It is probably more effective when the holding price of land is several times higher than the development cost of the project Around Dhaka, development costs of residential buildings are usually a fraction of the cost of land upon which they are erected.

Unlike the compensation mechanism, it is probably true that the cross subsidy method has shown very few side effects such as complex cash flow and heavy borrowing requirements which increase the housing project costs in practice.It can be organised and executed within a system that can truly exist for a long time span of couple of years -- since execution time would be greater in this system -- it can show success. Zetter comments :

> ".....Financial methods must operate consistently and continuously over relatively long time periods to introduce market stability, and this is clearly difficult in the developing world.
> .....Cross subsidy mechanism have also been used in a number of schemes,to reduce land or other costs for lower income benificiaries This method is undoubtedly successful and avoids the stigma of creating wholly low income estates"....(26).

7.11.5 The spare plot mechanism

Proposed for the first time in Mexico,this concept refers to an "unique method" (Zetter,1984) -- which reduces the land cost by providing land through a spare plot.

The concept,which is in the form of a land subsidy to home developers has been initiated in Mexico where cash subsidies are not usually feasible whereby sites and services projects could be initiated on a large scale.

Two pre-requisites are important for this scheme :

I. A reasonably inflationary land market;

II. A willingness on the part of the state to forgo the addition to land values brought about by self help initiatives on the part of the participants.

Peter Ward (1981) observes its novelty lies in two basic propositions (27):

First,it provides the target population with twice as much land as they would normally require for a house plot; that is instead of giving residents one normal sized housing lot (say 150 sq. metres) on which they build, they are in effect given the equivalent of two

(that is to say a single lot of 300 or 400 sq. metres).

The second is that payment is suspended for the first five years and is then paid off either in a single payment or over a further five year period using the profits made on the sale of one-half of the lot.

Important features of this proposition are :

1) The acquisition cost (the amount paid to enter the project) is fixed at the rate of competitor agents.

2) Over the first five years,nothing is paid back during which time residents build their homes and collaborate with the Goverment authorities to install services and improve the image of the settlement.

3) The loan that the agency has taken out to develop the sub divisions is paid back by the residents at the end of the five year period,either in a single payment or gradually over the following five years.

4) This is usually done by selling the extra half of the plot which, after five years,has a massively inflated value.

5) Residents buying in at this later stage are better off working class and lower middle income groups who were reluctant to under go the rigours of living for five years in a serviceless community but wish to acquire a relatively cheap plot .....(28).

Therefore in this way the proposal gives the poor the essential means to participate in the speculation on the land market through the costs of a loan and interest against the enormous increase in land values.

7.11.5.1 Comments and Evaluations

This concept attempts to visualise and positively utilise the speculative components exist within the urban land market and lower income settlements of the developing nations.

During the first few years the users don't have to pay anything - which is in conformity with the level of affordibility of the lower income dwellers in general, who are unable to get any access to the urban land market.

Some degree of incremental development has also been established in the proposal in that the dwellers immediately start living on the land without having any basic infrastructural facilities and participate with the authorities to install infrastructure provisions

to upgrade the settlement. A very common practice of the lower income dwellers has been recognised through this philosophy. Also, the initial costs of the project programme has been minimised since services are not included in them. Proliferation in lower income settlements by relatively higher income groups is very common occurance. Many precautions have been taken order to prevent invasions of the kind but apparently they are not working successfully. However, here this is being recognised to some degree and utilised as a means for upgradation. Benefits from the time span are considered through making use of the increases in inflated land prices, by selling the extra plot which ultimately reduces the affordabilty gap.

As a matter of fact, the factors responsible for the operation of a highly speculative land market, as they are difficult to eliminate, are exploited and worked out to help in building up a settlement, without causing any significant pressure on the economy for making land available for the economically weaker section of the population.

7.12 PERIPHERAL LAND DEVELOPMENT

It has been observed that the scarcity and high cost of land are imposing severe constraints on the realisation of housing strategies in general and of the lower income housing programme in particular. The prices of land suitable for immediate residential development are so high that these are beyond the reach of any but a small percentage of upper income urban elites.

Thus, in order to achieve city's growth on a scale that would meet the projected population increase, Dhaka will need to reclaim large tracts of land on the perimeter of the existing built-up area. In the context of the alarming increase in land speculation in Dhaka, large scale development of land has to be controlled by the Government; these developments can be carried out for mixed income groups with mixed uses, which will not only facilitate growth of a harmonious community, but also will serve the purpose of cross subsidizing housing for lower incomes. Land development should thus be carried out to develop large scale housing projects on the periphery.(29).[1]

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[1] (The large tracts of peripheral low lying areas are subject to seasonal flooding; a flood protection scheme for the entire city, in order to enclose enough land for expansion, will certainly extert unbearable strain on the resources. Description of the alternative options for land reclaimation, proposed by various agencies have been given in the previous chapter. Also, in the final chapter those are critically evaluated and commented).

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[9] The gains are computed by substracting the actual cost of land (and of any improvements to the land)from the value of the compensation received for the sale,exchange or transfer.Where there is doubt,fair market value at the time of transaction can be assumed to represent the compensation.

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[14] If a owner builds any structure or make use of the land for other development or commercial purpose, even after the acquisition notice has been served,the Government may stop paying the compensation money.

[15] Chowdhury(1985) op.cit.

[16] **The Planning Commission.** (Feb., 1981)Building Standards Part I & II Ministry of Planning, Govt. of People's Republic of Bangladesh Personal interview with the Asstt. Architect, PWD.

[17] **Urban Development Directorate** (Dec., 1979)Land Acquisition in the Land Policy Perspective Working paper.

[18] Urban Development Directorate (1979) op.cit.

[19] Payment of compensation: (1)On making an award under section 7, the Deputy Commissioner shall, before taking the possesion of the property,tender payment of the compensation awarded by him to the persons entitled thereto according to the award and shall pay to them unless prevented by someone or more of the contigencies mentioned in the subsection (2).

[20] Such year being subsequent to the date on which the price stabilization system is introduced.

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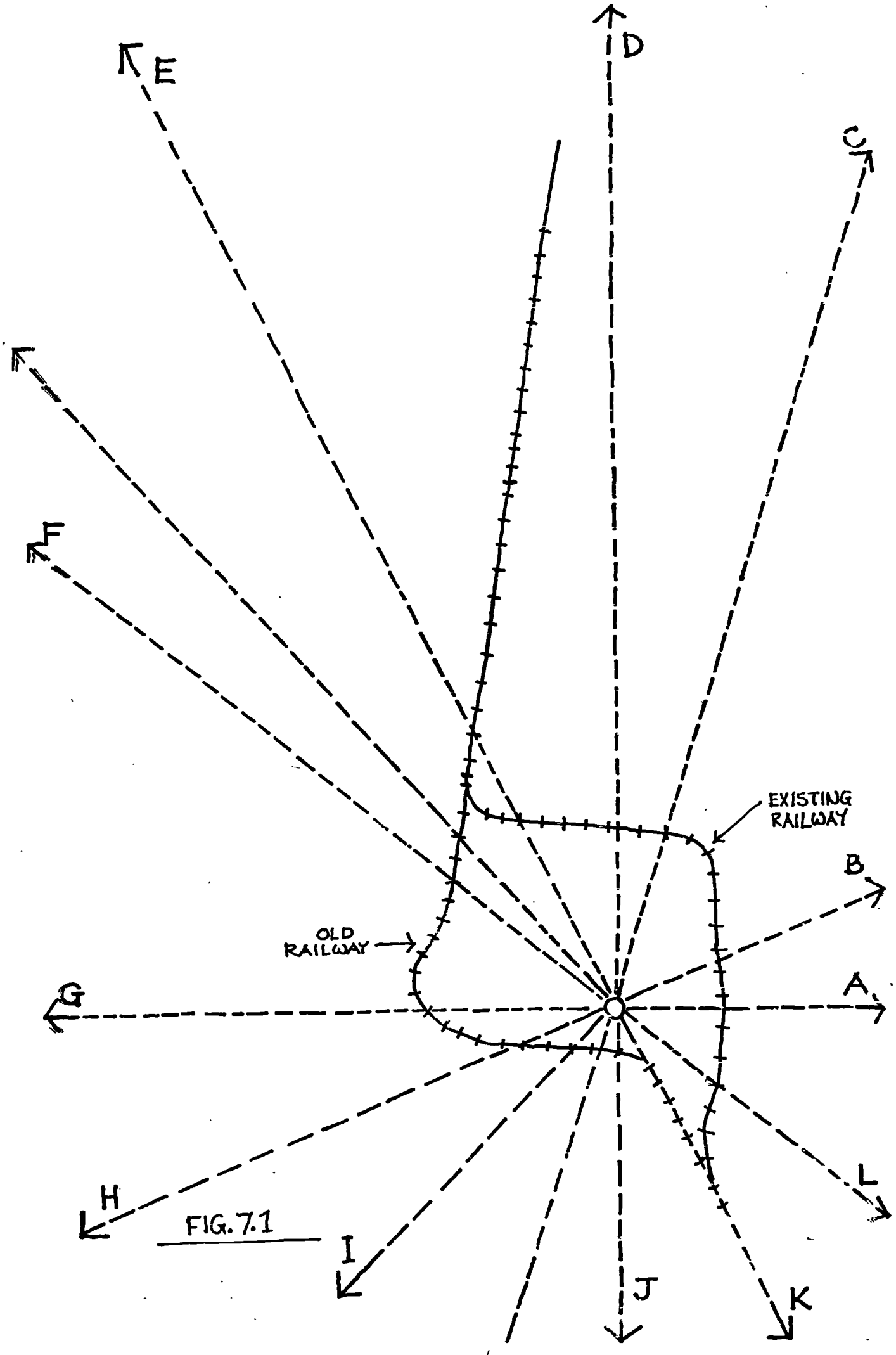

FIG. 7.1

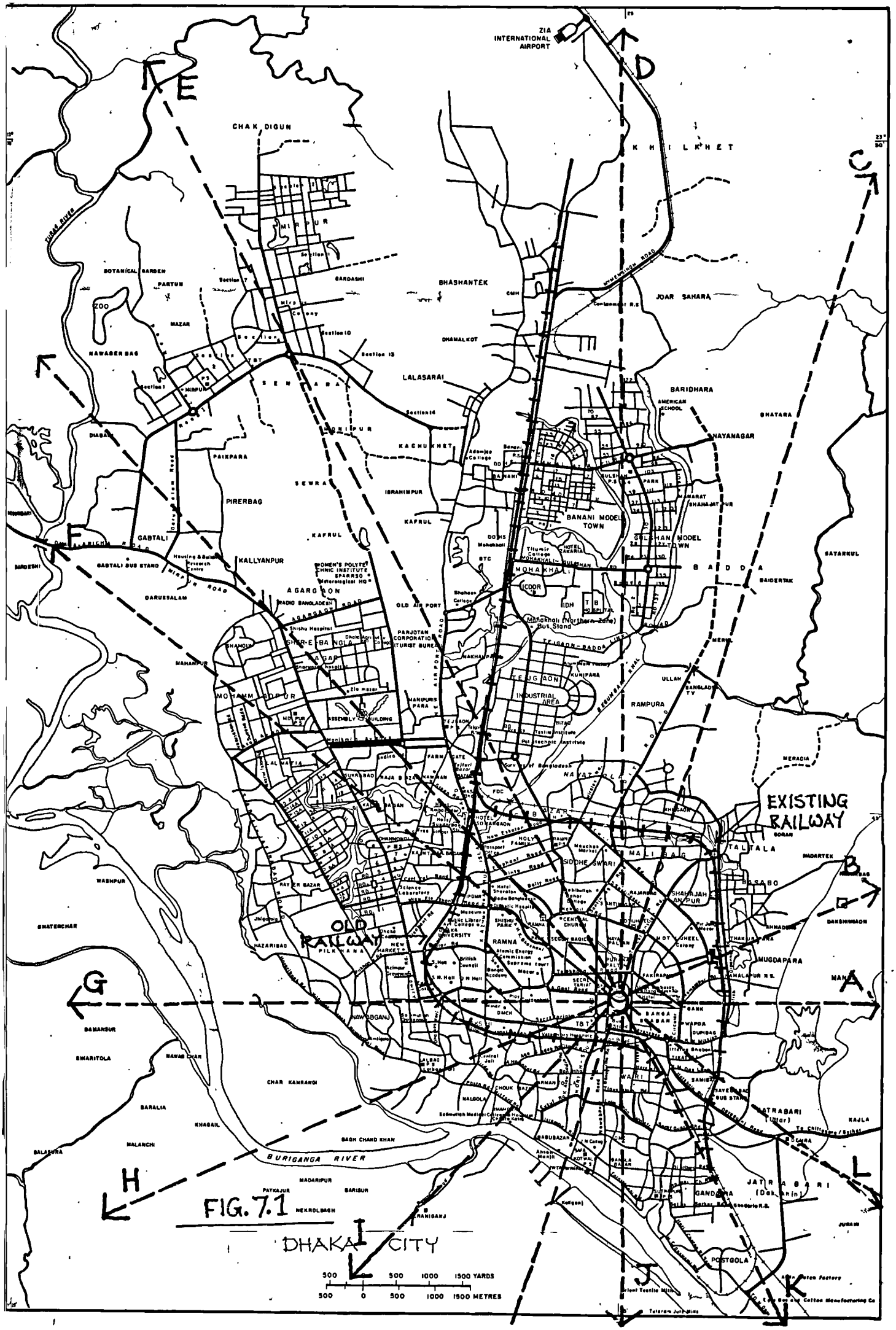
ZIA INTERNATIONAL AIRPORT
CHAK DIGUN
KHILKHET
MIRPUR
BOTANICAL GARDEN
PARTUN
ZOO
MAZAR
NAWABER BAG
BARDASHI
BHASHANTEK
JOAR SAHARA
DHAMALKOT
LALASARAI
SENARA
BARIDHARA
AMERICAN SCHOOL
BHATARA
NAYANAGAR
KACHUKHET
PAIKPARA
PIRERBAG
SEWRA
IBRAHIMPUR
KAFRUL
BANANI MODEL TOWN
GULSHAN MODEL TOWN
BADDA
SATARKUL
BAIDERTAK
GABTALI
KALLYANPUR
GABTALI BUS STAND
AGARGAON
OLD AIR PORT
MOHAKHALI
Mohakhali (Northern Zone) Bus Stand
TEJGAON
TEJGAON INDUSTRIAL AREA
RAMPURA
MERADIA
NAYATOLA
EXISTING RAILWAY
TALTALA
MALIBAG
SIDDHESWARI
SHAHJAHANPUR
MUGDAPARA
MANIK
OLD RAILWAY
PILKHANA
RAMNA
NEW MARKET
NAWABGANJ
WASHPUR
SHATERCHAR
BAMANSUR
BHARITOLA
NAWAB CHAR
CHAR KANRANGI
BARALIA
KHAGAIL
MALANCHI
BALASURA
BAGH CHAND KHAN
BURIGANGA RIVER
MADARIPUR
PATKAJURI
BARISUR
NEKROLBAGH
RANIGANJ
JATRABARI (Junior)
JATRABARI (Dakshin)
GANDARIA
POSTGOLA
KADLA
JURAIN
A
B
C
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FIG. 7.1
DHAKA CITY
500 500 1000 1500 YARDS
500 0 500 1000 1500 METRES

a

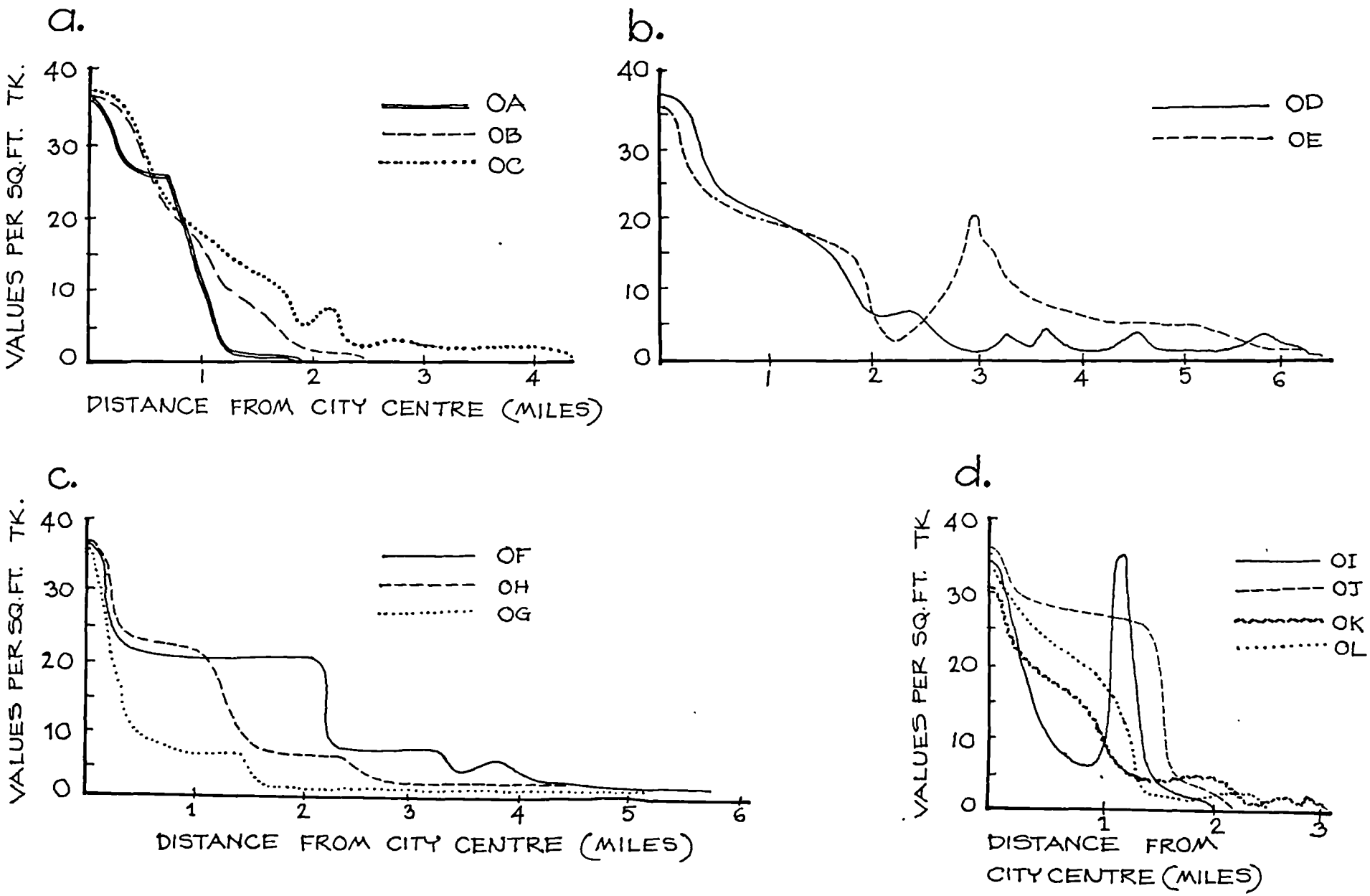
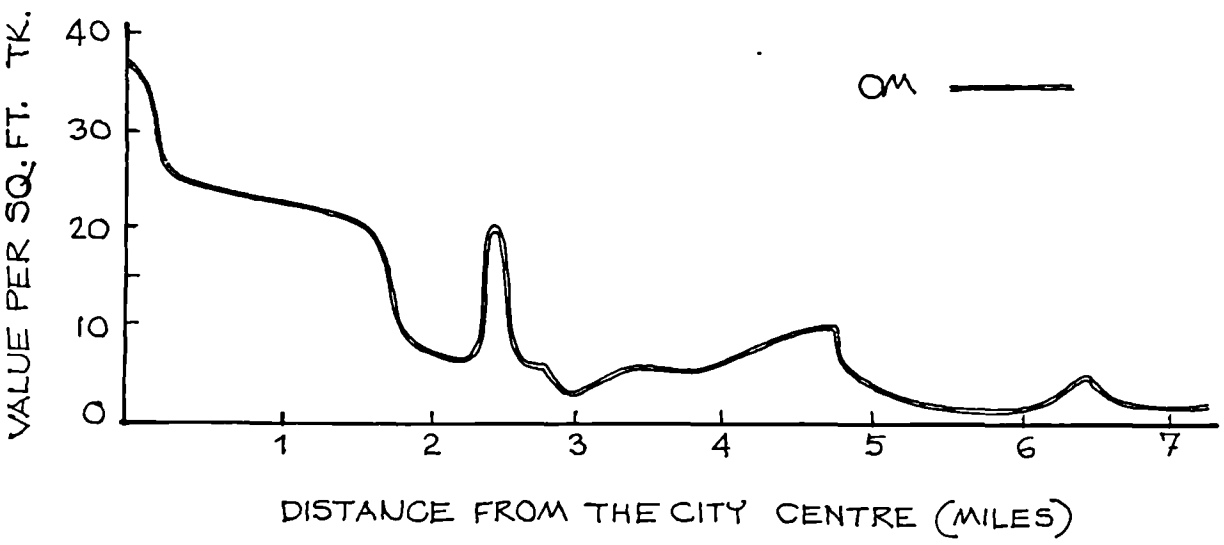


FIG. 7.2 : LAND VALUE PATTERNS IN DHAKA CITY

SOURCE : KHAN (1976); The Oriental Geographer. Deptt. of Geography.



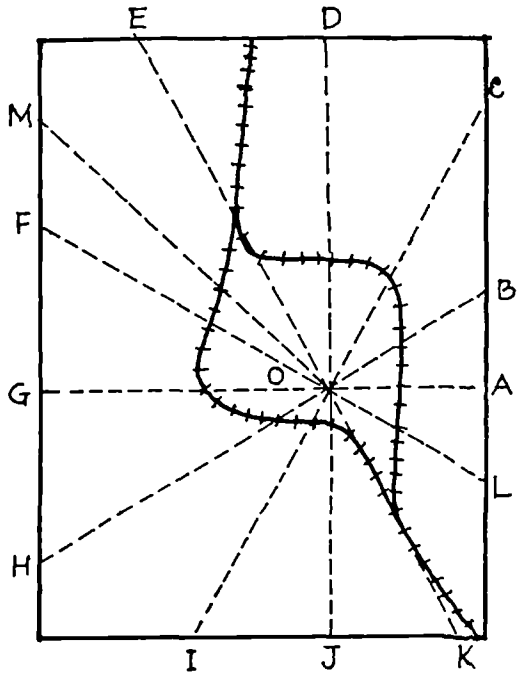


FIG. 7.2. LAND VALUE PATTERNS ALONG DIFFERENT SECTIONS FROM THE CITY CENTRE OF DHAKA

CHAPTER EIGHT

THE PLANNING, DEVELOPMENT AND DEVELOPMENT CONTROL INSTITUTIONS OF DHAKA

8.1 INTRODUCTION

This chapter attempts to investigate on the role played by the planning and urban development authorities and institutions of the metropolis. In many cases their responsibilities are undefined, overlapped and are unnecessarily burdened with too many other duties that take alien to the main function. Specific organisation bearing the responsibility to provide housing, particularly for the economically weaker section of the population, is rather difficult to identify. Being the most important urban development organisation, the role of the Dhaka Improvement Trust is evaluated first and later compared to that of the Municipality. Activities of other agencies are also discussed accordingly with regard to the supply of housing.

8.2 DEVELOPMENT OF URBAN LAND USE CONTROL AUTHORITIES IN THE REGION

By empowering the Bombay Municipality to undertake its own urban development schemes, through the resolution of the Bombay Improvement Act, 1898, town planning practices were first introduced in India.

Later similar measures were also adapted for the developments and improvements of the city of Calcutta -- under the Bengal Act V of

1911 -- and eventually the Calcutta Improvement Trust was set up.

When Pakistan was created, following the partition of the sub continent in 1947, the only planning law in force was the then Bengal Municipal Act of 1932 which covered, excluding Calcutta, the whole of Bengal.

Immediately after the partition, in order to transfer the town planning and urban development responsibilities, a number of autonomous bodies and urban improvement trusts were set up. This was followed by the execution of a Town Improvement Act in 1953, closely modelled on the Calcutta Improvement Trust Act of 1911. The Town Improvement Act eventually resulted in the creation of the Dhaka Improvement Trust, commonly known as DIT in 1956.

At the beginning the purposes were fixed for planning, urban development, improvement and imposition of building control regulations in the existing as well as expanding urban areas; in effect, the enabling town planning laws were formulated after the Town Planning and Housing Act of 1909 of Great Britain (Choudhury, 1985). . . . . (1)

8.3 DHAKA IMPROVEMENT TRUST--DIT

When founded in 1956, the DIT was given the status of an autonomous body under the Ministry of Works ultimately becoming the most important urban development and planning authority of the metropolis. Basically, two objectives were outlined for the Trust in the Town Improvement Act :

"To make provision for the development, improvement and expansion of the towns of Dhaka and Narayanganj and certain areas in the vicinity, by :

:opening up congested areas;

:laying out or altering streets;

:providing open spaces for purposes of ventilation and recreation;

:demolishing or constructing buildings;

:acquiring land for the said purposes and for the rehousing of persons displaced by the execution of improvement schemes;

:determining the zoning for land uses in the city areas;

A board of Trustee is to be constituted and invested with special powers for carrying out the objects aforesaid". . (2).

8.4 MASTER PLAN FOR DHAKA CITY

Simultaneously, it was also decided that, as soon as possible, the Trust should prepare a Master Plan for the area within its jurisdiction indicating the manner in which it proposed that land should be used and the stages by which any such development should be implemented.

The Master Plan would include necessary maps and descriptive matters to illustrate the proposals defining the sites of proposed roads, public and other buildings and parks and other open spaces or allocate areas of land for use for agricultural, residential, industrial or other purposes of any class specified in the Master Plan. . . . . (3).

Accordingly, a British consultant (Messrs. Minoprio, Spencely and P W Macfarlane, London), was appointed to formulate and design the Master Plan for Dhaka city -- the first in its history of more than three hundred years -- which indicated the future land use proposals and zoning thereon.

Afterwards, two base maps were prepared;one drawn at a scale 1:10, 000 showing various use zones for the urbanised or urbanising areas

and the other one drawn at a larger scale, depicting the proposed land use in the central city. A third map of Dhaka region merely stretched the major circulation mode and other aspects of regional growth. No specified land use was shown for mapped areas which consisted of low lands, flood plains etc. where urban expansions were not encouraged or anticipated.

Immediately after the requirements were fulfilled and necessary drawings prepared, the trust initiated the execution of its Master Plan. This was valid for upto 20 years -- the time span taken into consideration at the time of the formulation of the plan. However, due to unexpected urban expansion, population growth and the like, the Master Plan became outdated -- particularly after the emergence of Bangladesh, when Dhaka acquired the status of the metropolis. (Details in Chapter 6, section 6.4. . . . .).

8.4.1 Function of the Dhaka Improvement Trust[1]

8.4.1.1 Administration

Dhaka Improvement trust is administered by a Board of Trustee consisting of thirteen members including its Chairman. The key decisions are being taken by the Board, whose members are from

[1](see notes about recent reformation of the DIT).

diversified discipilines. Headed usually by the Chairman of the Trust himself, the members of the Board include one Deputy Commissioner of Police, one justice from the High Court, member(s) of the Chamber of Commerce, Commissioners of the Municipalities, the honourable Mayor of the city, Professors of the Technical Universities etc. or other(s) as appointed by the Government from time to time.

For the final decision making of any proposal, first it has to pass through the Chairman to the Board; being approved by two-third of its members (present in the Board meeting) the skeleton proposal is forwarded to the controlling Ministry. The Ministry, after proper investigation (through the planning cell), refers the same (along with a "project proforma" already prepared by the Trust) to the Planning Commission, which is believed to be the final authoritiy to accept or reject a proposal from any specific point of view, before its placement to the National Economic Council (NEC) for budget allocation. Afterwards, through the NEC the proposal eventually reaches the Council of Ministers or National Parliament before the final approval made by the President. (4).

8.4.1.2 Limitation of the power of the Board

It is apparent from the situation stated above that most of the members of the Trustee Board are not related to planning practice in general, which seems to have made the Board incapable of addressing as well as manipulating the urban development issues properly at times. This happens to be the major drawback concerning the functioning of the Board. In many cases, the Board -- being handicapped in the policy making decisions -- virtually becomes dependant on the subordinate officers. Moreover, the Board members are often biased in the making decisions.

8.4.1.3 Role of the Trust on sanctioning the plans

DIT reserves the right to make any approval or refusal on any individual plan within the master plan area of Dhaka. A person willing to undertake construction work of permanent nature or to develop land, has to submit a building plan or land development plan to the Trust and obtain an approval from the authorised officer(under certain conditions). This is usually valid for three years.

Any person, if affected by the proposed plans (for example the master plan or zonal plans), can apply for permission for use of land contrary to the master plan, to the Chairman of the Trust as per regulation of section 75 of the Town Improvement Act (attached in Appendix). (5).

If the Chairman refuses permission, he may apply to the DIT Board, to reconsider his appeal, within 60 days of such refusal and in that case the decision of the Board stands final. However, appeal against the decision of the DIT Board lie with the Ministry of Works, who may reconsider and review the decision of the Board.

8.4.1.4 Relationship between DIT and other agencies

The statute has also determined the authority of the Trust in the decision making of others.

The Town Improvement Act empowers the Trust to review and veto building plans and development proposals approved by other concerned development authorities including the Municipalities, within the Dhaka master plan area. All proposed plans of the Dhaka Municipal Corporation are to be submitted to the Chairman of the Trust for sanction. (6). The Chairman may refuse the sanction if the purpose for which the proposed construction or land use is contrary to the provision of section 74(3) of the act or if the proposed erection of the building is unsuitable for the locality or is likely to diminish the value of adjoining lands (Choudhury, 1985). All local plans prepared by the Dhaka Municipal Corporation are required to be in conformity with the DIT master plan. (7).

It is important to note that the 1960 Municipal Administration Ordinance also provided the Municipality with the power to undertake

master planning work in the areas under its jurisdiction throughout the country. (section 5. 2, this chapter).

In Dhaka, where both of these urban development agencies exist, there is an apparent conflict in the role being played by these agencies. In 1958, the Town Improvement (Amendment) Ordinance appeared and the DIT assumed the role of planner and regulator of buildings as well as developer. Willcox (1979), observed the Town Improvement Act (as amended in 1958), as a special act and therefore one which takes precedence over a general act, such as the Municipal Administration Ordinance:

> "It would probably apply to the case of planning for Dacca, especially since the DIT's planning responsibilty is mandatory and that of municipality merely discretionary. But could it be argued that a municipal master plan today does not conflict with the DIT's plan that is admitted to be thirty years out of date? Furthermore, what are the planning powers of Narayanganj municipality (or Pourashava), which was within the jurisdiction of the DIT at the time its master plan was promulgated but was not covered by it? And what of the powers of Gulshan Pourashava, which is now within the jurisdiction of the DIT but was not in existence at the time of the master plan and is not affected by it?". (8).

As the public sector activities and interest of the DIT was enhanced that of the municipality started to contract and the outcome of the evoution was that the interest of the DIT became dominant in determining the pattern of development for Dhaka.

8.4.1.5 Duty of the Authorised Officer

Under the East Bengal Building Construction Act of 1952 (the first effective legislation to regulate construction activities in the municipalities and cites), an Authorised Officer is appointed by the Government. (9).

He is empowered to approve or restrict the construction of buildings or excavations, or to direct an owner of a temporary building to remove it upon giving him notice and on payment of fair compensation. During the past decades the authorised officer alone had the power of giving approval to any building construction. Recently, this has been changed and responsibility has been assigned to a 4-member committee comprising the Chief Enginner of the Trust, Town Planner, the Executive Engineer (Design) and the authorised officer himself.

8.4.1.6 Complications in exercising the power of Authorised Officer

Although there is no definite system of the appointment of the authorised officer, he is appointed from other departments during the last few years -- usually from the department of Public Works. Being completely an outsider to the office, even being inexperienced about the city's planning, he has to share the major responsibilities like stopping illegal construction work etc. In some cases he has to act under certain obligations and under pressure while executing the

decisions. But the authorised officer has never been equipped in accordance with the requirements. In a report Navaratnam (1985), observes:

> "DIT has in fact, been reported to have detected thousands of cases of violation and instituted court action where appropriate. In their policing function DIT appears to have been helpless in the face of large scale violation in building construction and encroachment on public lands". (10).

8.5 THE ROLE OF DIT IN THE HUMAN SETTLEMENTS PROGRAMME

Although it is true that the expressed objectives of the establishment of the Trust was to control land use and to ensure the growth of planned human settlements, it is found that it has been performing in case of the high income settlements only, throughout the past few decades. Some of the town planners of the Trust believe that the organisation is rather handicapped and has virtually no role to play with regard to lower income communities and their settlements:

> "DIT is not established to serve any particular income group, since it is not a subsidised organisation. Basically being a no-loss no- profit organisation -- it has got no specific responsibility to serve a particular income group. ". (11).

The above comment, although is apparently consistent with the objectives outlined for the trust in the Town Improvement Act, 1953, but it was never true of its performance.

Starting from the very beginning of its establishment DIT has been developing high class residential areas around the city. According to a news report, DIT has called for and received applications for the allotments of several hundred plots of land it proposes to sell in Gulshan, Banani and Baridhara -- the north, and north-east high income enclave of the metropolis (Observer, '85). (12). Plot sizes varied from 3. 5 kathas to 10. 00 kathas for which the price was fixed at the rate of Tk. 12 lacs (that is Tk. 1, 200, 000/00 equivalent to 24, 000/00 pounds per bigha. (1 Bigha = 14, 400 sq. ft or 1, 322 sq. metres).

This illustrates that,

I. What is considered the indifferent attitude of the organisation concerning its responsibilities towards a specific income group, seems to be utterly untrue since the Trust, within its organisational ability, has been working for the upper income group by providing plots affordable for them.

II. Those already distributed plots were, in fact, sold at a greatly reduced rate (of Tk. 1200, 000/00 per Bigha), when the existing market rate was, at least more th an three times as high (Tk. 4000, 000/00 per Bigha). (Town Planner, DIT, 1986). In this context, DIT has provided a high subsidy (of about Tk. 2800, 000/00 per Bigha), in order to supply residential plots affordable by the upper income elites of the society who are in a position to pay the

existing market value.

Working with this kind of subsidy programme is inappropriate and unrelated to the urban development objectives of the organisation. Certainly it would be better to sell plots in the market rate and invest the surplus amount in other on-going development activities. The trust has never been known to initiate a cross subsidy concept in order to bring shelter programmes within the reach of the lower income beneficiaries.

This indicates that the DIT is actually working as a development organisation which gives priority to carrying out the decisions of upper level bureaucrats particularly from its own ministry. No policy, has yet been adopted to approach the issues of the human settlement problems effectively.

Starting from its formation, DIT has implemented several high income residential schemes, namely Gulshan (1961), Uttara (1965), Banani(1963) and very recently Baridhara, extending up to the other side of the Gulshan lake. Among these Gulshan, Banani and Baridhara areas are developed as diplomatic and wealthy enclaves with their costly features and lofty layout. Therefore, one can ask why, when the organisation does not work for any particular status or income group, it provides opportunities only for upper income beneficiaries.

In fact, the importance of the correct role to be played by the Trust has been felt for a long time since its formation. In 1957-58 Mr. Grenfell Rudduck, then an advisor to the Planning Commission of Pakistan, in a review of the functioning of improvement Trusts, stated that instead of thinking in terms of individual schemes which they might like to take up, such as an overbridge here or a street widening scheme there, the authorities should see their responsibilities as applying to the whole of the city, and they should provide a comprehensive programme for meeting the needs arising from the growth of the cities in question.

Without the complementary and counterbalancing infuence from the municipality in order to ensure service efficiency, the development role remains paramount within the trust. "Attracted by relatively inexpensive, undeveloped land on the periphery of the city, the DIT realized Mr. Rudduck's worst fears and developed series of isolated, inefficient, expensive conclaves for the wealthy communities with automobiles". (Willcox, 1979).

8.6 THE URBAN DEVELOPMENT DIRECTORATE

A new organisation was formed when its neccessity was felt seriously to co-ordinate Goverment policy and activities in the field of urban development in the cities and towns ranging around the whole country. Thus the Urban Development Directorate was formed in 1965.

8.6.1 Functions and responsibilities

It was assigned the following functions and responsibilities :

1. To advise the Government on matters of policy relating to urbanisation, land use and land development;

2. To prepare and co-ordinate regional plans, master plans and detailed layout and site plans for the existing, as well as new urban centres excluding the areas covered by the present town development authorities of Dhaka, Chittagong, Rajshahi and Khulna;

3. To undertake socio-economic research and collection of data for determination of the location and pattern of future urban development;

4. To prepare programmes for urban develoment for execution by the secto ral agencies and secure approval of those from the National

Economic Council and assist the agencies in selection of sites for implementation of those programmes;

5. To act as a counter part organisation and focal point in the Government for all internationally aided physical planning and human settlement programmes in the country;

6. To organise seminars and workshops for creating better physical planning awareness and to disseminate information through regular publication of the research and planning materials on urbanisation and human settlement planning and development;

7. To conduct in-service training of the officers and staff of organisation involved in spatial planning and development;

8. To advise the existing urban development authorities on their operations at their request.

To ensure proper performance, the Directorate is equipped with a good number of planners and geographers and a few engineers;the main duty of this branch is oriented towards planning. Engineers are engaged mostly in survey work, which provides the basic information in making the regional and master plans. Planning staff includes, 10 first grade planners, 5 senior planners, 1 asstt. town planner and 1 town planner. Architects are not yet included in the team but doing

so would strengthen the teamwork.

The Directorate primarily undertakes physical planning activities in the district towns and smaller towns in upazilla level. It also assists them in land use planning, acts within its advisory capacity and offers expert advisory services when requested by these bodies. Smaller Municipalities are unable to undertake town planning and urban development measures due to lack of qualified advisors.

8.6.2 Activities performed

The Directorate has undertaken a number of planning studies of population, migration and population distribution and growth in Dhaka and surrounding areas, and the impact of regional influences upon the future urban development of Bangladesh. In association with the UNCHS, Asian Development Bank and under the guidance of foreign experts working on behalf of the directorate, it has completed final feasibility studies for upgrading three low income settlements in southern areas of Shaheednagar, Islambag and Rasulpur of the Dhaka metropolis. . . . (13).

UDD has also prepared outline land use plans for several district towns, area development programme for Rajshahi city, and master plans for a few smaller new towns. It is also working for the development of 1200 growth centres in rural areas, outside the present 100 urban and semi-urban locations, and working to provide infrastructural

facilities in villages.

8.7 THE POURASHAVAS--MUNICIPALITIES

In many urban centres the Pourashavas(14), are responsible for development and planning within their areas at the local level. The agencies have been given the power to prepare master plans and undertake site development schemes and to impose the building control actions.

Under the Pourashava (Amendment) Ordinance, 1984, the Government has become the controlling authority of all the municipal agencies. Accordingly, the municipal corporations of Dhaka, Chittagong and Khulna, and other municipalities of the divisional, district and Upazilla levels, work under the general control and guidance of the Ministry of Local Government.

8.7.1 The Pourashava Ordinance

The main features of section 95/96 of the Pourashava Ordinance are :

I. A Pourashava may, and if required by the prescribed authority shall, draw up a master plan for the municipality, which shall among other matters provide for :

a)Survey of the municipality including its history, statistics, public services and other prescribed particulars;

b)Development expansions and improvements of any area within the municipality;

c)restrictions, regulations and prohibitions to be imposed with regard to the development of sites and the erection and re-erection of buildings within the municipality.

II. Where a master plan has been drawn up under section 95 and such master plan has been approved, with or without any modifications by the prescribed authority, no owner of land exceeding such area as may be specified in this behalf in the master plan as so approved shall develop the site or erect or re-erect a building on any plot of land covered by the master plan except in conformity with the provisions of the site development scheme sanctioned for the area, in the prescribed manner.

Master plans prepared by the Pourashavas are to be followed by site development schemes which would include preparation of detailed layouts of plots, street patterns etc. along with other community facilities.

Pourashavas can exercise building control powers under sections 98, 99 and 100 of the Pourashava Ordinance:

--- a Pourashava may, for reasons to be stated in writing, reject a site plan or a building plan;but any person aggrieved thereby may appeal to the prescribed authority.

--- a Pourashava may sanction a site plan or a building plan subject to such modification or terms as may be specified in the order of sanction.

8.7.2 Comments and Evaluations on the control powers of Pourashavas

Although Pourashavas are given building control powers under these sections of the Ordinance, still they are not found to implement schemes included in the master plan, apparently because of paucity of funds and lack of town planning and technical staff. It is apparent that no qualified planners were appointed in any of the Pourashavas. In practice, very few municipalities have exercised these powers. But there are also other aspects of this issue.

8.7.2.1 DIT and the Municipality

In Dhaka, land use regulations within its master plan area are imposed by the Dhaka Improvement Trust and not by the Dhaka Municipal Corporation. The proposed plans of Dhaka Municipality are forwarded to the DIT, since all future developments should be consistent to the master plan of the city. The Chairman of the Trust investigates whether the purpose of the proposal is contrary to the same and

finally gives his decision. (15)

In other municipal areas, all private developers are to seek approval of the municipalities except in the cases of Chitagong, Khulna and Rajshahi where CDA, KDA and RTDA performs this job respectively.

In the context the above, a somewhat peculiar situation has evolved. In 1953, when the Town Improvement Act was enacted, it was apparently assumed that the DIT's development function and the management function of the Dhaka Municipality would co-exist without any conflict.

And when the Municipal Adminstration Ordinance, 1960 was put into force, which was after two years of the imposition of the Amending Ordinance of 1958 that established DIT to do planning for Dhaka, there happened to occur some statutory irregularities. Professor Kaplan, writing on the identical provisions of the Municipal Ordinance of 1960, pointed out :

> "The clauses defining the contents of and related to the execution of a site development scheme, are ambiguous. The matters that may be provided for in such schemes are similar to those authorized in planning or development schemes executed by the improvement trusts. . . ". (16).

As a matter of fact, the Town Improvement Act recognised that the public sector interests of both the DIT and the Municipality could include the right to prevent, or the issuance of, a building permit

by law. Its purpose was not to influence the Municipality about the issuance of permits; but it did mention that 'all plans for the erection of buildings approved under the provisions of the municipal law in force shall be submitted to the Chairman of the DIT for sanction'. That is, as mentioned above, the Chairman of the Trust was authorised to refuse sanction on grounds that might raise a conflict with a zone plan/ master plan.

Willcox (1979), observed the anomalies in this regard :

> "The effect of these provisions of the Town Improvement Act, 1953 was to define DIT's interest so as to encroach somewhat upon, but not overturn, the hegemony of the municipal interests. Building controls were still recognised to be an ingredient of the management of the municipality, and would continue to be determined, primarily on that basis. In the caes of new construction only the DIT was accorded a limited veto power -- limited to those instances where the veto could be defended as reasonable in the light of the DIT's public sector interest. ". (17).

It is therefore, difficult to understand how Dhaka Municipality has been able to avoid the legal responsibility placed upon it, particularly by section 77 of the Municipal Adminstration Ordinance and section 98 of the Pourashava Ordinance -- both of which, in identical language prohibit the erection or re-erection of any building without the approval of the municipality (Wilcox, 1979). It appears that, as this operation was not in practice during the last few years, the ineffectiveness of this issue has been gradually accepted and that the municipality today plays no part in the approval of building plans.

8.7.2.2 Weaknesses in the Pourashava Management

In some cases, the degree of mismanagement and malfunction of the adminstration, particularly in smaller Pourashavas of district towns are found to be high. This is also associated with the misappropriation of funds. In fact this results in the impediment of urban development activities. Recently, the Government, after investigating in the poor administration and mismanagement in the Rangpur (18) Pourashava, ordered its closure and stop functioning for at at least six months, and assigned the responsibilities with the Deputy Commissioner of Rangpur as per the clause 135(1) of the Municipal Ordinance, 1977. It was stated that the municipality utterly failed to run the administration properly. (19).

8.8 HOUSING AND SETTLEMENT DIRECTORATE

Under the Ministry of Works, this department was formed to re-house the refugee families which migrated from West Bengal and other adjoining states of India, around the late 1950's. The department was vested with the responsibility of planning and layout of settlements for those families, which made significant contribution to implement large schemes in Mirpur and Mohammadpur, by providing core houses.

Starting from the 60's, this Directorate has made available 52, 857 of plots, nucleus houses, semi pucca (non-permanent) houses,

flats of various kinds etc. in total. During the second plan period about 6, 331 flats have been provided also.

8.9 PUBLIC WORKS DEPARTMENT

8.9.1 Functions and responsibilities

An important role is played by the Public Works Department in the construction programme, basically undertaken by the Government. The work of this department is performed in two main sub-sectors:

I. Government Offices and Institutional Buildings;

II. Government Employees Housing;

I). The primary responsibility of this department is concerned with the construction (including supervision work etc.) and maintenance of the Government offices and administrative buildings all over the country. This comprises the major activity of the department, elaboration of which is not relevant to this section.

II). The description here is restricted to the investigation of the delivery of housing to the Government employees. In examining the situation on housing -- the department is primarily concerned with the accommodation facilities for Government servants only - even

not including the employees of semi Government or autonomous agencies. During the period 1980-85, there were only about 20, 000 housing units for about 465, 000 Government employees. . (20).

According to the information provided by the department, about 13, 274 Government employees have been alloted accommodation from the quarters constructed by the Public Works Department. In a brief report for the Third Five Year Plan (1985-90), by PWD, it is stated that existing Government flats provide accommodation to only 6. 45% of the Government employees. The department has proposed to increase the accommodation by 10% at the minimum during the Third Five Year Plan period. (21).

8.9.2 Activities performed

Other schemes executed by this department during the second five year plan period (1980-'85) are as follows :

1. Construction of low cost multistoried Government owned houses at Dhaka, Chittagong, Khulna and Rajshahi;

2. Construction of buildings for the residents of Plassey and Nilkhet barrack in connection with the transfer of land to Bangladesh University of Engineering and Technology (BUET), and Dhaka University. 688 staff quarters have been made.

3. Construction of judicial staff quarters at 11 places and 49 staff quarters have been completed.

4. Expansion and improvement of the President's building complex along with the construction of 86 staff quarters.

5. Construction of Customs and Excise Training Academy at Chittagong with 44 staff quarters.

6. Construction of Upazilla complex in the 468 upazillas, wherein 3250 staff quarters of various catagories have already been completed. . . . . (22)

8.9.3 Accomodation of Government employees

Government employees who are able to enjoy Government accommodation are in fact considered as a privileged class. Rent is recovered from the employees at 5% basic salary in case of persons drawing a basic salary under Tk. 400/00 (equivalent to £8/00 appx.), and 7. 5% in case of others. The rent levy is equated to 5% or 7. 5% as mentioned above or the standard rent whichever is lower. Government employees who are not provided with accommodation are paid a house allowance equal to 50% of the basic salary.

So far, the question of cost recovery has always been ignored. The total cost of construction and other costs are so high, that the

recovered rental money does not cover even a substantial fraction of it. It is not even enough for the proper maintenance of the structures. The form of subsidy in this sector is thus very high; Navaratnam comments :

> "In any event it may not be possible to make full recovery of cost nor would any proposal to make full recovery be acceptable, as a subsidised Government accomodation is a privilege enjoyed by the public servants not only in this country but also in many other countries. ". (23).

8.9.4 Adminstration of the Department

The PWD is administered by a chief engineer with several additional chief engineers performing under him. Each additional chief is assigned to a particular zone or region of the country. A few 'circles' are covered by each zone, each of which is controlled by a superintendant engineer. A circle is further divided into several divisions. An executive engineer is primarily responsible for the execution of projects within his division. Assistant engineers or sub-divisional engineers work under his instructions and assist him into the execution of the same.

8.9.5 Functioning of the Department

As a matter of fact the department is concerned with the basic responsibilities of the execution of projects and also for promoting design (engineering part in particular), and supervision work needed

for the construction and execution of projects. Most branches of the Government departments are entitled to take design assistance from this department. However the semi-Government and autonomous bodies must take formal approval from the Ministry or Government to do so.

In this way the Public Works Department operates virtually as an execution agency of Government projects. It has not to participate in the policy making issues or planning proposals associated with the urban development process.

Therefore the department, as an executive agency, should not be made directly responsible for the above aspects. But, within the sphere of a particular project the department can be made responsible for the design, construction and supervision as well as the management of projects.

8.10 DEPARTMENT OF ARCHITECTURE

Similar to the Public Works Department, a parallel department of Architecture has recently been formed under the Ministry of Works.

8.10.1 Functions and responsibilities

While performing as a Directorate, during pre-liberation time, this section was responsible for undertaking projects of the then provincial Government of East Pakistan. Several years after liberation the Directorate was merged with another wing of similar responsibilities which used to carry out duties for the Central Government.

After being established as a full-fledged department in 1982, the department is now carrying out responsibilities of architectural design, and supervision work required by different Government sections and agencies.

8.10.2 Administration of the Department

The Architecture department is headed by the Chief Architect who controls his department with the assistance of an additional chief architect. The official task is performed through five 'circles' (or sectors), each one headed by a deputy chief; three assistant chiefs share the work under the deputy chief and under three assistant architects at the end of the system who are grouped with each of the assistant chiefs.

Design jobs are distributed by the chief architect through the circle. Of all the circles, four are assigned to design duties while

the remaining one to the administration. Each circle deals with a definite catagory of design requested by the clients. Assistant chiefs and assistant architects get involved with the design developments. Supervision work is also undertaken accordingly.

8.10.3 Comments and Evaluations

Being the only Government department with a good number of architects and designers --- the department is quite capable of undertaking design jobs for a wide range of Government agencies efficiently. Among the architects, some are trained in specialized areas including human settlements. It is necessarily important to utilise their contribution and advice in housing development activities -- however small or large they may be -- in and outside of the departmental projects; for instance in all other wings of the Government adminstration.

In a recently executed low-income housing scheme in the areas of Rupnagar and Hirajheel, both of them in Mirpur, the Directorate of Housing and Settlement engaged the architects of this department to do the site planning and layouts, since the Directorate had no provision for architectural advice within their office.

We think further involvement of the expertise in the formulation and decision making process of other sections/directorates is essential, since lack of trained specialists is one of the major

constraints in undertaking the development activities in Bangladesh.

8.11 LOCAL GOVERNMENT AGENCIES

The Ministry of local Government and departments under its network include departments of Public Health Engineering, Dhaka Water Supply and Sewerage Authority, Chittagong Water Supply and Sewerage Authority etc. These departments are responsible for providing the basic infrastructural facilities within the areas concerned.

8.12 OTHER AGENCIES ASSOCIATED

Some other agencies which are also involved in making provisions for infrastructural facilities at local levels include, Telecommunication Division, departments of Ministry of Energy, Ministry of Communication etc. From their performances in the past, it has been observed that these agencies execute their work after making decisions of their own, without having a co-ordinated kind of approach with other agencies. Consequently wastage in terms of the property and labour it accounts for is very high; Choudhury (1985), states:

> "The departments such as Roads and Highways, Power Development Board and others, working at local level use a lot of urban land, often in a lavish manner which can be avoided easily without affecting the quality of their work. The programme of these departments and agencies need to be co-ordinated with the city development authorities and in other places with the municipalities. Municipal officers at the local level on a large number of development projects belonging to different Government agencies are not always co-ordinated --- which

leads to confusion, delay and wasteful use of land in many cases".

Similar lack of cooperation resulting in ambiguities and conflict in law with regard to the division of responsibilities among city development authorities, municipalities and Government departments is one of the reasons for poor implementation of the urban development projects.

8.13 CONCLUSION AND REMARKS

One of the main objectives of the urban development authorities (such as DIT, CDA and KDA) has been to ensure planned human settlements and the appropriate location of services and facilities. But as the gap between housing needs and the existing housing stock is widening, the inadequacy and inability of these authorities to perform as planned are becoming more obvious. The Second Five Year Plan comments :

"Unfortunately, this objective has been largely defeated as the agencies concentrated more on the development of new residential areas for the upper income groups and development of market places and some city roads. As a result, all these three cities (Dhaka, Chittagong, Khulna) contain clumsy human settlements without the required community facilities". (24).

Furthermore, the plan also commented in this regard that efforts would be made to correct and organise the situation during the period 1980-'85. City development agencies were also to assign major responsibilities to prepare detailed land use plans of the remaining areas and attempt to correct the undesirable land use pattern that

has already taken place. It has been discussed already that the Dhaka Improvement Trust has not changed its objective towards providing shelter to the lower income group. A point of contradiction exists in that, while the Trust finds it an issue of secondary importance, the Planning Commission considers it as a valid point of criticism, as mentioned above.

Although it was also proposed during the second plan period that with a combination of several diversified strategies (like sites and services development, constructi on of flats etc.), the establishment of a National Housing Authority would be considered. (25). But, not to mention its implementation, further development of the proposal has not been considered during the last few years, although it is true that the existing arrangement with divided responsibilities between the Housing and Settlement Directorate and other state offices is utterly inadequate. The Third Five Year Plan, published last year, cited what it calls a conservative estimate to show that the population of Dhaka by 2000 A. D would require 50, 000 new houses to be built per year on average as a planned urban development (26). In the absence of a well formulated national policy for urban housing, the gulf of difference between the need for and the existing stock of housing can never be bridged. To do so, it is an absolute essential to establish an agency like a National Housing Authority with responsibilities of policy formulation, planning, estate management and development etc. Agencies and organisations, related to housing could receive policy guidance from

the authority. The necessity of its formation was felt several years ago, but surprisingly now when the crisis is much more aggravated, there is no sign of such initiative lying with the Ministry or Planning Commission. The Third Plan has nothing to mention about it either.

8.14 THE NEWLY FORMED RAJDHANI UNNAYAN KATRIPAKHYA

Realising that it was difficult to get the required level of co-ordination among so many urban development agencies working in the city, several attempts were made over the past years to reduce their number. These include the one after independence when the Government tried to establish a Dhaka Metropolitan Development Authority (DMDA) through the 1974 ordinance; the other one was in '82-'83 when an army administrator of DMC argued for the formation of a Dhaka Metropolitan Govt. through the merging of about 11 public sector agencies working in the city (Islam, 1987). Later in '84-'85 a committee headed by an army brigadier(27), proposed restructuring of the organisations; although the proposal was approved partially nothing was changed distinctly either in their performance or policy making.

However, very recently, during the middle of 1987, the Dhaka Improvement Trust was finally reformed under a new name of Rajdhani Unnayan Katripakhya (the meaning literally being Capital Improvement Authority) or RajUK, through the amendment of a town improvement bill on 30th June, 1987. (28).

Little has been published about the administration and function of the newly reformed organisation but there are reports suggesting that the Board of Trustees has now been abolished, and replaced by an authority, the status of whose members is also unknown at the moment.

It is probably too early to comment on the actions of the newly formed RajUK. Some researchers believe that it is merely a prototype of the metropolitan development authorities of Calcutta, Madras or Jakarta (Islam, 1987). A recent newsbulletin complains that, within such a short period of its formation the euphoria of the rajUK has come to standstill; the organisation is found stagnant in completing the development work of major avenues initiated earlier; the problems of inner city roads, choked up with excessive traffic, are ignored; incessant eviction of squatters and bustees are in operation in order to develop beauty spots within the city. (29).

If the handling capacity of the organisation is increased by the reformation, it would obviously be helpful in order to cope with the increasing number of urban development issues; but unless the role of the institution with respect to the planning perspective of the city is redefined and an effective housing policy is formulated, changing the brand only is unlikely to show any positive effect on the future of the city; as the UNCHS(Habitat) states, the crisis in human settlement is above all a crisis of institution ---- in the customs, laws and structures by which the community and nation are organised.

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[3] T. I. Act, Section 73(2) pp. 41

[4] As per the views expressed by Asstt. Engineer, Dhaka Improvement Trust; personal interview during HH survey.

[5] T. I. Act, op. cit. , Section 75(1), 75(2), 75(3). p. 42.

[6] T. I. Act, op. cit. , Section 77(1).

[7] T. I. Act, Section 74(3) and 74(4), 1953, states that : all future development and construction, both in public and private shall be in conformity with the master plan or with the amendment thereof. The master plan or an amendment thereof shall neither before or after it has been approved, be questioned in any legal procedings whatsoever and shall become operative on the day it is approved by the Government and published in the offical gazette.

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[14] 'Pourashava'-- the Bengali word for municipality.

[15] T. I. Act, Section 77.

[16] **Prof. Milton Kaplan.** (July, 1971)The Planning Process and Development Controls in Karachi; unpublished draft paper, pp. 20-21. Cited in Willcox, pp. 26-27; see ref. 16.

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[18] Rangpur, the northern district town is a major urban centre of Bangladesh.

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[21] Cited in : Review of housing finance in Bangladesh by A. Navaratnam (Dhaka, March, 1985) -- from the briefing report for the Third Five Year Plan on P. W. D December, 1984.

[22] A. Navaratnam, op. cit. p. 54.

[23] A. Navaratnam, op. cit. p. 55.

[24] Planning Commission, op. cit .

[25] In Section 14. 32, p. 275p, the Second Five Year Plan proposed that a National Housing Council should be formed to provide the develop ment of a national strategy and policy for housing which, inter alia would determine : (i) the classes of people to be served (ii) subsidy for different groups and the sources of such subsidies (iii) the allocation of public sector funds and debt capital to be made available from banks and insurance companies (iv) nature of co-ordination of housing programmes with national regional and metropolitan agencies, municipalities and development authorities (v) criteria and priority for important and essential building materials

[26] **Planning Commission, Ministry of Planning, Government of People's Republic of Bangladesh.** (Novm. , 1985)The Third Five Year Plan. p. -327.

[27] Restructuring proposals, as made by the Enam Committee.

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THE PRINCIPAL RELATIONSHIPS OF URBAN SECTOR INSTITUTIONS IN BANGLADESH

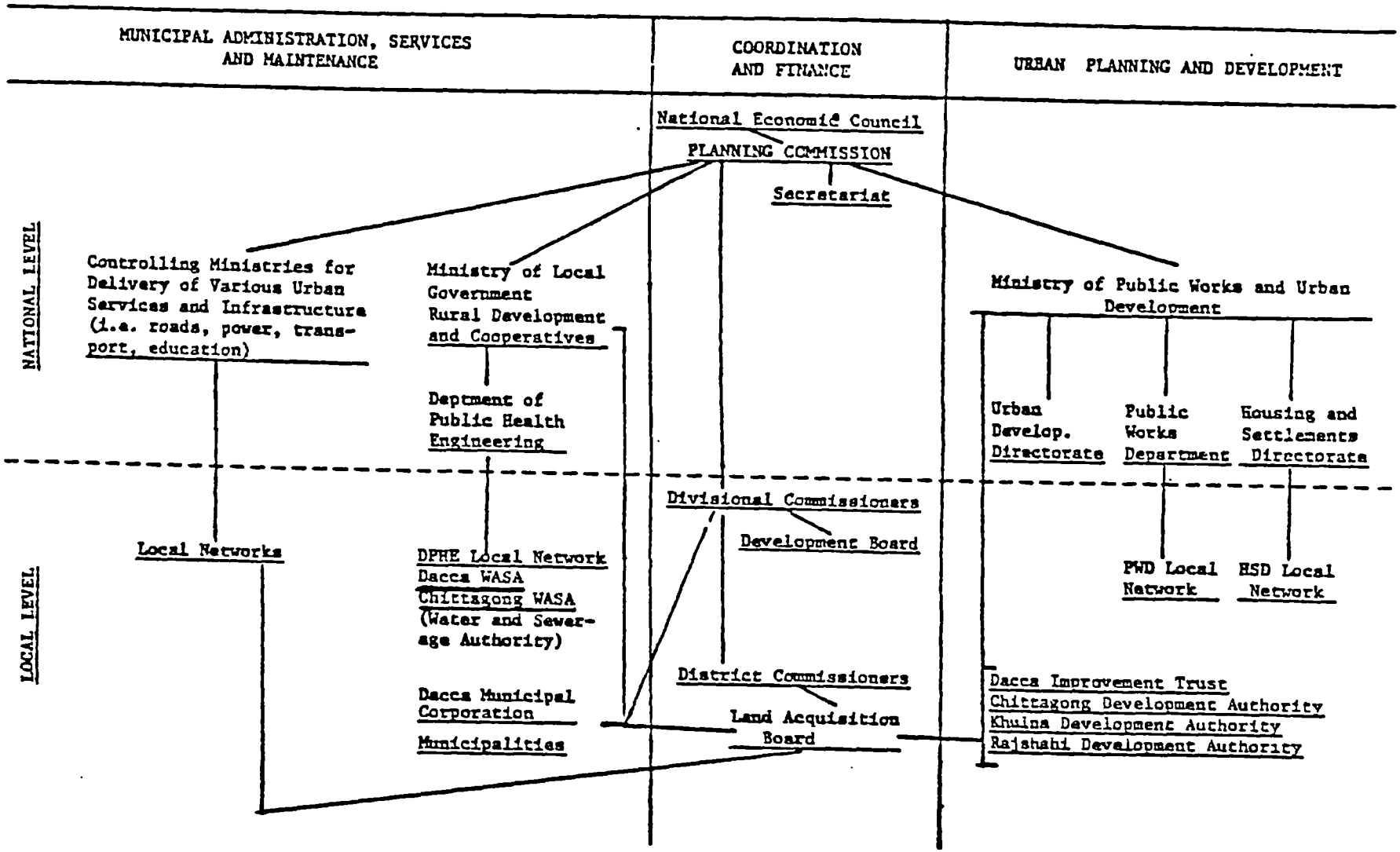

FIG. 8.1

SOURCE : WORLD BANK (1981).

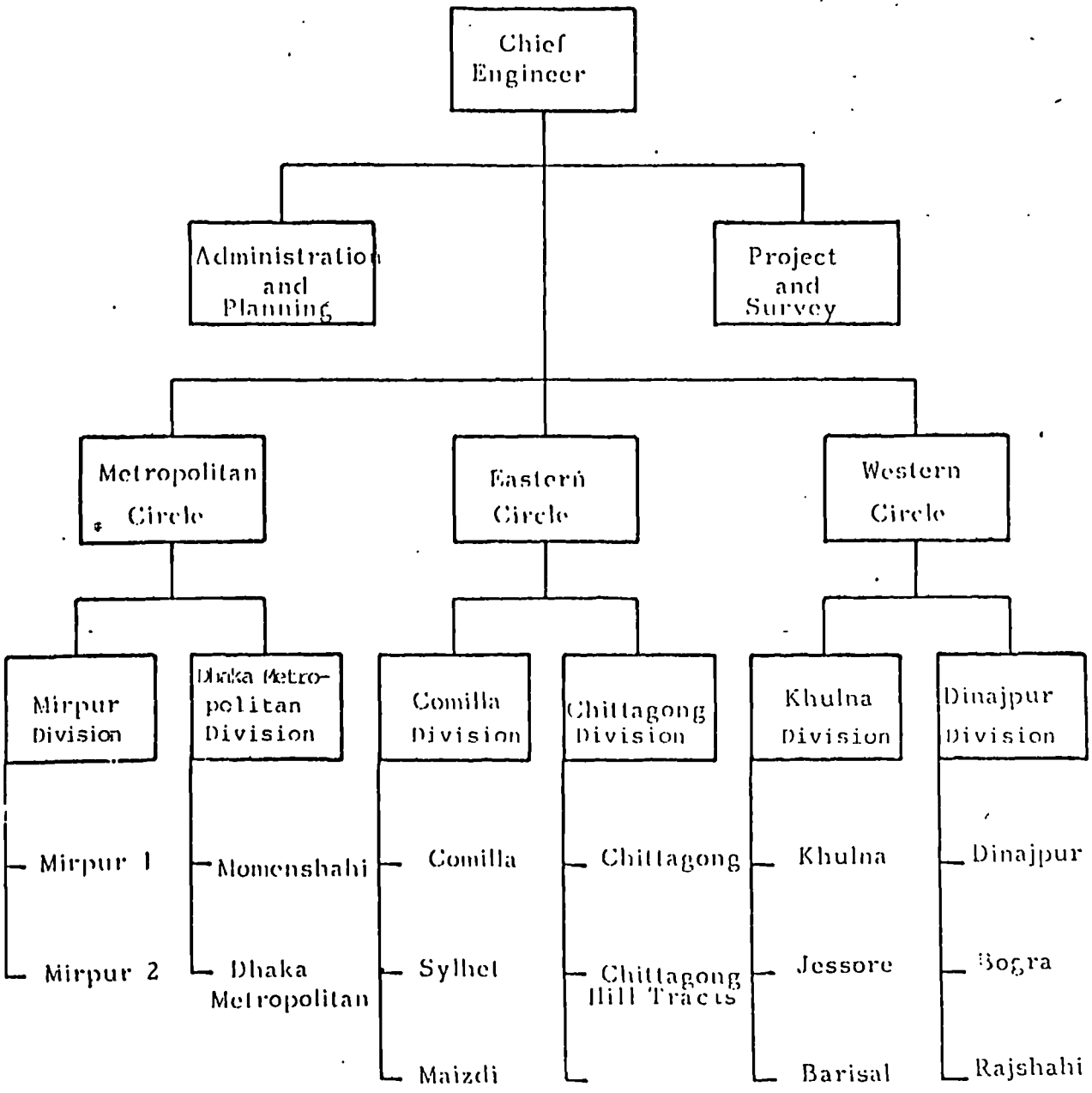

FIG. 8.2

Organisation

Housing & Settlement Directorate

SOURCE: HOUSING DEVELOPMENT PROJECT (1985).

CHAPTER NINE

SURVEY RESEARCH METHODOLOGY : FIELDWORK AND SAMPLE SURVEY CARRIED OUT IN BANGLADESH

9.1 INTRODUCTION

The fieldwork was designed to ascertain the low-income housing situation and response of the users located in peri-urban areas of the metropolitan city of Dhaka. The following chapter describes of the fieldwork done during the period of February to June, 1986. The initial part of this chapter deals with the fieldwork operations followed by the theoretical aspects like sampling techniques, computer analysis etc. In order to carry out the fieldwork, a study visit to Bangladesh was undertaken at the end of January, 1986. Activities with the main survey were initiated in February, 1986.

9.2 OBJECTIVES

Fieldwork in Bangladesh was carried out with two main objectives:

I. To gather primary data through the survey of lower income households in three different peri-urban locations of Dhaka mainly with respect to the:

a) Occupation, income and affordability b) Household composition and household expenditure c) Tenure status d) Existing physical features with internal and external use of space e) Transformations of the dwelling units f) Use of building materials

II.To collect materials from secondary / other sources:

collection of relevant informations (including statistical data, documents, drawings etc.) from:

a) Associated Government, semi-Government offices, local bodies and agencies b) Foreign Organisations c) Researchers and policy making bodies

The growth factor of the metropolis, accompanied by the gradual engulfing of the territorial areas of Dhaka was considered to be a very important feature for this work and thus was the key point of the investigation.

9.3 INITIAL CHOICE OF SURVEY AREAS

Almost every city bears the evidences of social stratification in relation to the socio-economic situation of its people; this can also be observed in Dhaka.

For instance, Gulshan is usually considered a place for the highest income group. Banani and Dhanmandi are also residential areas for upper class people. Upper middle class and middle class people are scattered in other areas of the city. The lower income population are not well segregated in particular areas. They are scattered in different corners within the inner city and distributed all over the peri-urban areas. In the early eighties the majority had less than 100 households (see chapter 3, section 3.3.1). A list of these peri-urban areas, with the wards of census enumerations, was prepared for the convenience of sampling.

The area first selected was Mirpur. Although there are some sections with well-constructed permanent residential buildings, the Mirpur population is predominantly low-income living in single roomed accomodation units and in uncontrolled slums.[1]

Mirpur, as a whole is divided in several sections. In some sections the one-roomed dwelling units have been converted to

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[1] (Similar observations are also made by other urban development experts. See Terry Standley, in Technical Co-operation, HABITAT news, 1986).

two-roomed ones and later allocated to the lower Government employees.

The local office of the Housing and Settlement Directorate (Mirpur Division) was approached to locate the non-converted one roomed dwelling units where the lower income groups were staying.

Since Mirpur is in the north-eastern periphery and the lower income sector there are in public sector units, hitherto not available with the rest of the lower income population of the metropolis, it was necessary to survey other areas in order to get a complementary and comprehensive picture of the housing situation in different tenure situations and environmental as well as topographic conditions. Eventually, it was decided to survey two peripheral areas occupied by the households of the same income group in other cardinal locations. The areas thus selected were Hazaribag along the western fringe and Jurain at the south-eastern periphery of the city.

9.4 IMPORTANCE OF THE FIELDWORK

As far as the overall housing situation in Bangladesh is concerned, no up to date housing census has been published by the authorities since 1973. The one in 1973, although worked out has never been circulated widely nor available easily; also they are now too outdated to be of any more value for reference or use. In most of the cases appropriate and accurate comparison can not be drawn due

to lack of statistics of similar nature and kind.

Some activities in the field of housing have commenced lately in the me tropolitan cities of Dhaka and Chittagong lately - particularly after 1982. Besides, foreign experts have been working and contributing in this area for the local Government with the aid of international funding bodies. Recording these activities was essential and thus formed an important part of this fieldwork.

9.5 THE PILOT SURVEY

Primary data were collected through a questionnaire survey following the sample surveying method.

A pilot survey was carried out first within the first week of February, 1986, with the help of two students, who were employed in data collection. The samples were selected from section no. 7 of the Bastuhara accomodation units located in Mirpur, the northern periphery of the city. The houses were selected through random numbers collected from the random tables. The interviewed people were from different occupational background, such as a peon or a bearer of an office or an upper level clerk etc. Questions included in the pilot survey comprised the employment status, income and transformations of the dwelling units, as suggested by the statistical advisor of the Institute of Statistical Research and Training (Dhaka University) during the fieldwork period (1). Among

these variables, later, the income variable was taken to determine the values of standard deviation and other quantities required to derive the sample size of the main survey (see appendices J and K).

9.6 THE MAIN SURVEY AND FIELDWORK

9.6.1 Financial support and permission of the authority

Previous communications, initiated from at least six months before the fieldwork, in search of finance for the main survey was unsuccessful. Then, prior to the main survey work in Dhaka, several international organisations and local Government agencies were approached (February, 1986). Most of these agencies were unable to respond. Channeling funds through the Government departments was again extremely time consuming even if any source from the foreign agencies could be identified due to complicated bureaucratic procedure involved therein. However, after a few weeks negotiation, finally a partial financial support was obtained (2). Rest of the finance was arranged from personal sources.

9.6.2 The estimation of sample size

Determination of the sample size is dependant on information available for sampling, characteristics of the variables under investigation and prior information about the variability of the characteristics under investigation. However with limited available

information and prior information about the principal characteristics of the study area, attempt was made to determine an approximate size of the sample following equations in Cochran (1977).[1]

9.6.3 Proportion and distribution of sampling

About 4,500 single room dwelling units were built in several sections of Mirpur. In sections no.7, 11 and 12, 1,114, 472 and 1,594 units respectively were constructed and occupied by the people. In total about 269 households were interviewed. Among which :

89 samples from section no.7, 106 samples from section no.11 and 12, 57 samples from section no.9 of Mirpur area were undertaken.

In section no.9 no less than 75 dwelling units are being occupied by the civilians; others have been taken over by the army camp situated just beside the settlement. 56 samples were taken from the area.

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[1] (William G. Cochran (1977). Sampling Techniques. section 4.6, pages 77 and 78). Using the standard deviation of 1235.6, the sample size was computed as 424.08 (see appendix for detail calculations).

9.6.4 Identification of appropriate income group

The lower income households living in the study areas were sorted out by asking two or three brief questions about the occupation and income of the household head. If the income was found to be higher the household was not asked further questions. In this way only lower income households wereidentified and considered for full interview.

9.6.5 The questionnaire

The questionnaire was formulated covering the major aspects of :

1. Occupational structure of the household head

2. Income (as declared by the household); in order to determine the affordibility with respect to the housing investment and potentiality of cost recovery.

3. Expenditure breakdown; in order to draw out a comparison between the income and expenditure of the households.

4. The status and conditions of tenure

5. Accessibility to the infrastructure provision

6. Dwellers response : documentation of the existing use of internal and external spaces

7. Structural changes (alterations and extensions made)

8. Performance of building materials used in the existing as well as in the transformations of structures

The questionnaire also included several other points like the period of migration, the reason behind the migration decision, the attitude, hopes and aspirations of the dwellers, etc.

With every questionnaire a basic plan was provided comprising the room and verandah. For every household that plan was worked on by the students and sketches were prepared to show how incremental developments are happening.

The questionnaire was prepared in Newcastle, verified and rearranged after evaluating critically by the teaching staff before it was finally made ready for the use of household survey in Dhaka.

9.6.5.1 Technical orientation of the questionnaire

The Computer Centre of the Bangladesh University of the Engineering and Technology (BUET) was approached. The programme organiser and the system analyst working there were consulted about the correct methodology to be adapted for data analysis. According to their advice the questionnaire was carefully coded and a special case number was assigned to each of them corresponding to each household. All of the probable answers of each question were also coded and 'column's (one or more as the case may be) were placed to put the option numbers.[1]

9.6.5.2 Printing and photocopying the questionnaire

The pages of the questionnaire were then printed in the printing department of the BUET; the pages were attached to make the set complete.

9.6.5.3 Selecting the university students

The students were selected mostly from the 3rd and 2nd year of the department of Architecture, BUET. They were accordingly oriented and informed about how to fill up the questions and to interview the

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[1] (Coding is a system of writing, in which numbers or letters are used to condense the answers of the households and other lengthy data. All verbal replies in any questionnaire should be coded accordingly before the beginning of computer analysis).

households. They were approached and guided at the beginning of the every survey session, by the author.

9.6.6 Fieldwork proce dure

In the absence of dependable and up to date data on households and housing characteristics, the author had to concentrate on collecting relevant information concerning the lower income housing of the city in general. This involved administrative and official formalities which in many cases were also time consuming.

The chronological sequence of the main fieldwork and data collection followed by the author is as follows:

1. Investigation of Dhaka's density:

   Included the investigation of demographic facts with respect to the respective police station areas in order to ascertain:

   I. The actual inner city population density;

   II. The pattern of growth in peri-urban areas in response to the population pressure;

2. Physical observation of the peri-urban areas around the city boundary:

I. Covering the accessible peri-urban areas to have an accurate impression of the physical characteristics, growth and response of the people staying therein;

II.Documentation of the observations by photography, drawing and mapping etc;

3. Household survey of special areas:

a) Mirpur b) Hazaribag and c) Jurain / Mirhazirbag

I. Interviewing around 250 lower-income households in different sections of Mirpur, around 90 households in each of the two areas of Hazaribag and Jurain.

Problems were encountered by the survey-team in the course of interviewing the households. A significant proportion among them, at the initial stage, were reluctant and rather suspicious about the queries. Some of them were scared about telling the truth, particularly in Mirpur when asked about the payments of rents to the Government office. Even there were two or three events of refusal in answering questions. However, the team had to spend more time to convince the households about the non-Governmental involvement and academic purpose of the interview. Suffering from this problem was less in Hazaribag and Jurain area.

Organising the work of eight students of surveying a little more than four hundred households and their housetypes, scatteredly distributed in several peripherial locations of the metropolis and covering more than 12 to 15 sq. miles area proved to be difficult. The time limit for the completion of the fieldwork was another challenge. Availability of the students was a crucial factor as they were only available at certain time during the week days of their academic term. On the other hand there was every possibility of the advent of an early monsoon which usually starts from the middle of every year; the extent of monsoon in hot-humid climate associated with incessant rainfall is usually followed by flood which could call a halt to the fieldwork almost immediately. And it is virtually impossible to get an access or approach to the lower income settlements or the slum-clusters while they are partly immersed or fully inundated.

While the survey was in progress, interim sessions were arranged with the students in order to ascertain the progress of work and identify problems arisisng from the filling up of the questionnaire.

Transportation to the study areas was also a problem. Although most of the areas were approachable by public transport this is usually extremely overcrowded and impossible to obtain in weekdays. Hired taxis and autorickshaws were costly for everyday use. Rickshaws were cheaper but very time consuming for long

distances. Mostly, the survey team covered the distances partly by public transport and partly by rickshaws, which also were time consuming.

II. The household survey was associated with the recording of dimensions on a sketch plan showing the original structure provided with each questionnaire; permanent or semi-permanent structural changes (alterations and extensions), if any, made by the dwellers were also sketched on the unit plans with proper dimensions. Approach of each unit, boundary line of the property, location of the water reservoir and latrine were also pointed out on the plans. Position of the subrented rooms were also shown on the copies of the unit plans.

III. At the same time a series of photographs of selected households was made, covering the major aspects of:

a) the use of internal and external space; b) the way the users respond to the need, in the absence of infrastructural provision; c) use of materials in the transformations made; d) community facilities etc.

Some of the roof tops of the accessible buildings adjacent to the clusters provided good positions for taking photographs demonstrating birds' eye views. Settlements on the southern fringe areas mostly lying by the side of the main river were

photographed from the dinghy-boats hired by the author for the purpose. In general, photography proved to be a useful medium to depict the existing situation from different angles accurately and thus formed a quick and complementary method of data collection.

IV. At the next stage codings of all the verbal replies were scrutinised and verified as to whether those were placed correctly in the corresponding columns of the question asked. Mistakes were identified and corrected. Dimensions of the structural changes made by the dwellers were converted to simple decimals in order to make it easy and convenient for the computer data input system.

V. Entering data into the computer: Data concerning the household survey were fed into the computer available at the Computer Centre of the Bangladesh University of Engineering and Technology, (BUET), with the help of the enumerators working there. The data were entered into a file called 'data file' and afterwards recorded onto a magnetic tape. The tape was created on an IBM 370/115 with a tape drive of 3410, unlabelled file density being 1600 BPI EBCDIC. The data was later transferred to the main computer in Newcastle.

A few precautionary measures were taken to ensure that the data recorded in the tape were not lost during the journey in the

aircraft and the security checking in the airports. The tape was handed over to the security officer before the hand bags were checked.

4. With a view to understanding the role played by the concerned authorities on low-income housing:

I. by the Government and local bodies: Namely Dhaka Improvement Trust, Urban Development Directorate, Housing and Settlement Directorate, Dhaka Municipality and other related local Government agencies. II.by foreign agencies / organisations: UNDP and UNCHS, Asian Development Bank, USAID and other international agencies.

Over the past few years some of the above mentioned agencies were involved in making contributory efforts and activities on the issues related to the housing question of the lower income sector. Important among these are a study on the strategic planning and policy context adopted for Dhaka, completed in 1981, jointly funded by the Government of Bangladesh, UNDP and the Asian Development Bank (ADB) (details in chapter 1). Also, the United Nations assistance to Bangladesh in physical planning , housing and urban development was provided mainly through a series of UNDP projects executed through the UNCHS (Habitat). The latest one in this series -- The Housing Development Project -- provided policy formulations on integrated urban development

with emphasis on housing and slum upgrading. The second phase of this project was going on in 1986 at the same time as the fieldwork was carried out.

Observations were made therefore, to evaluate the objectives and implementation stages of the work along with its feasibility options. In several occasions formal sessions were attended in order to collect the views of the expertise involved in the projects.

5. Collection of general data on the following areas:

I. Information regarding the census data, urbanisation, housing and household situation etc. from the Bureau of Statistics;

II. Land prices and information about the performance of the land market from different sources including office of the ADC (land revenue);

III. The existing land use of the city and related reports, publications and documents on the peri urban developments strategies of the city, from the DIT;

IV. Dissertations and theses and other documents, reports, maps and drawings etc. which were considered relevant to this

research from many other sources like the Urban Development Directorate, Department of Urban and Regional Planning (BUET), Housing and Settlements etc.

6. Interviewing personnel: Apart from surveying the households, individuals from the following organisations and agencies were also interviewed. Among those interviewed were:

a) The town planners, engineers and authorised officer of the Dhaka Improvement Trust;

b) Planners of the Urban Development Directorate;

c) Project Manager, Housing and Development Project; UNCHS (Habitat);

d) Architects of the Department of Architecture, Ministry of Works;

e) Academicians and members of the teaching staff from the: (i) Department of Geography (Centre for Urban Studies), Department of Economics, Department of Nutrition and Institute of Statistical Research and Training, University of Dhaka; (ii)Department of Architecture and Department of Urban and Regional Planning, Bangladesh University of Engineering and Technology, Dhaka.

9.6.7 Computer analysis

With the help of the computer centre of the University of Newcastle, the variable labels and value labels were assigned against the questions and replies received from the household survey as per the requirement of the computer programme.

The computer programme for the statistical analysis of data -- the SPSSX, which is available for the main computer MTS of the University of Newcastle, was used for the purpose.[1]

The system was adopted in order to determine the mean, standard deviation, frequency distribution, histogram, barchart and similar other statistical derivation. Values with respect to these were determined seperately for the three different areas and compared with each others. Cross-tabulations of many other necessary variable labels were also made.

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[1] (SPSSX is a powerful computer programme capable of running a wide range of calculations necessary for the statistical analysis of the data. Copyright : SPSSX inc., 1983. Suite 3300, 444 North Michigan Avenue, Chicago. IL 60611, USA).

REFERENCES

[1] Suggestions and guideance were recieve on the pilot and the main household surveys from Dr. Ashrafuddin Ahmed. Asstt. Professor Institute of Statistical Research and Training (Dhaka University) during the fieldwork.

[2] A small grant was obtained from the University Grants Commission, Dhaka for the said purpose.

CHAPTER TEN

ANALYSIS OF SURVEY FINDINGS: CASE STUDIES OF LOWER-INCOME SETTLEMENTS IN THREE PERI-URBAN AREAS

10.1 INTRODUCTION

The findings of the fieldwork and household survey, which was undertaken in three peri urban locations of the metropolis in 1986, are presented in this chapter. It has been mentioned previously that a total number of 424 households were interviewed (comprising 250 households in Mirpur and around 90 in each of Hazaribag and Jurain respectively). The questions (totalling 45) on the whole, covered socio-economic condition of the households and various aspects of the physical condition, use of internal and external spaces of their living units (details are described in chapter 10). Plans of every dwelling unit surveyed, have been made and transformations are shown in the sketches, wherever applicable.

We have presented some of our findings in smaller divisions ; for example, while describing the features of alterations and extensions of the dwelling units, the findingsare arranged in deciles in table 10.11, 10.12 and in 10.14.

As was revealed from the income and expenditure of the households, most of their incomes are very low, and thus, they were unable to go

for structural changes beyond a certain limit (say 100 sq. ft.) in many cases. It was, therefore, necessary to ascertain the number of respondents, against the areas of alterations/extensions in deciles (instead of in larger ranges); eventually this was found helpful in determining accurately the level where most of the households were responding and why.

The early part of this chapter includes brief background information on the settlements surveyed with their locations.

10.2 THE BASTUHARA SETTLEMENTS OF MIRPUR: BASIC FEATURES

10.2.1 Objectives, planning and implementation

Apart from the settlement described in the preceding part of this work, several other projects were also undertaken in Mirpur area. These include Government and semi-Government investment like the construction of about two thousand flats (multi-storied walk ups) for Government employees and new squatter resettlement projects.

Among these, one of the important projects undertaken was the Bastuhara scheme.[1]

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[1] ('Bastu' (home) 'hara' (less) -- a Bengali word signifying the homeless population).

After the emergence of Bangladesh there had been been a continuous drift of rural population to the cities in desparate search for means of survival. This influx was accentuated by the 1974 famine and other natural calamities. The continuing nature of migration towards the cities made a tremendous claim on the over-utilised civic facilities.

At the end of 1974, approximately one-eighth of the total population of Dhaka, most likely about 170,000 were living in squatter settlements beside railway lines, parks, footpaths etc. (more in chapter 3, section 3.3.1). Officially they were called 'Bastuhara' and by the year 1974, they were able to make the authorities quite concerned about their existence within a major city.

Observing the trend of migration as well as the urban agglomeration after 1971, a scheme was undertaken at Mirpur by the Ministry of Relief and Rehabilitation, later executed through the agencies of the Housing and Settlement Directorate, in 1972-'73. The aim was to provide 'only a shelter' for the settlement of the shelterless (Bastuhara) population. the word 'shelter' has been described as mere provision of a single room which is semi-permanent in nature (Project Proforma, Housing and Settlements Directorate)(1).

A total number of 4304 units were provided in different sections of Mirpur. As has been pointed out in the layout plan of Mirpur,

section 4, the northern district of section 6, two specific sites of section 12 (and section 9), and some parts of section 11 are selected as the key locations of the project. This implies that the land acquired for the project was collected from wherever it was available in that area (fig. 10.1a, 10.1b and plate 10-1).

In the mean time an unfortunate event took place which showed a significant influence thereafter. During the first week of January, 1975, just after the declaration of an emergency by the Government, the squatters of Dhaka were rounded up and removed to three peripheral settlement sites.

Although the main purpose of the construction of this project was the settlement of the Bastuhara population, it is not very clear why they were not re-settled there afterwards. It has been argued that the low paid Government employees are also the worst sufferers in terms of managing rented accomodations around the metropolis; accordingly, the priority was given first to the low-paid Government employees and about 25% (1124 units) of the same kind of shelter, earlier constructed for Bastuharas, were made available for this group (Housing and Settlements Directorate, 1979; op. cit.).

It was realised by the authorities that since the units were 'only to provide a shelter', they were of rudimentary kind and therefore were 'unsuitable for the family accommodation with privacy and other facilities required'. Thus some degrees of remodelling was required

urgently to convert the one-roomed shelter to what can be called a suitable family accommodation.

An order was received in early 1975 (vide memo no. 47(4)-SW dated 16.1.75) that some of those quarters should be alloted to class III and class IV Government employees with two living rooms. Later the allotments were made through the Deputy Commissioner of Settlement. To accommodate the class III and class IV Government employees thus, a revised scheme was prepared; the proposal being the conversion of 1124 single tin-shed units to 562 quarters having two habitable rooms per quarter. Details of conversion are given later in this chapter (section 10.2.2.2).

10.2.2 Profile of accomodation units

10.2.2.1 The original provision

The units were arranged in rows in different sections. Roads and thoroughfares are formed according to the linear type of layout pattern. Although single-roomed, two units are joined together in one individual structure (figure:10.2).

Each of the twin-roomed structure consists of two habitable rooms and two verandahs adjacent with each room, together totalling 495

sq.ft approx. or 45.5 sq. metres; dimensions of the plinth being 25'-10" X 19'-2". The habitable rooms are about 18' in length and 8'-9" wide or 247.5 sq.ft in area, excluding the verandah. The verandah is, at the same width of the room (8'-9"), the dimension of the other side being 6'-2", giving an area of about 54 sq.ft. The room is approached through the verandah.

Service facilities included only the latrines, and were provided for a group of households as community facilities located after every five rows; there was no water supply provision in the units or in the latrines.

10.2.2.2 Conversions made by the authority

As mentioned earlier, the units were converted in 1975 as per the decision of the authority to make them houses suitable for family accommodation. Both of the twin rooms which were existing in the form of two separate units were combined to make an extended house, doubling the single unit plinth area.

The main components of the alterations included conversion of one of the two verandahs to a kitchen with a door and a window, a door connecting the two living / habitable rooms, a boundary wall around the individual house with a gateway and infrastructure provision like water supply and sewerage along with a wash room and latrine, approach road and internal electrification; also provided are surface

drains /channels, street lights and external roads without tar surfacing around the house.

The number of units converted in the physical programme of this scheme are as follows:

	no. of existing semi-pucca units	number of re-modelled units
Section no. I	196	98
Section no. II	318	159
Section no. IV	610	305
	1124	562

source: Housing and Settlements (1979). Project Proforma.

10.2.2.3 The users response

It is now relevant to mention the limitations, regarding the use of the houses, imposed by the settlement office, Ministry of Public Works and Urban Development on the Government employees who received rental allotments. The conditions include the following:

1. the premises can not be used by anyone other than the family members of the allottee;

2. the property as a whole or in part can not be sublet;

3. occupiers are not allowed to keep domestic animals like cows, goats or dogs;

4. the property is liable for inspection by an officer of the office mentioned above at any time;

5. a rent of Tk. 50/00 (approximately 1/00 pound sterling, 1986 value) per month is to be paid by the allotte forthe property;

6. additional payments are to be made for water, electricity, urban property and municipal taxes, periodically;

7. the occupier is made fully responsible for the maintenance of the property and is not allowed to make any alterations or structural changes.

It is also worth mentioning that the allottees who own a house within 20 miles radius from the Bangladesh Secretariate, were not eligible for an allotment.

It will be evident from the forthcoming discussion that the most common violation of conditions occur through making structural changes by the users.

10.3 LOW INCOME SETTLEMENTS OF HAZARIBAG AND JURAIN

The survey areas of Hazaribag are located adjacent to the Hazaribag Road along the west and north-western fringe of the city; while Jurain is located at the other south-east extreme. Settlements surveyed in Jurain area are along the eastern parts of the main railway line (Dhaka-Narayanganj) passing through (see figure 10.1, for the locations).

The lower income settlements surveyed are in form of slums mostly on low lying areas. Some of the clusters are located on top of isolated mounds formed through landfilling and rete ntions with local devices, as observed in Hazaribag (plate: 10-2). Others are inundated for months during the monsoon. These settlements are essentially surrounded by waters and are approached by boats at that time; while surveying (in the early '86), some of the clusters in Jurain the areas were approached by the team through bamboo-pole structures (plate 10-4).

While only the land is provided by the owners, the dwellers themselves build their own shacks in many cases, with easy available cheap materials worn out quickly. Essentially these settlements are without any basic infrastructural facilities; the dwellers depend on the waters of nearby ditches or on the flood-water for bathing and wash; drinking waters are collected either from nearby tubewells or standpipes.

The lower income population in Hazaribag were found living in the midst of an extremely polluted environment caused by the wastes and refuses of the tanneries in this belt. The master plan report of 1958 argued that there were very limited room for the expansion of this noxious industry and its growth must be restricted (DIT master plan report, 1958; section 216). Besides its recommendation to improve the drainage situation, still, the effluents from the tanneries are being discharged through the open channels at the side of the road into the river waters, on which the slum population depend for their everyday water needs (plate 10-3).

10.4 OBSERVATIONS, FINDINGS AND ANALYSIS OF THE SURVEY WORK

10.4.1 Area of previous residence

A significant proportion of the households (around 70%) in the peripheral areas surveyed, were found to have moved from previous living areas within the inner city. The remainder (29%) were migrants from outside the region / district. This phenomenon is in conformity with the hypothesis drawn before that the lower income dwellers are eventually forced to disperse from the core areas to the peripheries due to the lower rent or cheaper shared accommodation facilities offered in these areas. About 73% confirmed this as an important reason (table 10.a and 10.b).

Table : 10.a : Area of previous residence

	cases	%	cum. %
within the city	298	70.4	70.4
outside	122	28.8	99.3
other area	3	.7	100.0
missing	1	.2	
Total	424	100.0	

Table : 10.b : Reason for moving to this area

	cases	%	cum.%
cheaper house	127	30.0	30.5
low rent	177	41.7	73.1
job proximity	66	15.6	88.9
sharing	23	5.4	94.5
community facilities	1	.2	94.7
office accomodation	22	5.2	100.0
missing	8	1.9	
Total	424	100.0	

10.4.2 Tenure Situation

The majority of the households within the samples were tenants; the units under tenancy can be broadly classified in three different categories :

i) rental accommodation from the Government ii) rental accommodation from private owners and iii) sub-rental accommodation from the occupiers

In the sample households, about 46% (194 cases out of 424) were staying in rental accomodation provided by the Government; 41% lower income families were occupying accommodation rented from private owners.

In Mirpur, the units were allocated to the households by the Government. Government employees were provided with a number of upgraded units, others with just a single room plus verandah. Households staying in Government accommodation (rental) were found predominantly in the Bastuhara units distributed in different sections of Mirpur. 194 households out of 251 were located in these units. (see distribution of tenure condition : Table 10.1).

Subrenting opportunities are high in Mirpur, as, within the vicinity of the units, the users can go for increasing their room numbers through extensions. Although, we have taken interviews of 56 subtenant households (22.3%) in this category, but the occurrences appears to be higher than the sample indicates.

Among the sample households of Jurain and Hazaribag, almost all were found to be staying in private rental accommodation (98.9% in Jurain and 100.0% in Hazaribag).

Table : 10.1 : Areawise distribution of tenure

	Mirpur		Jurain		Hazaribag		TOTAL	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
(rented from)								
Government	194	77.3	--	--	--	--	194	45.8
private owner	--	--	86	98.9	86	100.0	172	40.6
occupier	56	22.3	--	--	--	--	56	13.2
	1	.4	1	1.1	--	--	2	.4
areawise total:	251	100.0	87	100.0	86	100.0	424	100.0

10.4.3 Rental Structure

Allocation of units in Mirpur were provided by the authority on rental basis at the rate pf Tk.30/00 to Tk.35/00 for single units (equivalent to & 0.6 to &0.7 per month). Compared to the market rate of a semi-permanent structure comprising a room and verandah of this kind, the amount of rent is extremely low; in fact it is a subsidised rate offered by the authority. About 77% of the dwellers were paying rent at this rate, as revealed in the table 10.2a below.

The higher amounts which appear in the table, are actally being paid by the sub-rented occupiers; the rents vary from Tk.100/00 to Tk.250/00 depending on room sizes and number. 19 cases were found paying Tk.150/00, 15 at the rate of Tk.200/00 for single rooms; 5 cases were found paying Tk.250/00 (as shown in the crosstabulation of rent by no of rooms used by the households in Mirpur, Table 10.2.C, appendix -N).

Table : 10.2a : Rent paid by households per month : Mirpur

	Value (Tk)	no.of cases	%	cum.%
occupiers rented from the Govt. :	00- 35	192	76.8	76.8
	36- 75	3	1.2	78.0
subrented :	100-125	13	5.2	83.2
	126-150	19	7.6	90.8
	151-175	1	.4	91.2
	176-200	16	6.4	97.6
	201-250	5	2.0	99.6
	251-275	1	.4	100.0
	missing	1	.4	
	Total	251	100.0	100.0

Hence it is obvious that the amounts paid by the subtenants are, in general, 3 to 8 times higher than those paid by the original occupier, who can keep one or more sub-tenant households distributed in various rooms he has added; this amounted to a substantial increase in their monthly income.

Households in Jurain area were paying rents at higher rates and in a wider range; about 27% were paying Tk.100/00 (2/00 pound sterlings approximately), per month for single roms. Others were paying varied amounts ranging between Tk.100/00 to 300/00, most of them for single rooms (97.7%). Rent paid by 20 households in one area was Tk.250/00; 10 were paying as high as Tk.300/00 per month, all for single rooms (table 10.2.D). In Hazaribag area, 94.2% households (81 cases out of 86) were paying rents in the same range starting from Tk.40/00 to Tk.250/00 (see table 10.2.E, crosstabulation of rent by no. of rooms occupied in Hazaribag).

Table :10.2 b : Rent paid by hhs per month: Jurain, Hazaribag

	Jurain		Hazaribag	
Value (Tk.)	cases	Percent	cases	Percent
00- 50	---	----	4	4.7
51-100	26	29.9	33	38.5
101-150	10	11.3	31	36.0
151-200	9	10.3	15	17.5
201-250	31	35.6	3	3.5
251-300	11	11.5	-	----
301-350	1	1.1	-	----
Total	87	100.0	86	100.0

In one example, within the low lying areas of this region, reclaimed land subsequently subdivided in smaller dimensions were put to rent without any provision of a shelter-shack.

10.4.4 Employment and Income

The occupational structure is characterized by relatively small groups of Government and semi-Government service holders on the one hand and a large majority of self-employed workers and private service-holders on the other; some smaller groups of skilled and un-skilled labourers are also present. As is apparent from the next table (table 10.3), the proportion of self-employed workers is higher than other categories (114 cases, 26.9%).

Among the households of Jurain/Mirhazirbag, about 50 percent household heads were self employed. Self employed in this area mostly included Rickshaw pullers who generally do not own a cycle-Rickshaw .

Table : 10.3 : Occupational Structure of hh head

	Mirpur		Jurain		Hazaribag		TOTAL	
Categories	cases	%	cases	%	cases	%	cases	%
Service:								
Govt. offices	58	23.1	2	2.3			60	14.7
Semi-Govt. offices	37	14.7	1	1.1	4	4.7	42	9.9
Private firms	68	27.1	8	9.2	10	11.6	86	20.3
Self-employment:								
Informal/miscell.	22	8.8	43	49.4	49	57.0	114	26.3
Domestic job	2	.8	2	2.3	2	2.3	6	1.4
Shopowner	16	6.4	7	8.0			23	5.4
Contractor	1	.4	-	- -			1	.2
Transport business	3	1.2	1	1.1			4	.9
Supplier	4	1.6	1	1.1			5	1.2
Unskilled job	7	2.8	12	13.8	9	10.5	28	6.6
Skilled job	22	8.8	8	9.2	9	10.5	39	9.2
missing	11	4.4	2	2.3	3	3.5	16	
Total areawise:	251	100.0	87	100.0	86	100.0	424	100.0

They borrow or rent the vehicle from local Mahajans, who have quite a number of rickshaws in their possesion, which are leased to the pullers usually for a half-day for Tk.20/00 to 25/00 irrespective of the earnings made by the puller (Table 10.3).

In Hazaribag, the percentage are even higher (57%). Other types within the self employment included sellers, hawkers, brick breakers etc. appeared in varied numbers. Also, the nature of self-employment implies a wider category than in Mirpur. A shopowner, a supplier/contractor, or a rickshaw maker/repairer may also belong to the same category. In that case the total number of self-employed would obviously be the highest (236).

The missing values in the table are characterized by household heads who are out of work (retired, unemployed etc.). Among the unemployed, generally aged households are found to be dependent on the income of their spouse or children. Some of the retired persons were enjoying pensions and supplemented their income through extra informal work or small scale business, etc. In one case in Mirpur cantonment (section 9),a young man was surviving on the income of his father-in-law.

As has been discussed earlier, households earning Tk.1800/00 or less are considered as being in the lower income category in this research (see chapter 4, Income Distribution Pattern, concluding section). We have attempted to observe and investigate the income and expenditure of households around this income bracket with respect to their ability to afford housing.

Table 10.4 represents income groups divided at regular ranges of Tk. 250/00. Among the lower income households we surveyed, 80.6% belonged to income groups of 4, 5 and 6 (121, 85 and 136 cases respectively).

18 cases of group 8 (income range Tk.1751/00 to 2000/00) were also included. These cases are of larger household sizes; for example, in group 8, 13 cases out of 18 had 6 to 8 members in their households (see crosstabulation Table 10.3.A, appendix-N). This indicates that since the household sizes are larger in these cases

Table : 10.4 : Income groups divided in 250

Group	Value in Taka	no. of cases	%	cum.%
1	1- 250	2	.5	.5
2	251- 500	6	1.4	1.9
3	501- 750	21	5.0	6.9
4	751-1000	121	28.5	35.5
5	1001-1250	85	20.0	55.6
6	1251-1500	136	32.1	87.7
7	1501-1750	31	7.3	95.0
8	1751-2000	18	4.2	99.3
9	2001-2250	2	.5	99.8
10	2501-2750	1	.2	100.0
	missing	1	.2	
	Total	424	100.0	100.0

their per capita income remains similar to the previous cases in other income groups (around Tk.250/00 in group 8, similar to other groups). Also, increase in their monthly income by Tk.250/00 or 500/00 (which is only about 5/00 or 10/00 pound sterlings per month), can be considered as a bare minimum compared to the expenditure of these households; therefore in effect it is relevant to include them within the lower income bracket.

10.4.5 Household Expenditure

In order to ascertain the difference between the income and expenditure of the households, if there is any, we have investigated the nature of expenditure.

In certain cases the expenditure amounted to more than the income. This has been illustrated in table 10.4.A (appendix -N) showing the crosstabulation of income and expenditure of the households.

Within different income range the percentage varied. In income group 4 (Tk.751/00 to Tk.1000/00), about 31% households (37 out of 121) showed the expenditure was more than the income by Tk.250/00. Similarly, within income group 5 (Tk.1001/00 to Tk.1250/00) about 35% households and in group 6 (Tk.1251/00 to Tk.1500/00) about 18% households were identified with expenditure figures more than their incomes by Tk.250/00.

A few cases were found with expenditure figures of Tk. 500/00 more than income.

It is apparent that the expenditure pattern of the households is strongly limited by the small income they can make. Most of the households in each income catagory stated their expenditure figure within their earnings (above or around 57%, except in group 7 where it is 54.8%). Therefore, the concept of considering the expenditure as a virtual substitute for the income is not necessarily applicable here.

Expenditure with others increased mostly by smaller amounts, which can be considered as marginal variation. As many households were self-employed (see nature of occupation, section 10.3.4), their

incomes were not fixed; in some cases where households had other extra sources of income, usually informal, these had definitely resulted in an income variation (this also included seasonal earnings from properties in their villages).

Another reason lies with the tendency (commonly occurring with households) to deliberately show their expenditure higher than their income when replying to the questions; they view the survey with some apprehension and tend to show their expenses higher. Another reason is that the income, which appears as a whole, is very definite; on the other hand expenditure contains a number of sub-heads and fractions; we have sensed a certain degree of ignorance by the households in expressing the expenditure figures corresponding to each component; for them it was almost impossible to determine their expenses in rigid mathematics.

Moreover, compared to the market prices of daily needs, for an average household of 4 or 5 members, the amount of Tk. 250/00 (approximately 5 pounds only), per month is a bare minimum which can not make any significant change in their ability to afford. Furthermore, if expenditure is taken as a virtual substitute for their income, this would not shift their income status effectively from a lower category to a higher one.

10.4.6 Household Composition

A household is defined as a group of people who normally eat and live together. We have used the definition in order to make comparison including all the members who depend on the same income of their particular household. They were confirmed by the household head -- to be counted as part of the household -- when he was interviewed. The distribution of households of different sizes are shown in table 10.5.

Single person households were very few; we could locate only three cases in our fieldwork. Most of the households however, consist of 4 to 6 persons (64.2%). If the number of 7-person households are added, the percentage becomes considerably higher(77.2%). 5-person appears to be the model household size (24.3%) followed by 4 and 6 persons households having nearly similar occurrences (19.6%, 20.3%). (See barchart,TOTREL)

The mean size of households covering all the three areas is 5.11 persons per household. This figure, as follows, varied only slightly in the specific areas :

Mirpur (covering 3 sections): 5.21, Jurain: 4.57, Hazaribag: 5.30.

Many of the households are found to incorporate extra members from their relatives or friends. This represents a social custom which is

Table : 10.5 : Number of relations/ members in hhs

members	cases	%	cum. %
1	3	.7	.7
2	16	3.8	4.5
3	48	11.3	15.8
4	83	19.6	35.4
5	103	24.3	59.7
6	86	20.3	80.0
7	55	13.0	92.9
8	30	7.1	100.0
Total	424	100.0	

very common in practice and has increased the average household size, particularly in Mirpur. In general, the average household size in Dhaka region was 5.82 in 1974 while that for 1981 has increased to 6.08 (BBS, Statistical Year Book, 1984-'85. p. 153.).

10.5 PHYSICAL ASPECTS

In Mirpur, the units were allocated to most of the dwellers with just the room -- even without the provision of infrastructural facilities. Except for those improvised for the Government employees, there were no demarcation of boundary or fencing corresponding to the units. Mostly these units remained in that state until they were occupied. Since there were no specific boundaries with the initial provision, plot sizes here correspond to the boundary line / property line as extended by the households themselves.

Table : 10.6 : Rooms/plot sizes with the units in 3 areas

value sq. ft.	Mirpur cases	Mirpur %	Mirpur cum. %	Jurain cases	Jurain %	Jurain cum. %	Hazaribag cases	Hazaribag %	Hazaribag cum. %
26- 50				6	6.9	6.9	6	7.0	7.0
51- 75				38	43.7	50.6	20	23.2	30.2
76- 100				29	33.3	83.9	40	46.5	76.7
101- 125				3	3.5	87.4	7	8.2	84.9
126- 150				7	8.0	95.4	4	4.6	89.5
151- 200				1	1.1	96.6	3	3.5	93.0
201- 250	5	2.0	2.6	1	1.1	97.7	2	2.4	95.3
251- 300	25	10.0	15.7				3	3.5	98.8
301- 350	18	7.2	25.1	1	1.1	98.9	1	1.2	100.0
351- 400	12	1.2	31.4						
401- 450	16	6.4	39.8						
451- 500	20	8.0	50.3						
501- 550	32	12.8	67.0						
551- 600	22	8.8	78.5						
601- 650	11	4.4	84.3						
651- 700	8	3.2	88.5						
701- 750	7	2.8	92.1						
751- 800	4	1.2	94.2						
800-1000	5	2.0	96.9						
1000- up	6	2.4	100.0	1		100.0			
missing	60	---							
Total	251	100.0		87	100.0			100.0	

note:(1)the cumulative percentages refer to valid cases only.
(2)the missing cases in Mirpur indicates mostly the no. of subtenant households who were not responsible for the extended plot sizes.

In Jurain or Hazaribag, where most of the households were found to be staying in single room accommodation, there are no such areas surrounding their living units. The overall area used by these households is referred to in the analysis as the indoor room-area used by them. Compared to Mirpur, where the units covered 247.5 sq.ft area, these single roomed units were much smaller in their size, almost all of them less than 150 sq.ft (95.4% in Jurain and

89.5% in Hazaribag respectively). Yet overlapping family activities are carried on within this space. Higher rents have also been paid for them. In order to describe the indoor spaces precisely, the room sizes are shown in smaller ranges for Jurain and Hazaribag (table 10.6).

About 84% units in Jurain covered 100 sq.ft. or less which included about 51% which cover only 75 sq.ft. or less. 6 households were also found staying in 45 to 50 sq.ft. rooms each.

The situation did not differ significantly in Hazaribag, where about 77% of the units covered up to 100 sq.ft. including 30% of the units covering up to 75 sq.ft. only. 3 units were found with areas between 150 sq.ft. to 200 sq.ft. and other 6 units up to 323 sq.ft.(see table 10.6 and appendix-P).

In any case these spaces are not capable of accommodating household functions or activities where the average household size is 5.1. A corner of the single room they occupy is used for cooking and dining purpose, whereas the other side for sleeping usually with a single bed. They are not squatters in the true sense, yet they survive in living conditions which in every respect correspond to those of squatters.

The spaces are not only small compared to the standards described in the customary policies, but also a challenge with respect to

spaces required for the minimum level of living. The building standard prescribed by the Planning Commission suggests 400 sq.ft. for the lower income Government families, irrespective of their family size(2), but the spaces in which these families are dwelling are far lower than the prescribed requirements. The question of inadequecy of the space is not relevant in their cases, because the shelter crisis is such that it is absolutely impossible to find a better and affordable alternative.

10.5.1 Occupancy of rooms

The largest portion of households were found to occupy one room (276 cases, i.e 65.1%).(Table 10.7).

Households occupying a single room were found in greater percentage in Jurain (97.7%). This was followed by Hazaribag area where 94.2% households occupied one room. It should also be noted that, dwellers in these two areas are mostly renting rooms from private owners (see table 10.7).

Only in Mirpur . does room occupancy vary in a distributed way. Single roomed households were about 44%, followed by 30.7% occupying two rooms and 22.3% occupying three rooms. This sort of distribution occured in Mirpur because many of the dwellers could meet the requirements of more rooms by alterations and extensions of their houses; this was again possible as they were not staying in privately

owned rental accommodation.

10.5.2 Sharing of rooms by 2nd households

In Mirpur, due to alteration and extensions made by many of the dwellers, room numbers have been increased, allowing other households to stay with the original tenants. Since their incomes are far below the basic needs, for the families, an obvious tendency of subletting room(s) or extra space(s) is observed among them. However, this was only possible with the dwellers who had more than one room, from which they could let out one or more if they intended. The question of alterations and extensions or adaptation of the units to the needs of the users does not necessarily apply to the subtenant households.

As was revealed from the table 10.1r(type of tenure) below, an existing number of 56 subtenant dwellers were staying with 194 originally allotted households from the Government. In order to determine the rate of subtenanacy a comparison has been drawn, against the number of households who were actually capable of offering subrented accomodations. Table 10.8 shows the number of rooms occupied by households in Mirpur; where it is revealed that a maximum of 110 households were occupying one room only. On the other hand, a total number of (77+56+7+1=) 141 households were occupying more than one room.

Table : 10.7 : No of rooms occupied by households

ROOMS	Mirpur cases	%	Jurain cases	%	Hazaribag cases	%	TOTAL cases	%
1	110	43.8	85	97.7	81	94.2	276	65.1
2	77	30.7	2	2.3	4	4.7	83	19.6
3	56	22.3			1	1.2	57	13.4
4	7	2.8					7	1.7
5	1	.4					1	.2
TOTAL :	251	100.0	87	100.0	86	100.0	424	100.0

Table : 10.1r: type of tenure in Mirpur

	FREQUENCY	PERCENT
rent from Govt.	194	77.3
subrented from occupier	56	22.3
missing	1	.4
TOTAL	251	100.0

Table : 10.8 : rooms used by households: Mirpur

Rooms	cases	percent	cum.%
1	110	43.8	43.8
2	77	30.7	74.5
3	56	22.3	96.8
4	7	2.8	99.6
5	1	.4	100.0
Total	251	100.0	

The units were all identical comprising only one habitable room (see section 10.4.7, the units as built). Hence the dwellers, now staying in more than one room have increased their room numbers through extensions or alterations. It is, therefore, obvious that these 141 households possesing more than one room have accommodated 56 subtenant households; the rate of subtenancy thus forms about 40%.

It should be mentioned here that the above percentage, is likely to be the minimum of the actual existence of subtenancy in the area. Being an illegal activity under the conditions set out in the lease document by the authority, many households denied this practice. Also, many were found saying that they have distributed the rooms among their family members or friends and relations; again there were visible signs of subtenanacy (like isolated rooms locked from outside); in several cases we were refused permission to investigate that issue. On the whole, it was impossible to detect the actual number of these cases.

10.5.3 Availability of external spaces

The opportunities for extensions are also determined greatly by the availability of external spaces surrounding the units. The external spaces are all public and vary in amount according to the placing of the units with respect to each other. In some cases, despite their strong desire for making extensions, it was not possible because of the shortage of external spaces around the units.

For example, the extensions were found to be carried out extensively with the unit(s) adjacent to the common latrines. It happened so because the back walls of the latrines were considered as a readymade boundary line, with extensions made conveniently against their walls. It was also advantageous for the occupants to get the latrines attached to the property. Extensions of about 5 to 6 rooms

were found in these locations, particularly in section no. 7 . Where the common latrines were not provided the scope for extensions with larger areas was greatly reduced. In these cases, as the boundary is located near to the units, extension of rooms were reduced to a maximum of 3. Illustrations in figures 10.3.

10.5.4 Household size with respect to room occupancy

This has been examined through the crosstabulations of the number of persons in a household by the number of rooms used by them. Crosstabulation between the two variables shows that most of the occurences are with single roomed households. The number of single roomed households increases with the subsequent increase in their sizes (table 10.8.A). This increase in household size is continued upto 5; afterwards the number of cases start to decline with household size of 6, 7 or 8.

For example, in 3-member households, 39 cases among 48, were living in one room. That constitutes about 81.3%. In 4 and 5 member households the percentage is still higher: about 80% and 68% respectively.

The percentage starts to decrease with 6-member households and onwards. As in the cases of 6 member households 41 cases were staying in one room (more than 47%); it is about 57% in 7-member households, and 37% in 8-member households.

It should also be noted that the economic condition does not permit most of the households to have more than one room. This seems to be the most important factor in the existing high occupancy per room. Nevertheless, there seems to be a limit of overcrowdedness in one room which upto which is acceptable for them within their socio-economic perspective. The upward trend declines downwards after an occupancy of 5 persons in a room.

10.5.5 Structural Changes Occurred

It is already mentioned that structural changes mostly occurred in Mirpur, with the households who were allocated accommodation by the Government. In this analysis structural changes are classified in two aspects : a) alterations and b) extensions.

a) Alterations, in our analysis here, are defined as internal changes to the layout of the flats (or units) without increasing the overall nett floor area except by incorporating the balcony (or verandah) spaces (Tipple and Wilkinson, 1985).(3).

b) Extensions, however, exclude the incorporation of the balcony (or verandah) spaces and are defined as built additions which add at least one functional component per unit. Items they involved in the survey, are mentioned below, with the corresponding frequencies of their occurrance (Table : 10.9).

Table :10.9: components of structural changes : Mirpur

Items of alterations/extns.	count	% of responses
1 partition in living areas	26	3.8
2 door between living areas	16	2.3
3 windows in the verandahs	2	0.3
4 walling in the verandahs	126	18.3
5 an extra space for kitchen	96	13.9
6 construction of a bathroom	114	16.5
7 construction of a latrine	60	8.7
8 construction of a water reservoir	23	3.3
9 fencing the compound	76	11.0
10 backyard kitchen garden	4	0.6
11 backdoor in the boundary fence	1	0.1
12 an animal shed	1	0.1
13 pavements/walkways		
14 installation of tubewells/standpipes	2	0.3
15 installation of electric posts		
16 construction of verandahs additional to the main structure	2	0.3
17 construction of rooms additional to the main structure	141	20.4
Total responses :	690	100.0

note: the valid cases were 187, excluding 64 cases which had no structural changes (total : 251).

Quite varied types of alterations and extensions were revealed in our survey. We were able to categorize 17 different components or items, starting from a small one such as an internal partition or fixing up a window, up to the extension of rooms, which was most frequent.

Maximum frequencies occurred with extensions in the construction of rooms (141), followed by the number showing walling in the verandahs (126); this implies the need for more living spaces among the households; similar observations were also made with the

extension of rooms in Helwan, Egypt (Tipple and Wilkinson, 1985); the need for kitchen space as well as for water supply and sanitation are also established accordingly with the frequencies. The total is for the number of the components having alterations or extensions in some form or other (fig. 10.3).

In Mirpur, the actual covered area of the units, as provided originally, was approximately 250 sq.ft. The total covered area after making extensions appeared in three catagories. 70.1% of the households (176 cases) performed extensions; 106 cases (42.2%) only extended upto 100 sq.ft. (Table: 10.10) while 30 cases (12.0%) added more than 200 sq. ft.

Table : 10.10 : Covered area of additional work

covered area	cases	percent
not applicable	75	29.9
upto 100 sq.ft	106	42.2
101-200 sq.ft	40	15.9
201-500 sq.ft	30	12.0
TOTAL	251	100.0

10.5.6 The units as built

Each unit, as provided originally, consists of a habitable room of 17'-11" x 8'-9"(average) size, and an adjacent verandah 8'-9" x 6'-2", together totalling 247.5 sq.ft. or 23 sq.m. Entrance to the unit is through a door adjacent to the verandah. The plan as originally built is shown in figure 10.2.

Except for a few upgraded ones (which were later distributed among the Government employees of class III and class IV mostly), the units were provided only with the room, without any supply of water, electricity or gas. Units were arranged in rows. After every six rows, common latrines grouped in fours were provided, then again without any water source nearby.

Materials used were mostly bricks, for 5" walls of the rooms and a short column at the corner of the verandah. Windows were placed accordingly, two on the longer wall and one in the shorter. Corrugated iron sheets, fixed on timber frames were used for roofing.

External spaces are all public; there is no hierarchy of external spaces surrounding the units nor of the access routes. In fact, access routes were not provided and in many cases secondary roads are not paved. They are often water logged and choked with refuse. The external environment, as provided by the authority is, therefore generally depressing.

10.5.7 Profile of Extensions -- major components

An extremely high propensity for making structural changes were evident among the original dwellers. As was revealed from table 10.1: Mirpur, there were 194 cases of original allottees who rented the units from the Government. 187 cases were identified to have made structural changes, which determines that almost all of the

households (96.4%), carried out alterations and extensions in some form or other (Table : 10.10)

10.5.7.1 Rooms additional to main structures

We received responses of the dwellers against almost all of the components, except for item 13, about making pavements, walkways and item 15 on installation of electric posts etc. A maximum response of 72.6% was identified with the construction of rooms additional to the main structure; 141 additional rooms were made, from the 194 units, occupied by the originally allocated residents. Mainly two reasons are found for the higher percentage of extensions in these units :

1. responding to the demand for more spaces with the increase in the household size

2. income generating motivation by subrenting the extended rooms

10.5.7.2 Extension of rooms in relation to household size

Further observations are made through the crosstabulation of the persons in a household by the items of alterations / extensions (Table 10.10.A). It appears that most of the rooms(about 69%) have been extended by the households comprising 5, 6 or 7 members (35, 44

& 18 out of 141). Again it is these households who are subletting one of their rooms. Despite the need for more rooms to accommodate their own members, the households offered the extra rooms for subrent. The propensity for making extensions is high not only to respond to their own space requirement but mostly to increase their income by subrenting the rooms. The additional earnings help them to increase their ability to afford housing as well as improving their economic solvency. At the same time, subrenting room(s) at the cost of their own need would also mean the possibility of adding another room in future as income starts to increase.

Knowing the economic advantage of the subrenting process, some of the dwellers were still unable to extend because of financial limitations. An additional room of average size (about 8'-0" by 8'-0", i.e. 64 sq. ft. or 5.8 sq. m.) with semi-permanent materials like bamboo mats for walls and tin for roofing, costs no less than Tk. 4000/00, an amount which is certainly not easily affordable to every household, particularly for those falling in income groups 2, 3 and 4. Besides, some of the self-employed household heads were earning on daily basis, which is rather disadvantageous for making a substantial saving.

There are households who have arranged money from loans or from earnings through extra work. Seasonal earnings from villages or from some other sources are also not uncommon. Many women were working in newly built up garment industries and were making significant

contribution to their respective households. Many of them were thinking about making extensions at their earliest possible opportunity.

10.5.7.3 Extensions of rooms per household

In order to sort out the cases conveniently, the analysis is made with the extension of two categories:

a) extra no. of rooms constructed by the dwellers additional to the units

b) no. of rooms added through the alterations and extensions of verandahs

It is observed from the list of cases for the construction of rooms (item 17; full text attached in appendix-O) that of 93 households were responsible for the construction of an extra 141 rooms; among which 62 had made extensions by one room and 32 by more than one room.

These numbers only include the rooms additional to the main structure. Through the comparison with another list of cases, for walling up the verandahs (item 4; also attached in appendix-O), 55 cases were isolated out of 93 who altered the verandahs into rooms; these are rooms in addition to the number of rooms mentioned above.

This makes a total no. of (141+55=) 196 extra rooms provided by the same 93 households; which shows the average rate of extension is 2.1 rooms per household with the type of extensions of catagory (a).

Simultaneously, there are also households who have only converted the verandahs into rooms by providing the walls; these cases are treated separately. 71 verandahs were converted to rooms by 71 individual households in type (b). Added to the above figure it shows a total of (196+71=) 267 extra rooms, made by (93+71=) 164 households, making the average number of extension of rooms to 1.62 per household in Mirpur.

Extension of rooms is particularly important because it motivated the households into significant income generation. We have observed this particular component as having the highest priority in structural changes made by the dwellers.

Considering an average rent of Tk. 181/87 per room (see rental structures in section 10.3.3), this amounts to a total of Tk. 300/00 per month; by all means this is a substantial additional earning made by households mostly having their incomes in group 4, 5, 6.

10.5.7.4 Size of rooms extended

The size of extended rooms varied from 11.5 sq.ft to an upper limit of 126.75 sq.ft.; one extreme case of about 212.00 sq.ft. was also found (see appendix-P,(b),'size of rooms constructed' for details).

Nevertheless, rooms of smaller sizes were existing in the greatest frequency. For instance, 91% of the additionally constructed rooms were equal to or less than 105 sq.ft. About 71% rooms covered area no more than 75 sq.ft. including 51% having no more than 60 sq.ft (Table : 10.11)

The outcome in this table has significant implications in relation to the housing crisis existing in the area; also important is the amount of space shared by most of the households. Previously we found more than 43% households were staying in one room (Table 10.8), which implies that a larger proportion of this group, obviously, are staying in one room of above size. The average area covered by the extended rooms is about 70 sq.ft., only slightly more than a 8'-3" by 8'-3" square.

Table: 10.11 : Areas of extended rooms

value in (sq.ft.)	cases	%	cum.%
00- 15	1	.7	.7
16- 30	3	2.1	2.8
31- 45	22	15.6	18.4
46- 60	46	32.7	51.1
61- 75	28	19.8	70.9
76- 90	17	12.1	83.0
91-105	12	8.2	91.5
106-120	7	5.0	96.5
121- up	5	3.5	100.0
	141	100.0	

10.5.7.5 Alterations/Extensions in verandahs

Alterations :

Unit plans of Mirpur shows a verandah adjacent to the only room originally provided. Compared to a rather badly proportioned room, the verandah is reasonably sized (8.7' by 6.1' or 9'.1' by 6.1'), covering about 53 or 55 sq.ft. The room is approached through a door placed at the corner of the wall along the verandah. The position of the door's opening makes it easier to wall up its two sides immediately. Door openings are repositioned at the shorter arm to ensure a smaller space for circulation. Figure 10.4 suggests different sequences of alterations and extensions in verandahs.

With the screening in of the verandahs different types of spaces were formed. As revealed in the table 10.12, about 64% verandahs

were of 55 sq.ft. or less. Since the area of the originally provided verandahs were between 51-55 sq.ft., this has been shown separately in the table against the number of respondents(*). The placing of a partition also varied (sometimes without keeping any alignment with the column or the corner); this resulted in smaller dimensions of less than 50 sq.ft. in about 13% of the cases.

Extensions :

In some cases rooms are extended incorporating the verandah area (figure 10.4(d). As they cause an increase in the overall covered floor area, these are considered as extensions. The cases are apparent in the table having areas of 56. sq.ft. or more. Bricks are used in a few cases in these extensions; bamboo mats are usually added for walls while corrugated sheets form roofing. Usually the extensions reach up to the boundary which also acts as a wall of the room, when it is located not far from the verandah.

It was common with many households to wall up their respective verandahs only. In the listing of ITEM=4, (appendix-O) 71 cases have been identified, walling in the verandahs. Alterations in these cases were not associated with the rooms . This is indicative of the fact that the verandah, with two walls already built up, is usually the first choice for making any alteration / extension; at least 56% of the households have converted only the verandahs of their respective units.

TABLE : 10.12 : Areas of alerations/extensions in verandahs

	sq.ft.	cases	%	cum.%
alterations:	00- 10	2	1.6	1.6
	10- 20	-	---	---
	21- 30	1	.8	2.4
	31- 40	4	3.2	5.6
	41- 50	9	7.1	12.7
(*)	51- 55	64	50.8	63.5
extensions:	56- 60	19	15.1	78.6
	61- 70	4	3.1	81.7
	71- 80	2	1.6	83.3
	81- 90	5	4.0	87.3
	91-100	7	5.6	92.9
	100- up	9	7.1	100.0
		126	100.0	

note: the area covered by the verandahs originally provided ranged between 53 to 55 sq.ft.

Verandahs, being the easiest possible option, are, therefore, important design elements in the dwelling units which can offer a contributory role in increasing the total stock of rooms in the lower income settlements.

10.5.7.6 Cooking activities

Although the lower income households in general spend almost all of their earnings on food, their cooking activities, are found to be very simple compared to the household size. This is largely due to their economic constraints.

An important proportion of the households managed to locate their cooking spaces at the corner of the habitable room, mostly in the only one they had (25.9%); this type of use was mostly occurring in Jurain and Hazaribag, where most of the households occupied only one room (table 10.13).

Among all the options, the highest proportion were using parts of the outdoor space (41.5%) and a significant number were cooking in a portion of the verandah (occurring mostly in Mirpur). Only a few of the dwellers could manage to provide a separate area, in the form of a room, as a kitchen (10.4%).

10.5.7.7 Cooking space

Mostly lying outdoors, these spaces correspond to the extended spaces, either enclosed or forming a rough enclosure, required for cooking. Analysis of 104 extra spaces of this kind has been made. They are in the form of sheds, usually placed adjacent to the units often taking the walls as sides. Due to their location outdoors, some of the areas are rather large.

The extended spaces varied widely from 6 to 88 sq.ft. Approximately 94% of the households were performing their activities within less than 70 sq.ft.; although a few of the dwellers included more area this is probably because of the easy availability of surrounding open spaces and is not rooted in their need.

Table : 10.13 : Use of kitchen space

	cases	%
in a kitchen	44	10.4
part of a verandah	62	14.6
part of outdoors	176	41.5
in a corner of a room	110	25.9
share the same kitchen	26	6.1
missing	6	1.4
Total	424	100.0

Table: 10.14 : Cooking space

sq. ft	cases	%	cum.%
0-10	2	1.9	1.9
11-20	17	16.5	18.4
21-30	21	20.4	38.8
31-40	20	19.5	58.3
41-50	22	21.3	79.6
51-60	12	11.7	91.3
61-70	3	2.9	94.2
71-80	4	3.9	98.1
81-up	3	1.9	100.0
Total	104	100.0	

Fuel is generally 'lakri' (chopped wood) or cow-dung and other rubbish materials suitable for fire, yet it varies; in Hazaribag, an area close to the small scale tanneries, many households were found using waste leather as fuel. Some households in Mirpur were using electric heaters with illegally connected electric lines and were very reluctant to comment on that. On the contrary in Jurain, an excellent example for cooking was also found; at least in one cluster, households were sharing the facilities of gas burners by sharing the cost. This was particularly possible because, until

then, the standing charge per month for using gas burners was kept fixed by the authorities.

10.6 LESSONS

Certain lessons can be made with regard to the observations and findings drawn in this chapter :

1. It is apparent from the income and expenditure situation of the households that they are unable to cope effectively with their essential demands, since almost all of their small income is spent on food, with a significant proportion used in paying rents. That is, as their spendings mostly constitute food and shelter, they find it extremely difficult to attend to other important aspects of expenditure like health care, medicine, clothing etc.

Therefore, the income of the households (lying in income groups 1 to 8, are mostly around Tk. 250/00 per capita), is very small with respect to their unattended demands and it appears to be unreasonable to consider a certain percentage of these incomes -- however small that may be -- for further investment on housing. Moreover the cost of the major determining factors for the housing (e.g land), can not be approached with such tiny amounts and efforts.

Therefore, in order to increase their investment potential in housing, proper incentives for generating additional income sources

need to be provided through which the shelter process can flourish and prosper.

2. Although the expenditure of the households is strongly limited by their small income, they are capable of undertaking incremental developments in their living units and the financing involved with them. Visual inspection in any part of the area would establish this impression at once, although the quality of work varied with the use of materials. It can certainly be regarded as a positive approach in the following aspects :

a) In increasing the total stock of rooms. As we have already seen with the behaviour of the originally allocated dwellers, the number of extra rooms provided by 93 dwellers was 196; the average rate of extension being more than double.

b) This increase is, in fact, contributing in making additional earnings among the households having lower incomes, which eventually increases their affordibility threshold.

c) Simultaneously other households, victim of the same crisis for accommodation, are able to get access to these extra rooms; although the fact that the users condition of living in single rooms is well below the level of subsistence, there is no better alternative available compared to the amount paid for the above. In other fringe areas, rents for single rooms are even higher than the subrented

rooms existing there. However, at least 56 extra households -- forming about 40% - were able to get the benefit from 141 originally allotted households in the sample and the number in the whole population is certainly more.

Thus, giving proper impetus to providing rental opportunities among the dwellers, instead of identifying that as an illegal activity, would certainly show a positive effect in view of generating additional income which would directly help the benificiaries on the above aspects.

3. The opportunities for extensions were also determined by the availibilty of external spaces around the units. It was revealed that the extensions were carried out extensively behind the latrine walls, where surrouding areas were more available. If equal amount of external spaces could be made available to other households the quality of extensions would increase, eventually increasing the total number of habitable rooms.

4. Walling or some kind of screening in of the verandahs was almost universal. It is also very common with many other developing cities, for example in the Ain el Sira estate in Cairo or throughout Workers City in Helwan where even multistoried extensions have taken place (Tipple, Wilkinson & Nour, 1985). This happened similarly in Mirpur because it is much easier to close its two sides only by stacking some collected bricks or fixing up a bamboo weave. Since

verandahs, with their easily convertible features, can contribute significantly in increasing the total number of rooms, this can be considered as important design elements to be manipulated properly in the design of the extension mechanism.

5. Since extensions are directly related to the possibility of subrenting the rooms to other households, both of these activities are considered to be illegal and therefore discouraged strongly. While the economy of the country is extremely handicapped in the supply of accommodation against the high demand, changing of conditions in the lease document appears to be essential in order to ensure a secure and free activity in making extensions as well as offering those for subrenting purpose.

6. Effects of overpopulation.

We should also be aware about the consequence of the above with respect to the increase in the population density. At present households of the extended units are building to respond to their own space needs as well as to increase their income by subletting; mostly, both the purposes appear to be served simultaneously. Eventually, there will be either :

a) an increase in the household size as there will be more extended family households with the married children housing their families in their parent's house (Tipple, Wilkinson & Nour, 1985) or,

b) an increase in the number of households within one accomodation unit as it is most likely that the extra rooms will be let out to other households

Thus in either case the number of households will continue to increase over a period of a few years. The details of the infrastructure, community facilities and utilities provision will have to be laid out in accordance with the pace and extent of the growth. With proposed settlements, future provision associated with the determining factors of the settlement's growth should be a major consideration. A close observation on the occupancy and use of the internal and external spaces of the units (along with their transformations and other structural changes) at regular intervals is, therefore, essential for the authority, who now find it difficult to take firm control.

Most of the rooms occupied by the dwellers are very small in area. As mentioned before 95.4% and 89.5% households in Jurain and Hazaribag were staying in incredibly small rooms covering 150.sq.ft. or less, including more than 50% having no more than 75 sq.ft. in Jurain. Even compared to the standards for developing countries, these sizes are certainly small for family activities. Further considerations are to be given in addressing the issues related to the space requirements with respect to income in city areas. In the absence of any other alternative within the economic capacity of the households (when the concerned authorities are unable to supply more

units affordable for them) it does not make sense to resist creating smaller sized rooms to be used for dwelling purpose of lower income families.

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[1] **Housing and Settlement Directorate**(1979). Conversion of Twin Semi-pucca Houses to a Single Unit for Low Income People at Mirpur. Part-3. Project description.

[2] **Planning Commission**(1981). Building Standards. Part I. Government of People's Republic of Bangladesh. Table 1a, 1b, and 1c. pp. 1-3.

[3] **A. Graham Tipple, Nicholas Wilkinson, Magdi Nour**(1985). The Transformation of Workers' City, Helwan: multi-story extensions observed. Open House International. vol.10. No.3. p.30.

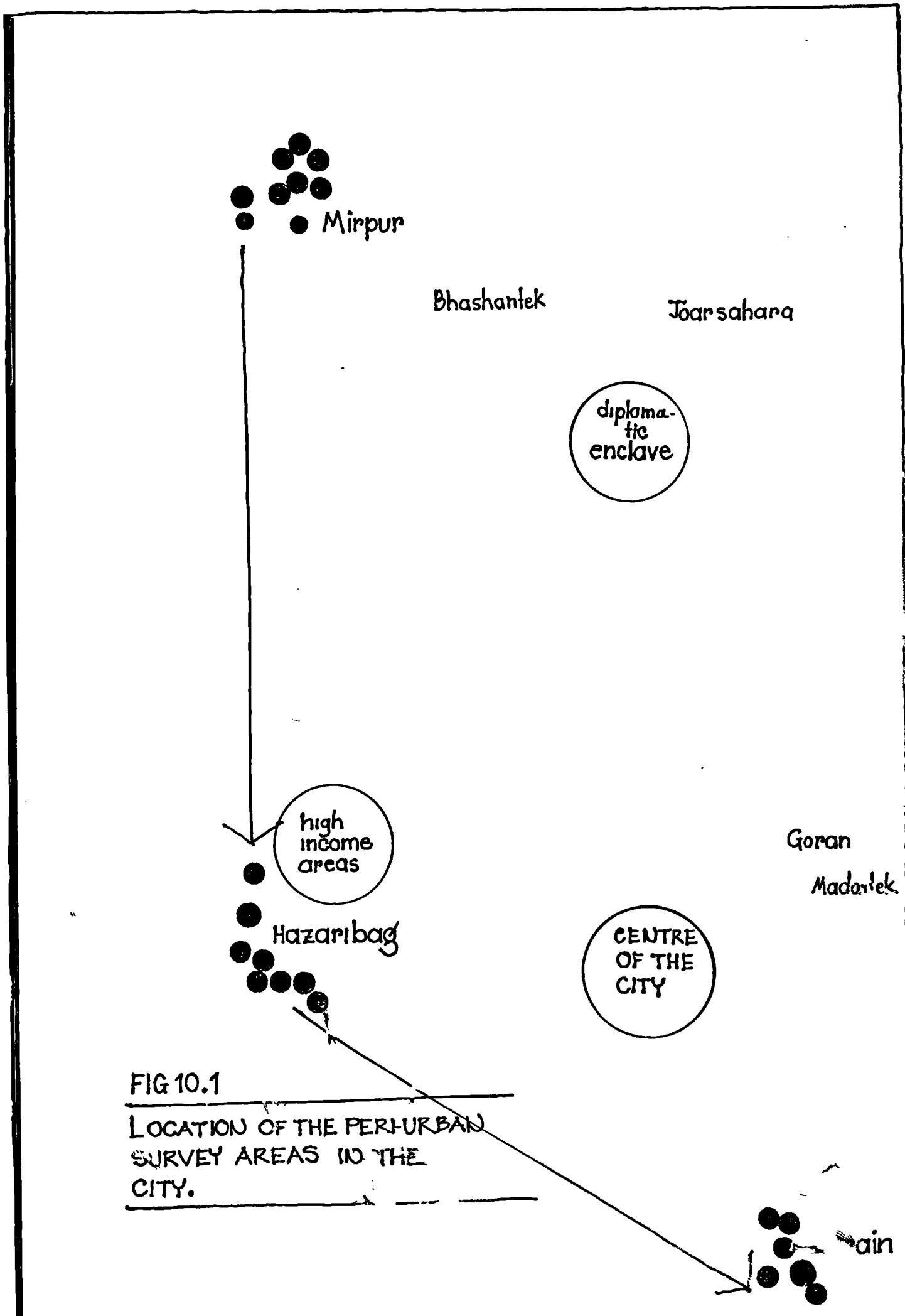


FIG 10.1

LOCATION OF THE PERI-URBAN SURVEY AREAS IN THE CITY.

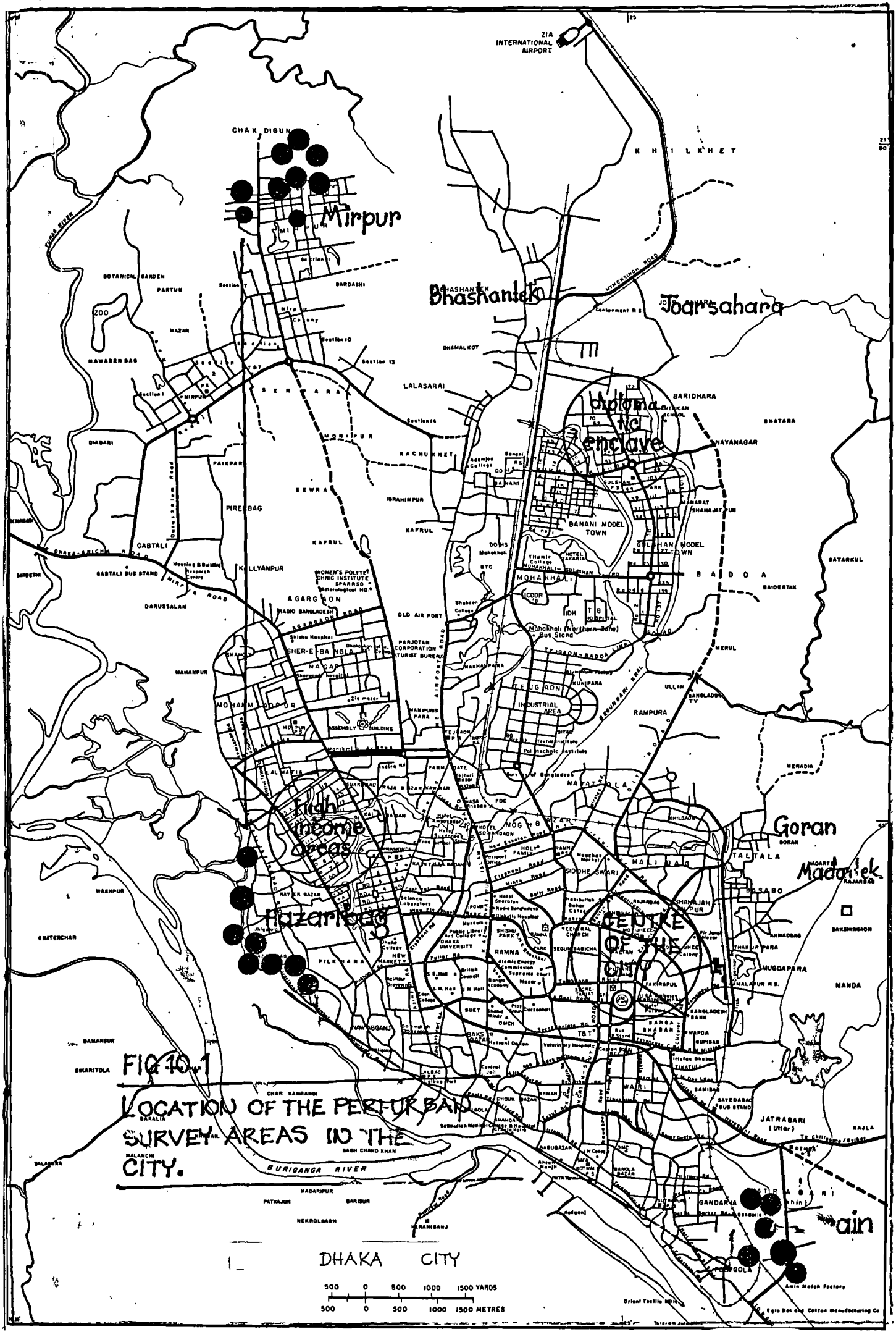


FIG 10.1

LOCATION OF THE PERI-URBAN SURVEY AREAS IN THE CITY.

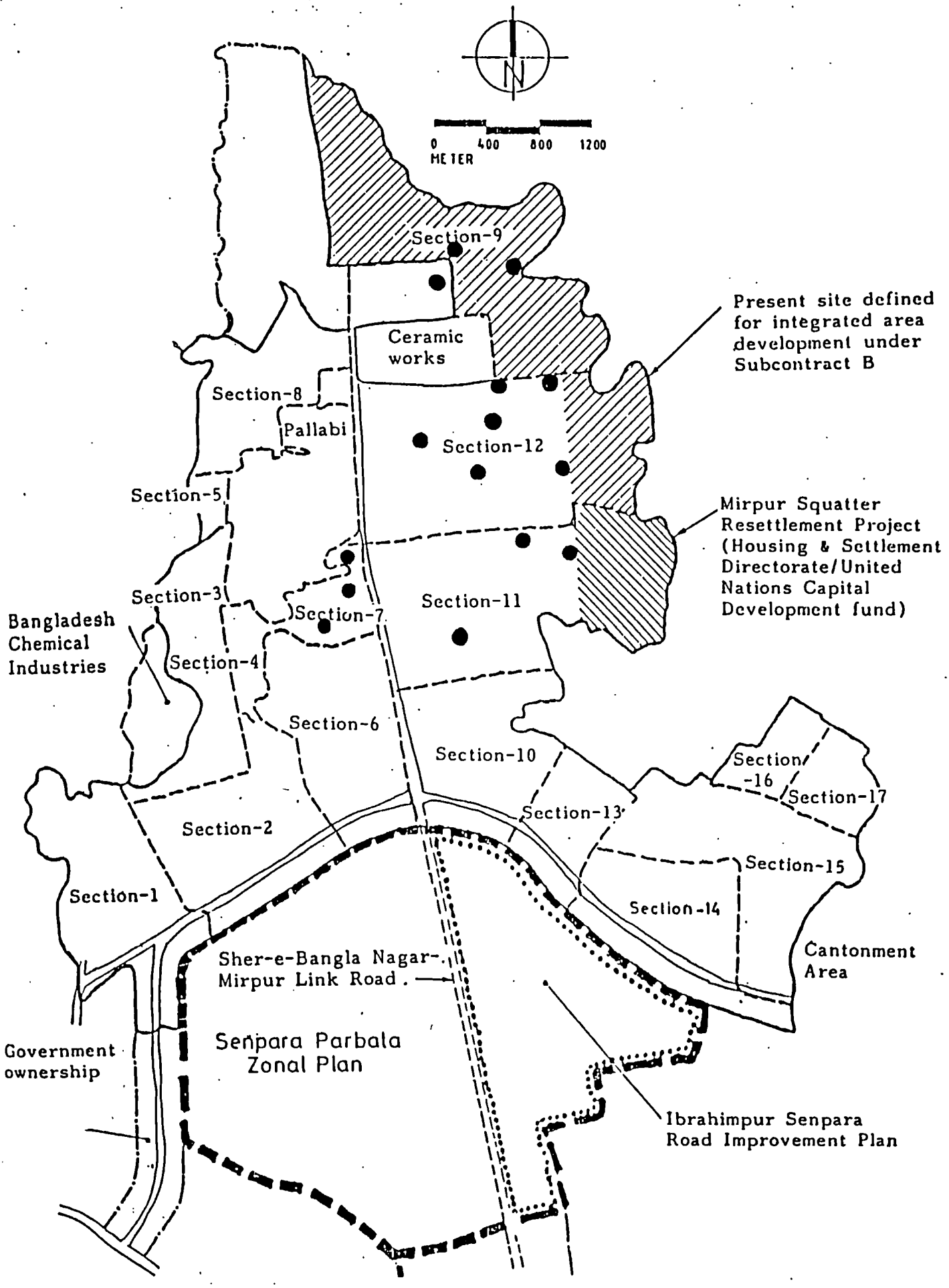


Fig : 10.1a

Mirpur Study Area

SOURCE : Housing Development Project

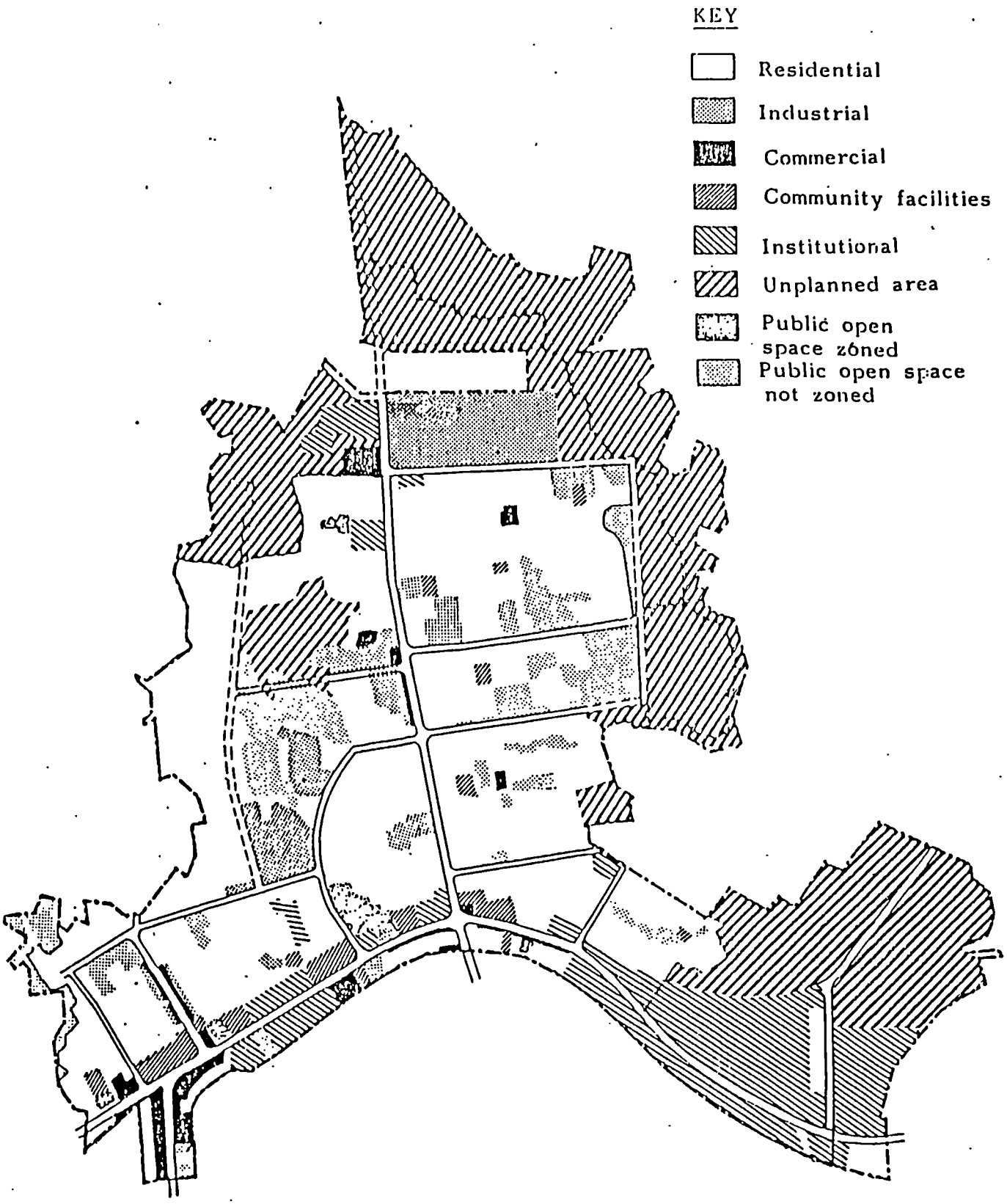
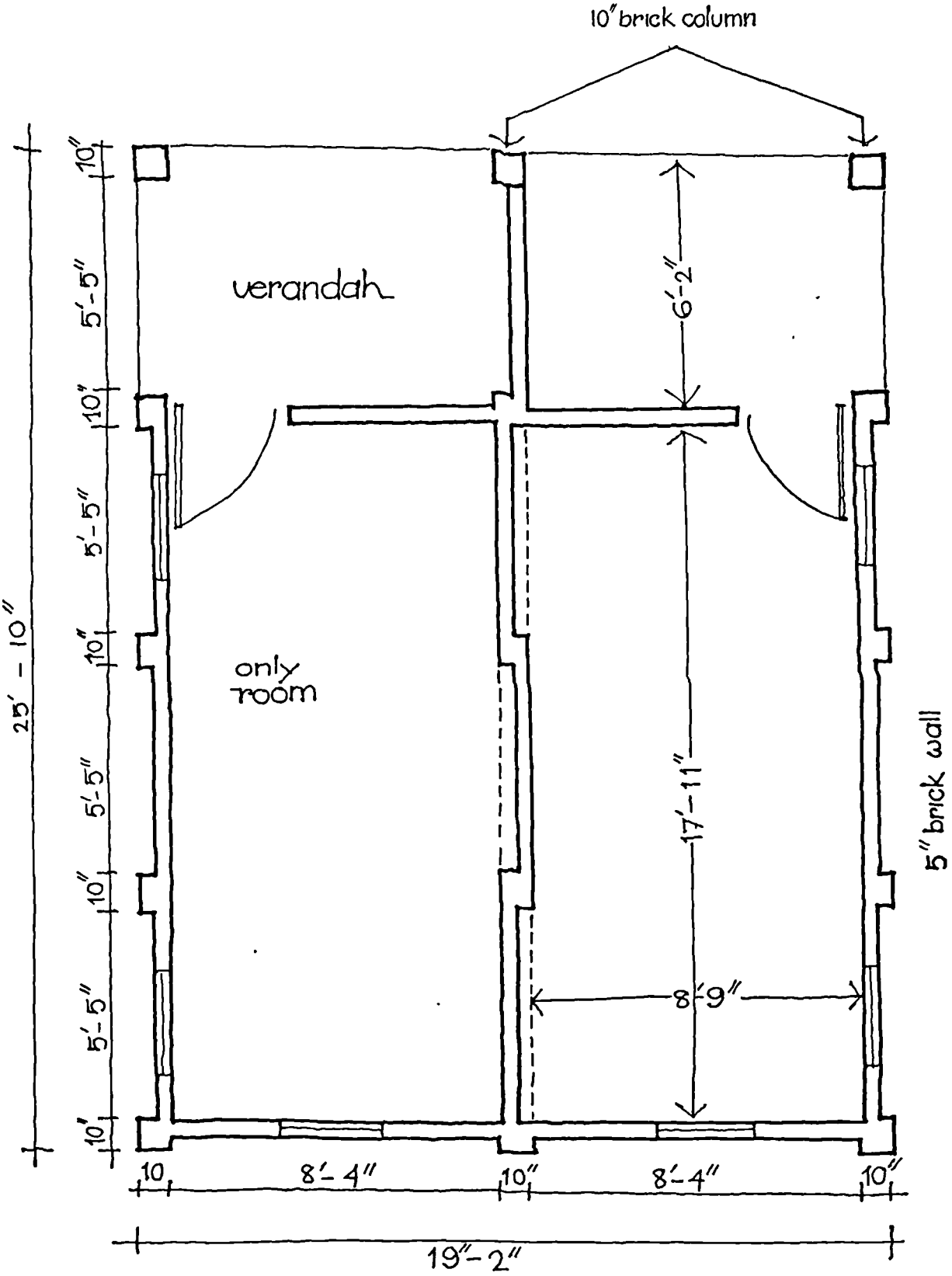


Fig : 10.1b

Existing Land Use

SOURCE : Housing Development Project

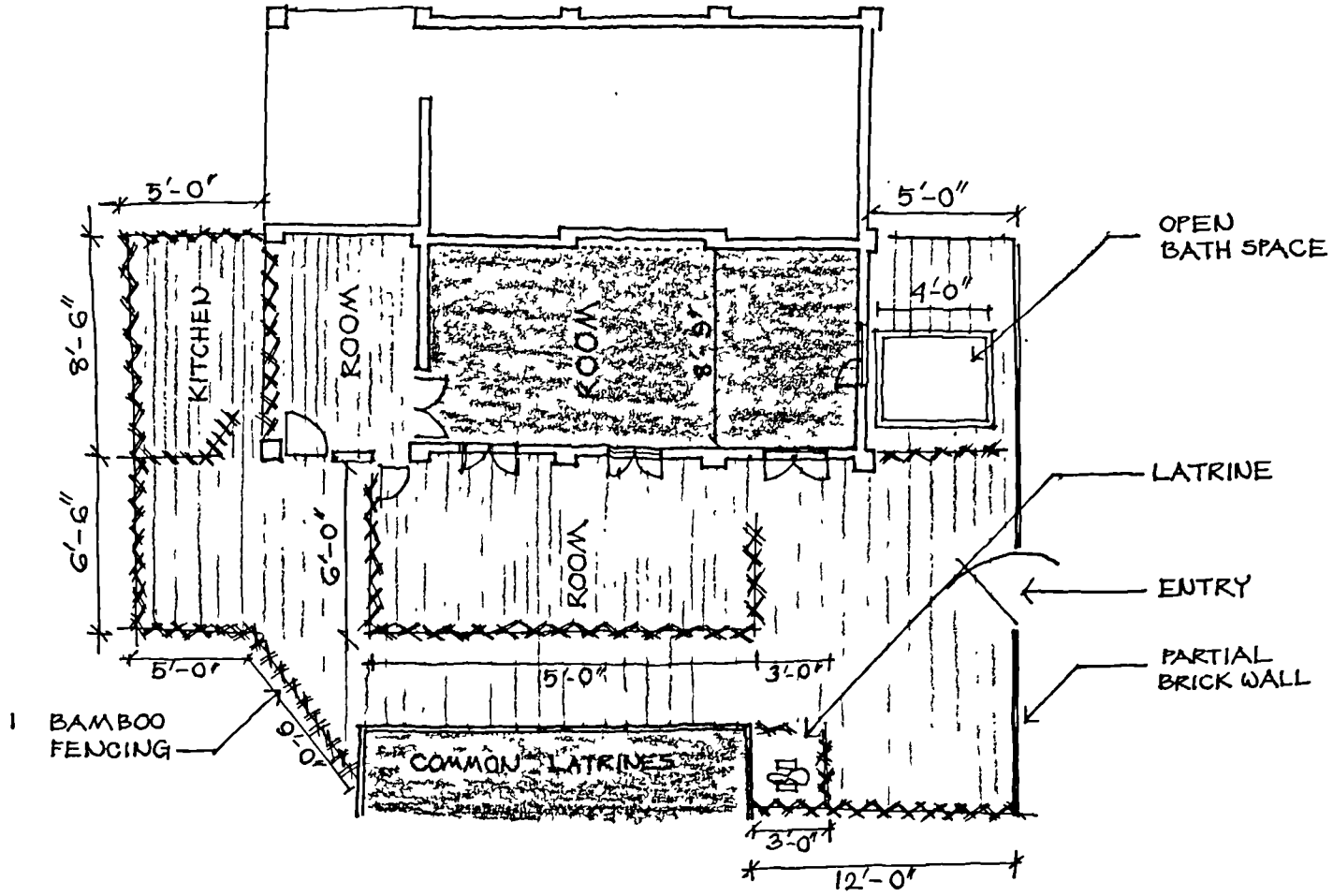
c



UNIT PLAN.
ORIGINAL PROVISION
BASTUHARA HOUSE scale 1/4"=1'-0"

FIGURE 10.2

total covered area of the whole structure: 495 sq.ft.
or : 45'5 sq.m.



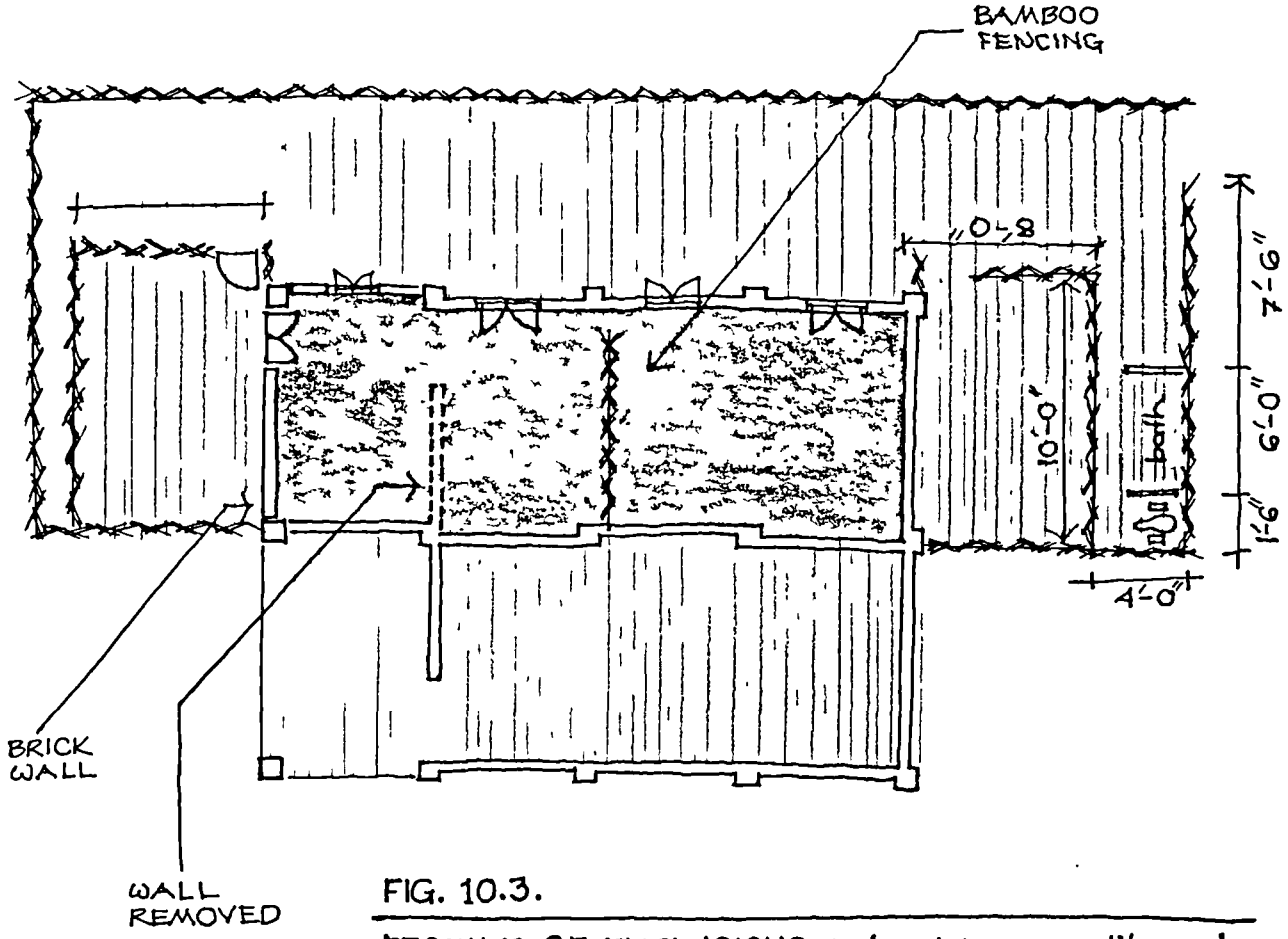


FIG. 10.3.

PROFILE OF EXTENSIONS : basiuhara settlements

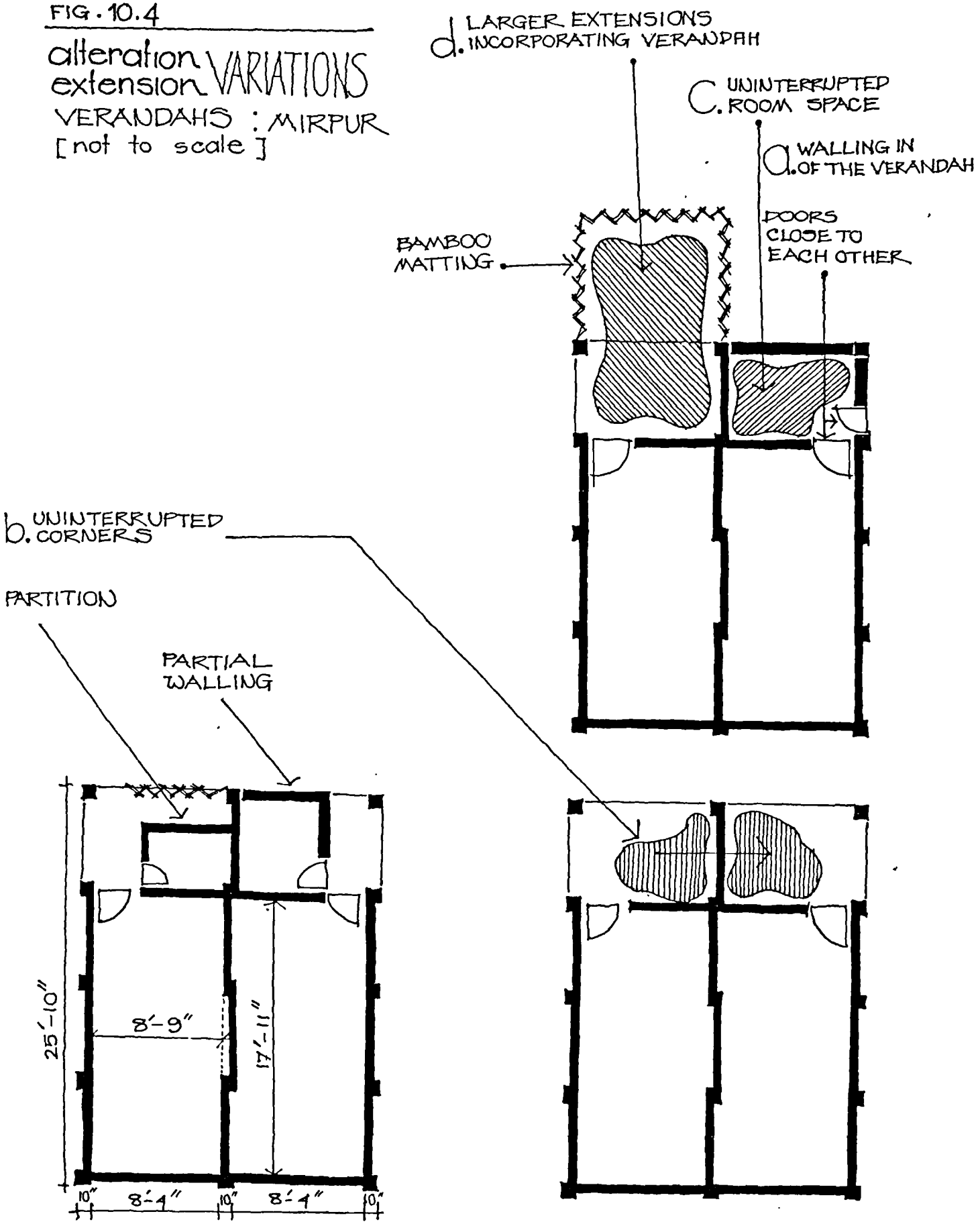
original provision

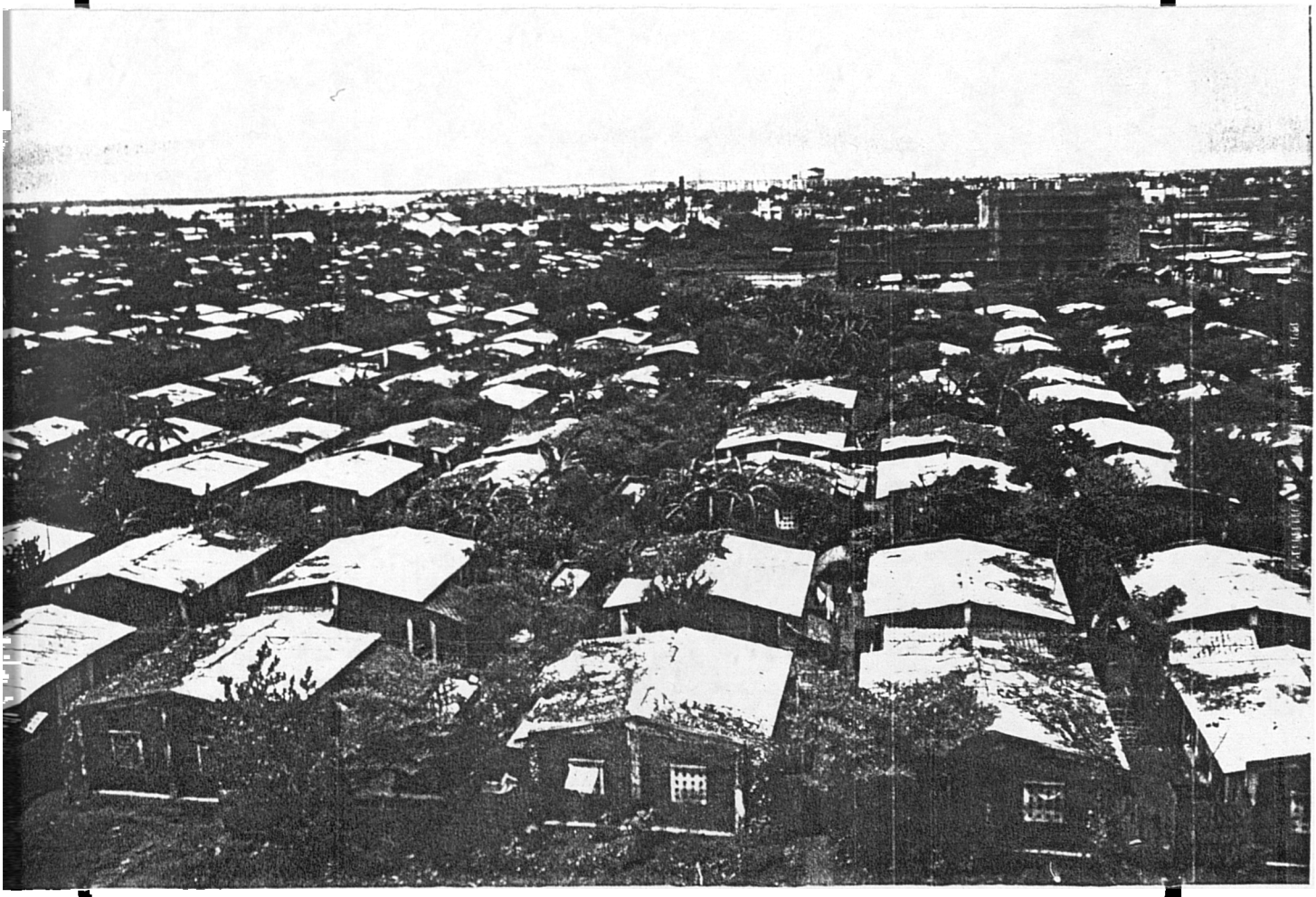
FIG. 10.4

alteration extension VARIATIONS

VERANDAHS : MIRPUR

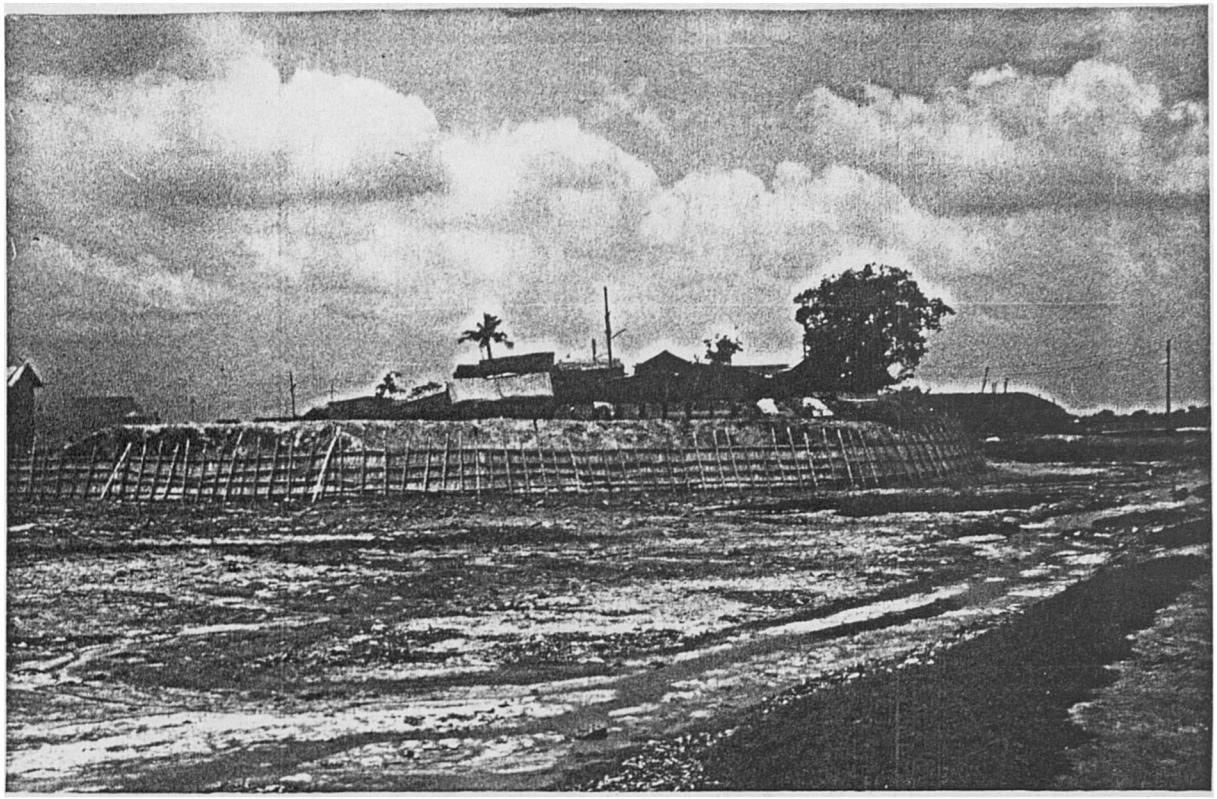
[not to scale]



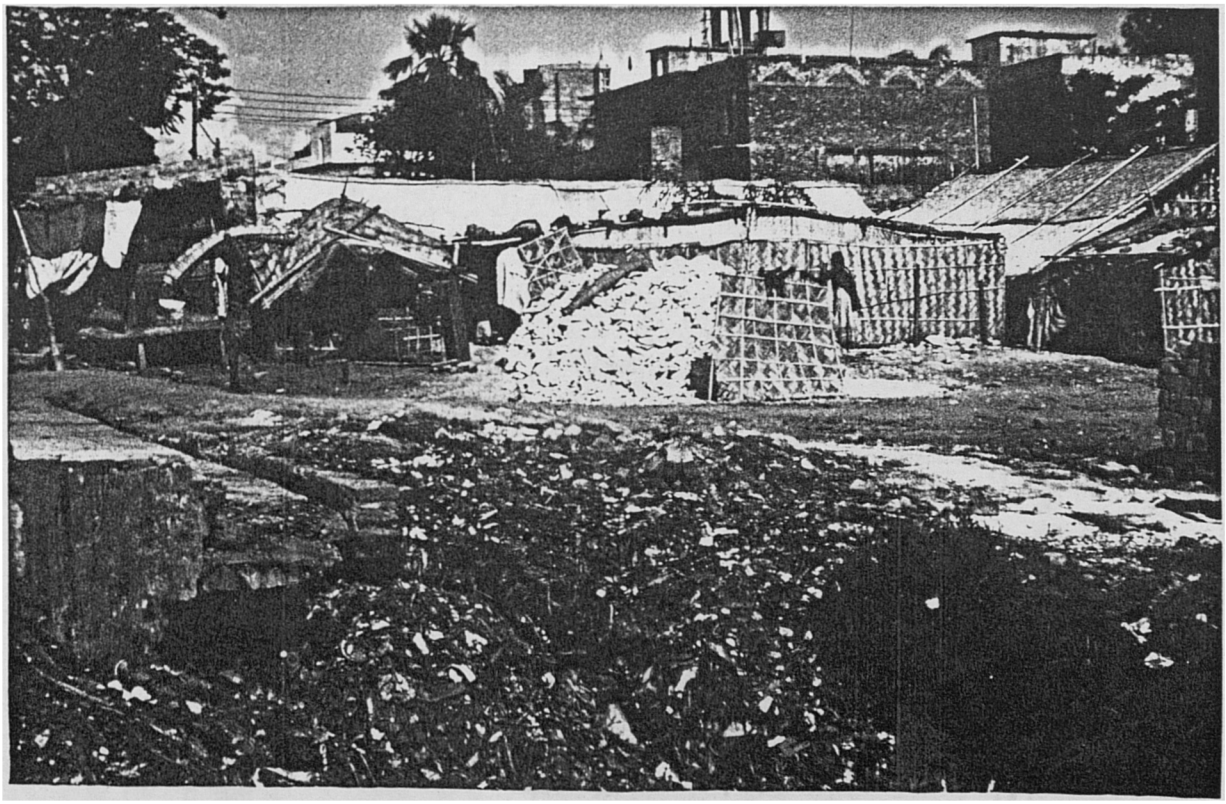


the BASTUHARA SETTLEMENT
Section 7 : mirpur

PLATE: 10-1



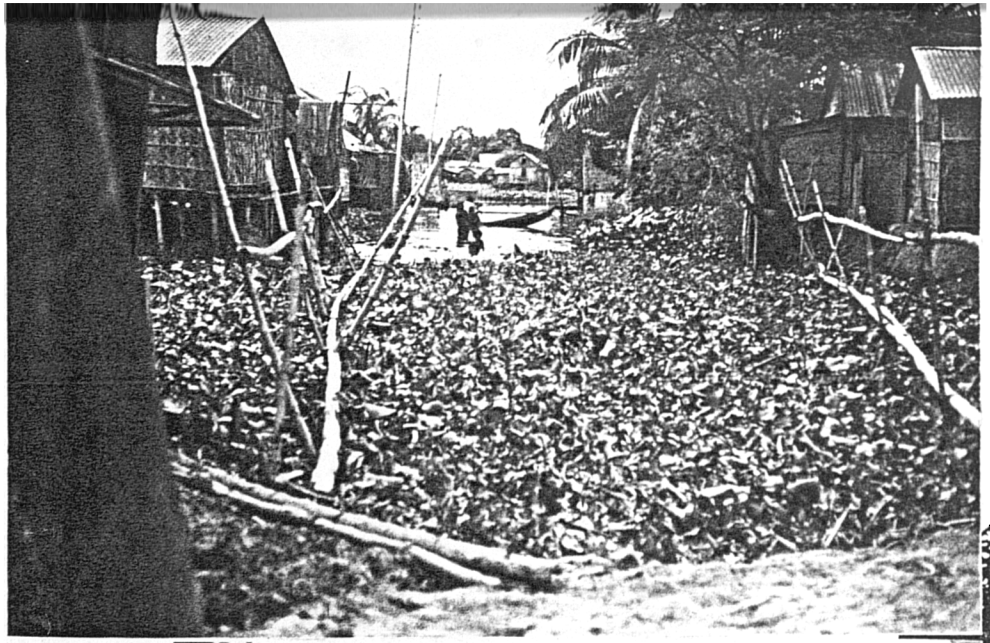
10-2

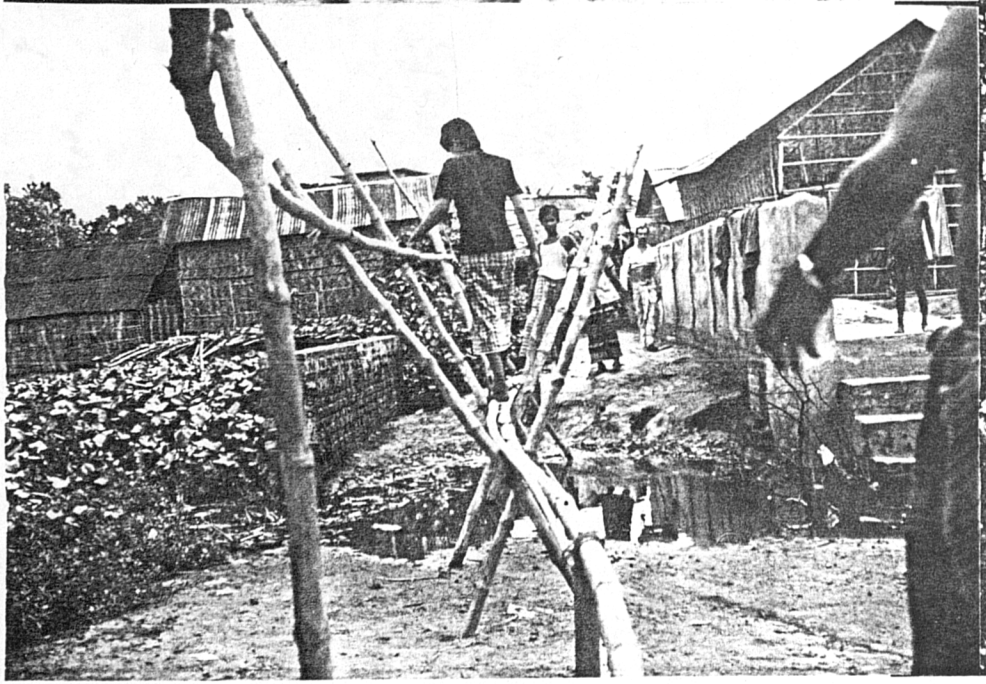


10-3

PLATES 10-2, 10-3: HAZARIBAG

- CLUSTERS ON ISOLATED MOUNDS FORMED THROUGH LANDFILLING. RETENTIONS ARE PROVIDED WITH BAMBOO FENCING AND POLES.
- TANNERY WASTES, REFUSES, DISCHARGED THROUGH OPEN CHANNELS TO THE LOW-LYING AREAS OF HAZARIBAG.





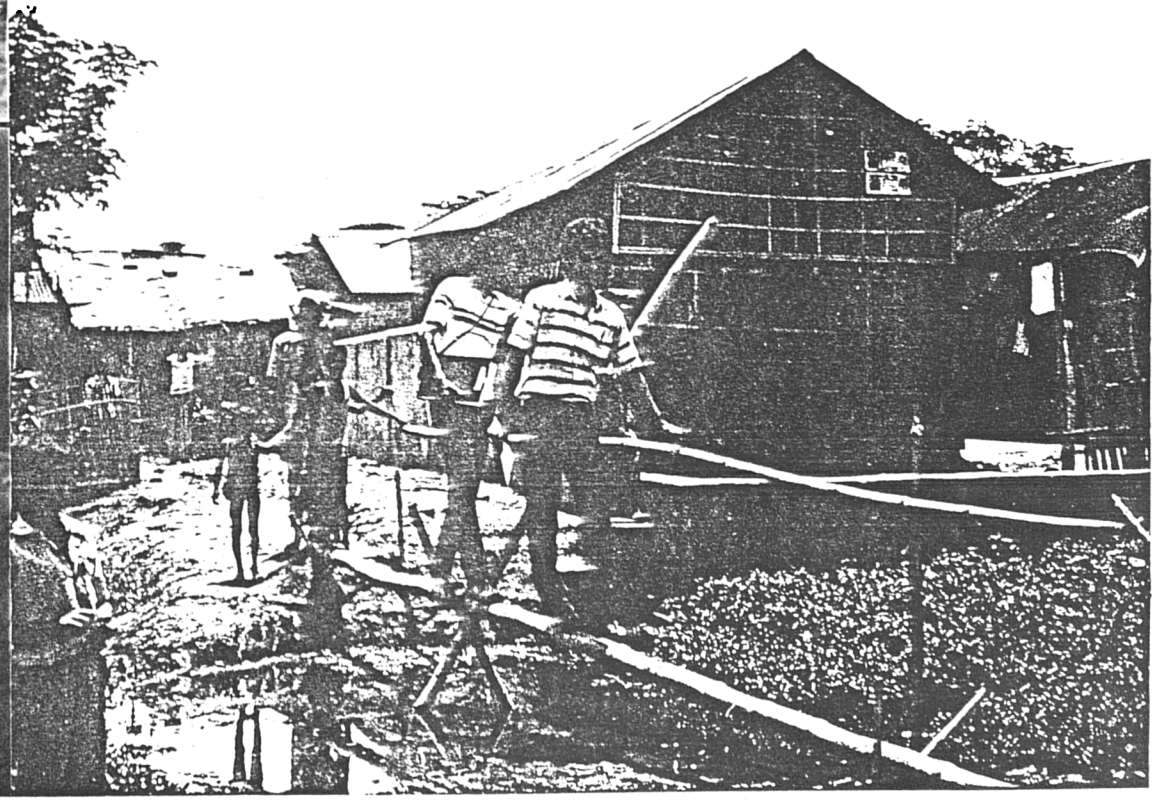
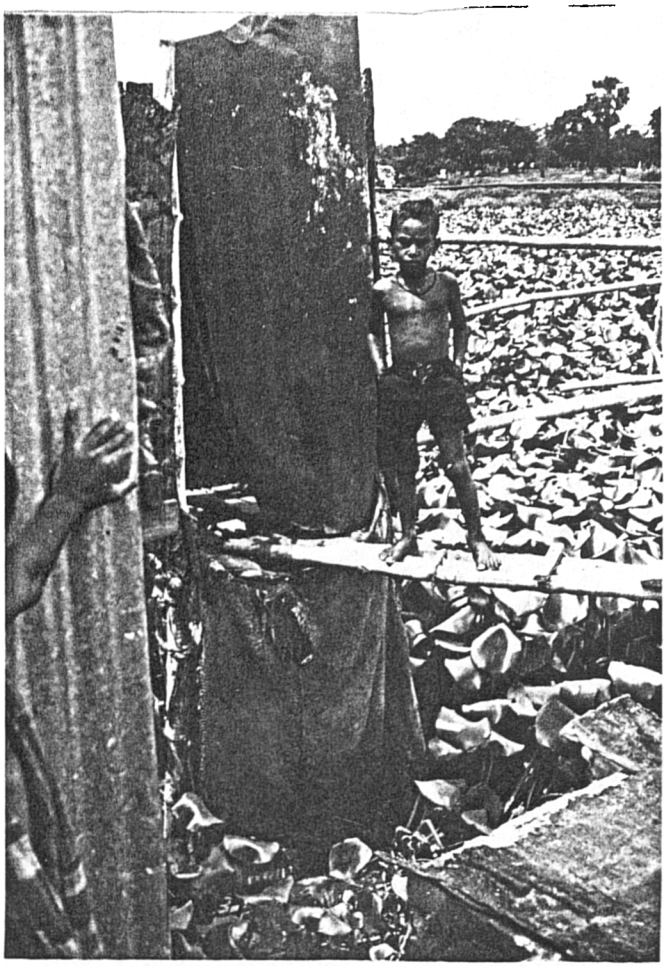


PLATE 10-4

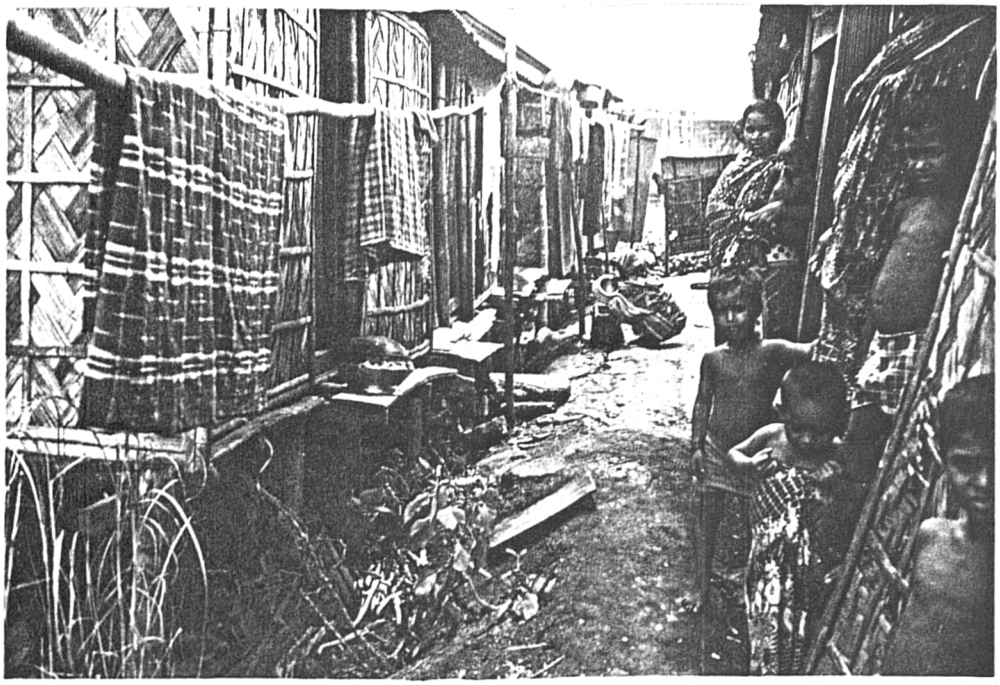
● bamboo-pole bridges used in Jurain

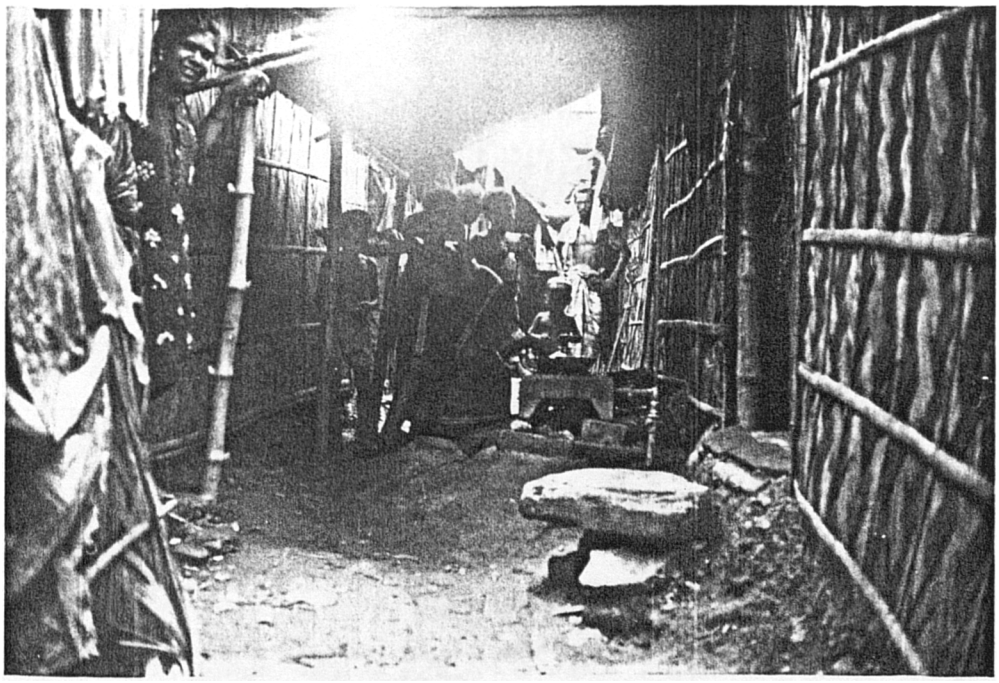
● two members of the survey team



PL. 10-5

- KUTCHA LATRINES (above) and
- TUBE WELLS are used by the slum dwellers, JURAIN.

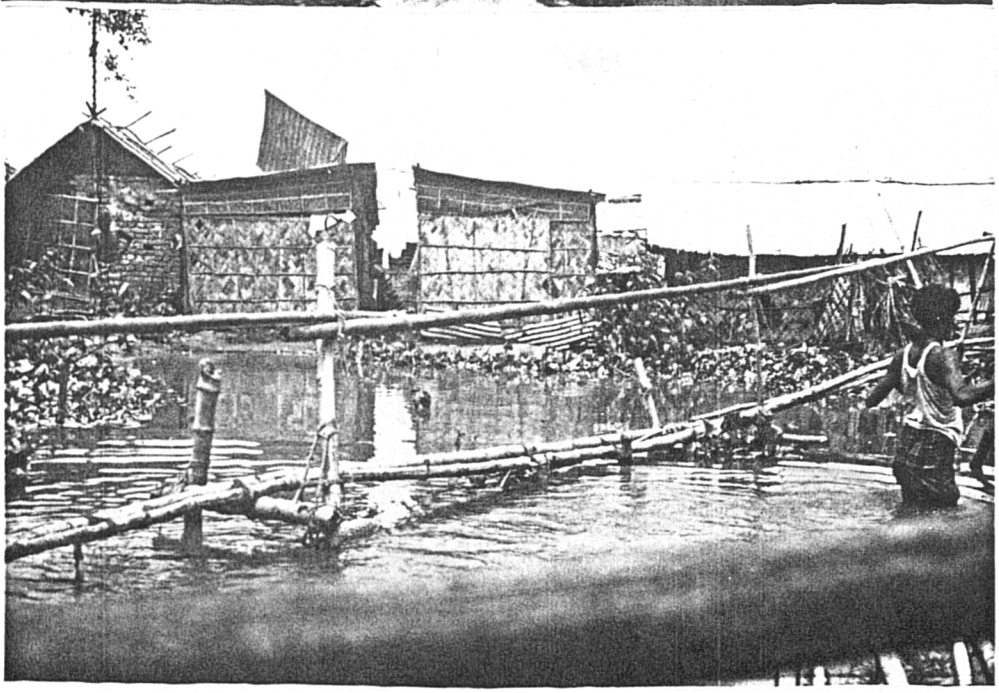




PL.10-6. USE OF EXTERNAL SPACES : slum dwellers of Jurain

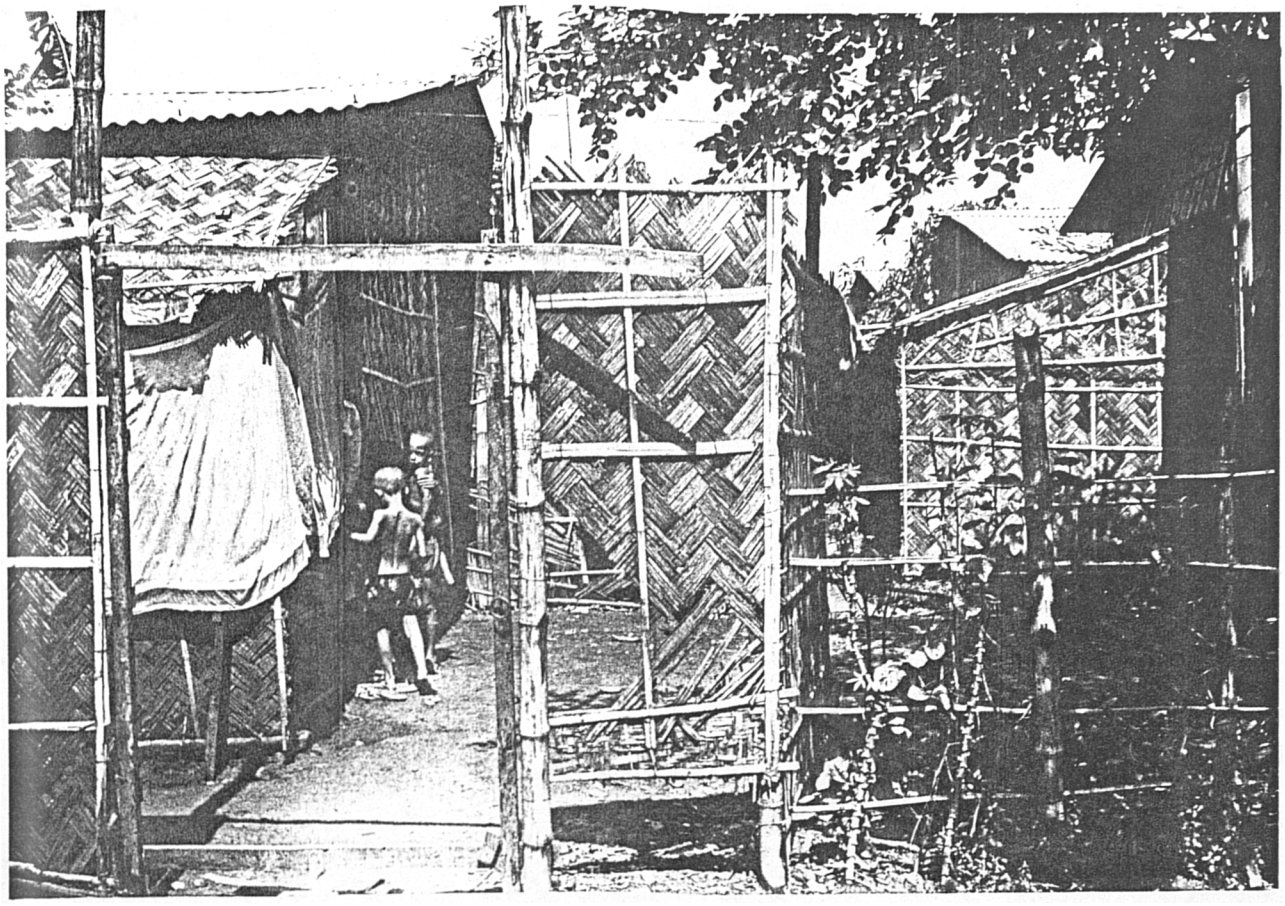
a

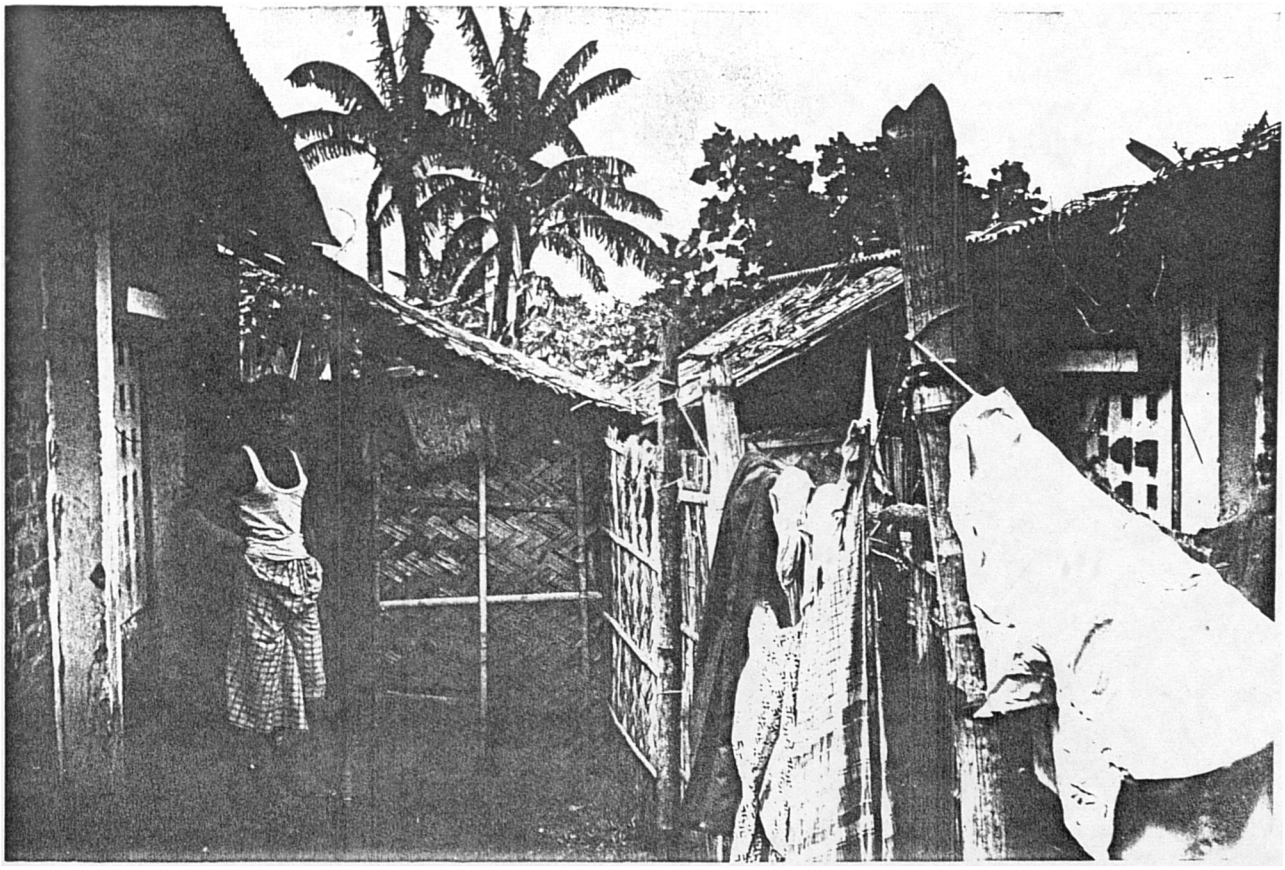
b



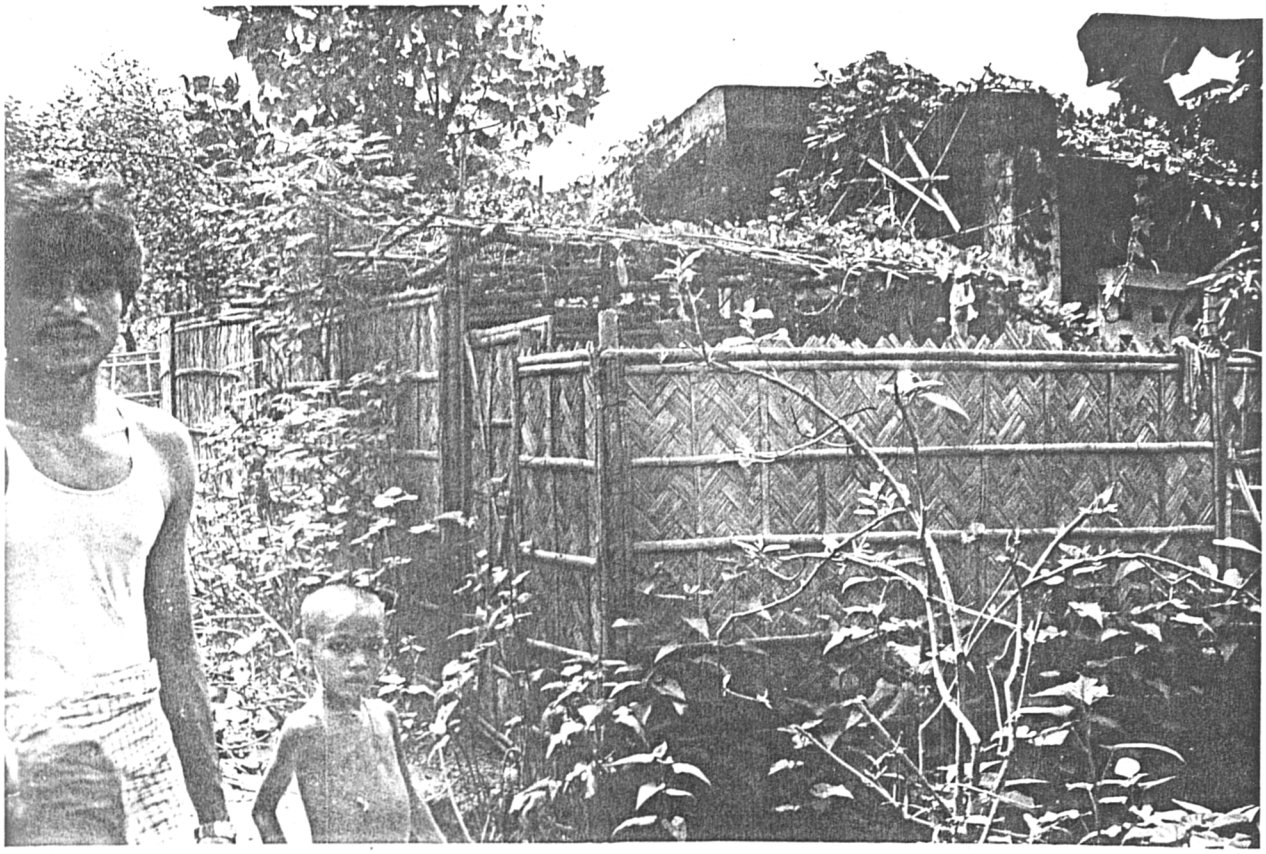
PL. 10-7

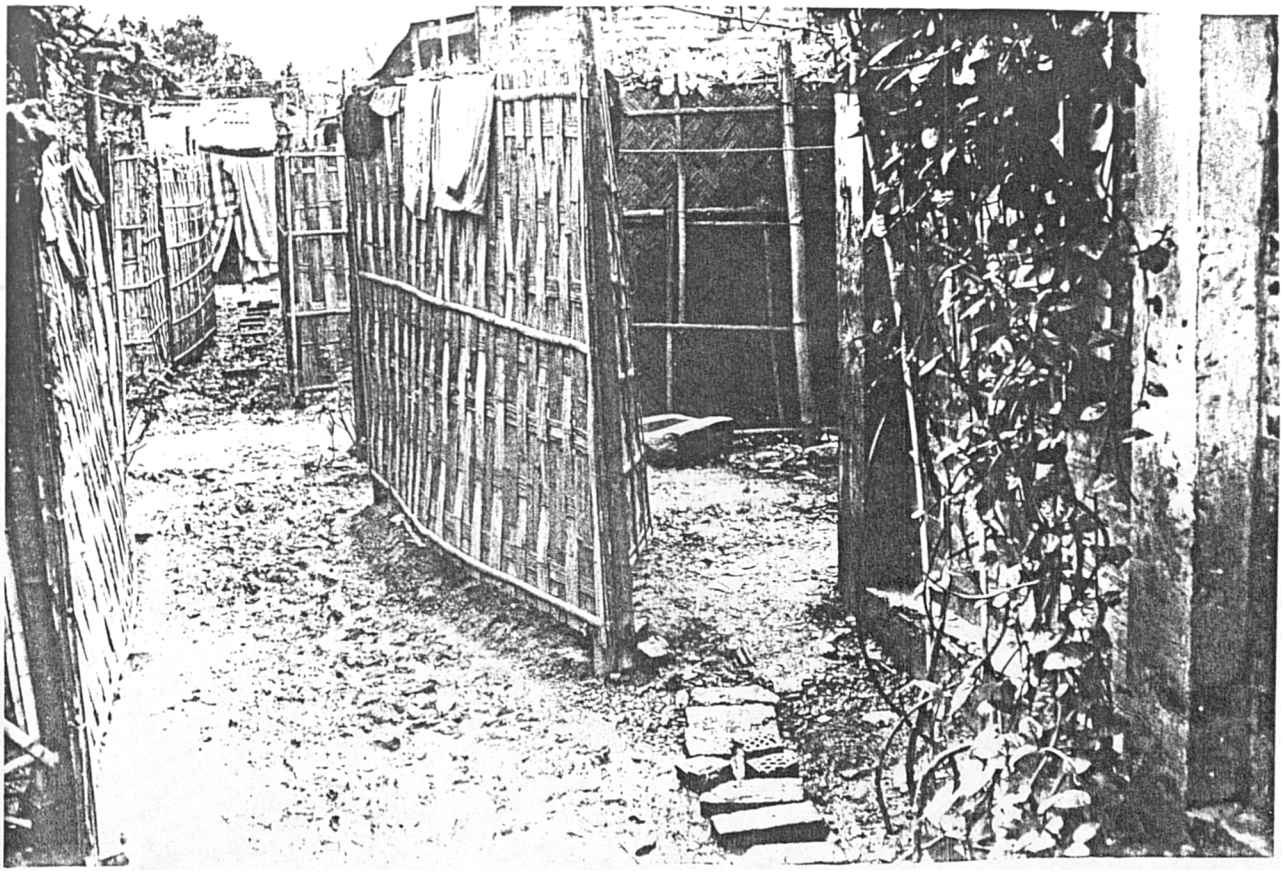
THE SLUMS OF HAZARIBAG DURING FLOOD.
SETTLEMENTS ARE APPROACHED BY
BAMBOO POLE BRIDGES AT THAT TIME (below).



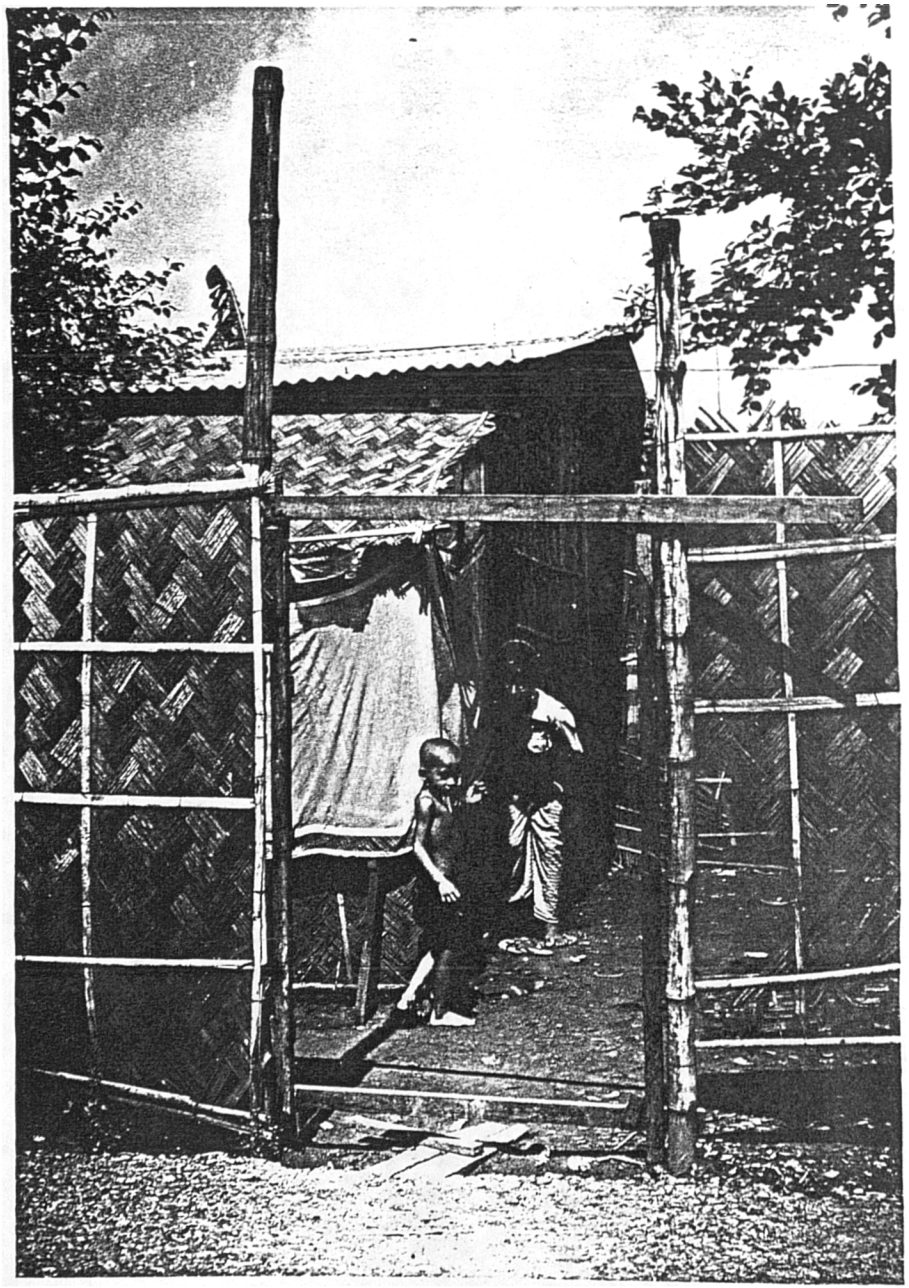


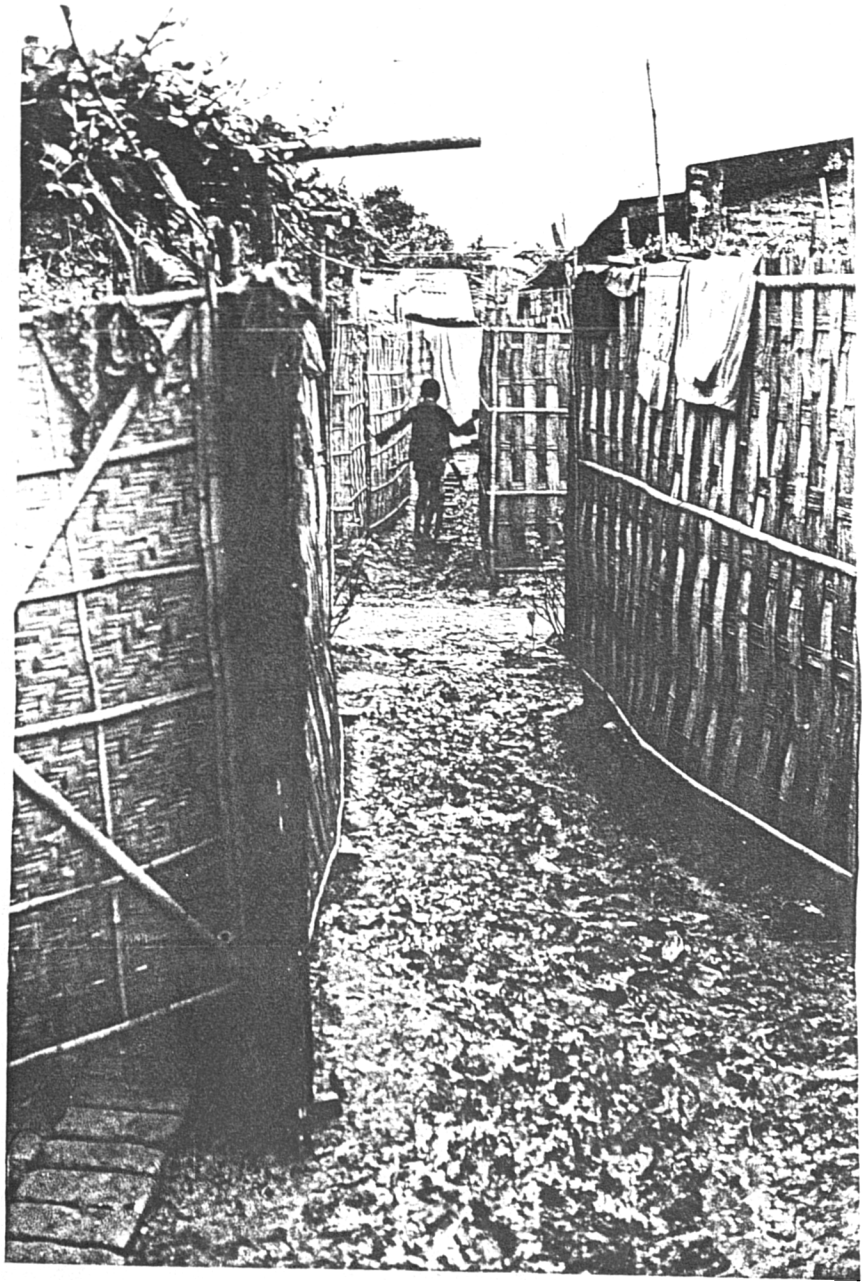
10-8. PROFILE OF EXTENSIONS : Mirpur ; bastuhara units, 1986.





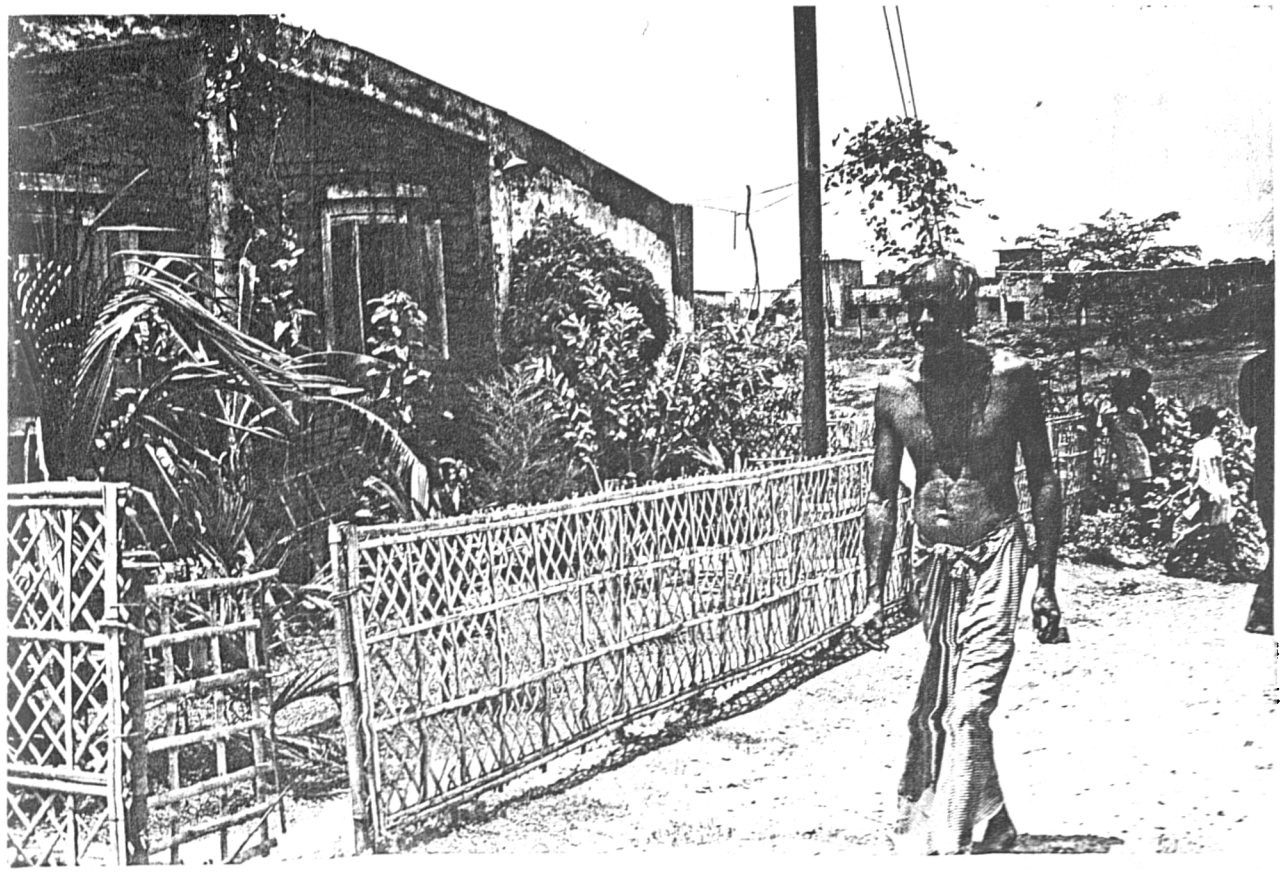
PL10-9. PROFILE OF EXTENSIONS : incorporating boundary : MIRPUR





PL 10-10.
PROFILE OF EXTENSIONS :

MIRPUR

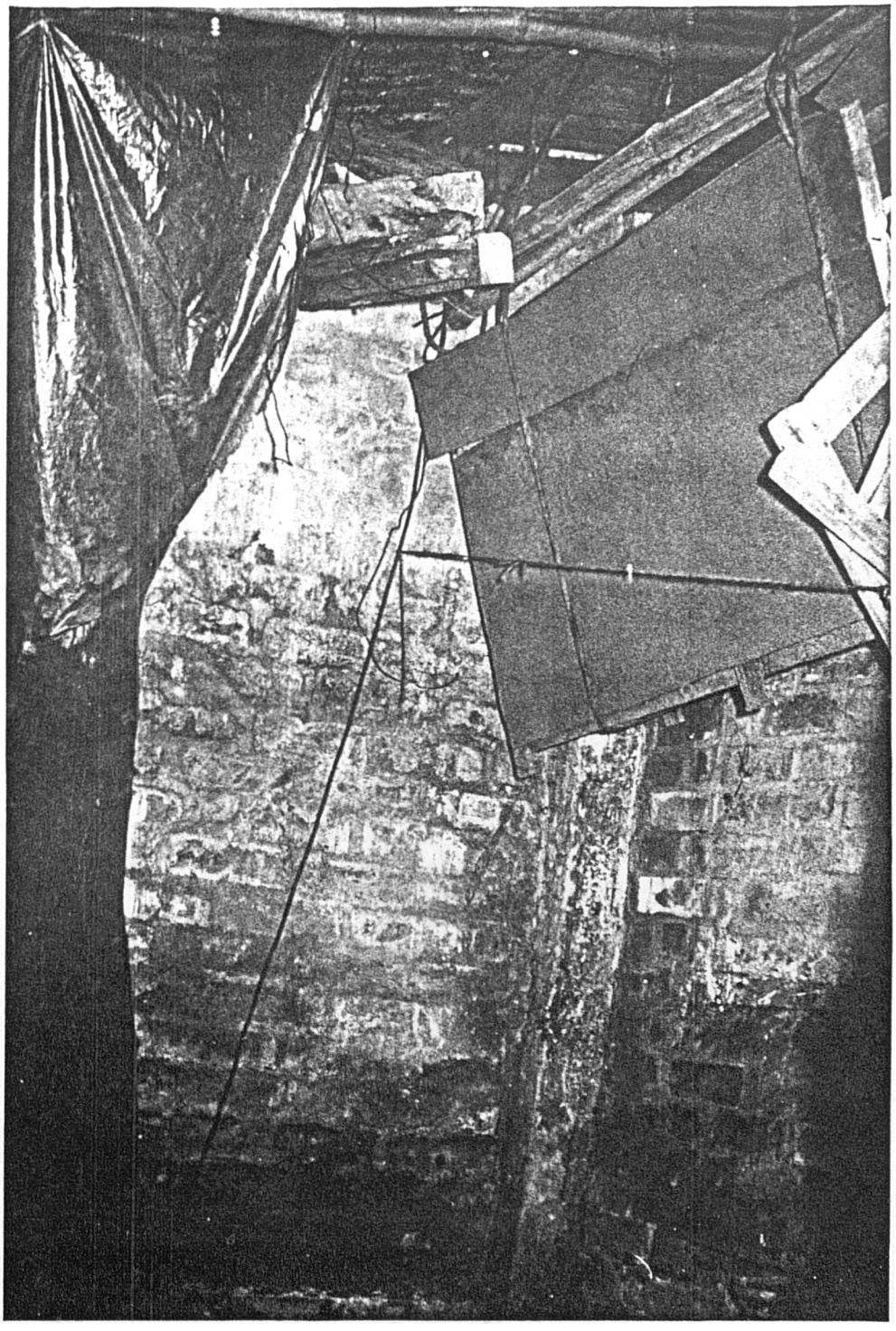


PL. 10-11.
EXTENSIONS IN THE CONVERTED UNITS : MIRPUR

PL. 10-12.

● EXTENSIONS INCORPORATING A TREE, WRAPPED WITH PAPER

bastuhara units, Mirpur



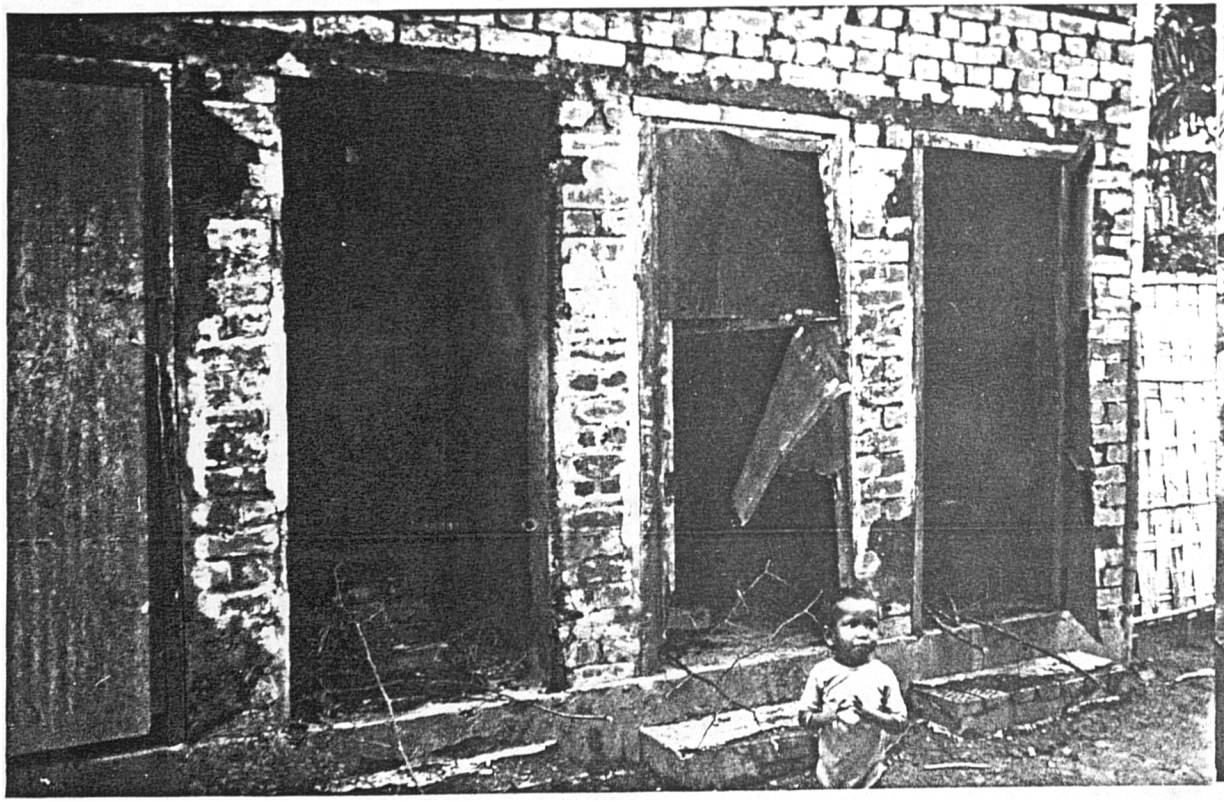
PL. 10-13.

a. existing fate of the common latrines;

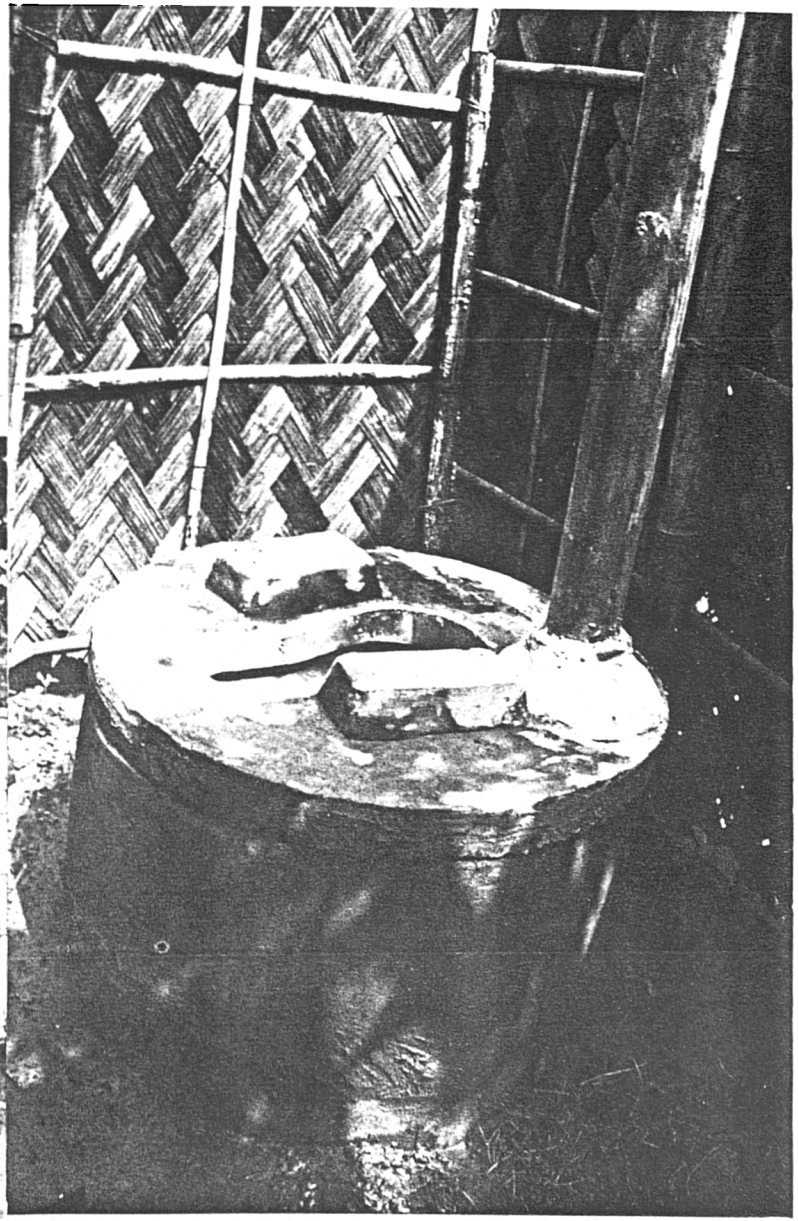
b. innovative response of a dweller within his boundary.

bastuhara settlements : MIRPUR

a.



b.



CHAPTER ELEVEN

CONCLUSION, DISCUSSION AND RECOMMENDATIONS

11.1 INTRODUCTION

In an economy where resources are extremely scarce, making it difficult to procure even the basic needs for teeming millions, it is certainly difficult to find an immediately available solution to the housing problem particularly for the lower income sector. In the metropolis the problem is determined by factors such as the availability of land and its cost, together with the constraints of local financial and administrative institutions which effectively drive the economically weaker section of the population out of the housing market.

The recommendations in this section are proposed in an attempt to:

I) make use of the valuable investment made by thousands of ordinary households in generating their shelter; admittedly, a significant proportion of the poorest population may not be reached;

II) provide necessary support for the lower income sector through adopting strategic measures in order to reduce the the impediments of such process;

III) utilize fruitfully the settlement behaviour of the dwellers in asserting the dynamics of self help development associated with their effect on physical development of housing;

11.2 RESPONSIBILITIES OF THE RELATED ORGANISATIONS

In formulating a lower income shelter policy as mentioned above, there remains an overall ignorance of the role played by the organisations concerned with the development activities in the metropolis.

Many functions related to planning and service delivery are assigned to more than one agency by the existing acts and ordinances. Responsibilities of the DIT and the municipality overlap, and the dividing line between them is undefined. After the accession of the military regime in 1982, the development activities were shared; among its newly assigned responsibilities the municipalitiy became primarily responsible for road network provisions within its area, hitherto undertaken by the DIT; water supply and sewerage work became the responsibility of the WASA. The DIT apparently, was not involved in these development activities in the last few years.

11.2.1 Co-ordination among the organisations

The institutional framework for urban planning, administration and finance provides a difficult situation for the urban development activities in the metropolis. The effectiveness of the development authorities particularly of the Dhaka Improvement Trust is generally limited by the inadequate management and financial system.

Yet the responsibility of the Trust is still of prime importance, largely in regulating and guiding the city's growth in accordance with the master plan or zone plan formulated by the Trust (discussed in chapter 8) and also in proposing new land use for the city. New townships laid out by the Trust had always served the upper income groups ---- although it was not formed to do so.

With respect to its responsibilities for the lower income group, the role of the Trust should be redefined in view of the following :

I) In making future decisions the Trust should not incorporate subsidising rates in distributing plots in proposed townships, because this mainly benefits the upper income levels of the population. Instead, the additional earnings which the trust could make through fixing the prices of the plots at market rates, could be usefully applied to other costly components such as paying compensation to those families adversely affected by the acquisition or development of land in or around the city. Experience has shown

that the Trust has developed a series of isolated, inefficient and expensive conclaves affordable only by the affluent. Recently, the Trust offered high subsidy while distributing plots in the north-eastern suburbs of Baridhara. Despite repeated recommendations for a well-knit integrated society, (Rudduck, 1958 and others) segregation of communities by social or occupational status was not avoided in the past, and no policies have yet been considered to avoid making the same mistakes in future.

II) When proposing future development schemes, the organisation(s) should consider that the investment capacity of the different sectors of the whole population is certainly not the same; hence it should be observed in categorily classified sections with respect to their ability to afford in such schemes.

At least about 30% of the city's population, around 850,000 (1981) were slum dwellers and the number is increasing at an alarming rate. This demands a strong awareness by the organisation(s) of the need to address slum dwelling issues not only in emphasizing the importance and need of a particular scheme but also in the practical question with regard to its implementation.

In a recent proposal for the development of a new township between Mirpur bridge and Kamrangir char, the issue of reclamation of the entire land between the north-western and south-western fringe areas was discussed. In this report, the trust emphatically established

the city's housing need as 574,000 new units by the year 2000 A.D, with respect to the slum dwellers. It held that, failure to meet up the increasing demand for residential accommodation will mean further increase in house rents and growth of more slums and squatter settlements (DIT proforma report, 1984; p. 5.).

Although the scheme intended to set up a wide variety of residential areas for different income groups (op. cit., p. 26), in their final proposal provision for the slum dwellers was ignored totally; accommodation proposals were carried out through a sites and services scheme, flats for sale and co-operative housing developments (details in chapter 6, section 6.6.1).

While it is shown that a significant proportion of the population will receive accommodation from such a large scheme, in any event, it failed to demonstrate how the lower income group would be able to afford access to it.

All of the three elements included multi-storied flat construction in an attempt to justify the large number of beneficiaries. Also land values are fixed at the rate of Tk.1000,000/00 per 'bigha' (approximately Tk. 625/00 per sq. yard). These indicators simply show how it becomes practically impossible for the economically weaker group, with their limited capability, to afford such expensive schemes. Again, it should be recalled that the housing crisis of the slum dwellers was used as a justification for such schemes while they

were later categorically excluded.

11.2.2 The screening system

Elimination of the lower income population from the formal schemes is also associated with the screening process of the DIT. A person intended to purchase a plot alloted by the trust, must come from the classified professionals, for example upper class Government or non Government servants, businessmen, industrialists, foreign service holders or the like; thus it is evident that, in any case, the informal sector are unable to cross this classification bar.

11.3 REVIEW OF THE MASTER PLAN

It has already been mentioned (in chapter 6) that the underlying assumptions of the old master plan proved to be controversial and quickly outdated. Mistakes in any of the assumptions ascertained later, necessitated reviewing of the master plan; but it was never reviewed despite several abortive attempts made by the Trust to do so. Mostly because of the zoning implications outlined in the master plan designating the 'low-lying' or 'flood zone' or zones unsuitable for development, the Trust neither updated the plan nor allowed the interested groups to develop such zones, resulting in the present unplanned peripheral growth of the city.

It is understood that measures are being taken to formulate a new master plan (with the co-operation of the United Nations) by 1990; meanwhile the area under the jurisdiction of the trust has been increased to 650 sq. miles. After the approval of the new area, the planners of the Trust have intended to plan 5 more new towns including the one of Kamrangir Char. It appears that Dhaka is again going to get stuck with the rigidity of a master plan incorporating conspicuous new towns (1).[1]

The effects of the first master plan regarding urban development have also been observed. Without undertaking any specific strategic measures of land reclamation and land development, the settlement of new townships will demonstrate a bleak prospect; the proposals must also incorporate effective policy measures for the accommodation of the economically weaker section of the population. Absence of which would produce a prototype of high income enclaves as in Uttara, Banani, Baridhara etc.

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[1] (we have seen how the issue of housing of the lower income sector was avoided in the new township proposals between Mirpur Bridge and Kamrangir Char in chapter 6).

11.4 LAND AVAILABILITY

Being the most vital determinant in deciding the housing strategy, land, in such a densely populated country is a scarce resource. In Dhaka, the crisis due to extremely limited supply of urban land has been further accentuated, firstly, by the high speculative prices which have effectively priced the lower income group out of the land market and secondly, by the existing physical constraints as the city is surrounded by river at its south and other flood prone areas at its east and west.

Unless land is made available to the households, a participatory housing process is highly unlikely to develop. At present prices, it is extremely difficult for the lower income population to afford buying even the smallest piece of unserviced land. Cost of serviced land with a rudimentary form of shelter is further beyond their imagination.

While there is scarcity of land, some of the inner city precincts still cover substantial amounts of land which can be recovered from its current inappropriate use in the heart of the city's busy areas. Among these, most notably, are the areas occupied by the old airport, cantonment, Bangladesh Rifles (BDR) and central jail.

Covering nearly 530 acres, the old airport area was located beyond the outskirts of the city when built in the early Pakistan period.

It is now almost in the central area following successive growth in the past few decades (figure 11.1). Following the move of the airport to Kurmitola in '80 - '81, there were various suggestions proposing new use of the abandoned area. During the successive military administrations, at least once the area was considered to be developed as a high income residential enclave (particularly for the armed forces). The DMAIUDP report suggested in its potential development structure a variety of mixed use development (2). But despite the strong recommedation of the report, the Government is now considering actively the development of the site as a formal parade ground, with an estimated cost of Tk. 3,800,000/00 (approximately 76,000 pound sterlings) plus annual maintenance cost of 10,000/00 pound sterlings).(3). The proposal should certainly be reconsidered.

In the crisis caused by the critical scarcity of land, the proposal of developing this readily available site as a parade ground would certainly show a misuse of a valuable resource. Moreover, a parade ground can be developed far from the central area as it will be used only occasionally; also there are some ceremonial roads within the city suitable for the purpose. However, in view of its proximity to the main city the site is highly suitable for housing development and therefore claims it to be used for accommodation purpose for the lower and middle income groups, with a small part for some shopping and official activities suitable for the location.

11.4.1 Dhaka cantonment, Bangladesh Rifles and Central Jail area

The Dhaka cantonment area, occupying an enormous amount of the city's precious built up high land (approximately 6,840 acres) lies within six miles of the centre. Similarly accessible are the areas occupied by the Bangladesh Rifles and the central jail, having no less than 155 and 51 acres respectively. There is apparently no good reason behind the location of the army administrative centre and the para-military head office with barracks in areas situated at the heart of the city. Shifting of the cantonment area, to somewhere in Savar region or along the northern corridor, is strongly advised; definitely in so doing, it will recover a large area of the most precious land available for urban development activities. Housing provision in BDR area can well be visualised incorporating the densely built up Hazaribag belt, adjacent to the west.

Relocating the central jail has already been considered. It might not be rational to suggest only lower income accommodation in this relatively small area especially when the site is lying at the heart of very densely populated old Dhaka, where varied type of demands from other sectors should receive equal priority. Attempts were reported recently to exploit the area for commercial housing schemes in the private sector (4). The most appropriate use of this site should be decided after careful investigation of the demands of the people of the area before it is offered for any specific use, preventing any straightforward attempt to sell the area for

commercial housing meanwhile.

It must be noted that all of these areas were developed during the colonial period; the locations did not appear wrong in the context of the city's development at that time but their characteristic features are definitely not retained with the city's growth during the present century. With the change of time and within a definite perimeter of physical limitations these areas must be recovered now. (figure 11.1 : showing locations of BDR, jail etc.).

11.5 PERI URBAN DEVELOPMENT ISSUES

It has been discussed in previous chapters that a long term land banking policy, although a logical one in the sense that land is acquired cheaply before it becomes the subject of speculatory practices, has drawbacks which are unlikely to be avoided. While the agricultural land is left unproductive, no proper control can effectively be ensured to protect the ultimate invasion of the preserved land by the haphazard growth of the informal sector (other details in chapter 7, section 7.11.2).

The expansion of the city, normally associated with an accelerating population growth, has been impeded in Dhaka by its characteristic low lying hinterland. Even then, the fringe areas are already found to have occupied by the lower income slum dwellers.

In order to avoid a severe land famine in the near future, it is urgently important to approach the low land hitherto not considered for development purpose (particularly by the Dhaka Improvement Trust, which in its master plan earmarked the areas as low-lying without any specific future use).

The approaches should be made through land acquisition for the immediate implementation of schemes broadly for two purposes :

a) general urban development, where the lowness of the land is not likely to impose serious financial problems -- as the land development costs will be balanced by the specific schemes themselves,

b) shelter provision, when it will be absolutely impossible for the population of the lower income ranges to bear the cost of land development (within their affordability threshold), unless effective measures are drawn to mitigate the affordability gap;

Although it is often argued that land acquisition for short term developments will also be associated with problems of high purchasing cost by the state, with the ultimate fuelling effect of inflation, this appears to be untrue with the low lands of Dhaka as the price of the undeveloped land is significantly lower in the fringe areas (see table 6.3 and 6.4, chapter 6, section 6.2.2.3).

Dhaka's peri urban growth pattern is not similar to that of some other cities (for example Lusaka or London), which grow consistently in all of the cardinal directions surrounding the major built up area of the central region.

Dhaka's growth has always been restricted by the river at its south and by the low lying lands adjacent to the rivers at its west and east, which resulted in the city's growth along the northern routes in an irregularly elongated manner (figure 6.2). Consequently, the major urban centre of the city is not equidistant from all the peripheral points. Therefore, it seems that the question of proximity of the city's central district, regarding the job opportunities and other dependent factors, will not impose a serious problem in relation to the development of the peripheries in Dhaka. For example, a major portion of the western and north western fringe belt (Hazaribag / Rayerbazar) lies only within 3 to 4 miles from the centre; many of the eastern peripheral areas (Goran / Madartek / Manda etc.) are located within about 3 miles. Also the price of land in the city is not directly proportional to its distance from the city centre (see figures 7.1, 7.2 and section 7.4., chapter 7).

11.6 TECHNIQUES OF LAND RECLAMATION

Land reclamation proposals in low lying fringe areas should definitely include comparisons of different alternatives along with comparative estimates of the cost they would incur. The possible form of landfill and flood protection options are to be evaluated in relation to broad estimates of economic affordability and to be determined in terms of average ability to pay by particular income groups of the future settlement *dwellers.*

In quickly drawn urban development proposals two alternatives are most commonly considered : I) Embankment protection and II) Recla mation through major landfill. We will attempt to identify the effects of each alternative against the socio-economic feasibility and the viable physical conditions of the city, in this section. (basic description of the alternatives are in chapter 6, section 6.6.3)

11.6.1 Embankment protection

This device which uses embankments or dykes to hold back flood waters, involves least volume of landfill and, therefore, costs less than filling moderately large areas. But it requires expensive construction and a significant equipment cost to pump out the accumulated storm water during the monsoon season.

Furthermore, there is a seriously high risk of slippage and breaching which can occur at the time or after the construction, with probable catastrophic results. The painful experience of the failure of Mirpur embankment (constructed in order to recover land for housing squatter families in 1978 and ultimately abandoned when the entire project was on the verge of a complete disaster), is one of the most conspicuous examples, the drawbacks to which the concerned authorities are unlikely to overcome. (see chapter 6, section 6.5 (pt. 4), for details of the failure of the scheme).

Therefore, lessons should be taken from the previously failed examples of land reclamation through embankments. Unless the missing links within the planning, management and implementation process are identified and eliminated, resources are likely to be squandered in similar embankment schemes. Moreover, it is also doubtful whether the continuous operation of the pumping mechanism along with the necessary high level of servicing can be maintained throughout the years for the removal of storm water from inside. Most importantly, the costs incurred in land development by providing embankments would certainly place this option well beyond any likely affordable limit for the households in the lower income bracket if they are to share the cost.

11.6.2 Major landfilling

Being an extremely high cost option this eventually converts low priced land into land with high market value.

If considered for housing, with costs to be recovered somehow from the households, charges will certainly exceed what lower income people can afford.

In 1985, in reactivating the Mirpur resettlement scheme, the UNCHS experts decided to complete the repair works of the embankment and fill up the site. The land development cost thus involved Tk. 104.642 million for 2592 households (equalling to Tk. 40,000/00 or 800/00 pound sterlings per household) (details in chapter 6, section 6.6.5).

The impracticality of schemes like this should be measured against the minimal investment capacity of the lower income dwellers for whom they were intended. Since these schemes can not be implemented without external financial support, they would appear to have publicity value only.

Any strategy for urban development in Bangladesh should be formulated within the context of overall national development or at least within the metropolitan regional level. The cost of reclamation and landfill programmes designed to extend the area of

buildable land in the metropolitan region has to be measured against the benefit of the city, the metropolitan region as a whole, even if the subsequent inhabitants of reclaimed land are from the lowest income level.

Other landfill options considered in certain upgrading projects undertaken by the UNDP and UNCHS may also be vulnerable in the following aspects :

11.6.3 Embankment piers or fingers

Being an option which attempts to establish a circulation network above flood level in finger like projections or piers (figure 11.2), this method, as currently proposed suffers from significant drawbacks.

It is argued that in this concept the settlement can grow incrementally over time with provisions for year round vehicular and pedestrian circulation and services and it is expected that the density will increase as services are upgraded. Yet it is ambiguous about the security of the occupants along that side of the embankment facing the river (figure 11.2).

While the illustration shows the location of the protected areas -- suitable for potential increase in density -- along the other side of the embankment axis, it is highly unlikely to expect any such

growth along the sides exposed to the river (areas pointed in figure 11.2). Essentially, these compartments will always remain open towards the river and are liable to be affected by tidal currents, particularly during the monsoon flood. Moreover, the segments of the embankment piers are also susceptible to the risk of breaching, occurrence of which in some of the delicate points will be able to substantially damage a cluster.

11.6.4 Landfilling through garbage dumping

Significant emphasis was given in the expert opinion to this alternative, identifying the possibilities of landfilling with garbage collected by the municipality, finally covered with river sand (chapter 6 section 6.6.3 (option IV), for preliminary information).

While it is true that this method costs roughly a third or less of standard fill methods (table 6.c), it should be noted that, as a policy for land reclamation, its application would be highly dangerous for the personal health of the population and the overall environment. The following points should be considered before implementation:

a) being mostly illiterate, the population is necessarily ignorant about environmental hygiene;

b) if not for drinking, most of the population will be depending on the water sources from nearby ponds or ditches at least for washing and bathing; most of them are unable to afford fresh water on their own;

c) the large scale garbage disposal practice managed by the Dhaka Municipal Corporation(DMC), is serious enough to expose the entire neighbourhood immediately into a havoc of polluted environment, with additional risk of spreading water borne and water related diseases. In addition, the environs will almost certainly deteriorate further with the advent of the monsoon.

A similar hazard has already been created in an area (near Gabtali) adjacent to the Mirpur bridge, where filling of low lying areas is currently taking place. While the disposal vehicles are depositing crude refuse on the road margins the result is serious fouling of the area creating an incredibly squalid and hazardous environment (plate 11-1).

Furthermore, sites filled with layers of garbage and sand topping must settle over a period of many years before being available for low rise pucca construction. Although, in Jatrabari (at the ciy's southern part), quite a large area of usable land was created, it took no less than two decades of garbage filling in what was then the outskirts of the city. The UNCHS interim report itself observed that former landfills in Dhaka are not suitable for permanent buildings

without expensive pile-driving until 10-15 years have elapsed.(5). Its effectiveness thus mostly lies in longer term landfilling in uninhabited localities where there is apparently no current demand for land either for accommodation or for agriculture.

No precautions could be taken to ensure that toxic materials do not leach from these landfill areas into drinking water supply boreholes nearby. Until today, no possible pollution control measures were taken with the disposal of chromate-bearing tannery wastes in Hazaribag area (plate 10-3).

11.7 ENCLOSED EMBANKMENT STRIPS PROPOSAL FOR GUIDING DEVELOPMENT

Considering the merits and demerits of the proposed alternatives examined above, a modified approach is visualised. The concept is framed through a number of characteristic features :

a) users participation must be initiated and encouraged in order to establish an incremental approach to landfill developments,

b) the scale of the work must therefore be reduced to be manageable by the participants,

c) guidelines must be provided, through which the physical development can be followed,

d) the authority can participate through providing non-continuous embankment piers in an attempt to show the outlines of the scheme,

e) the layout should be such that enclosed compartments can easily be created after the infills are developed by the users

To make it practically acceptable, a modified version of the embankmemt strip principle could usefully be introduced for guiding development. The principle like the previous finger concept, also include formation of access piers above flood level, but instead of continuous ones making open rectangles, it is approached through the construction of embankment strips which would ultimately form a series of enclosed compartments of irregular and varied sizes.

At the initial stage the piers provided will be non-continuous, comprising only linear segments --- running along the bank of the high lands--- and some cross piers distributed at reasonable intervals; all of them should reach up to the height above flood level. The cross piers would act as future connecting points; with the gradual growth, the embankment arms would ultimately be joined to these cross piers from different sides, thus forming enclosed rectangular blocks, added in turn (see figures 11.3, 11.4 and plates 11-4 and 11-5). It is most likely that the enclosures will grow irregularly according to the intension and courses of action taken by the users; the . figures illustrate the nature of developments with extensions in land filling in an irregular manner.

11.7.1 Scale and proportion

The innovation in this principle lies in that, instead of continuous filling, the development is followed by some linear guiding factors. In order to ensure incremental development according to guidelines, the scale of such development work must be small. The level of the work in the smaller scale would ease the users' participation; with the alteration of the scale to a more human one the proportion of the work will also be reduced. Through this, requirements of the individual users may also appear consistent.

The flexibility of this concept lies in that, while parts of the embankment piers will be found available not far from the edges (normally not exceeding 100 ft.), the participators, will be encouraged to fill in the gaps between the piers; and as construction of each strip progresses, the flanks will gradually be covered with rubbish materials by the households adjacent to each of the extension areas. As these are now smaller compartments, filling will not be impossible for them throughout time.

11.7.2 Filling materials

Elements of filling materials will vary. It was observed while surveying in section no. 9 (Mirpur cantonment), that most of the households collected broken (also unbroken), overburnt or otherwise discarded hollow bricks for fencing up the compounds or enclosing the verandahs (plate 11.2a, b). Some households in section no. 11 of Mirpur, were also found dumping accumulated rubbish from the construction sites and small scale industries. However, to identify a huge source of rubbish is probably more important with schemes involving urgent recovery of lands. In a continuous process of slow reclamation, accumulated rubbish may help to ensure steady continuation of the process. As long as the scale and proportion of the work is small -- to remain within reach of self help labour and management with no urgency for completion within a specific time limit --- access to sources of rubbish may not be a serious problem to impede the system in general. This kind of land recovery with self help initiatives is also prevalent in some other developing societies. For example in eastern Bandarharjo (Semarang), Indonesia, labour provided by the lower income dwellers have resulted in recovery of quite a substantial amount of land (plate 11-3a, b, and c).

Moreover, in the settlement behaviour of Mirpur, we have also observed that the dwellers spend money in extending their houses knowing that the properties are not owned by them. Accordingly, it

is not unreasonable to believe that users in some cases would also be willing to invest small amounts in reclaiming the land adjacent to their units. It is to be noted also that as the blocks will be built up successively; as more rectangular blocks are added successively, those initially built will structurally become more stable as reclamation continues.

Inevitably, after certain recovery of land, there will be a need for a reasonably high degree of management, the skill of which may not be available with the users. However, once the land is recovered and made suitable for development, it is expected that the adjoining clusters will be expanded in an informal manner. After allowing a reasonable period for settling, the next phase of intervention and the upgrading programme can follow.

11.7.3 Designers involvement

However, the role played by the engineers, architects and planners in the application of this principle is very important and specific. It starts with the exercise of designing the initial provisions which will determine how effectively the embankment strips can be laid out involving less effort from the users in providing the infills; cares to be taken so that the compartments are developed in an enclosed manner in shorter dimensions. The important role of the planners will be in outlining the zoning and access provision while the engineers will be able to contribute effectively in the design of the

earthwork in the most economic way. In each case the design will vary accordingly with the configuration and topographical situation of the site. The designers should therefore have practical ideas about the amount and labour and skill that can be made available with the users in their involvement in similar development activities.

11.7.4 Drawbacks and limitations

It is to be realised that this technique is feasible when land is available in substantial quantity to the authorities but they are unable to use it because filling is too expensive for their limited resources.

Since the participation of the users is the major determinant at work in this concept, it will not be possible to apply it in an uninhabited locality. To make the concept operable it should be applied in areas adjoining an existing expanding settlement so that the dwellers may reap the benefit of developing the areas incrementally as the need for more space increases with the growth of the settlements. The situation around many peripheral areas of Dhaka is quite suitable for such development where lower income population is cramped within limited settlement boundaries. Furthermore, according to the sources in the Housing and Settlements Department, a total of about 1460 acres of land was already under its custody in different parts of Mirpur Housing Estate (Gezetted vide no. DA-62/80/656. Reqn. dt. 28.11.80; see appendix-Q).

11.8 LAND RECOVERY POTENTIAL WITH THE CROSS SUBSIDY MECHANISM

What we have discussed in the previous sections as possible means of land recovery will not necessarily be found feasible for application in every location. In this part of our discussion we attempt to outline some other policy issues as possible alternatives for approaching the lower income shelter problems.

Since the major landfilling options are always costly (as revealed in chapter 6), and result in total land values too high to make housing schemes available to the target group, another option can actively be approached which attempts not to reduce the cost of landfilling but to utilize the price increase of developed land with the intention to capitalize on the Government's capacity to make land available for both commercial purpose and development of housing schemes for lower income people.

Within a well-organised financial framework, a system of cross-subsidies can thus be established to enable a part of the developed land to be affordable to lower income families, subsidized only by surpluses resulting from other land sales for commercial and industrial uses.

11.8.1 Cost analysis

The hypothesis has been examined through the cost analysis of land values plus development cost of low lying land finally offering them for commercial developments. The example, drawn with northern low-lying areas of Mirpur and Faydabad (outside the original Uttara plan area), has demonstrated the cost implications with practical references with calculations carried out on the basis of information of the sources of Housing and Settlement, Dhaka and the DIT. Details of the cost components are presented in the appendix-M).

The cost analysis reveals that within a 100 acres land package, funds raised after developing 50 acres and offering those for commercial and industrial use, will be sufficient to develop another 50 acres of land, where 3600 reasonably sized plots can theoretically be placed (fig. 11.5).[1]

While around 40% of the total area should be left over for open spaces in a proposed settlement, 2180 plots can be made available within the available sum.

On the other hand, in a 75 acre package, funds made available by selling 50 acres of land commercially will help develop an area of 25

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[1] (An area of 10 Hectares or 25 acres -- equivalent to 1094,400 sq.ft. can roughly be distributed among at least 1800 households, each of them occupying about 600 sq. ft. In other words, it can be distributed among 3600, within 50 acres or 20 Hectares).

acres, enough for 1094 plots (of 600 sq.ft. each) with the required amount of 40% open space remaining (656,640 + 437,760 = 1094,400 sq.ft.). Then again, the remaining balance, which will be available after the development of the above plots, can also help to provide at least 550 single roomed units of about 300 sq. ft.(details in appendix-M).

It should also be noted that the above exercise has been carried out assuming a land price of about Tk. 175,000/00 per Bigha, offered by the trust. Within the present market performance, the prices for developed lands are invariably higher, particularly with those having brighter potentiality for commercial developments. In some other peri-urban parts of the city where land prices are more than that considered above, will consequently result in high values after developments, thereby raising the difference money higher.

For example in Mirpur, the Government fixed the values for commercial land from Tk. 1,500,000/00 to 2,000,000/00 per Bigha (non-commercial land values ranging from Tk. 1,200,000/00 to 1,500,000/00); whereas the low land is sold at the rate of Tk. 100,000/00 to 300,000/00 per Bigha in the same location (Executive Engineer, Housing and Settlements, Mirpur). Through similar calculations, it can be demonstrated that a higher number of units can be provided. (also see appendix-E:(A),(B),(C) for details of land values).

11.8.2 Capability of commercial developers

A general practice observed with the developments of commercial buildings around the city is a system of 'salami' or key money payments to the owners or landlords before possesion is permitted. When the development occurs in potential business areas, the claim for salami payments are enormously high (for a 100 sq.ft retail roadside shop in Islampur area of old Dhaka, it may be Tk. 200,000/00 or more). 'Salami' payments takes the form of additional payments, apart from the usual monthly rents, ultimately forming surplus capital several times higher than the initial investments made. This illustrates one of the reasons why it is not problematic for commercial developers to purchase developed land with high values; moreover, a consistently high demand is found to prevail with land having commercial potentialities.

11.9 ALLOCATION OF EXTRA PLOT AREA

It has been clearly observed that the ability of the lower income population to afford any housing investment is so negligible that it should be kept out of any consideration. Although a few of the previous studies (for ex. the DMAIUDP) attempted to make some finance available with the savings generated from the existing sphere of their small income, but in reality it can be established almost certainly that:

a) the amount collected in this way would be grossly inadequete in comparison with that required for any housing development,

b) the amount can be collected only after the curtailment of other essential expenses of their daily neccessities,

Thus it is unreasonable to consider the funds to be available for any sort of housing development, unless the opportunities of extra income can be created.

Therefore, the underlying principle in this proposal is that, in a highly speculative land market, land values would increase much more rapidly than the annual interest rates of the investment money or the original loan. The World Bank observed that, in Dhaka, land prices increased 60-90% faster than the consumer price index during the 1974-'78 period (6). (see also Table 6.3 and 6.4 for the trends of land values in Dhaka city during 1974-'78 and 1978-'83, in chaper 6). The innovative aspects introduced through this concept are:

a) instead of giving residents one normal sized housing plot, they will in effect be given the equivalent of two,

b) a core comprising a single room of moderate size and a verandah will be provided along with the housing plot,

c) the payment, which will be kept suspended for the first five years, is then paid either in a single payment or over a further five year period,

d) the payment can be made using either :

i) the profits made from the sale of one-half of the whole plot provided or,

ii) additional earnings made from the rooms rented out within the extra area provided.

The following are the procedures of the proposed programme in sequence, drawn in the peri urban context of the metropolis.

11.9.1 Land Purchase and development

A wide variety of land should be identified according to its locational suitability for lower income families, including proximity to the workplaces or to an effective and dependable communication system. We have already mentioned that the major portion of the western and north western fringe belt lies within 3 to 4 miles from the city's central district. A close analysis is required of all other agencies involved in the housing process and the location of lands they control. In Mirpur, which is mostly occupied by the lower income population at present, several hundreds acres of land can be

made available by the Housing and Settlements Directorate, from many of their proposed schemes and vacant low land (appendix-F, Land utilization information under Mirpur housing estate). In Baridhara, Uttara East and Kallyanpur areas another 500, 1000 and 250 acres respectively are available, together totalling 1750 acres held by the public sector (7). This land can provide opportunities for lower income housing projects without involving extensive land filling costs.

But it is up to the concerned authority to acquire the necessary land at reasonable cost either by expropriation or, preferably, by purchase. This will allow it to compete favourably with any other housing agent or developer. In the analysis of the cost we have thus considered the purchase of land at the existing market price in order to determine the actual cost implications and success of the proposal (see appendix-E for land prices).

11.9.2 Plot size and core provision

The size of the plot is an issue to be decided upon carefully. From the experience in Mirpur, the units covered an area of about 250 sq.ft. or 23.23 sq.m., with an original provision of only a single room and a verandah. Equally important is that about 84.3% of the households have increased the area of the units up to 650 sq.ft. or about 60 sq.m. (chapter 10, table 10.6).

If for example, the total area per household is allocated at 1000 sq.ft. or 92.93 sq.m., including the original core provision of 300 sq.ft. or 27.88 sq.m., that would effectively provide the extra amount of area to 700 sq.ft. or 65.05 sq.m. (figure 11.6: core with extra plot area).

Also it should be noted that the socio-economic profile of an economy, including its ability to afford any particular scheme, will certainly determine the size of the original allocation of plots. An area equivalent to the normal plot size in Mexico (150 sq.m. or 1614 sq.ft), where this idea originates (Ward, 1981), appears to be unreasonably oversized with respect to the affordability of the lower income households in Dhaka.

There remains the possibility of the higher income group taking possession of these extra plots eventually. In an attempt to evade such an invasion, one of the possible options is to offer reduced plot size. The spaces prescribed in the standards are irrelevant and out of the affordability of the lower income group. Most of the households in Jurain or Hazaribag had their cooking activities at the corner of their habitable room hardly covering 10 to 15 sq.ft (about 1 to 1.4 sq. metre) area. Exterior cooking spaces do not cover more than 80 sq. ft. or 7.4 sq. metres with at least 98% households in Mirpur. (Table 10.14). Space needed for other essential indoor and outdoor activities (like dining, bathing, washing, drying etc.) are also similarly reduced and the households are found able to manage

within that amount of space without any noticeable degree of dissatisfaction; one of the reasons behind this is the realisation of the fact that there is absolutely no chance to get a better alternative than the existing one and secondly, if evicted they will almost certainly be on the street. Thus, it is the limited amount of space which is expected to discourage the invasion of the higher income group.

11.9.3 The contract

The contract would involve the occupier (of the plot plus the unit) and the authority in the following set of commitments:

Firstly, the dweller should immediately take the possession of the unit and start consolidation.

Secondly, the contract should specify clearly that after five years time, a certain amount is to be paid immediately or over the subsequent five years, to be agreed in consultation with the authority.

The contract should also ensure the participation of the dwellers who are expected to put up a large proportion of the labour force, with the municipal authorities providing necessary materials, to help installation of basic services in the community after a specified period.

Thirdly, no repayment is required over a period of first five years. But the dwellers, in the mean time should make honest efforts for improvement of the dwellings.

It is again not unlikely that, in extreme economic hardship, the selling of one half of the plot could be decided before the designed time limit of five years. In an attempt to ensure its protection, an agreement should be formulated in such a way that it will only permit the households to sell their plots only after the five year period when the invested money is not realized. Their status during the first five year period can be maintained, more appropriately, as an occupier of the property; the formal ownership can finally be transferred after the first five year period when the conditions are satisfied. In other words, the system is to be outlined through a temporary agreement with the household who will not be in a position to sell any part of the property before an initial payment of a certain percentage is made within a specified period. Some other precautionary measures can also be taken as per necessary of the prevailing situation.

In other words, the deeds/documents can be kept with the authority for the specified period. Similar practices are already in operation with the House Building Finance Corporation (HBFC) who retain the documents in providing loans to the formal sectors.

11.9.4 Rental facilities / provisions

Although it was argued in the original proposition that the commitments should include the prohibition of renting and the occupier would be treated as a violator of the contract if any detection of renting could be identified, nevertheless the consequence of such practice can not be the same in every economy.

One of the reasons behind the prohibition was that it aimed towards the increase of value of the settlement to the benefit of the owners; thus it called for the owners responsibility and vigilance for any wrong use to the system such as non-improvement of lots, non-participation of public works or renting out of rooms which would detract from the eventual value and attractiveness of the settlement.

However, the situation is rather different in the context of Dhaka. Since the basic question of paying back is highly inter-related with the affordability of the households and, as revealed from the participants of subrental activities in Mirpur, most of the households would demonstrate a high degree of enthusiasm to go for renting as financial support in order to pay back the money.

The growth of the settlement in Mirpur, with the evidence of transformations, explicitly suggests that it would neither impede the attractions of the future purchasers nor would it detract from the eventual value of the lots in such a highly demanding housing market.

From the survey it was revealed that at least 25% of the household surveyed have paid extra key-money (below Tk. 20,000/00) to the previous occupier of the units. The amount of key-money is several times higher now, should someone so wish to sell off the possession of the unit. All of these observations certainly show that the selling value would certainly not be reduced with the addition of rental facilities.

The other advantage which is expected to be gained from the rental practice is that, almost immediately, the number of beneficiary households would be increased (to nearly double). It is to be noted also that many of the lower income households are not in a financial position to pay rents for more than one room. The rental scheme should thus help to reduce the accommodation crisis to some extent.

11.9.5 Cost implications in the application of the proposal

The cost implications in this section include the components of construction of accommodation units, land purchase and development taking account of the extra amount of plot to be provided to the households. The cost factors about the land purchase and land development are based on the sources of Housing and Settlement, Dhaka Improvement Trust (DIT) and Dhaka Municipal Corporation (DMC) respectively.

i) number of plots :

Considering the development of an area of 10 Hectares (approximately 25 acres or 76 Bighas, equivalent to 1094,400 sq.ft.), and assuming 40% percent of the area (that is approximately 437,760 sq. ft.) will be left over for open space in a proposed settlement, an area of 656,640 sq.ft. (or 6,1026 sq. metres) can be made available for distribution.

Each of the plots having an area of 1000 sq. ft., in accordance with the proposal, at least 650 plots can be proposed for distribution (along with 650 constructed units), within the specified area mentioned above.

ii) Construction cost of 650 units :

Considering a covered area of 300 sq. ft. per unit and the construction cost of Tk.250/00 per sq. ft., the cost per unit becomes : Tk. 75,000/00. Thus the total construction cost of 650 units will be : Tk. 48750,000/00 [(75,000X650=487 lacs)] .....(a)

iii) Land purchase :

While most of the peri-urban land areas can be considered low-lying, as mentioned in the cost analysis of previous section, the selling price of land can be considered as : Tk. 600,000/00 per acre

or, Tk.1482,000/00 per Hectare. .....(b).

iv) Land development :

Following the schedule of rates of Dhaka Municipal Corporation for 1985, the cost for landfilling for an assumed average depth of 10'-0" (appx. 3 metres), over 1 Hectare of land, will be Tk. 2,100,000/00 per Hectare. .....(c).

v) Total cost of land :

The total cost of land, comprising the purchase and development will be Tk. 3,582,000/00 per Hectare [(b)+(c)]. Therefore the total cost for 10 Hectares (approximately 25 acres) will be about: Tk. 3,6000,000/00 ..... (d).

vi) Total cost of plot and unit:

The development of 650 plots (each covering 1000 sq. ft. or about 93 sq. metres) along with the construction of 650 units therefore would cost : Tk.84,750,000/00 ..... [(a) + (d)]

This cost is equivalent to Tk. 130,385/00 per plot, which covers a single roomed unit of 300 sq.ft. plus an extra plot area of 700 sq. ft. adjacent to the unit.

11.9.6 Selling after five years

The above price of developed land is equivalent to Tk. 100,000/00 approximately, per 1000 sq.ft.[1]

When the unit construction cost is added it can safely be assumed that the total valuation of the property would be no less than Tk.200,000/00 per plot. Considering the valuation would be increased at the rate 25% per year the value is expected to be doubled within three years. To get similar return from banks it would normally take six years with an interest rate of 15%. It should also be noted that the above exercise is demonstrated only with respect to the rates of undeveloped land in Mirpur area which is the lowest among many other peri- urban regions.

11.9.7 Organisation of the household space

Some of the previous research has categorised the spaces of urban house broadly in formal, informal and service areas (Mallick, 1987). Such compartmentalised use of spaces is irrelevant with the lower income households who normally stay in a one or two roomed units.

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[1] (The selling price of undeveloped low-land with non-commercial potentials, was ranging between Tk.100,000/00 and Tk.300,000/00 per Bigha in 1986 (Executive Engineer, Housing and Settlement, Mirpur). The offical price of developed land in the area was Tk. 850,000/00 per Bigha, which was increased to Tk. 1000,000/00 per Bigha in 1986. The unofficial price of non-commercial land averaged Tk. 1400,000/00 per Bigha , ranging between Tk.1300-1500 thousands).

From the point of view of the scarce supply of resources, it is assumed, as it was in Mirpur, that, it may not be possible to provide a core comprising no more than a single room and a verandah within the extra plot scheme.

In order to accommodate the household members (the average size being no less than 5.1) or to encourage the rental practice by most of the households, it is important that a certain degree of flexibility is ensured in the design of the accommodation units. This should also include the potential for the alteration and extensions in the units in future. It should be noted here "that the house form is not simply the result of physical forces or any single casual factor, but it is the consequence of a whole range of socio-cultural factors seen in their broadest terms. Form is in turn modified by climatic conditions." (8).

The design criteria along with the factors related to the space organisation in the initial core provision are discussed in the following with a view to facilitating the future transformation process.

Major elements to be considered in the design decisions are:

a) Approach :

The approach to the units is particularly important as it may present the question related to flexibility in an entirely different way. Rectangular rooms/units are better approached laterally -- that is through the longer arm of the structure (not through the shorter arm). Besides, this increases the functional aspects for approaching any spaces independently created with partitions. Being a very simple one this practice is very common and less cost involving. On the other hand, if a space is approached through its shorter side, its utility is detrimentally effected (figure 11.7).

b) Internal space:

Internal spaces should be designed in such a way that they can be brought to new or alternative uses according to the need. Alterations may involve the putting up of temporary partitions to divide up a space or in other cases putting up of permanent walls with internal connecting doors. Flexibility of use of the internal spaces of the urban houses is thus an important consideration. The size and shape of the rooms and their relative locations determine flexibility to a greater extent.

From the point of view of the possibility of alterations being made to the internal spaces, the shape of rooms should consider a system which would permit placing of partitions to create smaller rooms with reasonable size and proportions suitable for convenient use. This almost inevitably dictates a rectangular shape with linear

proportion.

c) Verandahs :

Alterations to the internal spaces of the unit are needed according to the changes in the family status and need. Verandahs are useful in this regard and are easily converted to rooms.

The design of a verandah should thus bear the qualities of a functional space in the house . Like most of the Bangladeshi houses where the internal spaces are multifunctional -- verandahs increase the usability of the household spaces.

Verandahs should, therefore, be attached to the habitable rooms which have the entrance doors. A verandah would basically serve two purposes. Firstly, while in use in the existing form the verandah would serve the general purpose of an intermediate or semi-private lobby space and, secondly, the space should have certain functional qualities other than being a part of an entrance transition. That is, if included as a part of the internal space, it should be convertible to a room with the least possible structural alterations. Two major features are to be considered:

i) Preferably, they should be semi-enclosed in character; that is at least two sides (if not three) should be enclosed by walls of the unit, keeping only one or two sides open (fig. 11.7). This would

demonstrate roomlike qualities and such types can be easily converted to rooms.

ii) Design of railings and drop-walls in the verandahs should allow easy conversion to rooms.

d) boundary walls:

The design of the units should essentially include the boundary walls. The primary function of the walls are to demarcate the plot area. Another function is to create a visual barrier between the street and the house.

The boundary wall as a design element should be incorporated with the design of the house as a whole. In order to reduce the cost of the units, the sides of the boundary wall can be incorporated within the accomodation units as walls (fig. 11.8). In doing so, the dwellers can also make extensions with the help of the walls.

11.10 CONCLUSION

The strategy outlined in this chapter attempts to establish a favourable context within which the supply of housing units for the target group can be ensured.

It is important to incorporate a regular monitoring and evaluating process so that the degree of success can be measured and modifications can be made as required.

In order to get acquainted with the planning, management and administration in implementing the theme, it is advisable an early stage to work with a settlement having a managable number of households or population. Thus the investment agencies will also be able to gain experience with the fiscal measures while less financial risk is involved. Accordingly, the concerned authority and developers, being able to identify the defects, will gather confidence for future implementation of similar schemes adopting appropriate measures.

At the beginning, it is likely that the production of additional units will be slow; but it should be increased as soon as implementation of the smaller settlements are carried on successfully.

The strategy and development issues depend very much on the execution of appropriate policy measures. The problem of land availability associated with the inability of the households in housing investment are more likely to concern attitudes and methods of implementation of the concept than standards and formal physical designs.

It is important to ensure finally that the effects of the strategy outlined here is expected to result in a significant increase in the lower income shelter provision, with the recognition of the physical constraints in and around the metropolis, rather than provide a fortunate few with an opportunity to enrich themselves at the expense of the majority.

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[3] **Dainik Bangla (the daily Bangla)**(1987). "Parade Square Nirmane Tin Koti Taka Bai Hobe". 26th February. p. 8.

[4] Personal Interview, Asstt. Engineer, Dhaka Improvement Trust, 1986.

[5] **Consulting Engineers and others**(1985). Housing Development Project, Subcontract "A". UNCHS. Chap.5.

[6] **World Bank**(1981). Bangladesh Urban Sector Memorandum. Report no. 3422-BD. p.27.

[7] Areas as identified in the DMAIUDP report. Vol. 2. Urban Strategy. Appendix-C. p.-145.

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[9] Fuad Mallick. op. cit.

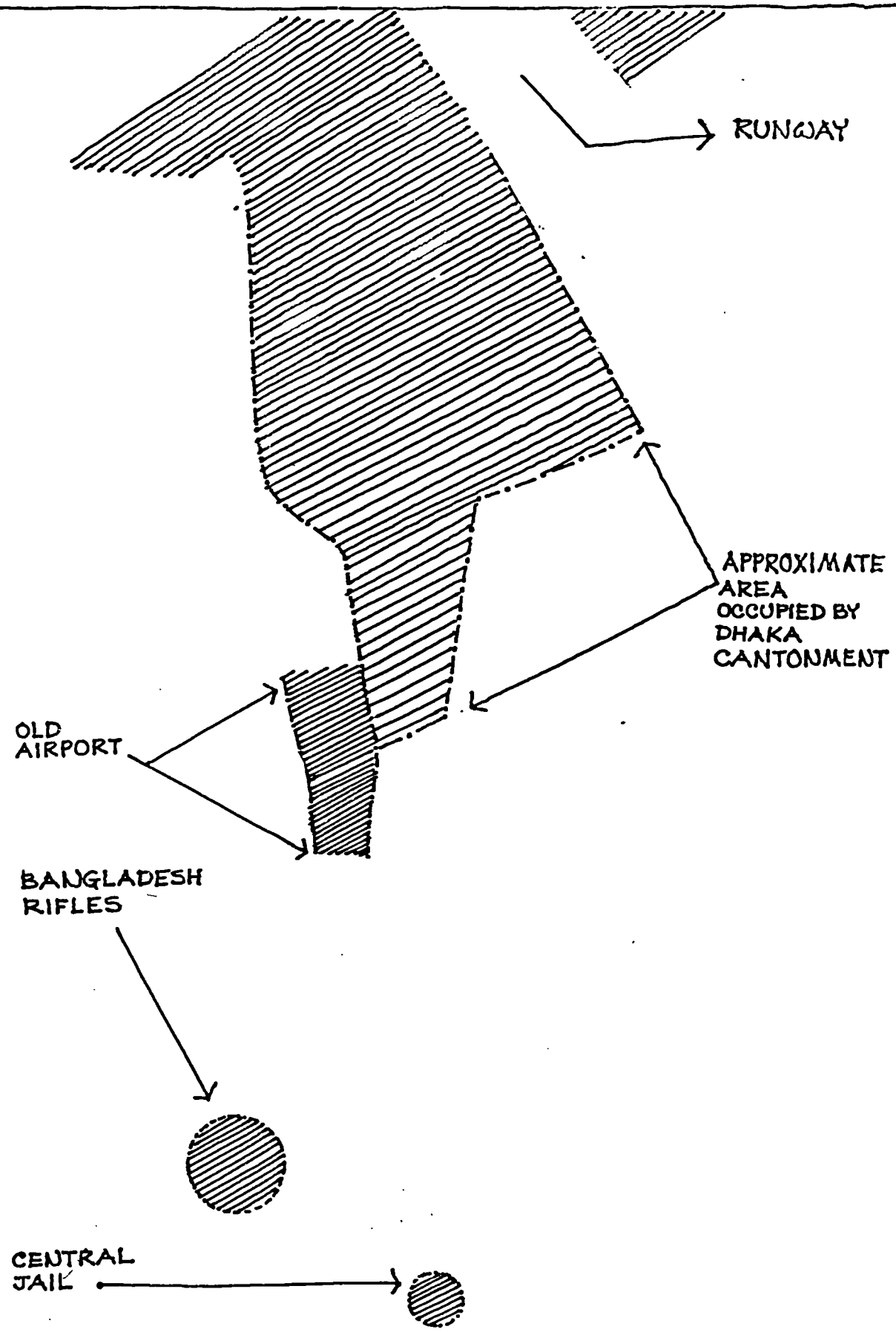


FIGURE : 11.1
Location of the cantonment, bangladesh rifles and central jail and areas they occupy
scale: as below.

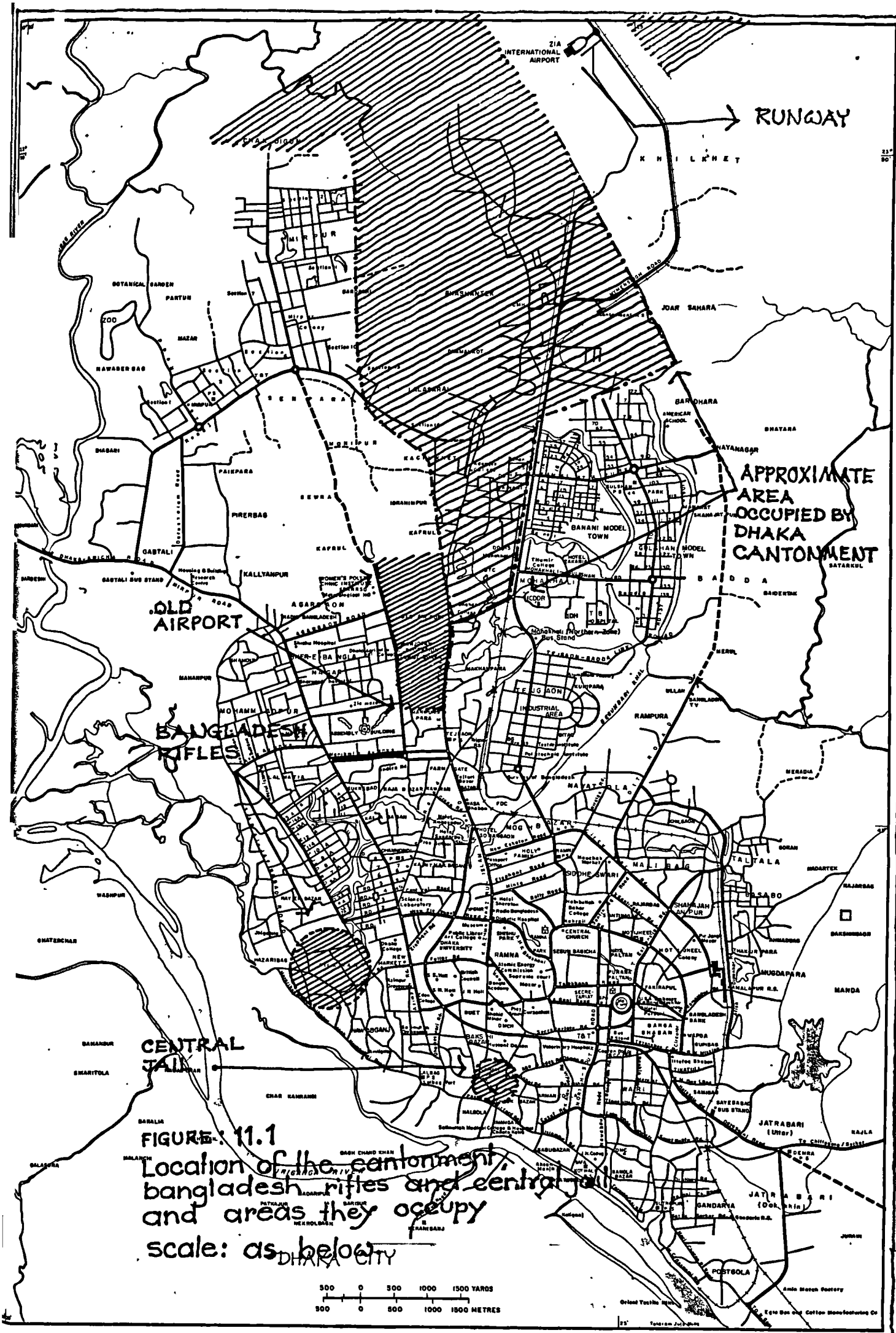


FIGURE: 11.1
Location of the cantonment, bangladesh rifles and central jail and areas they occupy
scale: as below

a

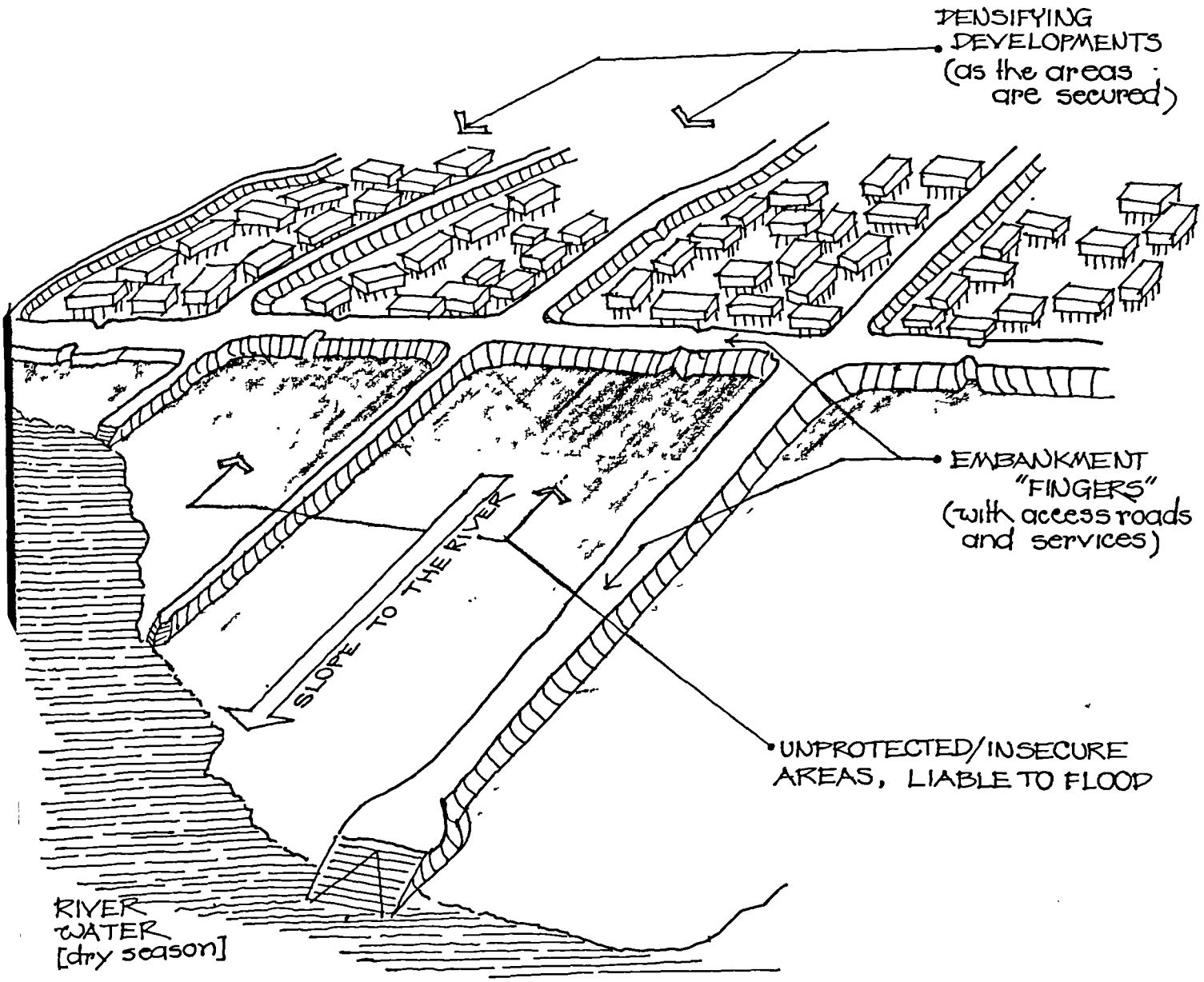


FIG. 11.2

EMBANKMENT PIERS OR "FINGERS"
(source: housing development project subcontract "A").

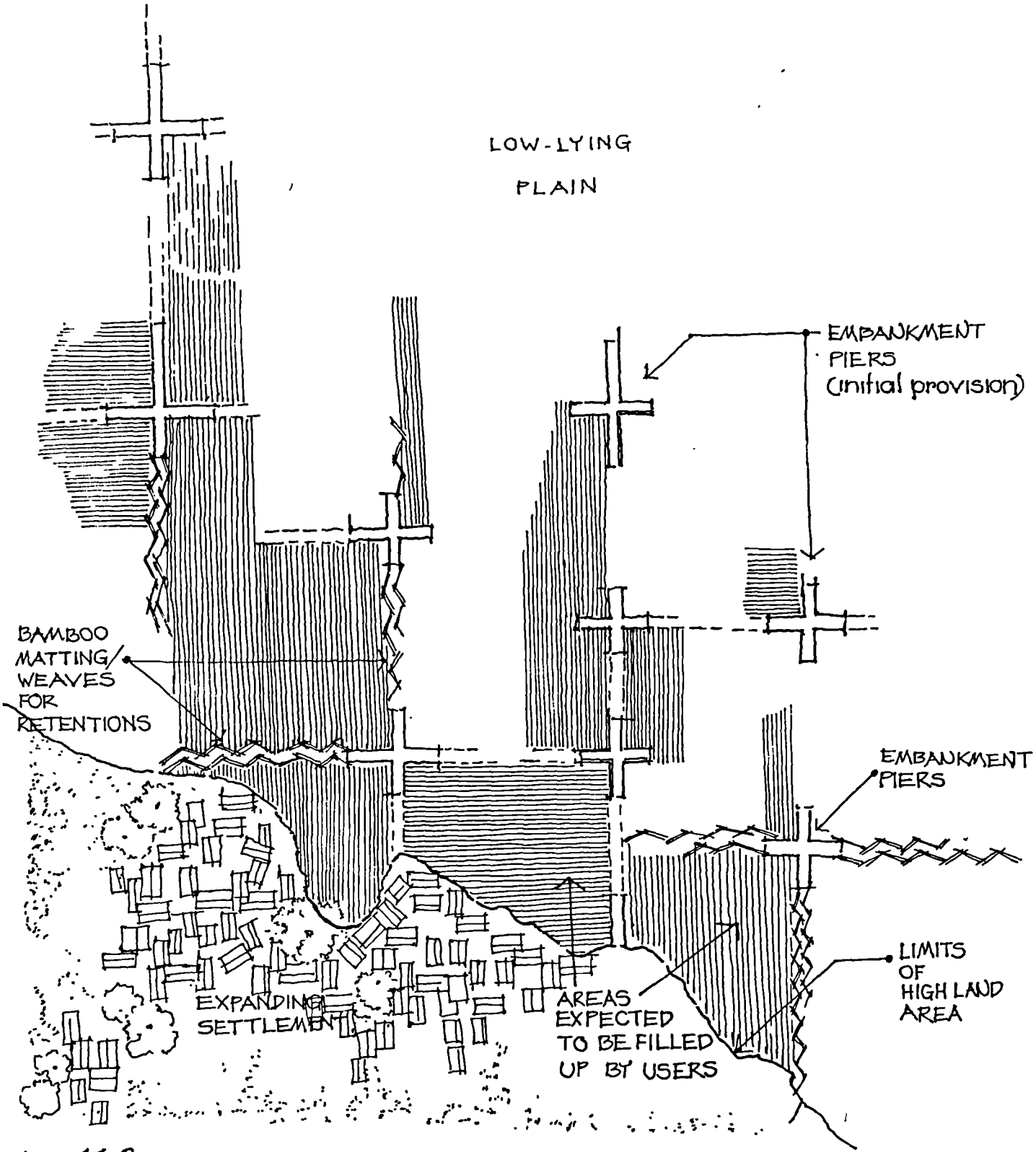


FIG. 11.3.

LAND FILLING INCENTIVE FOR THE DWELLERS :
incremental development approach

FIGURE SHOWING EARLY STAGE OF DEVELOPMENT

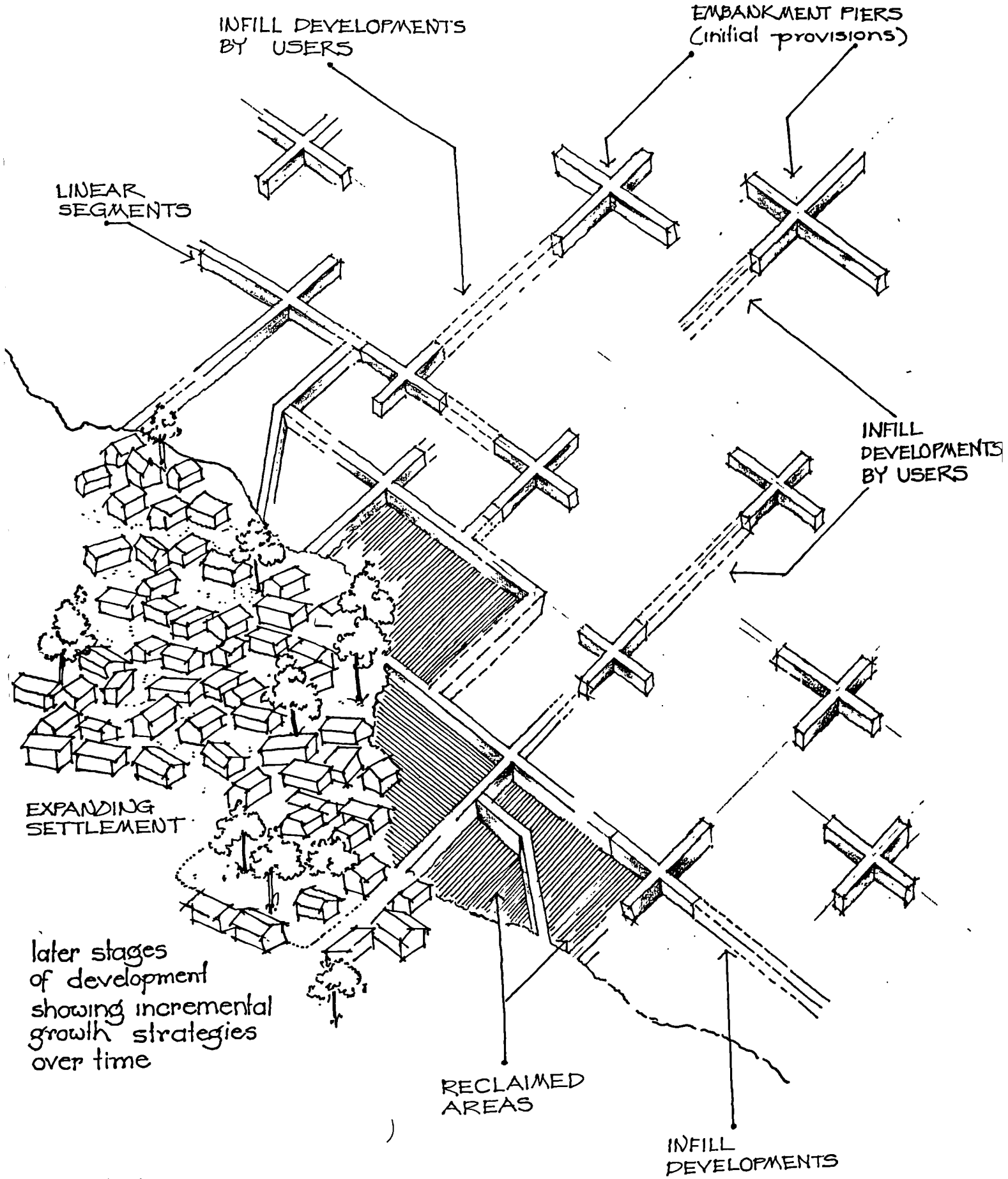


FIG. 11.4.

ENCLOSED EMBANKMENT PIERS FOR GUIDING DEVELOPMENT

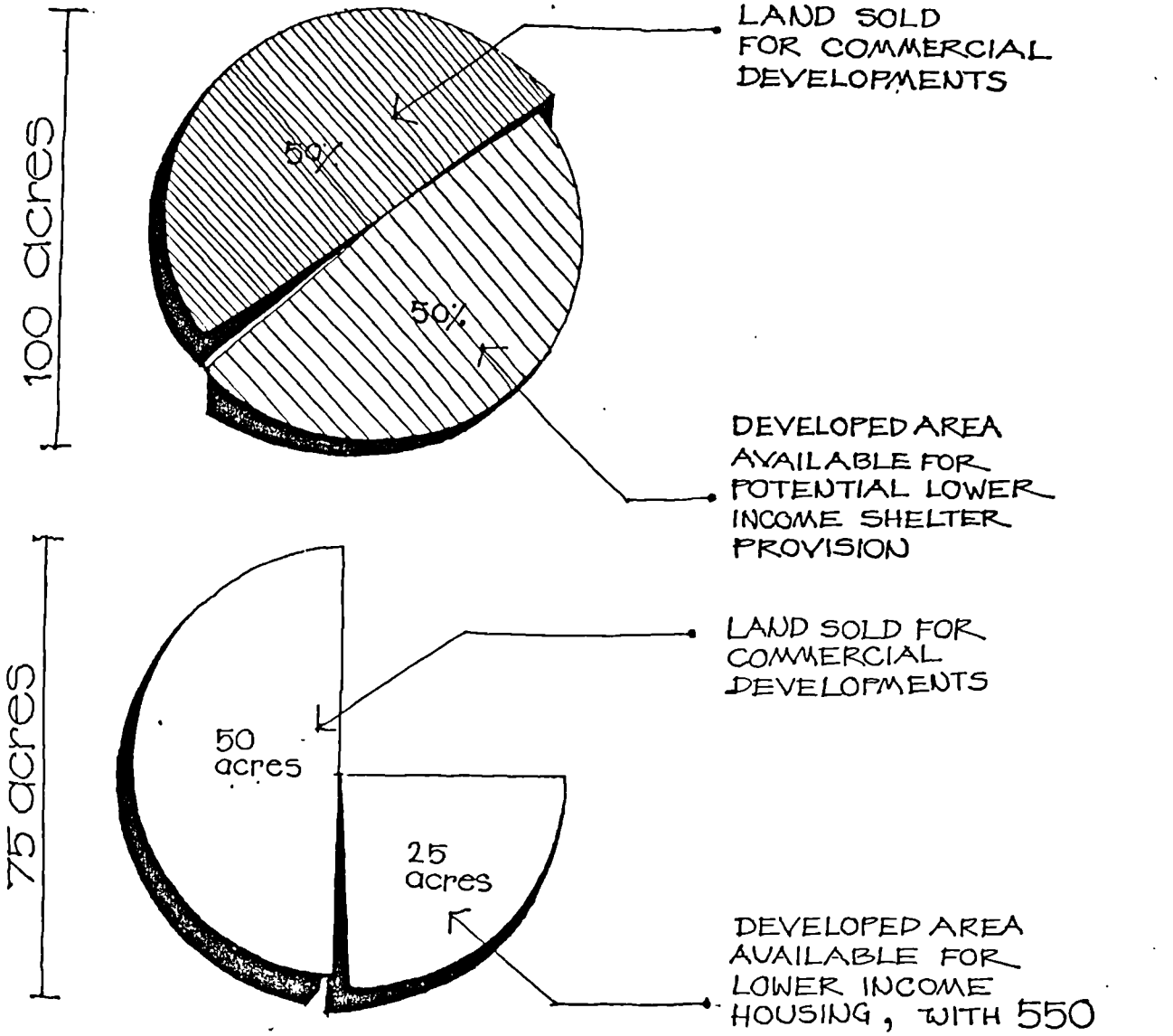


FIG.11.5
land recovery potential with CROSS SUBSIDY MECHANISM

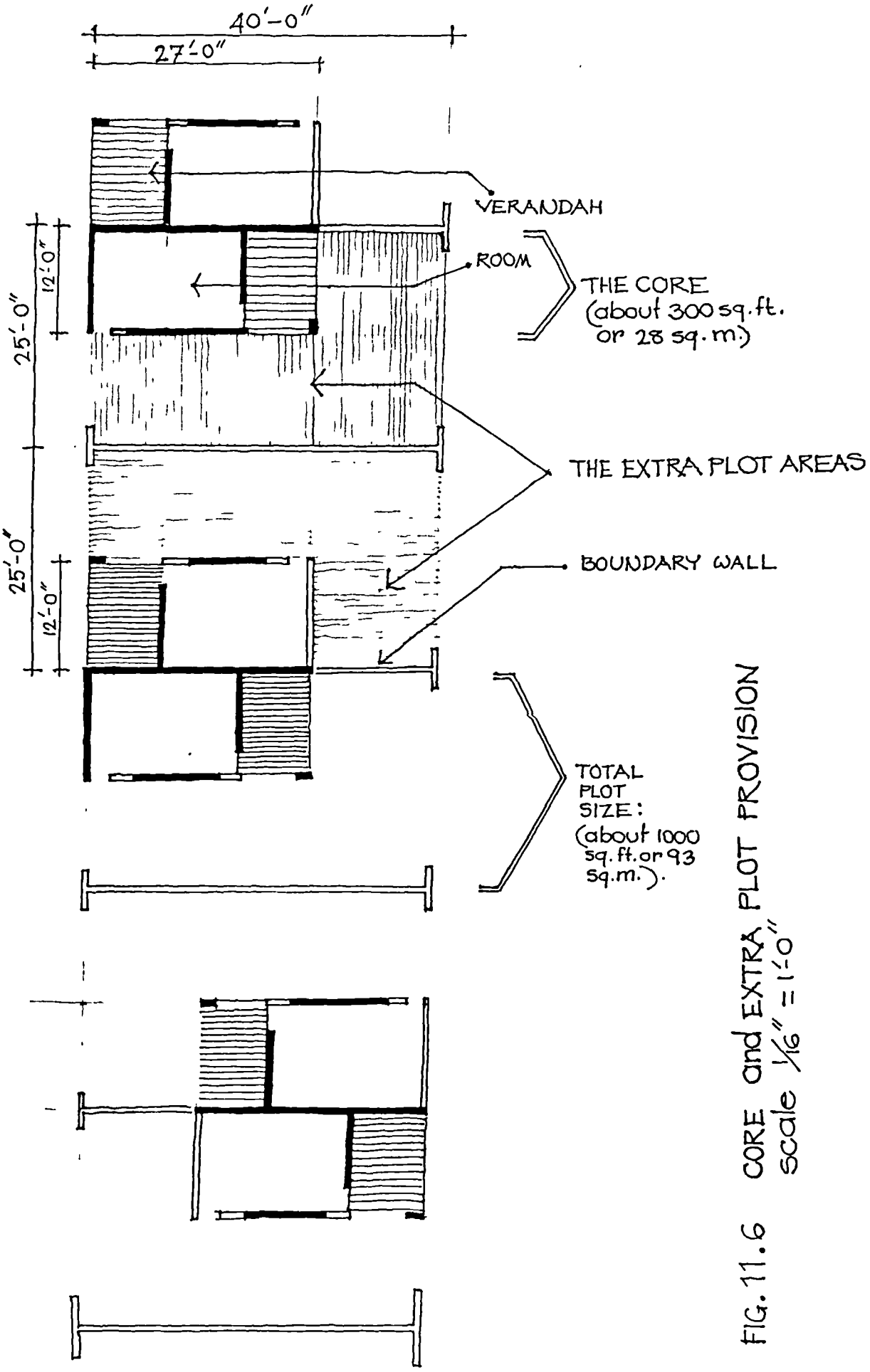
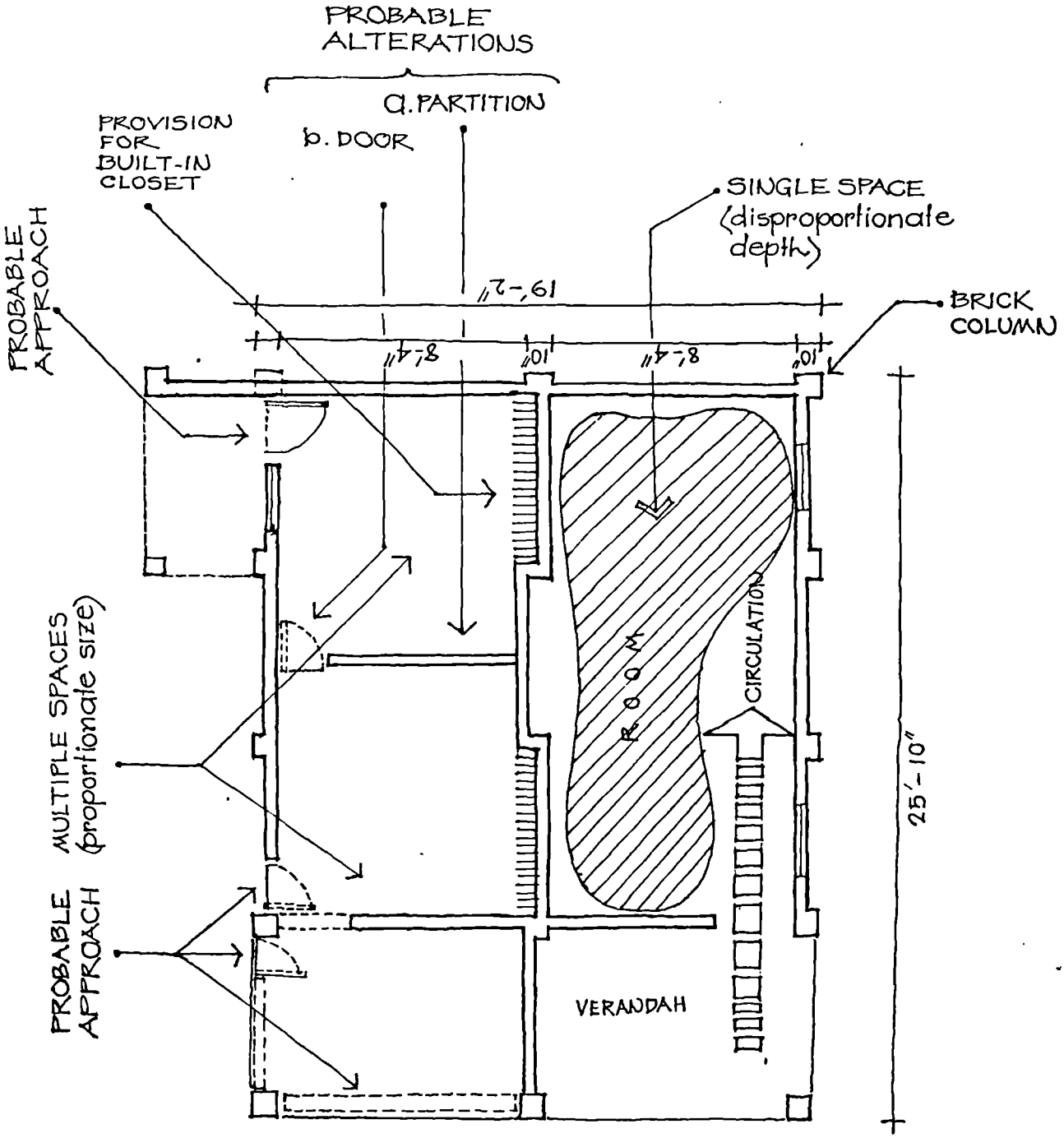


FIG. 11.6 CORE and EXTRA PLOT PROVISION
scale 1/16" = 1'-0"



a. utility is increased if the unit is approached laterally

b. existing use

FIG. 11.7 : APPROACH TO THE UNITS.
(not to scale)

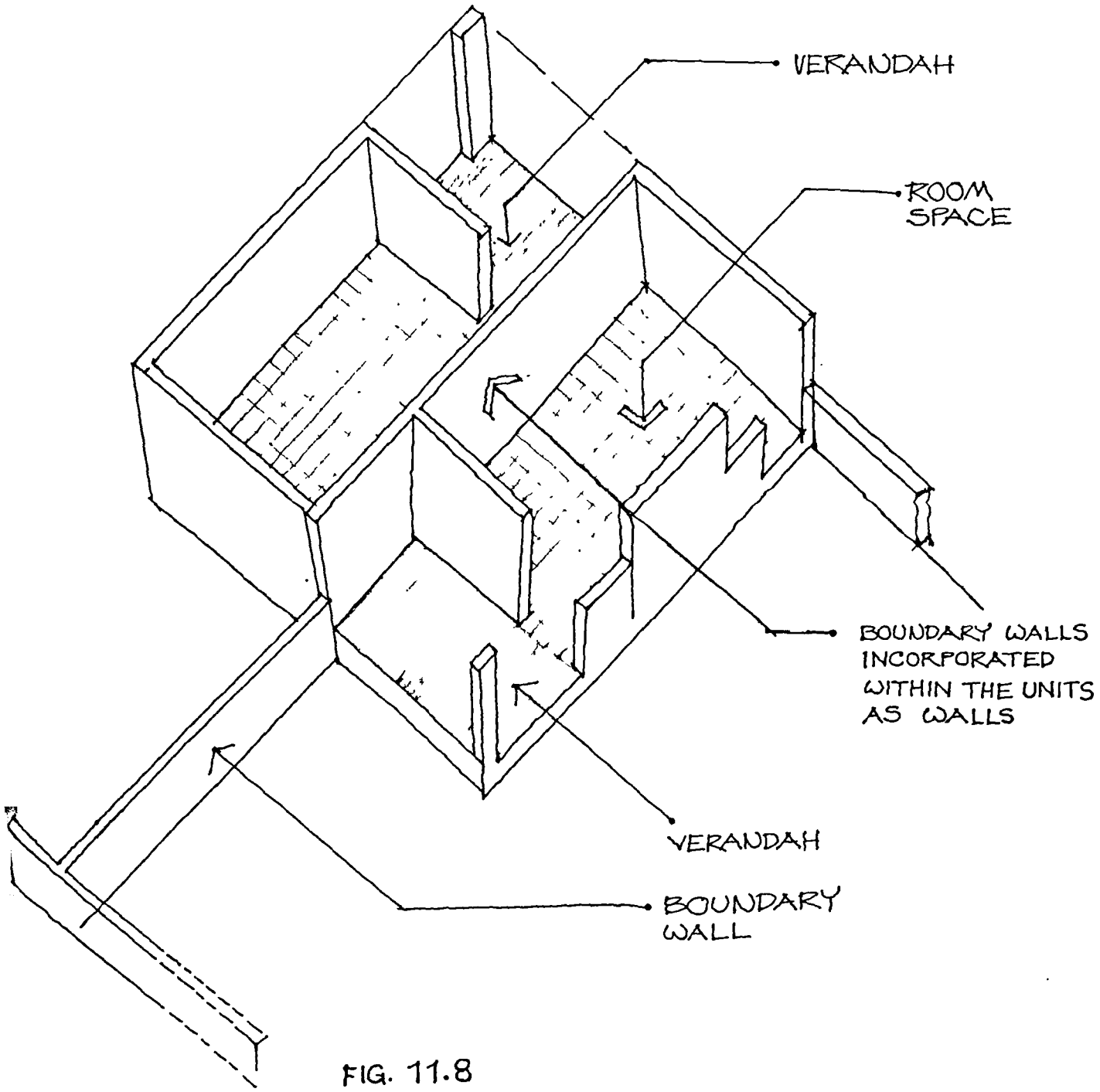
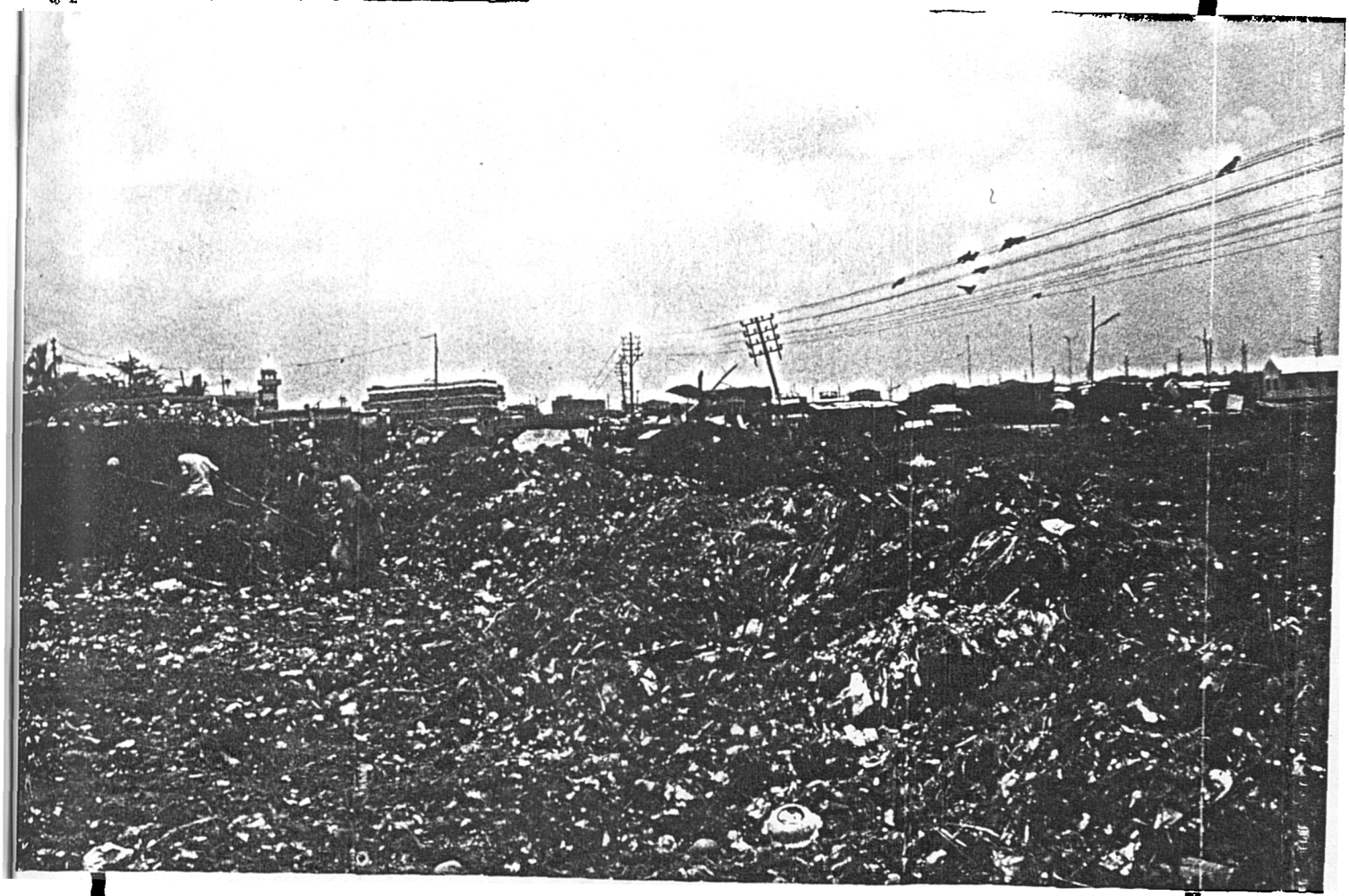
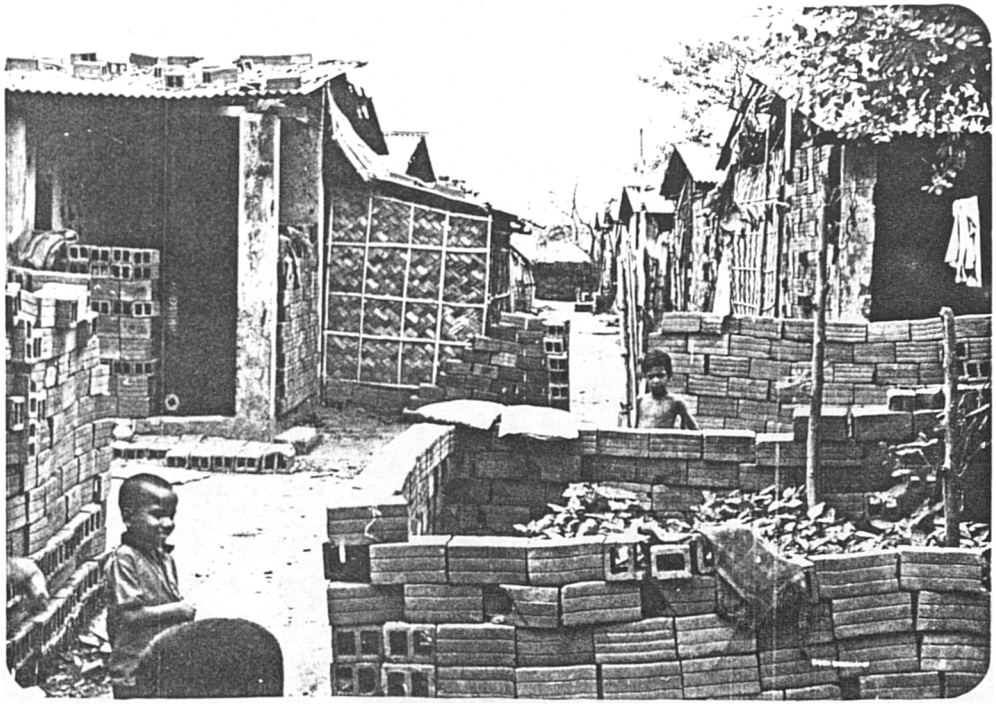


FIG. 11.8
BOUNDARY WALLS IN THE DESIGN OF UNITS.



PL. 11-1.
GARBAGE DUMPING BESIDE MIRPUR ROAD,
GABTALI, DHAKA: a squalid environment

a.

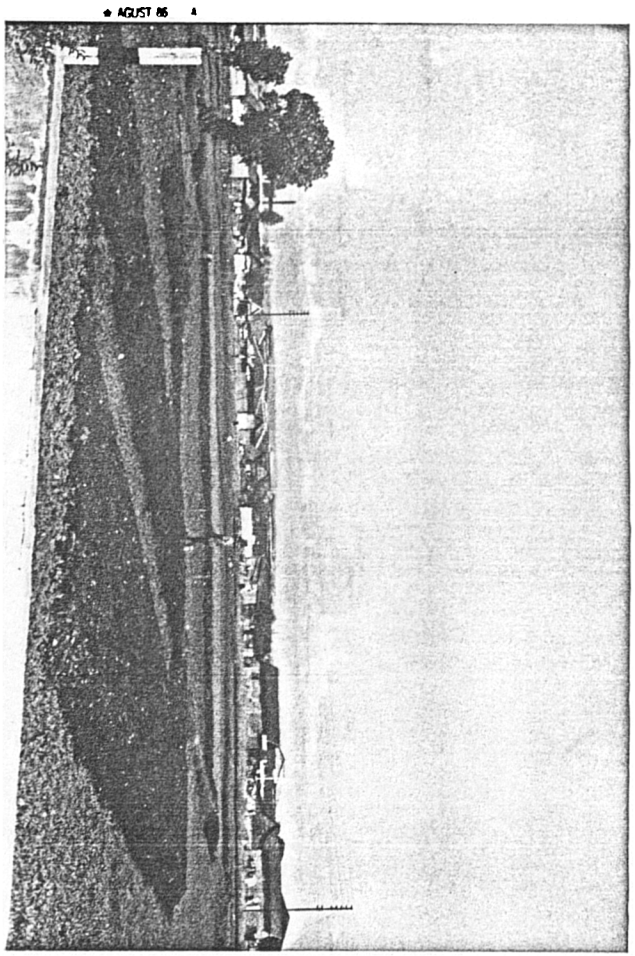


b.

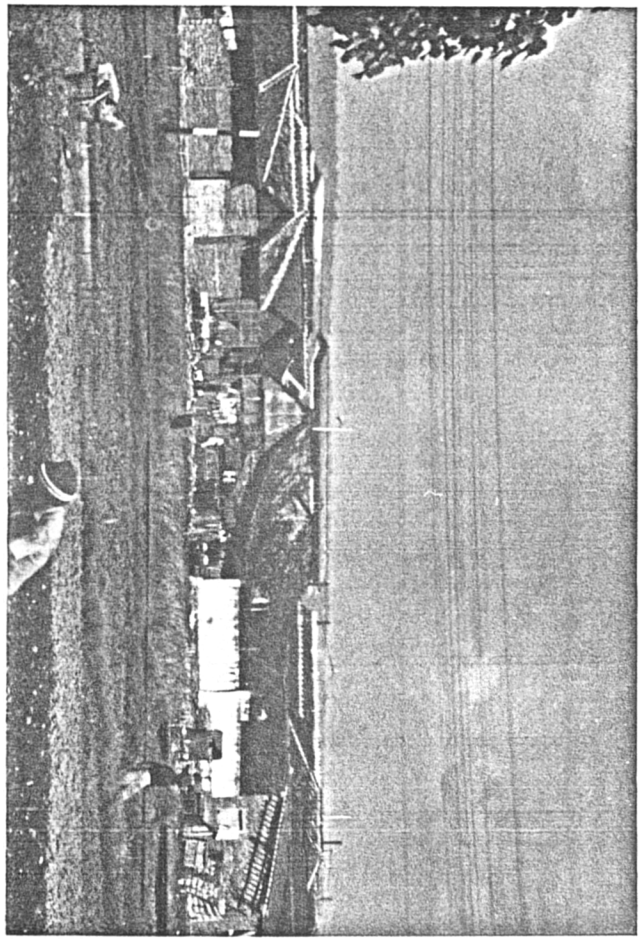
PLATES 11.2a, b:

HOLLOW BRICKS USED BY THE DWELLERS FOR ALTERATIONS/ EXTENSIONS: section 9, behind Mirpur Cantonment.

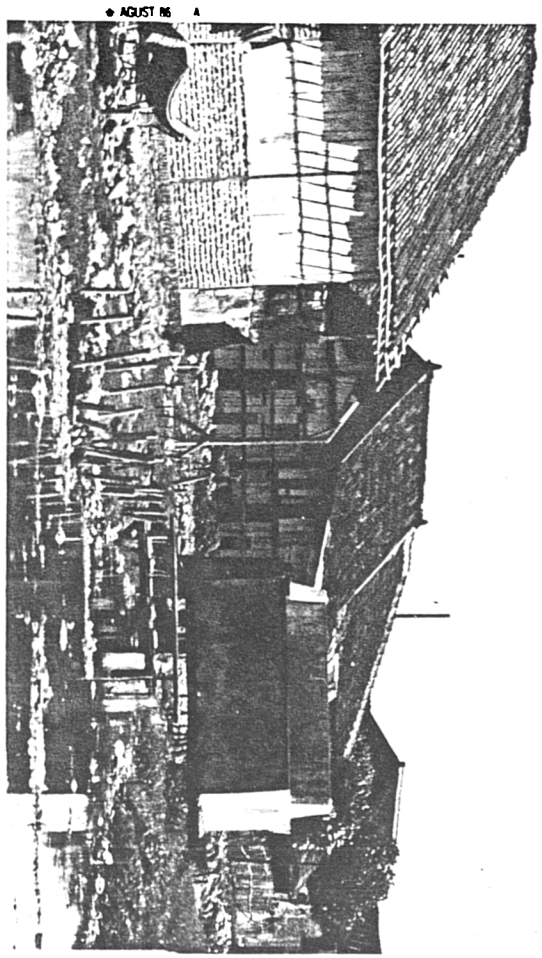
PL. 113 a,b,c



a.

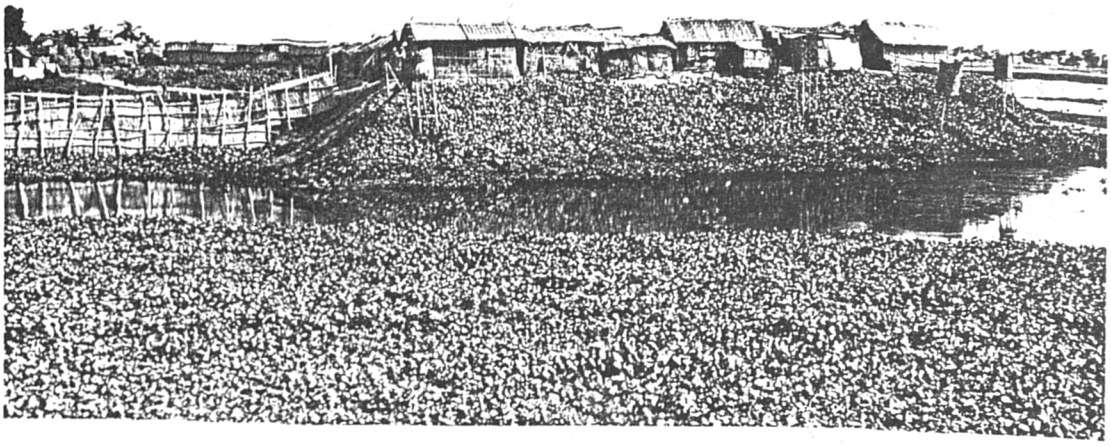


b.



c.

LAND RECOVERY BY LABOUR PROVIDED BY THE LOWER INCOME DWELLERS:
in eastern BANDARHARJO, Semarang; JAVA. INDONESIA.
[courtsey: Atyanto Dharoko].



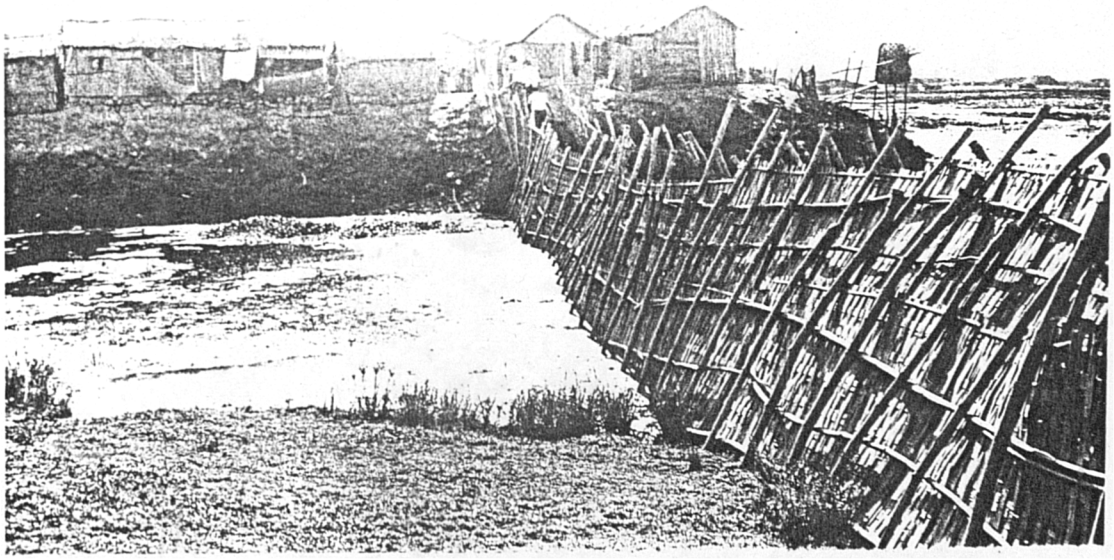


PLATE.11-4 a,b:

a. A CLUSTER IN LOW-LYING HAZARIBAG, ON ISOLATED MOUND TOP WHICH IS CONNECTED WITH

b. EARTHFILLED BRIDGE. (retained with bamboo matting and poles) TO THE NEABBY HIGHLAND.

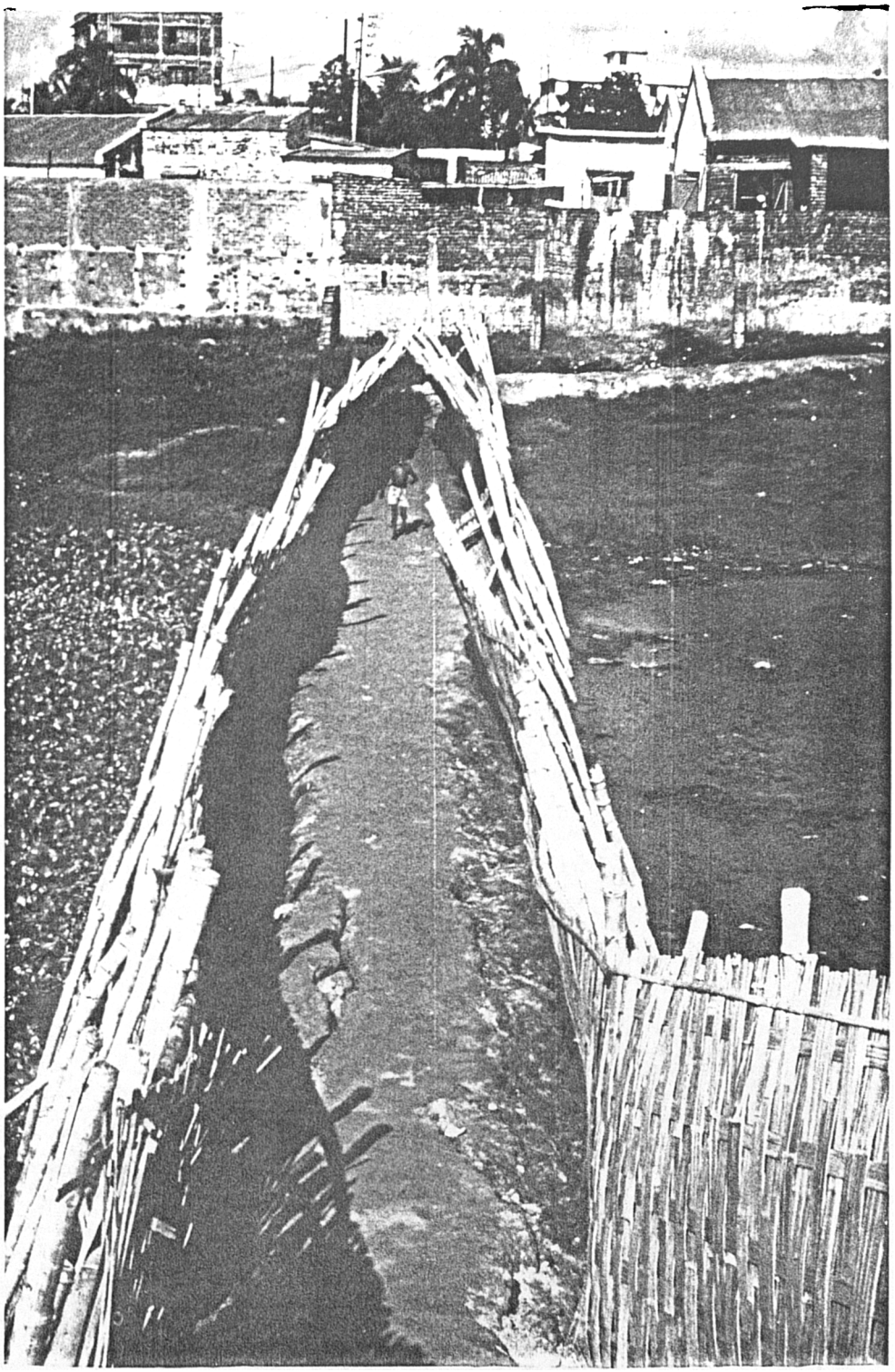


PLATE: 11-5

DETAILS : EARTFILLED BRIDGE

Appendix A

THE GROWING RATE OF CONSUMER PRICE

The consumer price index for the 'middle class group', as described in the Second Five Year Plan, is presented below. It shows that the index in or around Dhaka city, rose up from 181.5 (base 1969/70=100) in 1972-'73 to 407.9 in 1974-'75 but went down to 380.1 in 1975-'76 probably due to the good agricultural production in that year. Since then the prices has been rising continuously upto a new height of 561.12 in the year 1979-'80 (table 4.a follows). The table also shows the comparison of the rise of index between the middle class and working class in Narayanganj (an adjacent industrial township to Dhaka metroplolis); the changes of percentage are also shown. The indices show a sharp increase, upto 419 in 1974-'75, gradually coming down to 366 in 1976-'77 and ultimately rising upto 539 in 1979-'80.

Table : 4.a : Consumer price index 1969-'70=100

	Dhaka		Narayanganj	
Year	Middle Class	% change	Working Class	% change
1972/73	182	---	205	---
1973/74	252	38.46	286	39.51
1974/75	408	61.90	419	46.50
1975/76	380	(-)6.85	380	(-)9.31
1976/77	382	0.53	366	(-)3.68
1977/78	441	15.45	431	17.76
1978/79	486	10.20	465	7.89
1979/80	561	15.43	539	15.91

source : Planning Commission. The Second Five Year Plan, 1980-'85. Table 1.8. p.-14.

Appendix B

TRENDS IN REAL WAGES

Table 4.b shows the improvement in the general wage condition; this started to take place after 1975-'76 (with the exception in the year 1977-'78), although the rate of recovery was very low. It can be observed also from this table that, the working class were having a real income of about 20 percent below the 1969-'70 level during the period of 1979-'80.

Table : 4.b : Trend in real wage index 1969-'70=100

Year -	General Wage Index	% change	Agricul. Wage Index	% change
1972/73	67.58	----	66.56	----
1973/74	64.57	(-)14.45	69.24	4.03
1974/75	51.39	(-)20.41	58.40	(-)15.46
1975/76	66.91	30.20	76.56	31.10
1976/77	71.20	6.41	75.62	(-)1.23
1977/78	66.74	(-)6.26	74.32	(-)1.72
1978/79	75.74	13.49	80.95	8.92
1979/80	82.45	8.86	84.33	4.18

source : Planning Commission.The Second Five Year Plan, 1980-'85. Table 1.9, p.-15.

Appendix C

CONSUMER PRICE INDICES OF 1969/ 70 TO 1982/ 83

In order to determine how much the income, is influenced or affected by the rise in expenditure, it has been investigated through the consumer price indices from 1969/70 to 1982/83.

The indices (shown in table 4.c), are for middle income families, that is those with a monthly income of between Tk.300/00 and Tk.999/00 in 1973/ 74. Considering annual averages for the year 1973/74=100, the indices are based in the coverage of items and distribution of weights (on the results of the household expenditure survey by the Bangladesh Bureau of Statistics in 1973/74). For the purpose of comparing the index with similar other ones appearing in this section the base 1973/74=100 has been shifted to 1969/70=100.

Considering base 1969/70=100, the table shows an increase in the index mark of 828.7 for food, 674.3 for housing and 797.7 for overall index in the year 1982/83. On the other side, the table also shows the distribution of weights in the consumption of essential commodities for the year 1973/74. It illustrates the fact of spending more than 62 percent of the total expenditure in food, about 6 percent in clothing and 11.85 percent in HOUSING.

Table: 4.c : Consumer price index for middle income families in Dhaka (annual averages; 1973/74=100 and 1969/70=100)

Year	Food		Housing		Overall Index	
(weights)	(62.74)		(11.85)		(100.00)	
1969/70	100.0	37.74	100.0	59.64	100.0	40.86
1970/71	103.7	39.12	101.2	60.36	105.0	42.94
1971/72	122.0	46.12	108.3	64.64	120.7	49.31
1972/73	184.4	69.60	132.3	78.93	177.8	72.67
1973/74	264.9	100.00	167.7	100.00	244.7	100.00
1974/75	468.7	176.92	298.8	178.24	409.1	167.17
1975/76	393.7	148.60	342.7	204.44	374.9	153.19
1976/77	397.8	150.16	365.7	218.11	383.9	156.89
1977/78	460.1	173.65	397.8	237.30	432.4	176.69
1978/79	491.3	185.45	433.1	258.34	486.0	191.25
1979/80	594.4	224.33	506.5	302.11	554.4	226.55
1980/81	648.3	244.69	584.6	348.65	624.0	254.97
1981/82	763.5	288.15	628.2	374.66	725.6	296.50
1982/83	828.7	312.77	674.3	402.19	797.7	325.94
1983/84	928.6	350.47		416.81	874.9	357.47
1984/85	1,028.0	388.00		454.00	971.6	397.00
Jun./86	1,230.0	464.67 (*)		n.a		n.a

Source: calculated on the basis of index figures from the Statistical year book of Bangladesh 1984-'85 and the World Bank report no.5409. Table 9.1, p.-113.

Note: (1): distribution of other weights not included above: fuel and lighting (7.50), clothing (6.20) and miscellaneous (11.71) together forming overall index (100.00).

(2): the cost-of-living index (base 1973/74=100) for middle income families (i.e., those with a monthly income in 1973/74 of between Tk.300/00 and Tk.999/00), is based in the coverage of items and distribution of weights on the results of the Household Expenditure Survey conducted by Bangladesh Bureau of Statistics.

(*): the latest index figure is quoted from a recent news -bulletin.(Janamot, Bengali weekly. 23rd-29th May, 1987. p.3.).

The other table is about the consumer price index for Government employees in Dhaka (table 4.d). Between the year 1970/71 and 1982/83 it reveals that a base of 1969/70=100 rises up to the indices of

725.47 and 792.56 respectively for FOOD and CLOTHING in 1982/83. In HOUSING sector there is a colossal rise of the index from 100 to 1040.85, the highest ever in magnitude in 1982/83. Index figures in this table refer to non-gazetted Government employees who have monthly salaries between Tk.100/00 to Tk.400/00 in 1969/70.

Table : 4.d : Consumer price index for Govt. employees in Dhaka. 1970/71 - 1982/83 (annual averages : 1969/70=100).

Year	Food	Housing	Overall Index
(weights)	(52.57)	(11.98)	(100.00)
1970/71	104.83	101.46	105.69
1971/72	122.03	108.66	121.52
1972/73	184.73	132.06	181.51
1973/74	263.48	160.65	252.48
1974/75	469.55	268.22	407.58
1975/76	384.58	405.82	380.14
1976/77	366.67	476.40	382.46
1977/78	431.21	563.69	440.64
1978/79	466.20	656.44	485.86
1979/80	549.72	774.78	561.11
1980/81	603.64	879.58	628.28
1981/82	697.43	933.17	708.84
1982/83	725.47	1,040.85	757.96
1983/84	824.25	1,057.00	832.94
1984/85(r)	934.00	1,114.00	931.00

Source : Bangladesh Bureau of Statistics . (r=rounded).
Cited in the World Bank report no.5409. Table 9.2. p.-114.

Note:(1):distribution of other weights include fuel and lighting (5.38), clothing (8.53) and miscellaneous (21.54) togher forming the overall index (100.00).

(2):the cost of living index for Government employees in Dhaka (base 1969/70=100) refers to non-gazetted Government employees with monthly salaries between Tk.100/00 and Tk.400/00 in 1969/70. the covergae of items and distribution of weights are based on the findings of the Family Budget survey of 1955/56.

Table : 4.e : Index of building construction costs. 1970-'71 to 1982-'83(annual averages; 1969/70 = 100)

Year	Building Materials	Transport Charges	Wage Rates	Overall Index
1970/71	111	121	101	109
1971/72	121	154	104	118
1972/73	173	209	141	168
1973/74	293	289	201	261
1974/75	536	415	245	465
1975/76	613	466	275	532
1976/77	538	463	277	474
1977/78	543	529	298	485
1978/79	549	469	369	509
1979/80	642	551	449	617
1980/81	797	552	540	724
1981/82	914	712	641	841
1982/83	944	805	654	870

Note: the national index is a simple average of construction cost indices computed for the major urban centres of Dhaka, Chittagong and Khulna.

Source : Bangladesh Bureau of Statistics. Cited in World Bank report no. 4822. Table 9.9, p.-115.

Appendix D

PRODUCTION RATE OF RICE CROPS BY REGION

The following tables present production rate of different varieties of rice in Dhaka region over the last few years. The per acre return for major crops is shown in the next table for the year 1981-'82.

Table : 6.a : Acreage and production of rice (all varieties)

Region (former district) : Dhaka

	Area in '000' acres			Production in '000' tons		
	'81-'82	'82-'83	'83-'84	'81-'82	'82-'83	'83-'84
Local :	966	931	965	413	387	418
H Y V :	388	444	382	397	464	383
Total :	1354	1375	1347	810	851	801

Note : HYV : High Yielding Variety

Source: Bangladesh Bureau of Statistics; cited in the Statistical Year Book of Bangladesh, 1984-'85; Ministry of Planning.

Table : 6.b : Per acre return to the farmers for major crops for the year 1981-'82

Rice Crops	Cost of production Tk. / acre	Per acre yield in mds.	Price/ maund in Tk.	Total value in Tk.	Per acre return in Tk.
HYV T.aman	2,811/00	43.25	140/00	6,055/00	3,244/00
LIV T.aman	2,253/50	27.50	140/00	3,850/00	1,596/50
HYV boro	2,811/00	41.25	140/00	5,775/00	2,964/00
HYV T.aus	2,811/00	37.50	140/00	5,270/00	2,439/00
B. aus	2,185/00	20.00	140/00	2,800/00	614/50
Jute	2,077/00	17/00	130/00	2,210/00	133/00
Mustard	1,569/50	11/00	300/00	3,300/00	1,730/00

Notes : T. aman = Tosa aman; T. aus = Tosa aus; B. aus = Boro aus. (all the names stand for the common varieties of rice).

Source: Cited in M.L.Rahman; Agro-economic Evaluation ; The Dhaka- Narayanganj-Demra irrigation Project; Bangladesh Water Development Board, Second edition.

Appendix E

LIST OF LAND PRICES IN AND AROUND OF DHAKA CITY

The following are the list of land prices in different periods of 1983, 1984 and 1985 collected from the sources mentioned accordingly. The values are shown in Takas (hundred thousands) at the rate of per 'bigha' (or 1600 sq. yards or 14,400 sq.ft.).

(A) Official prices of land in different areas of Dhaka city : 1983.

Name of the area	Price per 'bigha' Tk. in '000,000'
1. Mirpur	8.50
2. Mohammadpur	10.00
3. Raybazar/Hazaribag	15.00
4. Azimpur/Nutan Paltan line	18.00
5. Peelkhana	15.00
6. Bashabo/Kamalapur/ Shahajahanpur	17.00
7. Rankin Street/Wari	20.00
8. Old Town (main road side)	20.00
9. Old Town (lanes and by lanes)	15.00

source: Ministry of Works, Section-V. Memo no. V/IM-42/83/979(3), dated 26.12.83.

(B) Official Prices of city's land : 1984

Area	price in Tk. '000,000'
1. Motijheel/Dilkusha/ Bangabandhu Avenue	100.00
2. Gushan/Farmgate/ Karwanbazar	60.00
3. Banani/Mahakhali/ Kakrail/Eskaton	50.00
4. Green road/ Elephant road (main)	50.00
:by lanes	30.00
5. Dhanmandi/Newmarket/ Shegunbagicha	45.00
6. Magbazar/Fakirapul/ Arambag	45.00
:by lanes	30.00
7. Lalmatia/Santinagar/Purana Paltan/Indira road/Tejturi bazar/ Manipuri para etc.	35.00
8. Shamoli (main road side)	35.00
:by lanes	25.00
9. Malibag	25.00
10. Rampura/Nayatola	20.00
11. Kamlapur/Khilgaon	17.00
12. Jatrabari/Jurain	10.00

source: Ministry of Works, Section -V. Memo no. SEC-V/1M-42/83/153, dated 27.3.84.

(C) Offical price of city's land : 1985 -'86.

1. Gabtali ('Gorur hat')	60.00
Gabtali (bus stand area)	77.93
2. Mirpur bus terminal area	60.00
3. Mahakhali bus terminal and its adjacent area	70.00
4. Jatrabari bus terminal and its adjacent area	75.00
5. Chawkbazar children hospital area	90.00

source:Ministry of Local Government; minutes of meeting held on 17.11.85, memo. no. LG/RO-1/ DMC-01/84/304, dated 24.11.85.

Appendix F

LAND UTILIZATION INFORMATION UNDER MIRPUR HOUSING ESTATE

1. Total Land	3389.00 acres
2. Land already utilised	2538.00 acres
3. Land proposed to be utilised:	
a. Rupnagar scheme	112.00 acres
b. Extension of Rupnagar scheme	68.00 acres
c. Squatter settlement (proposed)	93.00 acres
d. Mirpur Urban Development project	450.00 acres
e. Proposed residential zone at Section-17 (vacant low land)	26.00 acres
f. Proposed residential zone at Section-15 (vacant low land)	30.00 acres
g. Proposed residential zone at Section-11	15.00 acres
h. Ershad Banarasi project (proposed)	57.00 acres
Total	851.00 acres

source: As per the information prepared and given to the author by the Executive Engineer, Housing and Settlement, Dhaka; Division-1, Sec.-2, Mirpur. Signed: dt. 5.7.86.

Appendix G

THE ACQUISITION AND REQUISITION OF IMMOVABLE PROPERTY ORDINANCE, 1982

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

MINISTRY OF LAW, LAND ADMINISTRATION AND LAND REFORMS

(Law and Parliamentary Affairs Division)

NOTIFICATION

Dacca, the 13th April, 1982

No. 229-Pub.—The following Ordinance made by the Chief Martial Law Administrator of the People's Republic of Bangladesh, on the 13th April, 1982, is hereby published for general information:—

THE ACQUISITION AND REQUISITION OF IMMOVABLE PROPERTY ORDINANCE, 1982

ORDINANCE NO. II OF 1982

AN

ORDINANCE

to consolidate and amend the law relating to acquisition and requisition of immovable property.

WHEREAS it is expedient to consolidate and amend the law relating to acquisition and requisition of immovable property and to provide for matters connected therewith and ancillary thereto;

NOW, THEREFORE, in pursuance of the Proclamation of the twenty-fourth day of March, 1982, and in exercise of all powers enabling him in that behalf, the Chief Martial Law Administrator is pleased to make and promulgate the following Ordinance:—

PART I

PRELIMINARY

1. **Short title.**—This Ordinance may be called the Acquisition and Requisition of Immovable Property Ordinance, 1982.

(783)

Price : Taka 1·00.

2. Definitions.—In this Ordinance, unless there is anything repugnant in the subject or context,—

(a) "Arbitrator" means an Arbitrator appointed under section 27;

(b) "Deputy Commissioner" includes an Additional Deputy Commissioner and any other officer specially appointed by the Government to perform the functions of the Deputy Commissioner under this Ordinance;

(c) "owner" includes the occupier;

(d) "person interested", in relation to any property, includes all persons claiming, or entitled to claim, an interest in the compensation payable on account of the acquisition or requisition of that property under this Ordinance;

(e) "prescribed" means prescribed by rules made under this Ordinance;

(f) "property" means immovable property and includes any right in or over such property; and

(g) "requiring person" means any person for whom any property is, or is proposed to be, acquired under this Ordinance.

PART II

ACQUISITION

3. Publication of preliminary notice of acquisition of property.—Whenever it appears to the Deputy Commissioner that any property in any locality is needed or is likely to be needed for any public purpose or in the public interest, he shall cause a notice to be published at convenient places on or near the property in the prescribed form and manner stating that the property is proposed to be acquired :

Provided that no property used by the public for the purpose of religious worship, graveyard and cremation ground shall be acquired.

4. Objections against acquisition.—(1) Any person interested in any property which has been notified under section 3 as being needed or likely to be needed for a public purpose or in the public interest may, within fifteen days after the publication of the notice, object to the acquisition of the property.

(2) Every objection under sub-section (1) shall be made to the Deputy Commissioner in writing, and the Deputy Commissioner shall give the objector an opportunity of being heard either in person or by an agent and shall, after hearing all such objections and after making such further inquiry, if any, as he thinks necessary, prepare a report containing his opinion on the objections.

(3) The Deputy Commissioner shall then submit the record of the proceedings held by him, together with his report, for the decision of the Government.

5. Final decision regarding acquisition.—(1) The Government, after considering the report submitted by the Deputy Commissioner under section 4(3), shall make a decision about the acquisition of the property and such decision of the Government shall be final.

(2) When the Government makes a decision for acquisition of the property under sub-section (1), such decision shall be conclusive evidence that the property is needed for a public purpose or in the public interest.

6. Notice to persons interested.—(1) When the Government has made a decision for acquisition of any property under section 5, the Deputy Commissioner shall cause public notice to be given in the prescribed manner at convenient places on or near such property stating that the Government has decided to acquire the property and intends to take possession thereof and that claims to compensation for all interests in such property may be made to him.

(2) Such notice shall state the particulars of the property to be acquired and taken possession of, and shall require all persons interested in the property to appear personally or by agent before the Deputy Commissioner at a time, not being earlier than fifteen days after the date of publication of the notice, and place mentioned therein and to state the nature of their respective interests in the property and the amount and particulars of their claims to compensation for such interests.

(3) The Deputy Commissioner shall also serve notice to the same effect in the prescribed form on the occupier, if any of such property and on all persons known or believed to be interested therein.

(4) The Deputy Commissioner may also, by notice, require any such person to make or deliver to him at a time, not being earlier than fifteen days after the date of service of the notice, and place mentioned therein a statement containing, so far as may be practicable, the name of every other person possessing any interest in the property or any part thereof as co-sharer, mortgagee or otherwise, and of the nature of such interest and profits, if any, received or receivable on account thereof.

(5) Every person required to make or deliver a statement under this section shall be deemed to be legally bound to do so within the meaning of sections 175 and 176 of the Penal Code (XLV of 1860).

7. Award of compensation by Deputy Commissioner.—(1) On the date so fixed, or on any other date to which the enquiry has been adjourned, the Deputy Commissioner shall proceed to enquire into the statement, if any, which any person has made pursuant to a notice given under section 6 and into the value of the property at the date of the publication of the notice under section 3, and into the respective interests of the persons claiming the compensation and shall make an award of—

(a) the compensation which, in his opinion, shall be allowed for the property; and

(b) the apportionment of the said compensation among all the persons known or believed to be interested in the property, of whom, or of whose claims, he has information.

(2) The award made by the Deputy Commissioner shall, except as hereinafter provided, be final.

(3) The Deputy Commissioner shall give immediate notice of his award to the persons interested.

Appendix H

CHRONOLOGICAL STEPS IN THE PROCEEDINGS OF LAND ACQUISITION CASES

1. Checking the correctness of the proposal in relation to the relevant papers on receipt of the some from the Requiring Body.
2. Starting the case and entering into Register II If the proposal is in order.
3. Spot verification of the plan with the Requiring Body and preparation of land schedule along with verification of right and title of the land owners from the Tahsil copy of the R.O.R.
4. Collection of sale figures from the sub-registrars office for preparation of rate of provisional estimate.
5. Preparation of rate for provisional estimate and provisional estimate and approval of the same by D.C./ A.D.C.
6. Sending the provisioanl estimate in duplicate to the R.B, for according sanction to the estimate and placement of estimated fund.
7. Preparation of provisional award.
8. Preparation of Requisition notice u/s 3 and payment notices for advance payment
9. Service of notice u/s 3 and payment notices, on receipt of Deed of agreement.
10. Payment of Advance award money after disposal of disputes if any after placement of fund.
11. Delivery of possession of land requisitioned after proper demarcation of the land on the spot with Inventory to the R.B.
12. Preparation of Notice u/s 5(a) & 5(3) .
13. Services of said Notices.
14. Hearing and disposal of objections u/s 5(3), If any.
15. Collection of sale figures of 24 months from the date of service of the said notices from S.R.Offices for preparation of rate of final estimate.
16. Preparation of rate of final estimate and final estimate and approval of the same by D.C. / A.D.C.
17. Sending the final estimate Induplicate to the R.B. for according sanction to the final estimate and placement of final estimated fund.
18. Sending the case record to Government for Gazette Notification after the placement of fund of the final estimate by the R.B. along with Amins's plan.
19. Checking the correctness of the Gazette Notification and service of the same.
20. Preparation of final award.
21. Preparation and service of final payment Notice.
22. Payement of fianl compensation.
23. Preparation of plot index and sending the same to the C.O.(Rev) concerned with a copy to A.D.C.(Rev) for assessment and adatement of rent of acquired land and to R.B. for sending the Deed of Transfer with rental demand of the lands under the case.
24. Preparation of papers relating to adjustment of accounts and sending the same to A.G.B.
25. Registration of Deed of transfer.
26. Preparation of certified land plan and necessary papers for confirmation of the case by the Government.
27. Consignment of the case record to Record Room after final confirmation by Government.

Source: Office of The Deputy Commissioner, Dhaka.
(Land Acquisition Section)

Appendix I

SURVEY RESEARCH METHODOLOGY : FIELDWORK SEQUENCES

All 269 sampling was finished by the middle of May, 1986, when a change in decision about surveying the second case study area was found to be very urgent.

I-0.1 Second and third case study areas

Some foreign advisors who were working for the Government of Bangladesh in local urban development offices were discussed about Bashantek, the 2nd study area. It was gathered that the settlement was to be shifted shortly, as it is now located very near to the cantonment area and resettled in a new location. It was therefore decided not to survey that area and to find out some other locations of strategic importance.

After making consultations with the academicians and town planners of Dhaka Improvement Trust, Urban Development Directorate some peri-urban areas were identified and correspondence with the thesis supervisor (Mr. A.D.C. Hyland) in Newcastle was made. It was decided, considering the time limit and resource constraints, two other peri-urban areas will also be surveyed to get a complete picture of the settlement behaviour and potentiality of the research. Consequently two areas were identified: Hazaribag and Jurain.

Starting from the last week of May until 20th June, 1986 (about four weeks time) the survey work in those two weeks was accomplished. This was also accompanied by spot photography and sketching of some clusters in the locations.

I-0.2 Physical observations

Physical observations along the urban fringe starting from the Rayerbazar area in the west through Hazaribag in the north-west and Nawabganj leading to the UNCHS upgrading project locations: Shaheednagar, Rasulpur etc. was performed. Documentation has been made in form of slides or photographs as required. The southern zone of Dhaka along the other side of the river (Kamrangir char area) was also observed and photographed.

It can be mentioned here that the surveys were programmed in accordance with the academic routines of the students involved. The survey dates were accomodated and arranged in between the gaps available within the working days.

Appendix J

THE STANDARD DEVIATION

The Pilot Survey: As mentioned before in chapter 9, a pilot survey was carried out before the sample size was determined. The samples were selected from section no.7 of the Bastuhara settlements, Mirpur; houses were selected through random numbers collected from random tables. Questions included in the pilot survey were on the subjects of employment, income and the structural changes made by the households, following the suggestions and guidelines of the statistical advisor in Dhaka.[1]

The formula for S, as defined by Cochran (1977), in his book Sampling Techniques,(section 2.5, p. 23) is:

$$S = \sqrt{\frac{\sum_{1}^{35} (yi - \bar{Y})^2}{N-1}}$$

where

yi = income of ith household

$\bar{Y}$ = mean of the income of households (1200)

N = number of households selected for pretesting (35)

From the 35 households interviewed in the pilot survey, the standard deviation of household income was found to be 1235.6.

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[1] (Dr. Ashrafuddin Ahmed. Assistant Professor, Institute of Statistical Research and Training, University of Dhaka).

Appendix K

THE ESTIMATION OF SAMPLE SIZE

The sample size was determined with the formula derived from the same source (Cochran, (1977). op. cit., section 4.6, pp. 77, 78).

$$\text{The formula for } n = \frac{n_o}{1 + \frac{n_o}{N}}$$

where, n_o = initial sample size
n = final sample size
N = no. of total lower income households of the city

solving for n gives,

$$n = \left(\frac{t\ s}{r\ \bar{Y}}\right)^2 \Big/ \left[1 + \frac{1}{N}\left(\frac{t\ s}{r\ \bar{Y}}\right)^2\right]$$

when $n_o = \left(\frac{t\ s}{r\ \bar{Y}}\right)^2$ approximately.

where, r = relative error = 10% = .01
S = standard deviation = 1235.6
$\bar{Y}$ = mean estiamted income= 1200.0
t = ordinate from t-distribution at (=.05)level of sigificance

The value for S and y were estimated from pre-test information.

Considering $\frac{n_o}{N}$ negligible for large N,

$$n = \frac{(2)^2 \times (1235.6)^2}{(.1)^2 \times (1200.0)^2} = 424.08$$

Appendix L

THE QUESTIONNAIRE

The following 10 pages are photocopy of a coded questionnaire completed in the survey of Mirpur area. The household interviewed is later assigned with a case number, while the sequence numbers signify the computer recording sequences. It was felt that a worked out example would be more useful than retyping, as it would demonstrate how the questionnaire was practically used.

29 05617

INDEX NO. 245 (SEC 07)

occupation : upper div. assistant (T&T)

QUESTIONNAIRE TO ASCERTAIN THE LOW-INCOME HOUSING SITUATION AND RESPONSE OF THE USERS IN PERI-URBAN AREAS OF DHAKA, BANGLADESH

STUDENT — MD. SHAHIDUL AMEEN

THESIS SUPERVISOR — MR A D C HYLAND
Deputy Course Director
Housing for Developing Countries
University of Newcastle upon Tyne
United Kingdom

CASE NO. 0 3 1 (1-3)

SEQUENCE NO. 1 (4)

DATE — Feb. - May 1986

Ask the following questions to the head of the household. Please tick in the rectangles or specify as appropriate.

1. WHEN DID YOU START TO LIVE IN THIS HOUSE ?

19 [8 0] (5-6)

2. DID YOU LIVE ANYWHERE IN THIS CITY BEFORE OR OUTSIDE ? IF IT IS WITHIN THE CITY, MENTION WHERE

Within the city 1
Outside 2 (7)
Specific Area 3

3. SO WHY DID YOU MOVE IN THIS AREA FOR STAYING ?

Availability of cheaper house 1
Low rent of accomodation 2
Proximity to the job 3
To share the house with a known person 4 (8)
Near to the community facility 5
Accomodation was alotted by the office, so no choice 6
Others . specify

4. DO YOU OWN THIS HOUSE OR RENT IT FROM SOMEBODY ? IF RENTED FROM WHOM ?

Owned by the HEAD 1
Owned by the other HH member 2
Rents from the Govt./ other organisation 3 (9)
Rented from private owner 4
Sub-rented from the occupier 5
Others specify

IF OWNED SKIP Q.NO. 6
IF RENTED SKIP Q.NO. 7

5. a) FROM WHOM HAVE YOU PURCHASED THIS HOUSE ?

From a previous owner 1
From an occupier, but not a owner 2
From an entreprenur/ middleman 3
Others specify

10

b) DID YOU MAKE ~~ANY PAYMENT~~ (TO ANYONE) TO GET THIS HOUSE WHAT PAYMENT

Tk. 00 - 1000'00 1
1000'00 - 5000'00 2
5000'00 - 10,000'00 3
10,000'00 - 20,000'00 4
20,000'00 - 30 000'00 5
No 0

3
11

6. a) HOW MUCH RENT ARE YOU PAYING PER MONTH ?

Specify amount TK. 1310
12 15

b) DOES IT INCLUDE THE ELECTRICITY AND GAS PAYMENT

Yes 1
No 0
I haven't any 2

1
16

7a. How much are you paying for those services ?

Tk. 00'00 — 50'00. 1
Tk. 50'00 — 100'00. 2
Tk. 100'00 — 150'00. 3
Tk. 150'00 — 200'00. 4

elect. 1 17
gas. 18
water 19

7b. STATE OF EMPLOYMENT :

Employed 1
Self-employed 2
Retired 3
Unemployed 4

1
20

8. OCCUPATION/PROFESSION OF THE HEAD OF THE HOUSEHOLD :

SERVICE : Govt.Service 01
Semi-Govt.Service 02
Private Service 03
Self employment 04
Domestic job 05

BUSINESS : Shopowner 06
Contractor 07
Merchant/Trader 08
Supplier 09
Middleman 10

LABOUR : Unskilled job 11
Skilled job 12
(craftsmanship, carpentry etc.)

If any other type, please specify

102
21 22

9. JOB SECURITY :

Permanent 1 Seasonal 3

Temporary 2 Irregular 4 [1] 23

Income of the HEAD of the household :

When we work on housing policies, it is helpful to know how much money people can spend in housing.

10. COULD YOU PLEASE TELL US HOW MUCH MONEY IS EARNED BY YOU IN A MONTH ? (Or in a week or in any other acceptable unit)

Prompt as necessary to get the correct picture.

Upto Tk.500.00 1	Tk.2000.00-2500.00 5	[2] 24
Tk.500.00-1000.00 2	Tk.2500.00-3000.00 6	
Tk.1000.00-1500.00 3	More than Tk.3000.00 7	
Tk.1500.00-2000.00 4	Other amount	TK. [8510] 25 28

11. ARE YOU INVOLVED IN ANY KIND OF EXTRA WORK ON YOUR OWN ?

Yes 1 No 0 [0] 29

12. If yes, PLEASE TELL THE NATURE OF YOUR WORK :

Small scale shop-keeping 1

Part time service 2 [ ] 30

Part time skilled job 3 (cobbler.tailor.butcher etc)

Others specify

13. HOW MUCH EARNINGS CAN YOU MAKE FROM THIS ADDITIONAL SOURCE ?

(Per month or per week or in any other acceptable unit)

Upto Tk.250.00 1	Tk.750.00-1000.00 4	[ ] 31
Tk.250.00-500.00 2	Above Tk.1000.00 5	
Tk.500.00-750.00 3	Other amount	TK [ ] 32 35

TOTAL INCOME OF THE HOUSEHOLD PER MONTH :

(To be done by the enumerator later)

10	13	TOTAL
950+700 (from village)		1550 Tk.

TOTAL TK. [1550] 36 39

14. PLEASE TELL ME ABOUT THE PERSONS OF YOUR HOUSEHOLD.

(Fill up the following lines giving each person a separate line).

What is their relationship with the household head ?

Wife 1
Son 2
Daughter 3
Other M 4
Other F 5

	REL.	AGE	OCU	EARNING. TK.	
40	1	32	4	0	47
48	2	11	1	0	55
	2	08		0	63
56	2	04		0	
64	1	09		0	71
72					79

OCCUPATION.
Do they work ?
YES. 1
NO. 0

CASE NO. 0311 (1-3)

SEQUENCE NO. 2 (4)

5 | 4 | 3 | 0 | 12
13 | | | | 20

15. Specify what is their job and where do they work along with their earnings.

No.	Occupation(s) : (Of other households)	Earnings(if any)

16. HOW MUCH DO YOU (yourself and your household) SPEND ON FOOD IN A MONTH (or week as applicable). ALSO MENTION ABOUT OTHER EXPENDITURE SEPARATELY :

FOOD : Food consumed at home 21 | 1 | 9 | 0 | 0 | 24

Food consumed outside (as snacks, tea etc.) 25 | | 3 | 0 | 28

OTHER EXPENDITURE: House rent 29 | | 3 | 0 | 32

Maintenance 33 | | 5 | 0 | 36

Transport 37 | | 5 | 0 | 40

Clothing 41 | | 7 | 0 | 44

Energy consumptions (electricity.gas) 45 | 2 | 0 | 0 | 48

School Fees 49 | | 6 | 0 | 52

Others 53 | 1 | 5 | 0 | 56

17. MENTION THE DISTANCE OF WORK OF THE HEAD OF THE HOUSEHOLD FROM THE HOUSE.

Within the area	1	5 to 10 miles 6
Less than one mile	2	More than 10 miles 7
Outside the area	3	Outside of the 8
1 to 2 miles	4	District/upazila
2 to 5 miles	5	others

6 (57)

18. HOW DO YOU TRAVEL TO WORK ?

Public transport	1	Rickshaw	5
Temoo minibus	2	Bicycle	6
Scooter	3	Train	7
Motorcycle	4	Walking	8
		Others	office bus

(58)

19. ARE YOU CONTENT TO STAY HERE ?

Yes 1
No 0

1 (59)

If yes, ask question no. 20, 23.....

If no, ask question no. 21, ...

20. WHY DO YOU STAY IN THIS AREA ?

Because we are unable to get any 1
place in the inner city
The rent is high in the inner city 2
Got a plot here 3 | 2 | 60
Nheer to my workplace 4
house in this area is within my affordibility 5

21. DO YOU HOPE TO MOVE ?

Yes 1 | 0 | 61
No 0

22. WHY DO YOU WANT TO MOVE ?

The rooms are inadequete 1
Rent is too high 2
Far from the work area 3
Physical condition of the house is too bad 4 | | 62
Community facilities are very poor 5
Privacy can not be maintained 6
Others

X 23. IF YOU ARE AFFORDED A BETTER PLACE / ACCOMODATION, HOW DO YOU EXPECT TO BE FINANCED ?

By the office 1
By House Building Finance Corporation 2
Banks 3
Co-operatives 4 | |
Others specify

24. WHAT IMPROVEMENTS DO YOU PREFER IF YOU ARE TO STAY HERE ?

Please specify according to priority.

[2] 1. Provide infrastructural facilities 1 PROVISION OF WATER SUPPLY, ELECT., GAS, IMPROVING ROS. ETC.
[3] 2. Alteration / extention of living spaces 2 | 3 | 63
[1] 3. Providing security of tenure. 3
[ ] 4. Maintenance of the structure 4
[ ] 5. Others.

25. HOW DO YOU EXPECT TO BE PAID FOR THESE WORKS ?

Please specify.

By the authority 1
Through Govt. incentives 2
Through co-operative initiatives 3 | 1 | 64
Through personal savings. 4

26. IF WE WANT TO HELP IN ANSWERING YOUR HOUSING PROBLEM/CRISIS. CAN YOU GIVE ANY IDEA ABOUT THE FINANCING TO BE REQUIRED ?

PHYSICAL ASPECTS :

1. PLEASE SPECIFY THE OVERALL SIZE OF THIS PLOT OF YOUR HOUSE ?

SQ.FT. [1|7|0|0] 65–68

CASE NO. [0|3|1] 1–3

SEQ NO. [3] 4

2. MENTION THE TOTAL NO. OF ROOMS AND VERANDAHS IN THIS HOUSE ?

Rooms [3] 69 Verandahs [ ] 71

Kitchen [1] 70 Store [ ] 72

3. WHERE IS THE LOCATION OF THE TOILET/LATRINE IN THIS HOUSE ?

Adjacent to the building 1

Isolated, but in the house compound 2 [2] 73

Common and located outside the compound 3

4. IS THERE ANY OTHER HOUSEHOLD STAYING HERE IN THIS HOUSE WITH YOU ?

Yes 1

No 0 [0] 74

5. HOW MANY ROOMS AND VERANDAHS ARE BEING USED BY YOUR HOUSEHOLD AND BY THE OTHER HOUSEHOLD ?

	R	V
Your HH 75–76	3	0
Other HH 77–78		

6. WHAT SPACE IS USED FOR KITCHEN ?

the kitchen itself. 1
part of the verendah. 2
part of the outdoor space 3
corner of the habitable room 4
share the same kitchen 5

By your household [3] 5

By other household [ ] 6

7. HOW MANY HABITABLE ROOMS AND VERANDAHS WERE THERE IN THIS HOUSE

WHEN YOU MOVED IN ?

No. of habitable rooms [2] 7

No. of verandahs [0] 8

8. WAS THERE ANY KITCHEN, BATHROOM OR LATRINE ?

No. 0

Kitchen 1

Bathroom 2 [1] 9

Latrine 3

9. DO YOU USE ANY SPACE OUTSIDE THE ROOM(S) AND VERANDAH(S) FOR FAMILY ACTIVITIES ? MENTION THE WORKS YOU DO OUTSIDE .

Cooking preparing food etc. 1

Washing, bathing etc. 2 [2] 10

Kitchen gardening 3

Any other use / specify

10. HOW DO YOU FEEL ABOUT THE AMOUNT OF OUTDOOR/INDOOR SPACE YOU HAVE TO USE ?

Very sufficient 1 Not sufficient 3

Sufficient 2 More than sufficient 4 [2] 11

11 HAVE YOU MADE ANY STRUCTURAL CHANGE OR ADDITIONAL CONSTRUCTION IN THIS HOUSE ?

Yes 1

No 0 [1] 12

If the ans. is yes ask the following questions :

12. PLEASE GIVE US THE DETAILS OF THE STRUCTURAL CHANGES HOWEVER SMALL OR LARGE IT MAY BE ,WHICH YOU HAVE MADE. Please specify the DIMENSIONS of the additional spaces you have made.

	ITEM NO	DIMENSIONS. ft/s ft.		
13	0 4	6'4" x	6'0"	20
21	0 5	8'5" x	5'0"	28
29	0 7	3'0" x	3'0"	36
37	0 9			44
45	1 7	15'0" x	6'0"	52
53				60

01 Partition in between living areas

02 A door between living areas

03 Windows on certain walls

04 Walling in the verandah(s) ✓

05 An extra space for kitchen ✓

06 Constructed a bathroom

07 Constructed a latrine ✓

08 Constructed a water reservoir

09 Fenced up the compound of my area ✓

10 A backyard kitchen garden

11 A backdoor in the boundry fence

12 An animal shed

13 Pavement/Walkways

14 Installed Tubewells/Standpipes

15 Installed electric posts

16 Constructed verandah(s) additional to the original structure

17 Constructed room(s) additional to the original structure ✓

Other Changes :

13. DETERMINE THE APPX. TOTAL COVERED AREA OF THE ADDITIONAL WORK.

[illegible] sq.ft 1 [illegible] 3

[illegible] sq. ft 2 More than [illegible] sq ft 4

No [illegible] 0

12

61

14. SPECIFY THE ACTUALL COVERED AREA BEFORE THE EXTENSIONS WERE MADE.

1 – 250 s.ft. 1
250 – 500 " 2
500 – 750 " 3
750 – 1,000 " 4

1

62

15 WHAT ARE THE BUILDING MATERIALS YOU HAVE USED IN THE CONSTRUCTION [illegible]

FOUNDATION / FLOOR	ROOF	WALL	DOORS/WINDOWS.
Brick 1 Concrete 2 Comact earth 3	THATH 1 C.I. Sheet 2 Asbestos sheet 03 Brick tiles 4 Timber 5 Bamboo weaves 6 Scrap materials 7	Brick 1 Plastered 2 C.I. Sheet 3 Bamboo weaves 4 Mud 5 Timber 6	Timber frames 1 Bamboo Frames 2 Steel bars/rods 3 Timber wings. 4 Bamboo weave 5 wings
1	2	2	4
63	64	65	66

16. WHAT ARE THE BUILDING MATERIALS YOU HAVE USED IN MAKING THE ALTERATIONS AND EXTENTIONS OF THIS HOUSE ?

FOUNDATION / FLOOR	ROOF	WALL	DOORS/WINDOWS.
Brick 1 Concrete 2 Comact earth 3	THATH 1 C.I. Sheet 2 Asbestos sheet 03 Brick tiles 4 Timber 5 Bamboo weaves 6 Scrap materials 7	Brick 1 Plastered 2 C.I. Sheet 3 Bamboo weaves 4 Mud 5 Timber 6	Timber frames 1 Bamboo Frames 2 Steel bars/rods 3 Timber wings. 4 Bamboo weave 5 wings
3	2	4	5
67	68	69	70

17. [illegible] OF MATERIALS HAVE BEEN MOSTLY USED IN THE [illegible]

New materials : Purchased 1

Collected from 2

other sources 1

Second hand materials : Purchased 3 71

Collected from 4

other sources

18. WHICH PART OF YOUR HOUSE ARE IN BAD AND GOOD CONDITIONS ?

ITEM NO. | COND.

ROOF 1 — 72 | 2 | 1 | 73
CEILING 2 — 74 | 4 | 2 | 75
WALLS 3 — 76 | 1 | 3 | 77
DOORS/WINDOWS 4 — 78 | 3 | 3 | 79
FOUNDATIONS 5 — 5 | | | 6
OTHERS 6 — 7 | | | 8

V.BAD. 1
BAD. 2
GOOD 3
FAIR 4

CASE NO. | 0 | 3 | 1 | 3

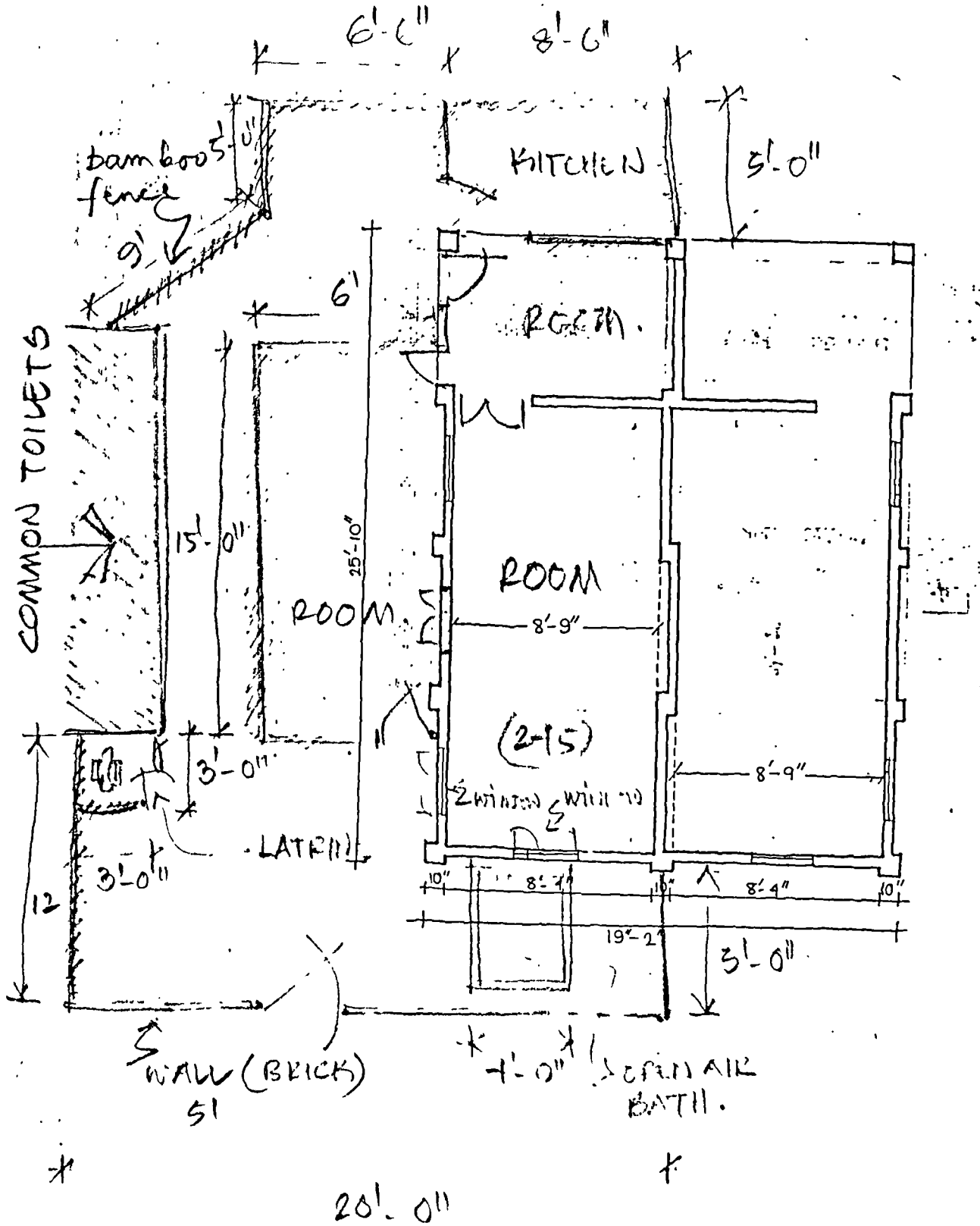
SEQ. NO. | 1 | 4 | 9

19. HOW FREQUENTLY DO YOU REPAIR OR CHANGE THE DAMAGED ELEMENT OF YOUR HOUSE ?

ELEM NO. | FREQ.

ROOFS 1 — 9 | 3 | 2 | 10
WALLS 2 — 11 | 4 | 2 | 12
DOORS/WINDOWS 3 — 13 | | | 14
FLOORS 4 — 15 | | | 16

Once a year - 1
Less frequently than a yr. 2
More frequently than a yr. 3


6'-6"
8'-6"
bamboo fence
9'
KITCHEN
5'-0"
ROOM
6'
COMMON TOILETS
15'-0"
25'-10"
ROOM
8'-9"
(2-15)
8'-9"
3'-0"
LATRIN
3'-0"
12
10"
8'-7"
8'-4"
10"
19'-2"
3'-0"
WALL (BRICK)
51
4'-0"
OPEN AIR BATH.
20'-0"

INDEX NO: 2-15

Appendix M

LAND RECOVERY POTENTIAL WITH CROSS SUBSIDY MECHANISM

M-0.1 Cost components

A detailed cost analysis of the hypothesis presented in the final chapter about the cross subsidy mechanism for land recovery is presented in this section. The analysis has been done with the values of the low lying land plus the cost incurred for its developments and finally offering those for commercial developments. The following example, drawn out with northern low-lying areas of Mirpur and Faydabad (outside original Uttara plan area), would demonstrate the cost implications with practical references. All calculations are carried out on the basis of informations gathered from the household survey. Land prices are recorded from the sources of the Executive Engineer, Housing and Settlement (Div. 1, Mirpur, section - II), Dhaka and Asstt. Engineer, Dhaka Improvement Trust, with respect to the prevailing market rates of 1985-'86 period.

i) **Land cost:** Low lying lands, liable to inundation in this area were sold at the rate of : Tk. 150,000/00 to 200,000/00 per Bigha.

Considering the median of this price range, the cost is equivalent to:

Tk. 600,000/00 per Acre or, Tk.1482,000/00 per Hectare .....(a).

ii) Land development cost :

Following the schedule of rates of Dhaka Municipal Corporation (DMC) for 1985, the cost of landfilling for an assumed average depth of 3 metres (10 ft.) over 1 Hectare of land has been estimated at : Tk.2100,000/00 per Hectare .....(b).

iii) Total cost :

The development cost (b) is added to the land price (a), thus forms a total price of : Tk.3582,000/00 per Hectare [(a)+(b)] .....(c).

iv) Sell price : Rate of selling price of lands in the area, being aquired previously and developed by Dhaka Improvement Trust and subsequently developed : Tk. 1000,000/00 per Bigha, which is equivalent to approximately,

Tk. 3000,000/00 per acre or Tk. 7410,000/00 per Hectare .....(d).

Therefore the officially recognised difference between the selling price (d) and price after land development (c) is :

Tk. 3828,000/00 per Hectare [(d)-(c)] Tk. 1550,000/00 per Acre .....(e)

Assuming an amount of 50 acres of land, The financial gain will thus be equal to an amount of : Tk. 77500,000/00 [or 775 lacs;(=1550,000/00 X 50)] ......(f)

v) Utilization of the fund :

Considering an area of 10 Hectares (appx.24.7 acres or 76 Bighas) to be developed at the rate of Tk. 3600,000/00 per Hectare, the cost incurrs : Tk. 36000,000/00 [or 360 lacs] .....(g)

That is for 20 Hectares (or about 50 acres) the development cost is : Tk. 72000,000/00 [or 720 lacs]

vi) Area equivalent :

An area of 10 Hectares (or 25 acres) is equivalent to [76X20X720=] 1094400 sq.ft., which can roughly be distributed among at least 1800 (actually 1824) households, each of them having approximately an area of 600 sq.ft. (in other words it can be disributed among 3600, in an area of 20 Hectares or about 50 acres).

Therefore, within a 100 acre land package made available through the above approach,

i) if 50 acres are developed and offered for commercial and industrial developments, would be able to raise finance as mentioned in (f)

ii) this amount is good enough to develop another 50 acres of land where 3600 reasonably sized plots can be accomodated theoretically.

Assuming 40% of that area (appx. 437,760 sq.ft.) to be left over for open spaces for a proposed settlement, still 2180 plots can be made available, within an estimated amount not exceeding Tk. 72000,000/00 meaningfully with a surplus amount of Tk. 5500,000/00 [or 55lacs].

On the other hand, in a 75 acres package, funds available by selling 50 acres of land commercially (f),will help developing an area 1000 plots, of 25 acres for 1094 plots with the required amount of 40% open space (1094,400 sq.ft = 656,640 + 437,760), which would involve Tk. 36000,000/00 as referred in (g). Thus a remaining balance of Tk.41500,000/00 would be available after the development of 25 acres [(f) - (g)]. With this fund at least 550 one-roomed units of about 300 sq. ft. can also be constructed (considering the cost of Tk. 75,000/00 appx. per unit, The rate of Tk. 250/00 per sq.ft.).

More appropriately, in a 75 acre package, funds generated through the commercial sale of 50 acres will thus help to develop another 25

acres plus provide at least 550 single roomed accomodation units of about 300 sq. ft.

At the same time it can be noted that the above exercise is carried out assuming a selling price of Tk. 175,000/00 per Bigha, as mentioned by the trust. Within the present market performance, the prices for developed lands are invariably higher, particularly with those having good potentiality for commercial developments. In some other peri-urban parts of the city where land prices are more than that considered above, should result in high values after developments, thereby raising the difference money even higher.

Appendix N

CROSSTABULATIONS:

The following are copies of various crosstabulations referred to in the main text (chapter 10). The variables are mentioned on top of each table.

CROSSTABULATION OF
HHSHARE1 number of rooms used by households BY RENT rent per month

HHSHARE1	COUNT / ROW PCT / COL PCT / TOT PCT	RENT 10	30	35	40	50	60	65	70	75	80	ROW TOTAL
1		1	50	11	1	3	6	1	3		5	276
		.4	18.1	4.0	.4	1.1	2.2	.4	1.1		1.8	65.2
		100.0	33.1	27.5	100.0	100.0	85.7	100.0	60.0		100.0	
		.2	11.8	2.6	.2	.7	1.4	.2	.7		1.2	
2			55	14					1	1		82
			67.1	17.1					1.2	1.2		19.4
			36.4	35.0					20.0	100.0		
			13.0	3.3					.2	.2		
3			40	13			1		1			57
			70.2	22.8			1.8		1.8			13.5
			26.5	32.5			14.3		20.0			
			9.5	3.1			.2		.2			
4			5	2								7
			71.4	28.6								1.7
			3.3	5.0								
			1.2	.5								
5			1									1
			100.0									.2
			.7									
			.2									
(CONTINUED)	COLUMN TOTAL	1 .2	151 35.7	40 9.5	1 .2	3 .7	7 1.7	1 .2	5 1.2	1 .2	5 1.2	423 100.0

CROSSTABULATION OF
HHSHARE1 number of rooms used by households BY RENT rent per month

HHSHARE1	COUNT / ROW PCT / COL PCT / TOT PCT	RENT 90	100	110	120	125	140	150	175	180	200	ROW TOTAL
	1	4 1.4 100.0 .9	47 17.0 94.0 11.1	1 .4 100.0 .2	10 3.6 90.9 2.4	7 2.5 100.0 1.7	3 1.1 100.0 .7	39 14.1 97.5 9.2	13 4.7 100.0 3.1	1 .4 50.0 .2	22 8.0 84.6 5.2	276 65.2
	2		3 3.7 6.0 .7		1 1.2 9.1 .2					1 1.2 50.0 .2	3 3.7 11.5 .7	82 19.4
	3							1 1.8 2.5 .2			1 1.8 3.8 .2	57 13.5
	4											7 1.7
	5											1 .2
(CONTINUED)	COLUMN TOTAL	4 .9	50 11.8	1 .2	11 2.6	7 1.7	3 .7	40 9.5	13 3.1	2 .5	26 6.1	423 100.0

CROSSTABULATION OF

HHSHARE1 number of rooms used by households BY RENT rent per month

HHSHARE1	COUNT / ROW PCT / COL PCT / TOT PCT	RENT 220	240	250	275	300	350	ROW TOTAL
1		5	6	25	1	10	1	276
		1.8	2.2	9.1	.4	3.6	.4	65.2
		100.0	100.0	89.3	100.0	100.0	100.0	
		1.2	1.4	5.9	.2	2.4	.2	
2				3				82
				3.7				19.4
				10.7				
				.7				
3								57
								13.5
4								7
								1.7
5								1
								.2
COLUMN TOTAL		5	6	28	1	10	1	423
		1.2	1.4	6.6	.2	2.4	.2	100.0

NUMBER OF MISSING OBSERVATIONS = 1

1.00 Mirpur [Table 10.2.C]

CROSSTABULATION OF
HHSHARE1 number of rooms used by households BY RENT rent per month

HHSHARE1	COUNT / ROW PCT / COL PCT / TOT PCT	RENT 10	30	35	60	70	75	100	125	150	175	ROW TOTAL
1		1	50	11				9	2	19	1	110
		.9	45.5	10.0				8.2	1.8	17.3	.9	44.0
		100.0	33.1	27.5				81.8	100.0	100.0	100.0	
		.4	20.0	4.4				3.6	.8	7.6	.4	
2			55	14			1	2				76
			72.4	18.4			1.3	2.6				30.4
			36.4	35.0			100.0	18.2				
			22.0	5.6			.4	.8				
3			40	13	1	1						56
			71.4	23.2	1.8	1.8						22.4
			26.5	32.5	100.0	100.0						
			16.0	5.2	.4	.4						
4			5	2								7
			71.4	28.6								2.8
			3.3	5.0								
			2.0	.8								
5			1									1
			100.0									.4
			.7									
			.4									
(CONTINUED)	COLUMN TOTAL	1 .4	151 60.4	40 16.0	1 .4	1 .4	1 .4	11 4.4	2 .8	19 7.6	1 .4	250 100.0

1.00 Mirpur

CROSSTABULATION OF HHSHARE1 number of rooms used by households BY RENT rent per month

HHSHARE1	COUNT / ROW PCT / COL PCT / TOT PCT	RENT 180	200	250	275	ROW TOTAL
1			13	3	1	110
			11.8	2.7	.9	44.0
			86.7	60.0	100.0	
			5.2	1.2	.4	
2		1	1	2		76
		1.3	1.3	2.6		30.4
		100.0	6.7	40.0		
		.4	.4	.8		
3			1			56
			1.8			22.4
			6.7			
			.4			
4						7
						2.8
5						1
						.4
COLUMN TOTAL		1	15	5	1	250
		.4	6.0	2.0	.4	100.0

NUMBER OF MISSING OBSERVATIONS = 1

2.00 Jurain/mirhazirbag [Table 10.2.D]

CROSSTABULATION OF

HHSHARE1 number of rooms used by households BY RENT rent per month

HHSHARE1	COUNT / ROW PCT / COL PCT / TOT PCT	RENT 80	100	120	125	140	150	175	200	220	240	ROW TOTAL
1		2	23	1	3	1	5	2	6	5	6	85
		2.4	27.1	1.2	3.5	1.2	5.9	2.4	7.1	5.9	7.1	97.7
		100.0	95.8	100.0	100.0	100.0	100.0	100.0	85.7	100.0	100.0	
		2.3	26.4	1.1	3.4	1.1	5.7	2.3	6.9	5.7	6.9	
2			1						1			2
			50.0						50.0			2.3
			4.2						14.3			
			1.1						1.1			
COLUMN TOTAL		2	24	1	3	1	5	2	7	5	6	87
		2.3	27.6	1.1	3.4	1.1	5.7	2.3	8.0	5.7	6.9	100.0

(CONTINUED)

2.00 Jurain/Mirhazirbag

CROSSTABULATION OF

HHSHARE1 number of rooms used by households BY RENT rent per month

HHSHARE1	RENT 250	300	350	ROW TOTAL
1	20	10	1	85
	23.5	11.8	1.2	97.7
	100.0	100.0	100.0	
	23.0	11.5	1.1	
2				2
				2.3
COLUMN TOTAL	20	10	1	87
	23.0	11.5	1.1	100.0

NUMBER OF MISSING OBSERVATIONS = 0

3.00 hazaribag [Table 10.2.E]

CROSSTABULATION OF HHSHARE1 number of rooms used by households BY RENT rent per month

HHSHARE1	COUNT / ROW PCT / COL PCT / TOT PCT	RENT 40	50	60	65	70	80	90	100	110	120	ROW TOTAL
1		1 1.2 100.0 1.2	3 3.7 100.0 3.5	6 7.4 100.0 7.0	1 1.2 100.0 1.2	3 3.7 75.0 3.5	3 3.7 100.0 3.5	4 4.9 100.0 4.7	15 18.5 100.0 17.4	1 1.2 100.0 1.2	9 11.1 90.0 10.5	81 94.2
2						1 25.0 25.0 1.2					1 25.0 10.0 1.2	4 4.7
3												1 1.2
(CONTINUED)	COLUMN TOTAL	1 1.2	3 3.5	6 7.0	1 1.2	4 4.7	3 3.5	4 4.7	15 17.4	1 1.2	10 11.6	86 100.0

3.00 Hazaribag

C R O S S T A B U L A T I O N O F

HHSHARE1 number of rooms used by households BY RENT rent per month

HHSHARE1	RENT							
	COUNT / ROW PCT / COL PCT / TOT PCT	125	140	150	175	180	200	250	ROW TOTAL
1		2	2	15	10	1	3	2	81
		2.5	2.5	18.5	12.3	1.2	3.7	2.5	94.2
		100.0	100.0	93.8	100.0	100.0	75.0	66.7	
		2.3	2.3	17.4	11.6	1.2	3.5	2.3	
2							1	1	4
							25.0	25.0	4.7
							25.0	33.3	
							1.2	1.2	
3				1					1
				100.0					1.2
				6.3					
				1.2					
COLUMN TOTAL		2	2	16	10	1	4	3	86
		2.3	2.3	18.6	11.6	1.2	4.7	3.5	100.0

NUMBER OF MISSING OBSERVATIONS = 0

CROSSTABULATION OF TOTREL total no of relations members in home BY TOTINC2 income groups div in 250 (Taka)

TOTREL	COUNT / ROW PCT / COL PCT / TOT PCT	TOTINC2 1-250 (1.00)	251-500 (2.00)	501-750 (3.00)	751-1000 (4.00)	1001-1250 (5.00)	1251-1500 (6.00)	1501-1750 (7.00)	1751-2000 (8.00)	2001-2250 (9.00)	2501-2750 (11.00)	ROW TOTAL
1.00		1		2								3
		33.3		66.7								.7
		50.0		9.5								
		.2		.5								
2.00		1	1	3	6	3	2					16
		6.3	6.3	18.8	37.5	18.8	12.5					3.8
		50.0	16.7	14.3	5.0	3.5	1.5					
		.2	.2	.7	1.4	.7	.5					
3.00			5	1	22	3	14	2	1			48
			10.4	2.1	45.8	6.3	29.2	4.2	2.1			11.3
			83.3	4.8	18.2	3.5	10.3	6.5	5.6			
			1.2	.2	5.2	.7	3.3	.5	.2			
4.00				7	30	23	19	1	1	1		82
				8.5	36.6	28.0	23.2	1.2	1.2	1.2		19.4
				33.3	24.8	27.1	14.0	3.2	5.6	50.0		
				1.7	7.1	5.4	4.5	.2	.2	.2		
5.00				7	29	22	36	6	3			103
				6.8	28.2	21.4	35.0	5.8	2.9			24.3
				33.3	24.0	25.9	26.5	19.4	16.7			
				1.7	6.9	5.2	8.5	1.4	.7			
6.00				1	21	21	26	13	4			86
				1.2	24.4	24.4	30.2	15.1	4.7			20.3
				4.8	17.4	24.7	19.1	41.9	22.2			
				.2	5.0	5.0	6.1	3.1	.9			
7.00					10	10	23	5	7			55
					18.2	18.2	41.8	9.1	12.7			13.0
					8.3	11.8	16.9	16.1	38.9			
					2.4	2.4	5.4	1.2	1.7			
(CONTINUED)	COLUMN TOTAL	2 .5	6 1.4	21 5.0	121 28.6	85 20.1	136 32.2	31 7.3	18 4.3	2 .5	1 .2	423 100.0

CROSSTABULATION OF TOTREL total no of relations members in home BY TOTINC2 income groups div in 250

TOTREL	COUNT / ROW PCT / COL PCT / TOT PCT	TOTINC2 1-250 (1.00)	251-500 (2.00)	501-750 (3.00)	751-1000 (4.00)	1001-1250 (5.00)	1251-1500 (6.00)	1501-1750 (7.00)	1751-2000 (8.00)	2001-2250 (9.00)	2501-2750 (11.00)	ROW TOTAL
8.00					3	3	16	4	2	1	1	30
					10.0	10.0	53.3	13.3	6.7	3.3	3.3	7.1
					2.5	3.5	11.8	12.9	11.1	50.0	100.0	
					.7	.7	3.8	.9	.5	.2	.2	
COLUMN TOTAL		2	6	21	121	85	136	31	18	2	1	423
		.5	1.4	5.0	28.6	20.1	32.2	7.3	4.3	.5	.2	100.0

NUMBER OF MISSING OBSERVATIONS = 1

CROSSTABULATION OF

TOTINC2 income groups div in 250 (Taka) BY TOTEXPN2 total expenditure (Taka)

TOTINC2	COUNT / ROW PCT / COL PCT / TOT PCT	TOTEXPN2 1-250 (1.00)	251-500 (2.00)	501-750 (3.00)	751-1000 (4.00)	1001-1250 (5.00)	1251-1500 (6.00)	1501-1750 (7.00)	1751-2000 (8.00)	2001-2250 (9.00)	2751-3000 (12.00)	ROW TOTAL
1-250 (1.00)		2										2
		100.0										.5
		100.0										
		.5										
251-500 (2.00)			6									6
			100.0									1.4
			100.0									
			1.4									
501-750 (3.00)				12	6	3						21
				57.1	28.6	14.3						5.0
				85.7	7.1	2.8						
				2.8	1.4	.7						
751-1000 (4.00)				2	72	37	10					121
				1.7	59.5	30.6	8.3					28.6
				14.3	85.7	34.9	7.3					
				.5	17.0	8.7	2.4					
1001-1250 (5.00)					3	48	30	4				85
					3.5	56.5	35.3	4.7				20.1
					3.6	45.3	21.9	8.0				
					.7	11.3	7.1	.9				
1251-1500 (6.00)					2	17	86	25	5	1		136
					1.5	12.5	63.2	18.4	3.7	.7		32.2
					2.4	16.0	62.8	50.0	25.0	33.3		
					.5	4.0	20.3	5.9	1.2	.2		
1501-1750 (7.00)						1	9	17	4			31
						3.2	29.0	54.8	12.9			7.3
						.9	6.6	34.0	20.0			
						.2	2.1	4.0	.9			
(CONTINUED)	COLUMN TOTAL	2 .5	6 1.4	14 3.3	84 19.9	106 25.1	137 32.4	50 11.8	20 4.7	3 .7	1 .2	423 100.0

CROSSTABULATION OF TOTINC2 income groups div in 250 BY TOTEXPN2

TOTINC2	COUNT / ROW PCT / COL PCT / TOT PCT	TOTEXPN2 1-250 (1.00)	251-500 (2.00)	501-750 (3.00)	751-1000 (4.00)	1001-1250 (5.00)	1251-1500 (6.00)	1501-1750 (7.00)	1751-2000 (8.00)	2001-2250 (9.00)	2751-3000 (12.00)	ROW TOTAL
1751-2000	8.00				1		1	4	11	1		18
					5.6		5.6	22.2	61.1	5.6		4.3
					1.2		.7	8.0	55.0	33.3		
					.2		.2	.9	2.6	.2		
2001-2250	9.00						1			1		2
							50.0			50.0		.5
							.7			33.3		
							.2			.2		
2501-2750	11.00										1	1
											100.0	.2
											100.0	
											.2	
	COLUMN TOTAL	2 .5	6 1.4	14 3.3	84 19.9	106 25.1	137 32.4	50 11.8	20 4.7	3 .7	1 .2	423 100.0

NUMBER OF MISSING OBSERVATIONS = 1

CROSSTABULATION OF
TOTREL total no of relations members in home BY HHSHARE1 number of rooms used by the households

TOTREL	COUNT / ROW PCT / COL PCT / TOT PCT	HHSHARE1 1	2	3	4	5	ROW TOTAL
1.00		2	1				3
		66.7	33.3				.7
		.7	1.2				
		.5	.2				
2.00		16					16
		100.0					3.8
		5.8					
		3.8					
3.00		39	7	2			48
		81.3	14.6	4.2			11.3
		14.1	8.4	3.5			
		9.2	1.7	.5			
4.00		66	12	5			83
		79.5	14.5	6.0			19.6
		23.9	14.5	8.8			
		15.6	2.8	1.2			
5.00		70	14	16	3		103
		68.0	13.6	15.5	2.9		24.3
		25.4	16.9	28.1	42.9		
		16.5	3.3	3.8	.7		
6.00		41	29	15		1	86
		47.7	33.7	17.4		1.2	20.3
		14.9	34.9	26.3		100.0	
		9.7	6.8	3.5		.2	
7.00		31	12	10	2		55
		56.4	21.8	18.2	3.6		13.0
		11.2	14.5	17.5	28.6		
		7.3	2.8	2.4	.5		
(CONTINUED)	COLUMN TOTAL	276	83	57	7	1	424
		65.1	19.6	13.4	1.7	.2	100.0

C R O S S T A B U L A T I O N O F
TOTREL total no of relations members in home BY HHSHARE1 number of rooms used by the households

TOTREL	COUNT / ROW PCT / COL PCT / TOT PCT	HHSHARE1 1	2	3	4	5	ROW TOTAL
8.00		11	8	9	2		30
		36.7	26.7	30.0	6.7		7.1
		4.0	9.6	15.8	28.6		
		2.6	1.9	2.1	.5		
COLUMN TOTAL		276	83	57	7	1	424
		65.1	19.6	13.4	1.7	.2	100.0

NUMBER OF MISSING OBSERVATIONS = 0

* * * C R O S S T A B U L A T I O N * * * [Table 10.10.A]

TOTREL total no of relations members in home
BY ITEMS (GROUP) items of alterations extensions

ITEMS

TOTREL / COUNT / ROW PCT / COL PCT / TAB PCT	partition in living 1	door between living 2	windows in the verandah 3	walling in the verandah 4	extra space: kitchen 5	bathroom 6	latrine 7	reserv. 8	fencing the compound 9	backyard kitchen garden 10	backdoor in the boundary 11	ROW TOTAL
1	0	0	0	1	0	1	1	0	1	0	0	1
	0.0	0.0	0.0	100.0	0.0	100.0	100.0	0.0	100.0	0.0	0.0	0.5
	0.0	0.0	0.0	0.8	0.0	0.9	1.7	0.0	1.3	0.0	0.0	
	0.0	0.0	0.0	0.5	0.0	0.5	0.5	0.0	0.5	0.0	0.0	
3	0	0	1	10	4	7	1	2	5	0	0	14
	0.0	0.0	7.1	71.4	28.6	50.0	7.1	14.3	35.7	0.0	0.0	7.1
	0.0	0.0	50.0	7.9	3.8	6.1	1.7	8.7	6.6	0.0	0.0	
	0.0	0.0	0.5	5.1	2.0	3.6	0.5	1.0	2.6	0.0	0.0	
4	4	1	0	14	14	8	5	2	11	0	0	25
	16.0	4.0	0.0	56.0	56.0	32.0	20.0	8.0	44.0	0.0	0.0	12.8
	14.3	6.3	0.0	11.1	13.5	7.0	8.3	8.7	14.5	0.0	0.0	
	2.0	0.5	0.0	7.1	7.1	4.1	2.6	1.0	5.6	0.0	0.0	
5	5	5	0	31	24	29	14	1	15	2	0	50
	10.0	10.0	0.0	62.0	48.0	58.0	28.0	2.0	30.0	4.0	0.0	25.5
	17.9	31.3	0.0	24.6	23.1	25.4	23.3	4.3	19.7	50.0	0.0	
	2.6	2.6	0.0	15.8	12.2	14.8	7.1	0.5	7.7	1.0	0.0	
6	12	8	0	33	33	34	15	9	19	2	1	54
	22.2	14.8	0.0	61.1	61.1	63.0	27.8	16.7	35.2	3.7	1.9	27.6
	42.9	50.0	0.0	26.2	31.7	29.8	25.0	39.1	25.0	50.0	100.0	
	6.1	4.1	0.0	16.8	16.8	17.3	7.7	4.6	9.7	1.0	0.5	
7	2	0	0	22	19	20	15	3	14	0	0	29
	6.9	0.0	0.0	75.9	65.5	69.0	51.7	10.3	48.3	0.0	0.0	14.8
	7.1	0.0	0.0	17.5	18.3	17.5	25.0	13.0	18.4	0.0	0.0	
	1.0	0.0	0.0	11.2	9.7	10.2	7.7	1.5	7.1	0.0	0.0	
COLUMN TOTAL	28	16	2	126	104	114	60	23	76	4	1	196
	14.3	8.2	1.0	64.3	53.1	58.2	30.6	11.7	38.8	2.0	0.5	100.0

PERCENTS AND TOTALS BASED ON RESPONDENTS

(CONTINUED)

* * * C R O S S T A B U L A T I O N * * *

TOTREL total no of relations members in home
BY ITEMS (GROUP) items of alterations extensions

ITEMS

TOTREL	COUNT / ROW PCT / COL PCT / TAB PCT	animal shed 12	installation of tubewell 14	construction of verandah 16	construction of room(s) 17	ROW TOTAL
1		0	0	0	2	1
		0.0	0.0	0.0	200.0	0.5
		0.0	0.0	0.0	1.4	
		0.0	0.0	0.0	1.0	
3		0	0	0	7	14
		0.0	0.0	0.0	50.0	7.1
		0.0	0.0	0.0	5.0	
		0.0	0.0	0.0	3.6	
4		1	0	0	10	25
		4.0	0.0	0.0	40.0	12.8
		100.0	0.0	0.0	7.1	
		0.5	0.0	0.0	5.1	
5		0	2	2	35	50
		0.0	4.0	4.0	70.0	25.5
		0.0	100.0	100.0	24.8	
		0.0	1.0	1.0	17.9	
6		0	0	0	44	54
		0.0	0.0	0.0	81.5	27.6
		0.0	0.0	0.0	31.2	
		0.0	0.0	0.0	22.4	
7		0	0	0	18	29
		0.0	0.0	0.0	62.1	14.8
		0.0	0.0	0.0	12.8	
		0.0	0.0	0.0	9.2	
	COLUMN TOTAL	1 0.5	2 1.0	2 1.0	141 71.9	196 100.0

PERCENTS AND TOTALS BASED ON RESPONDENTS

(CONTINUED)

* * * C R O S S T A B U L A T I O N * * *

TOTREL total no of relations members in home
BY ITEMS (GROUP) items of alterations extensions

ITEMS

TOTREL	COUNT / ROW PCT / COL PCT / TAB PCT	partition in living 1	door between living 2	windows in the verandah 3	walling in the verandah 4	extra space: kitchen 5	bathroom 6	latrine 7	water reserv. 8	fencing the compound 9	backyard kitchen garden 10	backdoor in the boundary 11	ROW TOTAL
8		5	2	1	15	10	15	9	6	11	0	0	23
		21.7	8.7	4.3	65.2	43.5	65.2	39.1	26.1	47.8	0.0	0.0	11.7
		17.9	12.5	50.0	11.9	9.6	13.2	15.0	26.1	14.5	0.0	0.0	
		2.6	1.0	0.5	7.7	5.1	7.7	4.6	3.1	5.6	0.0	0.0	
COLUMN TOTAL		28 14.3	16 8.2	2 1.0	126 64.3	104 53.1	114 58.2	60 30.6	23 11.7	76 38.8	4 2.0	1 0.5	196 100.0

PERCENTS AND TOTALS BASED ON RESPONDENTS

(CONTINUED)

* * * C R O S S T A B U L A T I O N * * *

TOTREL total no of relations members in home
BY ITEMS (GROUP) items of alterations extensions

ITEMS

TOTREL	COUNT / ROW PCT / COL PCT / TAB PCT	animal shed 12	tubewell 14	construction of verandah 16	construction of room 17	ROW TOTAL
8		0	0	0	25	23
		0.0	0.0	0.0	108.7	11.7
		0.0	0.0	0.0	17.7	
		0.0	0.0	0.0	12.8	
COLUMN TOTAL		1	2	2	141	196
		0.5	1.0	1.0	71.9	100.0

PERCENTS AND TOTALS BASED ON RESPONDENTS

196 VALID CASES 228 *MISSING CASES*

* * * C R O S S T A B U L A T I O N * * *

TOTINC2 income groups div in 250
BY ITEMS (GROUP) items of alterations extensions

ITEMS

TOTINC2	COUNT / ROW PCT / COL PCT / TAB PCT	partition in living 1	door between living 2	windows in the verandah 3	walling in the verandah 4	extra space: kitchen 5	bathroom 6	tion of latrine 7	water reserv. 8	fencing the compound 9	backyard kitchen garden 10	backdoor in the boundary 11	ROW TOTAL
2		0	0	0	1	1	3	0	0	1	0	0	4
251-500		0.0	0.0	0.0	25.0	25.0	75.0	0.0	0.0	25.0	0.0	0.0	2.0
		0.0	0.0	0.0	0.8	1.0	2.6	0.0	0.0	1.3	0.0	0.0	
		0.0	0.0	0.0	0.5	0.5	1.5	0.0	0.0	0.5	0.0	0.0	
3		0	0	0	4	5	4	2	1	3	0	0	8
501-750		0.0	0.0	0.0	50.0	62.5	50.0	25.0	12.5	37.5	0.0	0.0	4.1
		0.0	0.0	0.0	3.2	4.8	3.5	3.3	4.3	3.9	0.0	0.0	
		0.0	0.0	0.0	2.0	2.6	2.0	1.0	0.5	1.5	0.0	0.0	
4		5	3	0	27	22	25	9	5	11	1	0	45
751-1000		11.1	6.7	0.0	60.0	48.9	55.6	20.0	11.1	24.4	2.2	0.0	23.0
		17.9	18.8	0.0	21.4	21.2	21.9	15.0	21.7	14.5	25.0	0.0	
		2.6	1.5	0.0	13.8	11.2	12.8	4.6	2.6	5.6	0.5	0.0	
5		8	5	0	29	21	26	15	3	16	3	0	40
1001-1250		20.0	12.5	0.0	72.5	52.5	65.0	37.5	7.5	40.0	7.5	0.0	20.4
		28.6	31.3	0.0	23.0	20.2	22.8	25.0	13.0	21.1	75.0	0.0	
		4.1	2.6	0.0	14.8	10.7	13.3	7.7	1.5	8.2	1.5	0.0	
6		3	3	1	46	32	32	19	10	32	0	1	64
1251-1500		4.7	4.7	1.6	71.9	50.0	50.0	29.7	15.6	50.0	0.0	1.6	32.7
		10.7	18.8	50.0	36.5	30.8	28.1	31.7	43.5	42.1	0.0	100.0	
		1.5	1.5	0.5	23.5	16.3	16.3	9.7	5.1	16.3	0.0	0.5	
7		6	2	0	13	15	18	8	4	9	0	0	21
1501-1750		28.6	9.5	0.0	61.9	71.4	85.7	38.1	19.0	42.9	0.0	0.0	10.7
		21.4	12.5	0.0	10.3	14.4	15.8	13.3	17.4	11.8	0.0	0.0	
		3.1	1.0	0.0	6.6	7.7	9.2	4.1	2.0	4.6	0.0	0.0	
	COLUMN TOTAL	28	16	2	126	104	114	60	23	76	4	1	196
		14.3	8.2	1.0	64.3	53.1	58.2	30.6	11.7	38.8	2.0	0.5	100.0

PERCENTS AND TOTALS BASED ON RESPONDENTS

(CONTINUED)

* * * C R O S S T A B U L A T I O N * * *

TOTINC2 income groups div in 250
BY ITEMS (GROUP) items of alterations extensions

		ITEMS				
	COUNT ROW PCT COL PCT TAB PCT	animal shed 12	tubewell 14	construction of verandah 16	construction of room(s) 17	ROW TOTAL
TOTINC2						
251-500	2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	4 2.0
501-750	3	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	3 37.5 2.1 1.5	8 4.1
751-1000	4	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 2.2 50.0 0.5	32 71.1 22.7 16.3	45 23.0
1001-1250	5	1 2.5 100.0 0.5	0 0.0 0.0 0.0	1 2.5 50.0 0.5	21 52.5 14.9 10.7	40 20.4
1251-1500	6	0 0.0 0.0 0.0	1 1.6 50.0 0.5	0 0.0 0.0 0.0	54 84.4 38.3 27.6	64 32.7
1501-1750	7	0 0.0 0.0 0.0	1 4.8 50.0 0.5	0 0.0 0.0 0.0	19 90.5 13.5 9.7	21 10.7
	COLUMN TOTAL	1 0.5	2 1.0	2 1.0	141 71.9	196 100.0

PERCENTS AND TOTALS BASED ON RESPONDENTS

(CONTINUED)

* * * C R O S S T A B U L A T I O N * * *

TOTINC2 income groups div in 250
BY ITEMS (GROUP) items of alterations extensions

ITEMS

TOTINC2	COUNT / ROW PCT / COL PCT / TAB PCT	partition in living 1	door between living 2	windows in the verandah 3	walling in the verandah 4	extre space kitchen 5	bathroom 6	latrine 7	water reserv. 8	fencing the comp compound 9	backyard kitchen garden 10	backdoor in the boundary 11	ROW TOTAL
1751-2000	8	4	3	0	5	7	5	6	0	4	0	0	12
		33.3	25.0	0.0	41.7	58.3	41.7	50.0	0.0	33.3	0.0	0.0	6.1
		14.3	18.8	0.0	4.0	6.7	4.4	10.0	0.0	5.3	0.0	0.0	
		2.0	1.5	0.0	2.6	3.6	2.6	3.1	0.0	2.0	0.0	0.0	
2001-2250	9	1	0	0	1	0	0	0	0	0	0	0	1
		100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
		3.6	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
		0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2501-2750	11	1	0	1	0	1	1	1	0	0	0	0	1
		100.0	0.0	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.5
		3.6	0.0	50.0	0.0	1.0	0.9	1.7	0.0	0.0	0.0	0.0	
		0.5	0.0	0.5	0.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0	
	COLUMN TOTAL	28	16	2	126	104	114	60	23	76	4	1	196
		14.3	8.2	1.0	64.3	53.1	58.2	30.6	11.7	38.8	2.0	0.5	100.0

PERCENTS AND TOTALS BASED ON RESPONDENTS

(CONTINUED)

* * * C R O S S T A B U L A T I O N * * *

TOTINC2 income groups div in 250
BY ITEMS (GROUP) items of alterations extensions

ITEMS

TOTINC2	COUNT / ROW PCT / COL PCT / TAB PCT	animal shed 12	installation of tubewell 14	construction of verandah 16	construction of room(s) 17	ROW TOTAL
1751-2000	8	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	12 100.0 8.5 6.1	12 6.1
2001-2250	9	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 0.5
2501-2750	11	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 0.5
	COLUMN TOTAL	1 0.5	2 1.0	2 1.0	141 71.9	196 100.0

PERCENTS AND TOTALS BASED ON RESPONDENTS

196 VALID CASES 228 MISSING CASES

Appendix O

LIST OF ITEM 4 AND ITEM 17:

The following are the complete list of 'item 17'(construction of additional rooms) followed by another combined list of 'item 17' and 'item 4'(walling up of the verandahs). The first one provides the list of cases of room extensions, while the second one shows the room extensions along with the verandah; the total number of extended rooms (along with those converted from the verandahs) are thus compiled from these two lists.

```
    17:53:52    University of Newcastle

      30  0                12 "an animal shed" 13 "pavements walkways"
      31  0                14 "installation of tubewells standpipes" 15 "installation electric post"
      32  0                16 "construction of verandahs additional to main structure"
      33  0                17 "construction of rooms additional to main structure"
      34  0          file handle items / name='mirpuri.sys'
      35  0          save outfile=items
   CASE=  1 ITEM=17 DIMA=120 DIMB= 70
  014 APR 87 17:53:55        5 VARIABLES,     40 BYTES PER CASE BEFORE COMPRESSION
   CASE=  2 ITEM=17 DIMA= 62 DIMB= 80
   CASE=  4 ITEM=17 DIMA= 60 DIMB= 70
   CASE=  4 ITEM=17 DIMA= 60 DIMB= 70
   CASE=  5 ITEM=17 DIMA= 65 DIMB= 85
   CASE=  5 ITEM=17 DIMA= 80 DIMB= 62
   CASE=  6 ITEM=17 DIMA= 95 DIMB= 65
   CASE=  6 ITEM=17 DIMA= 82 DIMB= 55
   CASE=  6 ITEM=17 DIMA= 82 DIMB= 65
   CASE=  7 ITEM=17 DIMA=100 DIMB= 50
   CASE=  9 ITEM=17 DIMA= 92 DIMB= 70
   CASE= 11 ITEM=17 DIMA= 62 DIMB= 83
   CASE= 12 ITEM=17 DIMA= 50 DIMB= 70
   CASE= 12 ITEM=17 DIMA= 80 DIMB= 70
   CASE= 13 ITEM=17 DIMA= 75 DIMB=140
   CASE= 13 ITEM=17 DIMA= 66 DIMB= 63
   CASE= 13 ITEM=17 DIMA= 66 DIMB= 63
   CASE= 13 ITEM=17 DIMA= 66 DIMB= 63
   CASE= 13 ITEM=17 DIMA= 66 DIMB= 63
   CASE= 19 ITEM=17 DIMA= 90 DIMB= 90
   CASE= 20 ITEM=17 DIMA= 55 DIMB= 75
   CASE= 22 ITEM=17 DIMA=140 DIMB= 50
   CASE= 23 ITEM=17 DIMA= 84 DIMB= 80
   CASE= 30 ITEM=17 DIMA= 83 DIMB= 70
   CASE= 30 ITEM=17 DIMA= 40 DIMB=130
   CASE= 31 ITEM=17 DIMA=150 DIMB= 60
   CASE= 32 ITEM=17 DIMA=100 DIMB=100
   CASE= 33 ITEM=17 DIMA= 60 DIMB=150
   CASE= 34 ITEM=17 DIMA= 80 DIMB= 65
   CASE= 35 ITEM=17 DIMA= 62 DIMB= 80
   CASE= 35 ITEM=17 DIMA= 62 DIMB= 80
   CASE= 35 ITEM=17 DIMA= 62 DIMB=100
   CASE= 36 ITEM=17 DIMA=140 DIMB= 90
   CASE= 38 ITEM=17 DIMA=120 DIMB= 80
   CASE= 39 ITEM=17 DIMA=110 DIMB= 80
   CASE= 43 ITEM=17 DIMA= 90 DIMB= 60
   CASE= 43 ITEM=17 DIMA= 60 DIMB= 60
   CASE= 44 ITEM=17 DIMA= 90 DIMB=120
   CASE= 44 ITEM=17 DIMA= 50 DIMB=120
   CASE= 46 ITEM=17 DIMA=100 DIMB= 60
   CASE= 46 ITEM=17 DIMA= 90 DIMB= 80
   CASE= 47 ITEM=17 DIMA= 70 DIMB= 90
   CASE= 47 ITEM=17 DIMA= 70 DIMB= 50
   CASE= 48 ITEM=17 DIMA= 60 DIMB=130
   CASE= 51 ITEM=17 DIMA= 90 DIMB= 70
   CASE= 52 ITEM=17 DIMA= 90 DIMB= 70
  114 APR 87   housing survey in peri urban dhaka 86
    PAGE   3
   17:53:55    University of Newcastle
```

extensions : 2 rooms
: 2 rooms
: 3 rooms
: 2 rooms
: 5 rooms
+1 VERANDAH
+1 V
: 2 rooms
+1 V
+1 V
+1 V
: 3 rooms
+1 V
+1 V
+1 V : 2 rooms
: 2 rooms
+1 V : 2 rooms
: 2 rooms
+2 V
+1 V
: 13 ver. : 16 rooms (total)

29

```
108
109 |  CASE= 52 ITEM=17 DIMA=120 DIMB= 70
110 |  CASE= 53 ITEM=17 DIMA= 60 DIMB=120 ---> +1V
111      CASE= 60 ITEM=17 DIMA= 90 DIMB=120
112 |  CASE= 60 ITEM=17 DIMA= 90 DIMB=120          : 3 rooms
113      CASE= 60 ITEM=17 DIMA= 70 DIMB=100
114 |  CASE= 64 ITEM=17 DIMA= 70 DIMB= 90 ---> +1V
115      CASE= 67 ITEM=17 DIMA= 60 DIMB= 80
116 |  CASE= 67 ITEM=17 DIMA= 80 DIMB= 90          : 2 rooms
117 |  CASE= 68 ITEM=17 DIMA= 32 DIMB= 70
118      CASE= 69 ITEM=17 DIMA= 90 DIMB= 60
119 |  CASE= 69 ITEM=17 DIMA= 90 DIMB= 80  +1V     : 2 rooms
120 |  CASE= 72 ITEM=17 DIMA=125 DIMB= 45
121      CASE= 77 ITEM=17 DIMA= 80 DIMB= 50
122 |  CASE= 77 ITEM=17 DIMA= 60 DIMB= 90  +1V     : 3 rooms
123      CASE= 77 ITEM=17 DIMA=140 DIMB= 90
124      CASE= 80 ITEM=17 DIMA=150 DIMB= 60
125 |  CASE= 80 ITEM=17 DIMA= 80 DIMB= 90  +1V     : 2 rooms
126 |  CASE= 83 ITEM=17 DIMA=150 DIMB= 50 ---> +1V
127      CASE= 84 ITEM=17 DIMA=110 DIMB= 90
128 |  CASE= 84 ITEM=17 DIMA= 80 DIMB= 80          : 2 rooms
129 |  CASE= 94 ITEM=17 DIMA=120 DIMB= 60
130 |  CASE=104 ITEM=17 DIMA= 85 DIMB= 65 ---> +2V
131 |  CASE=105 ITEM=17 DIMA=195 DIMB= 65 ---> +1V
132 |  CASE=106 ITEM=17 DIMA=265 DIMB= 80 ---> +1V
133 |  CASE=111 ITEM=17 DIMA= 60 DIMB= 61 ---> +1V
134 |  CASE=116 ITEM=17 DIMA= 82 DIMB= 61
135 |  CASE=117 ITEM=17 DIMA= 81 DIMB= 61
136 |  CASE=118 ITEM=17 DIMA= 41 DIMB=160 ---> +1V
137      CASE=119 ITEM=17 DIMA= 82 DIMB=120
138 |  CASE=119 ITEM=17 DIMA= 70 DIMB= 80          : 2 rooms
139 |  CASE=124 ITEM=17 DIMA= 40 DIMB= 62 ---> +1V
140 |  CASE=128 ITEM=17 DIMA=120 DIMB= 85
141 |  CASE=131 ITEM=17 DIMA= 60 DIMB=125 ---> +1V
142 |  CASE=134 ITEM=17 DIMA= 25 DIMB= 46 ---> +1V
143 |  CASE=135 ITEM=17 DIMA=194 DIMB= 60
144 |  CASE=137 ITEM=17 DIMA= 80 DIMB=120 ---> +1V
145 |  CASE=139 ITEM=17 DIMA=105 DIMB= 52 ---> +1V
146 |  CASE=147 ITEM=17 DIMA=195 DIMB= 75 ---> +1V
147 |  CASE=152 ITEM=17 DIMA= 50 DIMB= 81 ---> +1V
148 |  CASE=156 ITEM=17 DIMA=120 DIMB= 83
149 |  CASE=159 ITEM=17 DIMA= 60 DIMB= 60 ---> +1V
150 |  CASE=160 ITEM=17 DIMA= 70 DIMB= 70 ---> +1V
151 |  CASE=164 ITEM=17 DIMA=140 DIMB= 80 ---> +1V
152 |  CASE=165 ITEM=17 DIMA= 90 DIMB=110 ---> +1V
153      CASE=167 ITEM=17 DIMA= 50 DIMB= 90
154 |  CASE=167 ITEM=17 DIMA= 90 DIMB= 60          : 3 rooms
155      CASE=167 ITEM=17 DIMA= 90 DIMB= 60
156      CASE=170 ITEM=17 DIMA= 60 DIMB= 90
157 |  CASE=170 ITEM=17 DIMA= 50 DIMB= 90  +1V     : 3 rooms
158      CASE=170 ITEM=17 DIMA= 60 DIMB= 90
159      CASE=172 ITEM=17 DIMA= 80 DIMB= 90
160 |  CASE=172 ITEM=17 DIMA= 70 DIMB=100  +1V     : 2 rooms
161      CASE=174 ITEM=17 DIMA= 60 DIMB= 90
162      CASE=174 ITEM=17 DIMA= 60 DIMB= 90
163 |  114 APR 87   housing survey in peri urban dhaka 96   +1V : 3 rooms
         PAGE   4
164      17:53:58   University of Newcastle
```

: 39V : 100 rooms (total)

```
CASE=174 ITEM=17 DIMA= 30 DIMB= 90
CASE=180 ITEM=17 DIMA= 60 DIMB=150 ---> +1V
CASE=197 ITEM=17 DIMA= 70 DIMB=100 ---> +1V
CASE=197 ITEM=17 DIMA= 80 DIMB= 50
CASE=197 ITEM=17 DIMA= 60 DIMB=100                    : 4 rooms
CASE=197 ITEM=17 DIMA= 80 DIMB=100
CASE=197 ITEM=17 DIMA= 70 DIMB=100
CASE=202 ITEM=17 DIMA= 80 DIMB=100
CASE=202 ITEM=17 DIMA= 60 DIMB=200 ---> +1V           : 3 rooms
CASE=202 ITEM=17 DIMA= 60 DIMB= 90
CASE=204 ITEM=17 DIMA= 60 DIMB= 90
CASE=204 ITEM=17 DIMA= 60 DIMB= 90 ---> +1V           : 2 rooms
CASE=205 ITEM=17 DIMA= 60 DIMB= 60 ---> +1V
CASE=214 ITEM=17 DIMA= 60 DIMB=100
CASE=214 ITEM=17 DIMA= 60 DIMB=100 ---> +1V           : 3 rooms
CASE=214 ITEM=17 DIMA=120 DIMB= 80
CASE=218 ITEM=17 DIMA= 55 DIMB= 83
CASE=219 ITEM=17 DIMA= 50 DIMB= 83 ---> +1V
CASE=223 ITEM=17 DIMA= 60 DIMB= 60                    : 2 rooms
CASE=223 ITEM=17 DIMA= 60 DIMB= 81
CASE=224 ITEM=17 DIMA= 70 DIMB= 83 ---> +1V
CASE=225 ITEM=17 DIMA= 80 DIMB= 81 ---> +1V
CASE=227 ITEM=17 DIMA= 80 DIMB= 60
CASE=228 ITEM=17 DIMA=120 DIMB= 81
CASE=230 ITEM=17 DIMA= 60 DIMB= 81
CASE=231 ITEM=17 DIMA= 41 DIMB= 37
CASE=233 ITEM=17 DIMA=137 DIMB= 65                    : 2 rooms
CASE=233 ITEM=17 DIMA= 65 DIMB= 55 ---> +1V
CASE=236 ITEM=17 DIMA= 87 DIMB= 75 ---> +1V
CASE=241 ITEM=17 DIMA= 60 DIMB=120 ---> +1V
CASE=244 ITEM=17 DIMA=100 DIMB= 88 ---> +1V
CASE=247 ITEM=17 DIMA= 85 DIMB=110 ---> +1V
CASE=248 ITEM=17 DIMA= 80 DIMB= 80                    : 2 rooms
CASE=248 ITEM=17 DIMA= 80 DIMB=100 ---> +1V
CASE=251 ITEM=17 DIMA= 95 DIMB= 90
CASE=251 ITEM=17 DIMA= 95 DIMB= 80                    : 3 rooms
CASE=251 ITEM=17 DIMA= 62 DIMB= 80
CASE=252 ITEM=17 DIMA= 90 DIMB=120
CASE=252 ITEM=17 DIMA= 80 DIMB=100                    : 3 rooms
CASE=252 ITEM=17 DIMA= 83 DIMB= 63
CASE=256 ITEM=17 DIMA= 90 DIMB= 40 ---> +1V
  14 APR 87 17:54:01      701 CASES SAVED

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       PAGE   5
  17:54:01     University of Newcastle
```

cases: 93 : 55 V : 141 rooms (including single rooms)

32 cases : extensions more than 1 room.

TOTAL NO. EXT. ROOM: 141
: 55 (from verandahs)
196

196 extra rooms were provided by 93 cases ⟶ RATE: 2·10 rooms/hh

```
    38  0          save outfile=items
  CASE=  1 ITEM=17 DIMA=120 DIMB= 70
014 APR 87 17:36:31        5 VARIABLES,     40 BYTES PER CASE BEFORE COMPRESSION
  CASE=  2 ITEM=17 DIMA= 62 DIMB= 80
  CASE=  4 ITEM=17 DIMA= 60 DIMB= 70
  CASE=  4 ITEM=17 DIMA= 60 DIMB= 70
  CASE=  5 ITEM=17 DIMA= 65 DIMB= 95
  CASE=  5 ITEM=17 DIMA= 80 DIMB= 62
  CASE=  6 ITEM=17 DIMA= 85 DIMB= 65
  CASE=  6 ITEM=17 DIMA= 82 DIMB= 55
  CASE=  6 ITEM=17 DIMA= 82 DIMB= 65
  CASE=  7 ITEM=17 DIMA=100 DIMB= 50
  CASE=  8 ITEM= 4 DIMA=150 DIMB= 70
  CASE=  9 ITEM=17 DIMA= 92 DIMB= 70
  CASE= 11 ITEM=17 DIMA= 62 DIMB= 83
  CASE= 12 ITEM=17 DIMA= 50 DIMB= 70
  CASE= 12 ITEM=17 DIMA= 80 DIMB= 70
  CASE= 13 ITEM=17 DIMA= 75 DIMB=140
  CASE= 13 ITEM=17 DIMA= 66 DIMB= 63
  CASE= 13 ITEM=17 DIMA= 66 DIMB= 63
  CASE= 13 ITEM=17 DIMA= 66 DIMB= 63
  CASE= 13 ITEM=17 DIMA= 66 DIMB= 63
  CASE= 19 ITEM= 4 DIMA= 88 DIMB= 60
  CASE= 19 ITEM=17 DIMA= 90 DIMB= 90
  CASE= 20 ITEM=17 DIMA= 55 DIMB= 75
  CASE= 22 ITEM=17 DIMA=140 DIMB= 50
  CASE= 23 ITEM= 4 DIMA= 83 DIMB= 60
  CASE= 23 ITEM=17 DIMA= 84 DIMB= 80
  CASE= 24 ITEM= 4 DIMA= 75 DIMB= 90
  CASE= 25 ITEM= 4 DIMA= 80 DIMB= 60
  CASE= 27 ITEM= 4 DIMA= 82 DIMB= 42
  CASE= 30 ITEM=17 DIMA= 83 DIMB= 70
  CASE= 30 ITEM=17 DIMA= 40 DIMB=130
  CASE= 31 ITEM= 4 DIMA= 64 DIMB= 60
  CASE= 31 ITEM=17 DIMA=150 DIMB= 60
  CASE= 32 ITEM=17 DIMA=100 DIMB=100
  CASE= 33 ITEM= 4 DIMA= 60 DIMB= 80
  CASE= 33 ITEM=17 DIMA= 60 DIMB=150
  CASE= 34 ITEM= 4 DIMA= 88 DIMB= 60
  CASE= 34 ITEM=17 DIMA= 80 DIMB= 65
  CASE= 35 ITEM= 4 DIMA= 62 DIMB= 83
  CASE= 35 ITEM=17 DIMA= 62 DIMB= 80
  CASE= 35 ITEM=17 DIMA= 62 DIMB= 80
  CASE= 35 ITEM=17 DIMA= 62 DIMB=100
  CASE= 36 ITEM= 4 DIMA= 52 DIMB= 63
114 APR 87   housing survey in peri urban dhaka 86
   PAGE   3
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  CASE= 36 ITEM=17 DIMA=140 DIMB= 90
  CASE= 38 ITEM=17 DIMA=120 DIMB= 80
  CASE= 39 ITEM= 4 DIMA=150 DIMB= 83
  CASE= 39 ITEM=17 DIMA=110 DIMB= 80
  CASE= 43 ITEM= 4 DIMA= 89 DIMB= 60
  CASE= 43 ITEM=17 DIMA= 90 DIMB= 60
  CASE= 43 ITEM=17 DIMA= 60 DIMB= 60
  CASE= 44 ITEM=17 DIMA= 90 DIMB=120
  CASE= 44 ITEM=17 DIMA= 50 DIMB=120
```

cases showing room extensions in association with alteration/ extensions of verandahs

```
   118      CASE= 46 ITEM= 4 DIMA= 88 DIMB= 60
   119      CASE= 46 ITEM=17 DIMA=100 DIMB= 60    10
   120      CASE= 46 ITEM=17 DIMA= 90 DIMB= 80
   121      CASE= 47 ITEM=17 DIMA= 70 DIMB= 90
   122      CASE= 47 ITEM=17 DIMA= 70 DIMB= 50
   123      CASE= 48 ITEM=17 DIMA= 60 DIMB=130
   124      CASE= 51 ITEM=17 DIMA= 90 DIMB= 70
   125      CASE= 51 ITEM= 4 DIMA= 88 DIMB= 60
   126      CASE= 51 ITEM= 4 DIMA= 30 DIMB= 30
   127      CASE= 52 ITEM=17 DIMA= 90 DIMB= 70
   128      CASE= 52 ITEM=17 DIMA=120 DIMB= 70
   129      CASE= 52 ITEM= 4 DIMA= 88 DIMB= 60
   130      CASE= 53 ITEM=17 DIMA= 60 DIMB=120
   131      CASE= 53 ITEM= 4 DIMA= 60 DIMB= 90
   132      CASE= 57 ITEM= 4 DIMA= 80 DIMB= 30 ---------- V
   133      CASE= 60 ITEM=17 DIMA= 90 DIMB=120
   134 50   CASE= 60 ITEM=17 DIMA= 90 DIMB=120
   135      CASE= 60 ITEM=17 DIMA= 70 DIMB=100
   136      CASE= 62 ITEM= 4 DIMA= 60 DIMB= 80 ---------- V
   137      CASE= 63 ITEM= 4 DIMA=170 DIMB= 40 ---------- V
   138      CASE= 64 ITEM= 4 DIMA=150 DIMB= 70
   139      CASE= 64 ITEM=17 DIMA= 70 DIMB= 90
   140      CASE= 65 ITEM= 4 DIMA= 97 DIMB= 62 ---------- V
   141      CASE= 67 ITEM=17 DIMA= 60 DIMB= 80
   142      CASE= 67 ITEM=17 DIMA= 80 DIMB= 90
   143      CASE= 68 ITEM=17 DIMA= 32 DIMB= 70
   144      CASE= 69 ITEM=17 DIMA= 90 DIMB= 60
   145      CASE= 69 ITEM=17 DIMA= 90 DIMB= 30
   146      CASE= 69 ITEM= 4 DIMA= 88 DIMB= 60
   147      CASE= 72 ITEM=17 DIMA=125 DIMB= 45
   148      CASE= 73 ITEM= 4 DIMA= 88 DIMB= 60 ---------- V
   149      CASE= 75 ITEM= 4 DIMA= 90 DIMB= 60 ---------- V
   150      CASE= 77 ITEM= 4 DIMA= 20 DIMB= 20
   151      CASE= 77 ITEM=17 DIMA= 80 DIMB= 50
   152      CASE= 77 ITEM=17 DIMA= 60 DIMB= 90
   153      CASE= 77 ITEM=17 DIMA=140 DIMB= 90
   154      CASE= 80 ITEM= 4 DIMA=140 DIMB= 63
   155      CASE= 80 ITEM=17 DIMA=150 DIMB= 60
   156      CASE= 80 ITEM=17 DIMA= 80 DIMB= 90
   157      CASE= 83 ITEM= 4 DIMA= 60 DIMB= 87
   158      CASE= 83 ITEM=17 DIMA=150 DIMB= 50
   159      CASE= 84 ITEM=17 DIMA=110 DIMB= 90
   160      CASE= 84 ITEM=17 DIMA= 80 DIMB= 80
   161      CASE= 86 ITEM= 4 DIMA= 80 DIMB= 60 ---------- V
   162      CASE= 92 ITEM= 4 DIMA= 88 DIMB= 60 ---------- V
   163     114 APR 87   housing survey in peri urban dhaka 86
              PAGE   4
   164      17:36:31    University of Newcastle
   165
   166 70   CASE= 93 ITEM= 4 DIMA= 83 DIMB= 62 ---------- V
   167      CASE= 94 ITEM=17 DIMA=120 DIMB= 60
   168      CASE= 99 ITEM= 4 DIMA= 88 DIMB= 60 ---------- V
   169      CASE=100 ITEM= 4 DIMA= 92 DIMB= 65 ---------- V
   170      CASE=101 ITEM= 4 DIMA= 88 DIMB= 65 ---------- V
   171      CASE=103 ITEM= 4 DIMA= 88 DIMB= 60 ---------- V
   172      CASE=104 ITEM= 4 DIMA=195 DIMB= 55
   173      CASE=104 ITEM= 4 DIMA= 35 DIMB= 65
   174      CASE=104 ITEM=17 DIMA= 85 DIMB= 65
```

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175      CASE=105 ITEM= 4 DIMA= 87 DIMB= 65
176      CASE=105 ITEM=17 DIMA=195 DIMB= 65
177      CASE=106 ITEM= 4 DIMA= 87 DIMB= 65
178      CASE=106 ITEM=17 DIMA=265 DIMB= 80
179      CASE=108 ITEM= 4 DIMA= 87 DIMB= 65
180 80   CASE=109 ITEM= 4 DIMA= 87 DIMB= 65
181      CASE=110 ITEM= 4 DIMA=162 DIMB= 60
182      CASE=111 ITEM= 4 DIMA= 88 DIMB= 60
183      CASE=111 ITEM=17 DIMA= 60 DIMB= 61
184      CASE=112 ITEM= 4 DIMA=162 DIMB= 50
185      CASE=113 ITEM= 4 DIMA= 88 DIMB= 60
186      CASE=114 ITEM= 4 DIMA= 87 DIMB= 65
187      CASE=115 ITEM= 4 DIMA=120 DIMB= 60
188      CASE=116 ITEM=17 DIMA= 82 DIMB= 61
189      CASE=117 ITEM=17 DIMA= 91 DIMB= 61
190      CASE=118 ITEM= 4 DIMA= 88 DIMB= 60
191      CASE=118 ITEM=17 DIMA= 41 DIMB=160
192      CASE=119 ITEM=17 DIMA= 82 DIMB=120
193      CASE=119 ITEM=17 DIMA= 70 DIMB= 80
194      CASE=120 ITEM= 4 DIMA=162 DIMB= 60
195      CASE=121 ITEM= 4 DIMA= 87 DIMB= 65
196      CASE=122 ITEM= 4 DIMA=162 DIMB= 70
197      CASE=124 ITEM= 4 DIMA=162 DIMB= 60
198      CASE=124 ITEM=17 DIMA= 40 DIMB= 62
199      CASE=126 ITEM= 4 DIMA=162 DIMB= 60
200      CASE=127 ITEM= 4 DIMA=162 DIMB= 60
201      CASE=128 ITEM=17 DIMA=120 DIMB= 85
202      CASE=131 ITEM= 4 DIMA= 88 DIMB= 60
203      CASE=131 ITEM=17 DIMA= 60 DIMB=125
204 100  CASE=132 ITEM= 4 DIMA= 83 DIMB= 60
205      CASE=133 ITEM= 4 DIMA= 88 DIMB= 60
206      CASE=134 ITEM= 4 DIMA= 88 DIMB= 60
207      CASE=134 ITEM=17 DIMA= 25 DIMB= 46
208      CASE=135 ITEM=17 DIMA=194 DIMB= 60
209      CASE=137 ITEM= 4 DIMA= 83 DIMB= 60
210      CASE=137 ITEM=17 DIMA= 80 DIMB=120
211      CASE=138 ITEM= 4 DIMA= 87 DIMB= 65
212      CASE=139 ITEM= 4 DIMA= 97 DIMB= 65
213      CASE=139 ITEM=17 DIMA=105 DIMB= 52
214      CASE=140 ITEM= 4 DIMA= 97 DIMB= 65
215      CASE=140 ITEM= 4 DIMA= 37 DIMB= 65
216      CASE=142 ITEM= 4 DIMA= 88 DIMB= 60
217      CASE=143 ITEM= 4 DIMA= 84 DIMB= 65
218      CASE=144 ITEM= 4 DIMA= 87 DIMB= 65
219      CASE=145 ITEM= 4 DIMA= 87 DIMB= 65
220    114 APR 87   housing survey in peri urban dhaka 86
          PAGE   5
221      17:36:32    University of Newcastle
222
223      CASE=147 ITEM= 4 DIMA= 87 DIMB= 65
224      CASE=147 ITEM=17 DIMA=195 DIMB= 75
225      CASE=151 ITEM= 4 DIMA= 88 DIMB= 60
226      CASE=152 ITEM= 4 DIMA= 88 DIMB= 60
227      CASE=152 ITEM=17 DIMA= 50 DIMB= 81
228      CASE=153 ITEM= 4 DIMA= 88 DIMB= 60
229      CASE=156 ITEM=17 DIMA=120 DIMB= 83
230      CASE=158 ITEM= 4 DIMA= 88 DIMB= 60
231      CASE=159 ITEM= 4 DIMA= 88 DIMB= 60
```

20

31

```
CASE=159 ITEM=17 DIMA= 60 DIMB= 60
CASE=160 ITEM= 4 DIMA= 80 DIMB= 70
CASE=160 ITEM=17 DIMA= 70 DIMB= 70
CASE=161 ITEM= 4 DIMA= 88 DIMB= 60
CASE=162 ITEM= 4 DIMA= 88 DIMB= 60
CASE=163 ITEM= 4 DIMA= 88 DIMB= 60
CASE=164 ITEM= 4 DIMA= 88 DIMB= 30
CASE=164 ITEM=17 DIMA=140 DIMB= 80
CASE=165 ITEM= 4 DIMA= 70 DIMB= 60
CASE=165 ITEM=17 DIMA= 90 DIMB=110
CASE=167 ITEM=17 DIMA= 50 DIMB= 90
CASE=167 ITEM=17 DIMA= 90 DIMB= 60
CASE=167 ITEM=17 DIMA= 90 DIMB= 60
CASE=170 ITEM= 4 DIMA= 60 DIMB= 60
CASE=170 ITEM=17 DIMA= 60 DIMB= 90
CASE=170 ITEM=17 DIMA= 50 DIMB= 90
CASE=170 ITEM=17 DIMA= 60 DIMB= 90
CASE=172 ITEM= 4 DIMA=100 DIMB= 90
CASE=172 ITEM=17 DIMA= 80 DIMB= 90
CASE=172 ITEM=17 DIMA= 70 DIMB=100
CASE=174 ITEM= 4 DIMA= 83 DIMB= 60
CASE=174 ITEM=17 DIMA= 60 DIMB= 90
CASE=174 ITEM=17 DIMA= 60 DIMB= 90
CASE=174 ITEM=17 DIMA= 80 DIMB= 30
CASE=176 ITEM= 4 DIMA= 88 DIMB= 60
CASE=180 ITEM= 4 DIMA= 80 DIMB= 60
CASE=180 ITEM=17 DIMA= 60 DIMB=150
CASE=181 ITEM= 4 DIMA= 88 DIMB= 60
CASE=182 ITEM= 4 DIMA= 87 DIMB= 63
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 114 APR 87   housing survey in peri urban dhaka 86
      PAGE   6
 17:36:32    University of Newcastle

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           PAGE   7
335      17:36:32    University of Newcastle
336
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345      14 APR 87 17:36:33      701 CASES SAVED
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Appendix P

COMPLETE LIST OF I. PLOT SIZE II. SIZE OF ROOMS CONSTRUCTED

11 DEC 87 housing survey in peri urban dhaka 86
12:00:45 University of Newcastle

SPEAREA: 1.00 mirpur

PLOTSIZ overall size of the house plot

VALUE LABEL	VALUE SQ.FT.	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	237	2	.8	1.0	1.0
	248	3	1.2	1.6	2.6
	253	1	.4	.5	3.1
	257	2	.8	1.0	4.2
	262	2	.8	1.0	5.2
	265	1	.4	.5	5.8
	273	3	1.2	1.6	7.3
	275	1	.4	.5	7.9
	277	2	.8	1.0	8.9
	278	2	.8	1.0	9.9
	282	3	1.2	1.6	11.5
	287	2	.8	1.0	12.6
	291	1	.4	.5	13.1
	292	3	1.2	1.6	14.7
	296	1	.4	.5	15.2
	297	1	.4	.5	15.7
	301	1	.4	.5	16.2
	302	2	.8	1.0	17.3
	303	1	.4	.5	17.8
	305	1	.4	.5	18.3
	307	1	.4	.5	18.8
	309	1	.4	.5	19.4
	312	3	1.2	1.6	20.9
	313	1	.4	.5	21.5
	317	1	.4	.5	22.0
	319	1	.4	.5	22.5
	328	1	.4	.5	23.0
	330	1	.4	.5	23.6
	342	1	.4	.5	24.1
	347	1	.4	.5	24.6
	348	1	.4	.5	25.1
	356	1	.4	.5	25.7
	360	1	.4	.5	26.2
	361	1	.4	.5	26.7
	366	1	.4	.5	27.2
	372	1	.4	.5	27.7
	373	1	.4	.5	28.3
	380	1	.4	.5	28.8
	382	1	.4	.5	29.3
	388	1	.4	.5	29.8
	392	1	.4	.5	30.4
	396	1	.4	.5	30.9
	400	1	.4	.5	31.4
	404	1	.4	.5	31.9
	409	1	.4	.5	32.5

SPEAREA: 1.00 mirpur

PLOTSIZ overall size of the house plot

413	1	.4	.5	33.0
416	1	.4	.5	33.5
417	1	.4	.5	34.0
419	1	.4	.5	34.6
422	1	.4	.5	35.1
425	1	.4	.5	35.6
434	1	.4	.5	36.1
437	1	.4	.5	36.6
443	2	.8	1.0	37.7
444	2	.8	1.0	38.7
449	2	.8	1.0	39.8
452	2	.8	1.0	40.8
465	1	.4	.5	41.4
471	1	.4	.5	41.9
473	1	.4	.5	42.4
474	1	.4	.5	42.9
475	1	.4	.5	43.5
479	1	.4	.5	44.0
480	1	.4	.5	44.5
483	4	1.6	2.1	46.6
486	1	.4	.5	47.1
493	3	1.2	1.6	48.7
497	1	.4	.5	49.2
498	2	.8	1.0	50.3
504	1	.4	.5	50.8
507	5	2.0	2.6	53.4
509	1	.4	.5	53.9
512	1	.4	.5	54.5
514	1	.4	.5	55.0
518	1	.4	.5	55.5
522	3	1.2	1.6	57.1
528	1	.4	.5	57.6
529	4	1.6	2.1	59.7
532	1	.4	.5	60.2
533	1	.4	.5	60.7
535	1	.4	.5	61.3
536	1	.4	.5	61.8
537	1	.4	.5	62.3
538	1	.4	.5	62.8
540	1	.4	.5	63.4
543	3	1.2	1.6	64.9
546	1	.4	.5	65.4
547	1	.4	.5	66.0
550	2	.8	1.0	67.0
557	1	.4	.5	67.5
558	1	.4	.5	68.1
559	1	.4	.5	68.6
560	1	.4	.5	69.1
561	2	.8	1.0	70.2

11 DEC 87 housing survey in peri urban dhaka 86
12:00:45 University of Newcastle

SPEAREA: 1.00 mirpur

PLOTSIZ overall size of the house plot

563	1	.4	.5	70.7
564	2	.8	1.0	71.7
567	1	.4	.5	72.3
573	1	.4	.5	72.8
577	1	.4	.5	73.3
578	3	1.2	1.6	74.9
579	1	.4	.5	75.4
580	1	.4	.5	75.9
581	1	.4	.5	76.4
585	1	.4	.5	77.0
587	1	.4	.5	77.5
589	1	.4	.5	78.0
598	1	.4	.5	78.5
604	1	.4	.5	79.1
610	1	.4	.5	79.6
611	1	.4	.5	80.1
621	1	.4	.5	80.6
627	1	.4	.5	81.2
633	1	.4	.5	81.7
636	1	.4	.5	82.2
648	1	.4	.5	82.7
649	1	.4	.5	83.2
650	2	.8	1.0	84.3
653	1	.4	.5	84.8
660	3	1.2	1.6	86.4
665	1	.4	.5	86.9
674	1	.4	.5	87.4
680	1	.4	.5	88.0
692	1	.4	.5	88.5
706	2	.8	1.0	89.5
708	1	.4	.5	90.1
710	1	.4	.5	90.6
720	1	.4	.5	91.1
722	1	.4	.5	91.6
733	1	.4	.5	92.1
763	1	.4	.5	92.7
767	1	.4	.5	93.2
771	1	.4	.5	93.7
788	1	.4	.5	94.2
807	1	.4	.5	94.8
811	1	.4	.5	95.3
945	1	.4	.5	95.8
952	1	.4	.5	96.3
990	1	.4	.5	96.9
1091	1	.4	.5	97.4
1178	1	.4	.5	97.9
1186	1	.4	.5	98.4
1235	1	.4	.5	99.0
1531	1	.4	.5	99.5

11 DEC 87 housing survey in peri urban dhaka 86
12:00:45 University of Newcastle

SPEAREA: 2.00 jurain mirhazirbag

PLOTSIZ overall size of the house plot

VALUE LABEL	VALUE SQ. FT.	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	45	2	2.3	2.3	2.3
	48	2	2.3	2.3	4.6
	50	2	2.3	2.3	6.9
	54	2	2.3	2.3	9.2
	56	3	3.4	3.4	12.6
	63	2	2.3	2.3	14.9
	64	8	9.2	9.2	24.1
	65	1	1.1	1.1	25.3
	67	2	2.3	2.3	27.6
	68	14	16.1	16.1	43.7
	70	1	1.1	1.1	44.8
	72	5	5.7	5.7	50.6
	77	1	1.1	1.1	51.7
	80	8	9.2	9.2	60.9
	81	7	8.0	8.0	69.0
	90	6	6.9	6.9	75.9
	92	2	2.3	2.3	78.2
	94	2	2.3	2.3	80.5
	100	3	3.4	3.4	83.9
	108	1	1.1	1.1	85.1
	120	1	1.1	1.1	86.2
	125	1	1.1	1.1	87.4
	126	1	1.1	1.1	88.5
	140	1	1.1	1.1	89.7
	144	4	4.6	4.6	94.3
	150	1	1.1	1.1	95.4
	180	1	1.1	1.1	96.6
	216	1	1.1	1.1	97.7
	348	1	1.1	1.1	98.9
	1181	1	1.1	1.1	100.0
	TOTAL	87	100.0	100.0	

VALID CASES 87 MISSING CASES 0

11 DEC 87 housing survey in peri urban dhaka 86
12:00:45 University of Newcastle

SPEAREA: 3.00 hazaribag

PLOTSIZ overall size of the house plot

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	30	1	1.2	1.2	1.2
	40	1	1.2	1.2	2.3
	48	1	1.2	1.2	3.5
	50	3	3.5	3.5	7.0
	54	1	1.2	1.2	8.1
	62	1	1.2	1.2	9.3
	64	2	2.3	2.3	11.6
	65	3	3.5	3.5	15.1
	66	1	1.2	1.2	16.3
	68	2	2.3	2.3	18.6
	70	5	5.8	5.8	24.4
	72	3	3.5	3.5	27.9
	75	2	2.3	2.3	30.2
	76	1	1.2	1.2	31.4
	77	1	1.2	1.2	32.6
	80	16	18.6	18.6	51.2
	81	1	1.2	1.2	52.3
	84	2	2.3	2.3	54.7
	88	1	1.2	1.2	55.8
	90	5	5.8	5.8	61.6
	95	1	1.2	1.2	62.8
	96	3	3.5	3.5	66.3
	100	9	10.5	10.5	76.7
	104	1	1.2	1.2	77.9
	108	1	1.2	1.2	79.1
	112	1	1.2	1.2	80.2
	120	3	3.5	3.5	83.7
	125	1	1.2	1.2	84.9
	128	1	1.2	1.2	86.0
	130	1	1.2	1.2	87.2
	150	2	2.3	2.3	89.5
	180	1	1.2	1.2	90.7
	184	1	1.2	1.2	91.9
	195	1	1.2	1.2	93.0
	230	1	1.2	1.2	94.2
	240	1	1.2	1.2	95.3
	270	2	2.3	2.3	97.7
	300	1	1.2	1.2	98.8
	323	1	1.2	1.2	100.0
	TOTAL	86	100.0	100.0	

VALID CASES 86 MISSING CASES 0

Appendix Q SUMMARIES FOR LAND ACQUISITION CASES FOR DACCA H & S PROJECTS

(Under Md.Pur,Mirpur & Bedda)

Sl. No.	Name of Project	L. A. Case No. Mouza No. and J.L. No.		Area of Land	REMARKS (Position of Acquisition)
		L.A.Case No.	Mouza		
1	2	3(a)	3(b)	4	5
A-1.	Mohammadpur Housing Estate Main case Part-1.	30/58-59	1)Baraba No.238 2)Dakkhin adab No.259. 3)Saraibeganpur No.258. 4)Sarai Jafrabad No.257. 5)Ramchandnpur No.240.	314.9350 acres.	Gezetted vide No.DA-786/3 Regnt.20.9.60.
A-2.	Mohammadpur Housing Estate Main case Part-II.	30/58-59	1)Baraba No.238	41.5100 acres	Gezetted vide No.DA-189/60-843 Regnt. 8.5.63
A-3.	Mohammadpur Housing Estate	37/59-60	1. Baraba No.238 2. Dakkhin adab No.259. 3) Kabchak No.241	49.5900 acres	Gezetted vide No.DA-33/63-1077 Regn. dt.19.6.63.
A-4.	Mohammadpur Housing Estate (Baitul Aman)	101/60-61	1) Baraba No.238	12.6500 acres	Gezetted vide No.76/72/653 Regnt.6.10.72.
A-5.	Mohammadpur Housing Estate (Embankment)	88/61-62	1) Kabdak No.241 2) Ramchandnpur No.240. 3) Baraba No.238	3.700 acres	Gezetted vide No.157/66/675 Regn. dt. 1.5.67.
A-6.	Mohammadpur Housing Estate	3/61-62	1) Sitar adab No.239.	9.200 acres Total area in Md.pur 431.5850 acres.	Has not yet been gezetted.

Cor 1.2.

14/9/81

16 DEC 87 housing survey in peri urban dhaka 86
08:11:57 University of Newcastle

ITEM: 17 size of constructed rooms

ALTAREA

VALUE (sq. ft.)	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
11.50	1	.7	.7	.7
15.17	1	.7	.7	1.4
22.40	1	.7	.7	2.1
24.80	1	.7	.7	2.8
35.00	2	1.4	1.4	4.3
35.75	1	.7	.7	5.0
36.00	5	3.5	3.5	8.5
36.60	1	.7	.7	9.2
40.00	2	1.4	1.4	10.6
40.50	1	.7	.7	11.3
41.25	1	.7	.7	12.1
41.50	1	.7	.7	12.8
41.58	4	2.8	2.8	15.6
42.00	2	1.4	1.4	17.0
45.00	2	1.4	1.4	18.4
45.10	1	.7	.7	19.1
45.65	1	.7	.7	19.9
48.00	2	1.4	1.4	21.3
48.60	2	1.4	1.4	22.7
49.00	1	.7	.7	23.4
49.41	1	.7	.7	24.1
49.60	5	3.5	3.5	27.7
50.00	1	.7	.7	28.4
50.02	1	.7	.7	29.1
51.46	1	.7	.7	29.8
52.00	2	1.4	1.4	31.2
53.30	1	.7	.7	31.9
54.00	12	8.5	8.5	40.4
54.60	1	.7	.7	41.1
55.25	3	2.1	2.1	43.3
55.44	1	.7	.7	44.0
56.00	2	1.4	1.4	45.4
56.25	1	.7	.7	46.1
58.10	2	1.4	1.4	47.5
60.00	5	3.5	3.5	51.1
62.00	1	.7	.7	51.8
63.00	4	2.8	2.8	54.6
64.00	2	1.4	1.4	56.0
64.40	1	.7	.7	56.7
64.80	1	.7	.7	57.4
65.25	1	.7	.7	58.2
65.60	1	.7	.7	58.9
67.20	1	.7	.7	59.6
70.00	5	3.5	3.5	63.1
72.00	9	6.4	6.4	69.5
75.00	2	1.4	1.4	70.9
76.00	2	1.4	1.4	72.3
78.00	1	.7	.7	73.0
80.00	4	2.8	2.8	75.9

81.00	1	.7	.7	76.6
84.00	2	1.4	1.4	78.0
88.00	2	1.4	1.4	79.4
89.05	1	.7	.7	80.1
90.00	4	2.8	2.8	83.0
93.50	1	.7	.7	83.7
96.00	3	2.1	2.1	85.8
97.20	1	.7	.7	86.5
98.40	1	.7	.7	87.2
99.00	2	1.4	1.4	88.7
99.60	1	.7	.7	89.4
100.00	1	.7	.7	90.1
102.00	1	.7	.7	90.8
105.00	1	.7	.7	91.5
108.00	4	2.8	2.8	94.3
112.00	1	.7	.7	95.0
116.40	1	.7	.7	95.7
120.00	1	.7	.7	96.5
126.00	2	1.4	1.4	97.9
126.75	1	.7	.7	98.6
146.25	1	.7	.7	99.3
212.00	1	.7	.7	100.0
TOTAL	141	100.0	100.0	

1	2	3(a)	3 (b)	4	5
B-1.	Lalmatia Housing Estate	12/60-61	1)Sukrabad No.260 2)Dakkhin Adab No.259.	31.400 acres	Gezetted vide No.DA-293/60-888 Regn. dt.15.5.63.
	Lalmatia Housing Estate	32/60-61	1)Saraibegunpur No.258. 2)Saraijafrabad No.257. 3)Dakkhin Adab No.259. 4)Sukrabad No.260	80.460 acres Total area in Lalmatia 111.86 acres.	Has not yet been gezetted.
	Badda Housing Estate in case.	91/57-58	1)Badda No.291.	202.04 acres.	Has not yet been gezetted.
-2.	Badda Housing Estate	26/59-60	1)Badda No.291	10.240 acres. Total area in Badda 212.28 acres.	Gezetted vide No.DA-714 Regn. dt.31.8.60.
	Building Research Housing Estate.	125/62-63	1) 2)	...ra sayek, ..236 ...kpara No.237	33.38 acres.	Has not yet been gezetted.
	...mpur Housing Estate, Dar...a case.	13/59-60	1 2 3 4 5	...il No. 224 ...para No.22... ...nia No.211 ...kuly No.214 ...rkaki No.212	1460.670 acres.	Gezetted vide No.DA-62/80/956 Regn. dt.28.11.80.
	...mpur Housing Estate, Dar...Road Daru-s-Salam to ...mpur.	71/60-61	1 2) 3) 4) 5) 6)	...il No. 224 ...para No.220 ...kpara No.237 ...a Sayek No.236 ...bakanda No.227 ...o Sayek No.235	125.83 acres.	Gezetted vide No.89/70-945 Regn. dt.24.11.70.

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Appendix R

OPTIONS PROPOSED IN THE DMAIUDP REPORT

The following are the summary of the options proposed in the report of the Dhaka Metropolitan Area Integrated Urban Development.

1. continuation of current trends - sustained peripheral growth of the city with limited expansions towards Tongi and Joydevpur.

2. peri-urban development - low density resettlement, with intensive agricultural production, over an extensive area surrounding the city.

3. comprehensive flood control - flood protection of the existing city and the northern, eastern and western development areas by enclosing embankments.

4. comprehensive flood control - as for 3 with the addition of protection by embankments of the Keraniganj area and the Dacca/Narayanganj/Demra triangle area.

5. northern expansion - development of Tongi/Joydevpur area by concentrating employment, infrastructure and services in this area.

6. northern expansion - as for 5 with the addition of the improved transportation facility linking Joydevpur to Narayanganj.

7. new sattelite city - concentration of new development at one new location in the city region away from the existing city.

8. sub-regional dispersal - decentralisation of urban development to the maximum number of existing urban areas in the city region.

9. minimisation of urban growth - limitation of urban population growth by reducing the level of investment in the city in favour of rural development.

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