

THE ADAPTATION PROCESS OF RIVERBANK EROSION DISPLACES IN AN
URBAN ENVIRONMENT: A CASE STUDY OF SQUATTERS IN SERAJGANJ,
BANGLADESH

by

Charles Greenberg

A thesis
presented to the University of Manitoba
in partial fulfillment of the
requirements for the degree of
Master of Arts
in
Geography

Winnipeg, Manitoba

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CHARLES GREENBERG

A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
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MASTER OF ARTS

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ABSTRACT

There are several reasons for rural to urban migration and the development of urban squatter settlements in Third World cities. Each year riverbank erosion in Bangladesh causes many people to become homeless. Serajganj District on the bank of the Jamuna River is one of the worst effected areas in the country for this problem. Every year a large number of riverbank erosion displacees from the rural areas migrate to Serajganj town and settle in squatter settlements. Considering these circumstances, the present study investigates this problem with special emphasis on the social, economic and physical adjustment of the squatter population in Serajganj.

Using systematic random sampling, a questionnaire survey was administered to 207 households from three major squatter concentrations in Serajganj town. The results of the survey provide the primary data base for the analysis of levels of adaptation experienced by displacees. The study reveals that the standard of living of the squatter

population in Serajganj is inferior to that experienced in their previous rural life. Generally, there is strong evidence to indicate that displacees are not adapting to their urban environment. Appalling economic conditions, poor health status and the local authorities' apathetic attitude and oppressive treatment towards the squatters, were some of the significant findings.

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PREFACE

The plight of the rural poor in much of Bangladesh is exacerbated by riverbank erosion, a disaster which regularly claims valuable agricultural land and displaces millions. With this consideration, the International Development Research Centre (IDRC), Ottawa is funding a project which seeks to develop a means of forecasting further erosion locations and, in parallel, examine the circumstances and predicament of the displaced population. The project, known as the Riverbank Erosion Impact Study (REIS), will provide Bangladesh authorities with a more comprehensive appreciation of the dimensions and implications of this problem, and will act as a foundation for policy development.

REIS is an interdisciplinary project drawing on the expertise of both physical and social scientists. It also constitutes collaborative research between Jahangirnagar University, Bangladesh and University of Manitoba, Canada. Through the project, Canadian researchers have travelled to Bangladesh for field work and several Bangladeshi students are currently studying here at the University of Manitoba. REIS is a three-year project concluding in Dhaka in August 1987 with an international symposium on the impacts of riverbank erosion.

The current thesis represents only a small component of REIS and is responsible for examining those riverbank erosion displacees who migrate to the district town of Serajganj. The urban research was carried out jointly by this writer and Md. Ziarat Hossain, a graduate student from Jahangirnagar University. Hossain's thesis is currently in the writing-phase and his research emphasis is the investigation of the processes that activate the displacees' urban migration. Hossain is examining the differences between those who remain in the rural areas, after displacement, and those who come to Serajganj. Also, he is investigating the nature of the relationship urban displacees retain with their past rural life. The data for Hossain's thesis and for this thesis were derived from the same jointly administered questionnaire-survey.

Charles Greenberg

September 22, 1986

CONTENTS

ABSTRACT	ii
ACKNOWLEDGEMENTS	iv
PREFACE	vi
LIST OF TABLES	x
LIST OF FIGURES	xi

<u>Chapter</u>	<u>page</u>
I. INTRODUCTION	1
Theoretical Background	1
The Problem of Riverbank Erosion	8
Objectives	13
Methodology	15
Organization of Thesis	18
II. RIVERBANK EROSION AND SERAJGANJ TOWN	19
Mechanism of Riverbank Erosion	20
Socio-Economic Response to Riverbank Erosion	26
Serajganj	35
III. PROCEDURE	42
Research Design	42
Cross-Cultural Research	43
Pretest	46
The Urban Survey	48
Data Analysis	50
IV. DATA ANALYSIS	52
Hypothesis I - Length of Residence and Occupational Mobility	53
Hypothesis II - Informal Sector and Poverty	59
Hypothesis III - Health Conditions	64
Hypothesis IV - Perception Gap	71
V. CONCLUSIONS	78
The Hypotheses	79
Policy Recommendations	81

Directions for Further Research	87
BIBLIOGRAPHY	90
APPENDIX	96

LIST OF TABLES

<u>Table</u>	<u>Page</u>
2.1 Year of Migrating to Serajganj	25
2.2 Distribution of Agricultural Land, 1978 . . .	29
2.3 Loss of Land Due to Riverbank Erosion Amongst Squatters in Serajganj	30
2.4 Number of Times the Displacees Have Been Dislocated by Riverbank Erosion	32
4.1 Employment of Riverbank Erosion Displacees in Serajganj	55
4.2 Length of Residence and Occupational Status .	57
4.3 Estimated Share of Urban Labour Force in the Informal Sector in Selected Developing Countries	60
4.4 Monthly Income as Related to Formal and Informal Occupations	62
4.5 Crude Death Rate in Bangladesh by Location . .	68
4.6 Infant Mortality in Bangladesh by Location . .	68
4.7 Squatters Perception of Present Health Status Compared to Health Status Before Arriving in Serajganj by Length of Residence	69
4.8 Number of Households Who Have Received Relief or Assistance Since Arriving in Serajganj .	74

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1.1	Bangladesh and Neighbouring Countries	9
1.2	Size Comparison of Manitoba and Bangladesh	10
2.1	Map of Jamuna River	24
2.2	Serajganj District	28
2.3	Location of Squatters in Serajganj	40

Chapter I
INTRODUCTION

1.1 THEORETICAL BACKGROUND

A dominant feature of the Third World is that the population is predominantly rural by nature, yet growth of urban areas appears to be occurring at rates unprecedented in world history. Urbanization in the Third World is taking place at a much faster rate than the growth of urban populations ever did in Europe. In the second half of the nineteenth century, during its period of fastest urban growth, Europe achieved average annual gains of 2.1 percent (McGee, 1971; 14). In comparison, the Third World is currently experiencing urban growth at rates between 4 and 8 percent annually, which translates to a doubling time for some cities every 10 to 15 years (McGee, 1971; 14). At the same time, rural areas in some developing countries are averaging annual growth rates of less than 1.0 percent (Donohue, 1982; 23). This current "urban revolution" represents a predicted increase of 253 percent to the urban population of developing countries between 1975 and 2000. In raw numbers this means that 1.28 billion people will be added to Third World cities: an increase from 838 million urban dwellers in 1975 to 2.12 billion in 2000 (Donohue, 1982; 35). Both natural

increase and migration are responsible for this growth, with the latter accounting for 40 percent (United Nations, 1980; 23). Out of the expected 1.28 billion new urban dwellers in the last quarter of this century, approximately 512 million (the population of the United States and the Soviet Union combined), will be migrants from the rural areas.

In order to understand why this rural-urban migration is occurring at such unprecedented levels, one must examine the economic basis of the urbanization process. As with Europe's experience, the principal cause for migration is the universal shift from agricultural to non-agricultural economies. The decision to migrate is usually triggered by "push-pull" conditions in a new and changing economic environment. Davis gave some explanation on how the emergence of a new economic order stimulates migration:

...the demand for agricultural is less elastic than the demand for services and manufactures. As productivity grows, services and manufactures can absorb more manpower by paying higher wages ... At the same time, as agricultural technology is improved, capital costs in farming rise and manpower becomes not only less needed but also economically less burdensome (Davis, 1968; 13).

In sum, the decreasing utility and diminishing financial reward for labour in rural areas, coupled with greater opportunity and improved economic conditions in urban areas creates the "push-pull" foundation, the backbone of urbanization. However, unlike past rural-urban migration in Europe, Third World migration is not happening as a timely re-

sponse to growth of urban employment opportunities (Haque, 1984). The result is large scale urban unemployment and underemployment.

Ever since Ravenstein (1885) began to seek laws of human migration, social scientists have attempted to formulate a social mandate to predict, limit and control the regularity and frequency of migration. In the context of rural-urban migration, the studies over time have been voluminous, yet there is no single model which is able to predict and/or limit this mass rural exodus. The migration flow has been so heavy, that urban areas have not been able to economically absorb all incoming migrants. Consequently the Third World cities are faced with innumerable problems. Some obvious problems associated with rapid urban population growth include lack of housing and services, unemployment, illegal squatting, crime, overcrowding and the emergence of a dangerous dualistic society. The failure of Third World cities to industrialize at a pace greater than the in-migration of population results in severe unemployment and underemployment. The consequences of slow industrialization coupled with rapid in-migration causes the city's tertiary sector to expand in excess of what is needed. Hence, cities become overcrowded with hawkers, vendors, drivers (rickshaw/trishaw), government clerks, petty shopkeepers and other low-level service-related jobs. Those who are employed, work long hours for low wages, and thus poverty becomes endemic.

Yet despite widespread and continually growing urban poverty, cities continue to grow daily from both natural increase and in-migration.

The emergence of urban agglomerations brings rise to slums and squatter settlements. Slums are overcrowded squalid districts of a city inhabited by poor people. Squatter settlements, on the other hand, represent similar housing conditions but the land that the housing sits upon is not owned by the inhabitants. Squatting is generally recognized as an illegal act, but city officials are usually tolerant of it, due to the lack of alternative housing. A distinctive element of all Third World cities is the drastic increase in the proportion of their population that is forced to live in such impoverished settlements. Despite the implementation of resettlement programs in many Third World cities, slum and squatter populations show no sign of declining and in fact are generally growing at a rate faster than that of total city population (Jackson, 1979; 24). Ulack (1978; 536) suggests that slums and squatter settlements can be viewed in two ways. First, such settlements are a negative feature of urban life: they are a mere extension of rural areas and are more of a hindrance than a benefit. Pauperization spreads from the squatter settlements to the rest of the city, and are therefore described as the "slums of despair."

A second view suggests that squatter settlements play an important role in urban development since their residents eventually become integrated into the rest of the city. Squatter settlements provide cheap accommodation for newly arriving migrants and thus allow for greater personal savings. This view refers to the settlements as "slums of hope."

As has already been stated, the major driving force for rural to urban migration is economic disparity. In some instances economic conditions may be satisfactory, or at least not the cause of the population movement, but the population is forced to migrate. The experience of being forcibly uprooted and relocated is termed "involuntary migration," and it may be stimulated by such factors as natural disaster and political persecution.

It is useful at this stage to define "migration." Mangalam's (1968) definition is well accepted:

Migration is a relatively permanent moving away of a collectivity, called migrants, from one geographical location to another, preceded by decision-making on the part of the migrants on the basis of a hierarchically ordered set of values or valued ends and resulting in changes in the interactional system of the migrants.

From this definition it can be assumed that migration results from some degree of relative deprivation. People move to satisfy unfulfilled needs or desires. Within this context Peterson's (1958) migration theory can further lead to

a better differentiation between voluntary and involuntary migration. Peterson broke migration down into five broad classes, primitive, forced, impelled, free and mass. "Free" migration obviously is voluntary and "mass" migration, which is usually voluntary, may not be in some instances. He distinguishes between "forced" and "impelled" by suggesting that in "forced" migrations the migrants have no choice concerning their move, while in "impelled" migration, some measure of choice is retained, however, in both cases the migrant is passive, offering little opposition or resistance due to the harsh socio-political institutions that demand and direct the prevailing situation. Peterson defined four types of forced and impelled migration: flight, displacement, the slave trade and the coolie trade. His concept of "flight" is best represented by migration of refugees, while "displacement" equates with the planned removal of population by the state. Another type of migration that Peterson and most other migration theorists have neglected to consider is migration resulting from natural hazard. Earthquakes, volcanoes, drought, famine and flooding are examples of when migration may occur due to natural hazards. It is natural hazard migration which comprises the central theme of this thesis. Migrations such as Peterson's "flight" and "displacement" as well as migration due to disaster can be collectively associated with refugees. This association is evident in Kunz's (1973) definition of refugees:

It is the reluctance to uproot oneself, and the absence of positive original motivations to settle

elsewhere which characterizes all refugee decisions and distinguishes the refugee from the voluntary migrant.

In a definitive context the refugee is synonymous with the involuntary migrant, although existing literature on migration has generally reserved the use of "refugee" for situations of political persecution. Therefore, throughout the following thesis the terms involuntary migrants or displacees will be used in its place. Further to Kunz's definition, another important distinguishing condition is the absence on the part of the involuntary migrant of a desire to depart their place of residence. They are people who would have remained in their original place under prevailing earlier conditions, but due to threatening circumstances they are forced to escape and relocate.

Once a migration has occurred, migrants face the stresses of relocation. There is considerable literature concerning the human consequences of migration: Eisenstadt (1954), Fried (1970), Kunz (1981) and Hirschman (1982). Because migrations involve crossing various social, cultural and economic boundaries, new stimuli and opportunities coupled with threats of the unknown leave migrants in an altered psychological state. The levels of adaptations that migrants undergo eventually determine their success or failure in terms of economic absorption and cultural integration. Brody's (1970; 14) definition of migrant adaptation suggested the importance of coming into agreement with the new environment. He stated:

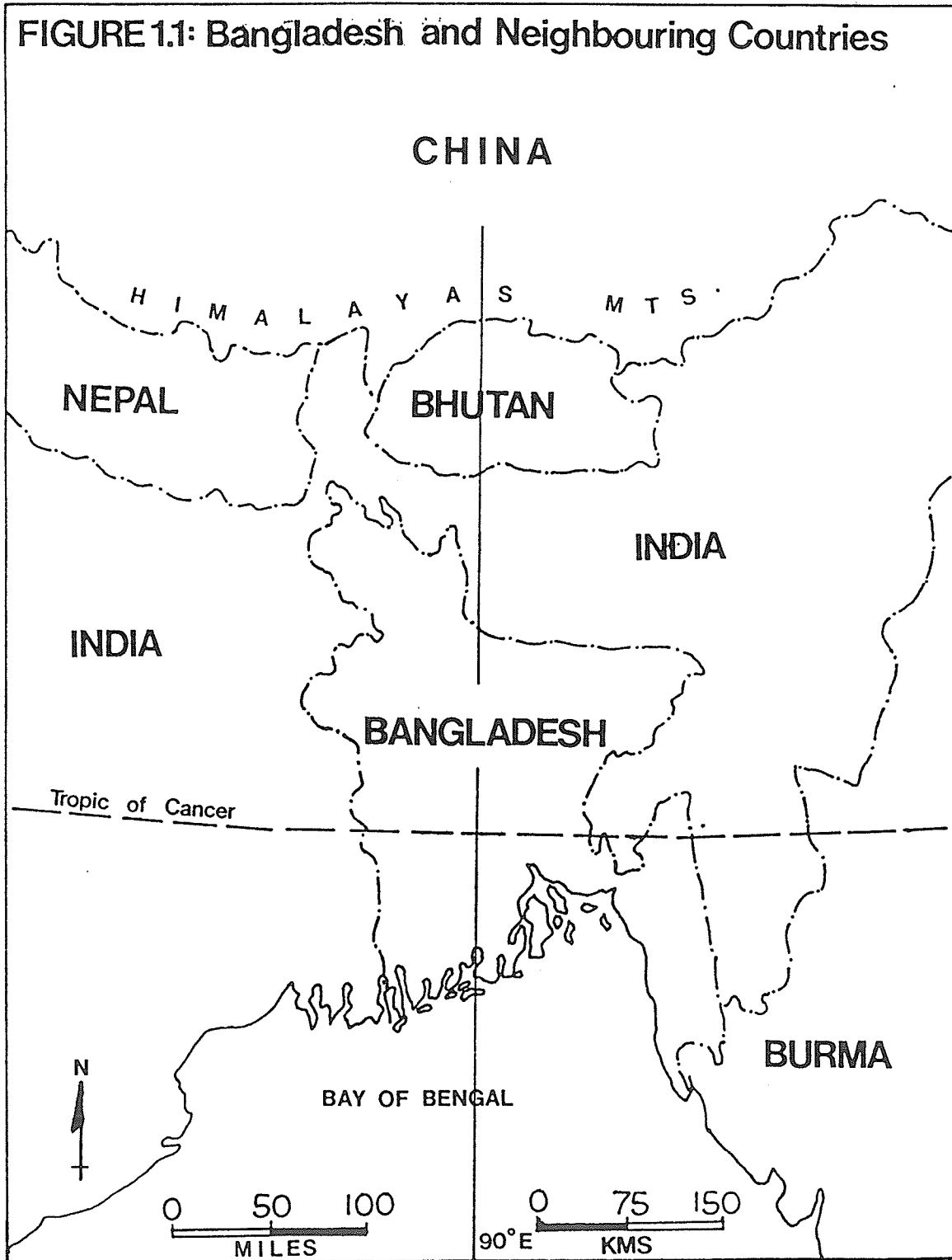
Adaptation in the psychological sense refers to the process of establishing and maintaining a relatively stable reciprocal relationship with the environment. For human beings this means the human, social or interpersonal environment.

Adapting to the new environment is not an automatic process. Talent, personality, social status, economic conditions, and the degree to which migrants make themselves flexible to the new environment all determine the rate of adaptation. Brody went on to state, "... the migration may most usefully be considered not as an act, but as a process." Included in this process would also be the potential prejudices that migrants experience. Discrimination at place of destination can severely restrain the overall adaptation and lead to psychological and social problems.

1.2 THE PROBLEM OF RIVERBANK EROSION

The theme of this thesis is involuntary migration resulting from natural disaster. Riverbank erosion is a persistent problem in the country of Bangladesh (Figure 1.1) which causes displacement of hundreds of thousands of people annually. With over 100 million people living in an area 144,000 km.², one-third the size of Manitoba (Figure 1.2), Bangladesh is one of the most overcrowded nations in the world. It is also one of the world's least developed. Population density exceeds 600 persons per square kilometre and over 1000 per square kilometre of cultivable land (de

FIGURE 1.1: Bangladesh and Neighbouring Countries



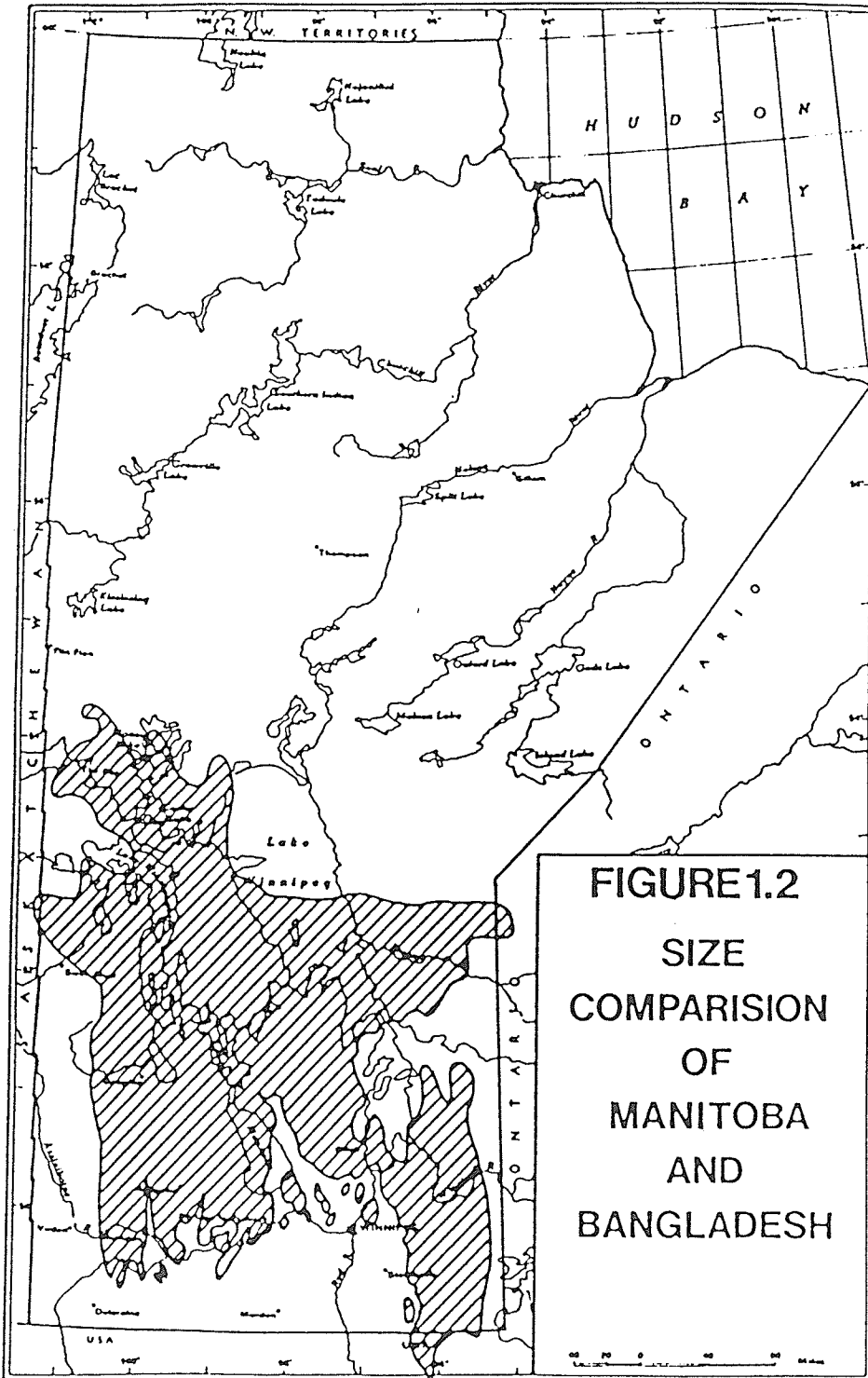


FIGURE 1.2
SIZE
COMPARISON
OF
MANITOBA
AND
BANGLADESH

SOURCE: Rogge, 1986.

Vylder, 1982; xi). Per capita income is only \$120. U.S. Nearly 90 percent of the population live in rural areas and the widespread poverty is one of Bangladesh's major national concerns (Islam, 1978; 4). Approximately 50 percent of all rural households are functionally landless, owning less than 0.2 hectares each (de Vylder; 10). According to one survey (Jansen, 1979), about half the people who are landless today have lost their land during the last two decades, which indicates the severe frequency of natural disasters. Thus, much of the rural population is wholly dependent on increasingly meagre landholdings that occupy the deltaic plain that covers most of Bangladesh. The process of riverbank erosion along the Jamuna River (Brahmaputra) is manifested from a combination of physical elements. Basically, the unconsolidated nature of riverbank sediments, coupled with extreme flood levels during the annual monsoons result in enormous river course shifts and widespread bank erosion (Haque & Hossain, 1984; 3). As their valuable land is washed away, the effected rural peasant population is displaced. The displacees have four options open to them. Firstly, they can migrate elsewhere within the rural sector. This decision is based on the availability of land for purchase or lease and whether they have relatives elsewhere in the rural areas. Secondly, displacees who have no ability to purchase land elsewhere, often settle/squat on the flood protection embankments which are regularly found along the banks of the river. Thirdly, the few wealthier displacees, through force

and/or patronage frequently receive access to depositional or newly emerged land. Lastly, some displacees migrate to nearby urban centres. It is this final option that will be examined in this thesis.

With few or no possessions, and with no urban skills, entire households relocate to already overcrowded urban centres. They have no alternative but to seek refuge in squalor ridden squatter settlements often referred to as "Bastees". Throughout Bangladesh, urban centres are all characterized by substantial squatter settlements, and many of these are populated by riverbank erosion displacees. These new urban residents, having experienced a sudden and traumatic uprooting and relocation, must now attempt to cope with the consequent stresses of displacement and the need to adapt to a new and radically different environment.

This study will examine the riverbank erosion displacees currently squatting in one particular city, Serajganj. Located roughly in the centre of the country on the bank of the Jamuna, Serajganj receives a continual inflow of riverbank erosion victims from the surrounding rural areas. Of Serajganj's total population of approximately 110,000, it is estimated that approximately 5,500 are displacees. This study examines the squatters' adjustment, role and plight in the urban environment of Serajganj.

1.3 OBJECTIVES

Specifically, this study aims to yield information on the following issues:

1. To establish the demographic and socio-economic composition of riverbank erosion displacees in the squatter settlements of Serajganj;
2. To compare standards of living experienced by the displacees before and after displacement;
3. To assess the extent to which displacees have been urbanized, using other city residents for comparison;
4. To evaluate the extent to which length of residence affects the displacees socio-economic adaptation.

In discussing the above issues, four hypotheses will be tested, namely:

Hypothesis 1: Length of residence has little or no effect upon occupational mobility and subsequent standard of living.

Lipset (1959) suggests that the cities of the industrialized western world provide a favourable environment for occupational and social mobility for urban migrants. The longer their length of residence, the greater is their economic mobility. Studying Malay migrants in Kuala Lumpur, McGee (1971; 170) tested Lipset's postulate and found that migrants remain remarkably stable in their occupations and status. This postulate will be applied to Serajganj displacees.

Hypothesis 2: Riverbank erosion displacees are heavily dependent on the urban informal sector for employment and consequently are poorly paid.

Since urbanization proceeds at a rate faster than the growth of manufacturing, many urban migrants are forced to seek employment in the underpaid informal sector. Thus, the informal sector is growing at an exceedingly fast pace (McGee, 1971; 27).

Hypothesis 3: Despite potentially greater access to medical services, the overall health conditions of displacees have declined drastically.

Relocation subjects migrants to intense stress. Scudder (1968; 171) found that people displaced by the creation of man-made lakes in Africa suffered serious health problems following relocation. In the context of Serajganj, overcrowded and unhygienic conditions of squatter settlements are primarily responsible for deterioration in health (as measured by mortality rates and specifically infant mortality rates).

Hypothesis 4: There appears to be a substantial gap in the perception of standard of living and urban permanency between squatters and administrators.

Government administrators and planners play an important role in attempting to alleviate poverty in given regions. Bonilla (1961; 72-84), in his study of slums in Rio de Ja-

neiro, found that city officials and planners are not perceived by slum residents as sincere nor paying proper heed to their situation. Often administrators turn a blind eye to the reality of the squatter's plight.

1.4 METHODOLOGY

Three squatter settlements in Serajganj were selected for this study. They are believed to contain nearly all of the riverbank erosion displacees. The settlements were located as follows:

- a. on a flood protection embankment built by Bangladesh Water Development Board (WDB);
- b. on a dried-up riverbed, and
- c. on an abandoned railway line.

(See Figure 2.3, page 40).

Since there are no population statistics available for these three areas a superficial census had to be undertaken. Before the pretest was conducted, all three squatter settlements (embankment, dried-up riverbed and abandoned railway line) were closely inspected. Clusters of huts were counted, and based on an average of 3 huts per cluster, 1 household per hut and 6 people per household, population figures were derived. The results of this census are not entirely accurate, but due to time and budgetary restraints this technique was felt to be the best method. We feel the figures are adequately representative of the actual population.

This procedure showed that the embankment contained an approximate population of 3,500, the riverbed had an approximate population of 1,670, and the abandoned railway line about 1,360. The pretest census also suggested that roughly 85 percent of the respective populations were riverbank erosion displacees. This was determined simply by asking squatters if they are riverbank erosion displacees.

Given the constraint of time and funding, it was decided to sample 207 of the 975 displacee households distributed throughout the three squatter settlements; a sample of 21 percent of the total. To obtain the sample size, first the variance was calculated using 85 percent as the proportion of displacees within our sample. Using the probability proportion sample equation

$$n = \frac{\{Z.V\}^2}{\{C\}}$$

where C represents the proportion of displacee households to within 5 percent (the confidence limit) with 95 percent confidence (the confidence level), the equation read:

$$\begin{aligned} n &= \frac{\{1.96 \cdot 35.71\}^2}{5} \\ &= 196 \end{aligned}$$

Thus a sample of 196 households ensured the specified precision. Each cluster of huts was allocated a number. Using a random number table, numbers were read out, and those cluster numbers chosen were then selected. One displacee household was interviewed in the chosen cluster. If no displacee households reside within the chosen cluster, the neighbour-

ing cluster was then used to obtain a displacee respondent. Although 196 households were needed, 9 extra interviews were administered, thus a total of 207 households were included.

Data were collected through the administration of a survey-questionnaire. The 207 questionnaires were administered by four local university students in Bangla during a 3 week period in March - April of 1985. Several limitations of the survey and data collection exist. First, the duration of administering the survey to each respondent was a minimum of 30 minutes, and by the end of the survey, the respondent's attention span and coherency was often in question. Thus, responses to many of the latter questions may not have been as accurate as the earlier questions. Second, due to the intense poverty many of the displacees experience, some respondents were believed to have reported a slightly deflated income coupled with inflated expenditures, believing they may be listed for assistance. Third, only household heads were interviewed, so often the interviewers had to wait for the head to return home from work and then begin the interview. After a twelve-hour day of labouring, many respondents were not entirely alert and potentially distorted various responses. More criticisms and limitations of data collection will be discussed in the third chapter.

The questionnaire data were supplemented by individual case studies of selected displacees. Also various governmental and non-governmental authorities were interviewed to

obtain information concerning the administration of the squatter settlements.

1.5 ORGANIZATION OF THESIS

Following this introductory chapter, the second chapter begins with a discussion of the nature and impact of river-bank erosion, including both the physical and socio-economic dimensions. Also included will be a discussion on why Serajganj was selected and how its squatter problem fits into the national problem of population and development. A spatial and aerial view of Serajganj is presented, highlighting the three squatter settlements. Chapter three presents a fuller description of the methodology, from the early stages of the pretest to the final computer analysis of the data. The fourth chapter will discuss results emerging from this study. The hypotheses will be tested utilizing the wealth of information and data collected throughout the research project. The final chapter summarizes the study and provides various policy recommendations and directions for further research.

Chapter II

RIVERBANK EROSION AND SERAJGANJ TOWN

During the last three decades much literature has been accumulated on natural hazards. Flood, cyclone, earthquake, tornado and drought have all been extensively researched. Riverbank erosion, specifically lateral encroachment of the river channel into bank area has yet to be extensively studied as a natural hazard (Haque, 1983).

Literature on natural hazards in Bangladesh is extensive. Studies have focused primarily on tropical cyclones and related storm surges (Islam, 1974 and Burton, et al., 1978), and agricultural adjustments to flooding (Islam, 1980). Considering the extensive dislocating effect of riverbank erosion on population in Bangladesh, there certainly exists a gap in research of human adjustments to this natural hazard. Investigations into the aspects of population displacement from riverbank erosion have remained largely neglected. When one considers the drastically high population density of Bangladesh's agrarian labour force and the severe shortage of land, coupled with the fact that as many as one million people are annually displaced by riverbank erosion, it is astounding that such an omission of research related literature exists.

In this connection, the following chapter will describe the problem of riverbank erosion and demonstrate how this physical process leads to massive population displacement and subsequent rural to urban migration; specifically to the town of Serajganj. Firstly, the physical mechanism of riverbank erosion will be discussed.

2.1 MECHANISM OF RIVERBANK EROSION

By definition 'erosion' means wear and tear of the land or surface of the earth through various geomorphic processes. More technically erosion is restricted to the gathering of materials by a mobile agent (Thornbury, 1969). In the present case, river flow acts as the mobile agent.

With the highest population densities residing near the river, erosion is a serious and widespread problem. The causes of this problem are numerous. Three of South-Central Asia's major rivers - the Padma (Ganges), the Jamuna (Brahmaputra), and the Meghna create an enormous delta which covers virtually all of Bangladesh. These rivers drain a 600,000 square mile catchment area and only the lowest 7.5 percent of the basin lies in Bangladesh. Aside from the southeastern hill regions, Bangladesh coincides with these three rivers' delta. As they cross Bangladesh, these three rivers drop at an average rate of only 1.2 centimetres per kilometre. At the height of the annual monsoon rains, only the Amazon has a heavier discharge than that flowing through

Bangladesh. The effect of this discharge on the easily eroded delta is extensive erosion of the riverbanks and severe river channel migration. There are few, if any, riverine regions in the world that have such unstable river courses (JU/UM Research Proposal, 1983).

The focus of the present study, the city of Serajganj, lies on the west bank of the Jamuna River and nearly all of the riverbank erosion displaces in Serajganj originated from land that has been eroded by the Jamuna. The Jamuna is characterized by an extraordinary braided pattern and channel migration is drastic, with rates of movement as high as 790 metres in one year not uncommon (Coleman, 1969). The source of the river is in Tibet. The river, known as Tsangpo in Tibet, flows through the Tibetan plateau for 1126 kilometres where it is generally non-erosive. As it crosses the Phuto Pass into Assam, a number of tributaries join it, and it changes its name to the Brahmaputra River. The river flows westward through Assam for 644 kilometres to the border of Bangladesh. On entering Bangladesh, the river becomes known as the Jamuna, curving southward to its confluence with the Padma River, 241 kilometres north of the Bay of Bengal (Chowdhury, 1973).

Spring snow melt in Tibet accounts for most of the flow of the Jamuna, but heavy monsoon rainfall in Assam and northern Bangladesh contribute significantly. The entire drainage basin contains very young and unweathered sedimen-

tary rocks, and little clay is available for consolidating. Thus, the bedload consists predominantly of fine sands and silts. The sediments contain a high water content and are loosely compacted. The nature of these sediments and the excessive amount of water causes the river to constantly push its bed configurations to differing regimes (Coleman, 1969).

The process of riverbank slumping from erosion causes large tracts of land to be claimed by the river. During floods, a higher water pressure is applied to the sandy bank below the river surface. With the fall of the water level, pressure against the channel walls is lessened and water moves from the below surface bank pores back to the stream, resulting in slumping (Hossain, 1984).

In the last 150 years, there have been nearly 30 earthquakes in the Jamuna drainage basin. Earthquakes cause physical distortion of the valley and deposit enormous quantities of silts and sediments into the river. The riverbed becomes choked with sediments from solifluction and landslides, which causes the regime of the river to be altered (Chowdhury, 1973).

The land along the Jamuna is very fertile, thus attracting intensive agricultural practices. In preparing the agricultural fields, the surface of the land is loosened. During the rainy season, rainwater easily enters the soil

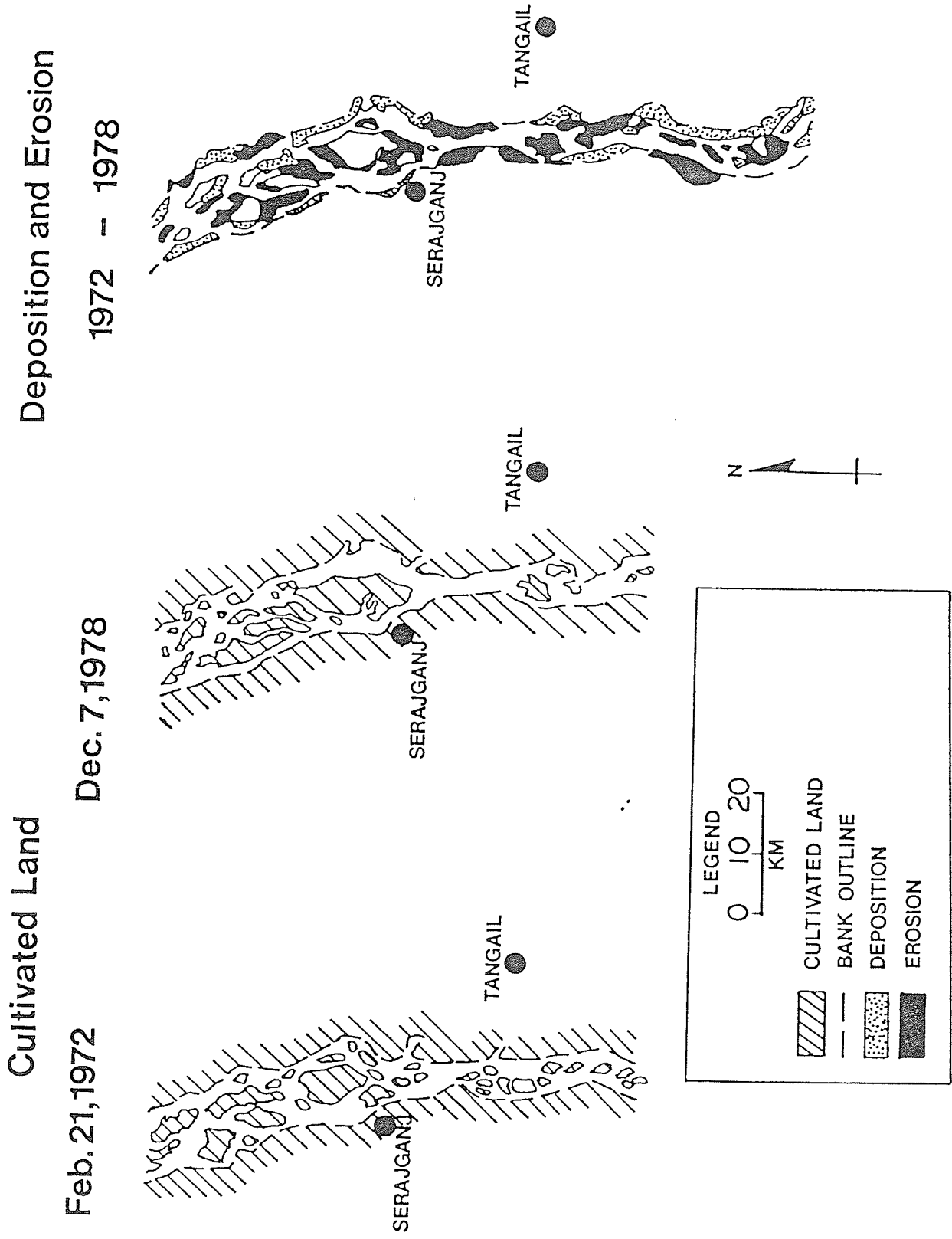
and an unconstrained drainage path into the river is created. Also, the saturated loose soil particles lack a bonding cohesion, and tracts of land are susceptible to sliding and shearing (Hossain, 1984).

Deforestation at the river's headwaters greatly decreases the moisture level in the riverbank regions but enhances the river's flow. Other minor forces, such as eddy formation and spiral flows, also cause riverbank erosion along the Jamuna River.

One of the major characteristics of riverbank erosion in Bangladesh is its unpredictable behaviour. Precognition of year to year short-term changes of riverbanks is practically unattainable. Also, riverbank erosion and channel migration occur in a very erratic nature. To illustrate the erratic and unstable flow of the Jamuna rivercourse, some 200 years ago, the Jamuna River flowed in a course 80-100 kilometres east of its present course (old Brahmaputra). Some geologic event, possibly an earthquake, combined with several years of rigorous flooding, caused severe faulting and tilting of the nearby pleistocene sediments. In the early years of the river, the new channel was small and had a meandering pattern. Gradually the river widened, forming the present-day braided course (Coleman, 1969).

The Jamuna River has been eroding both the east and west banklines to the immediate north and south of Serajganj for many years. Figure 2.1 shows the net differences between

FIGURE 2.1: Map of Jamuna River



SOURCE: After Stene, 1985.

depositional land and eroded land, in the period 1972-1978 in the Serajganj region. As seen in the third streamline (Figure 2.1), the areas showing a loss (erosion) on either bankline or within the braided channel are far greater than the areas showing a build-up (deposition). It was during these years, the early 1970s to 1978, that many of the riverbank erosion displacees in the squatter settlements of Serajganj were displaced and migrated to Serajganj. Of the 207 displacee households surveyed, the years they arrived in Serajganj ranged from 1935 to 1985. Table 2.1 shows the frequency of years that riverbank erosion displacees arrived in Serajganj.

TABLE 2.1

Year of Migrating to Serajganj

Year of Arrival	Number	Percent
1980 - 85	31	15.0
1975 - 79	45	21.7
1970 - 74	90	43.5
1965 - 69	31	15.0
1964 and earlier	<u>10</u>	<u>4.8</u>
TOTAL	207	100

Source: Survey Data

Between 1970 and 1979, severe riverbank erosion occurred in the region and subsequently 135 of the 207 households (or 65.2 percent of the sample) arrived in this period. The unpredictable, sudden, and erratic behaviour of the eroding river is of concern to the urban administrators in Bangladesh. At any time, severe erosion can give rise to a massive migration of the riverbank erosion displacees. Cities such as Serajganj are the destination of the displaced, yet have little space and an inadequate infrastructure to accommodate them.

2.2 SOCIO-ECONOMIC RESPONSE TO RIVERBANK EROSION

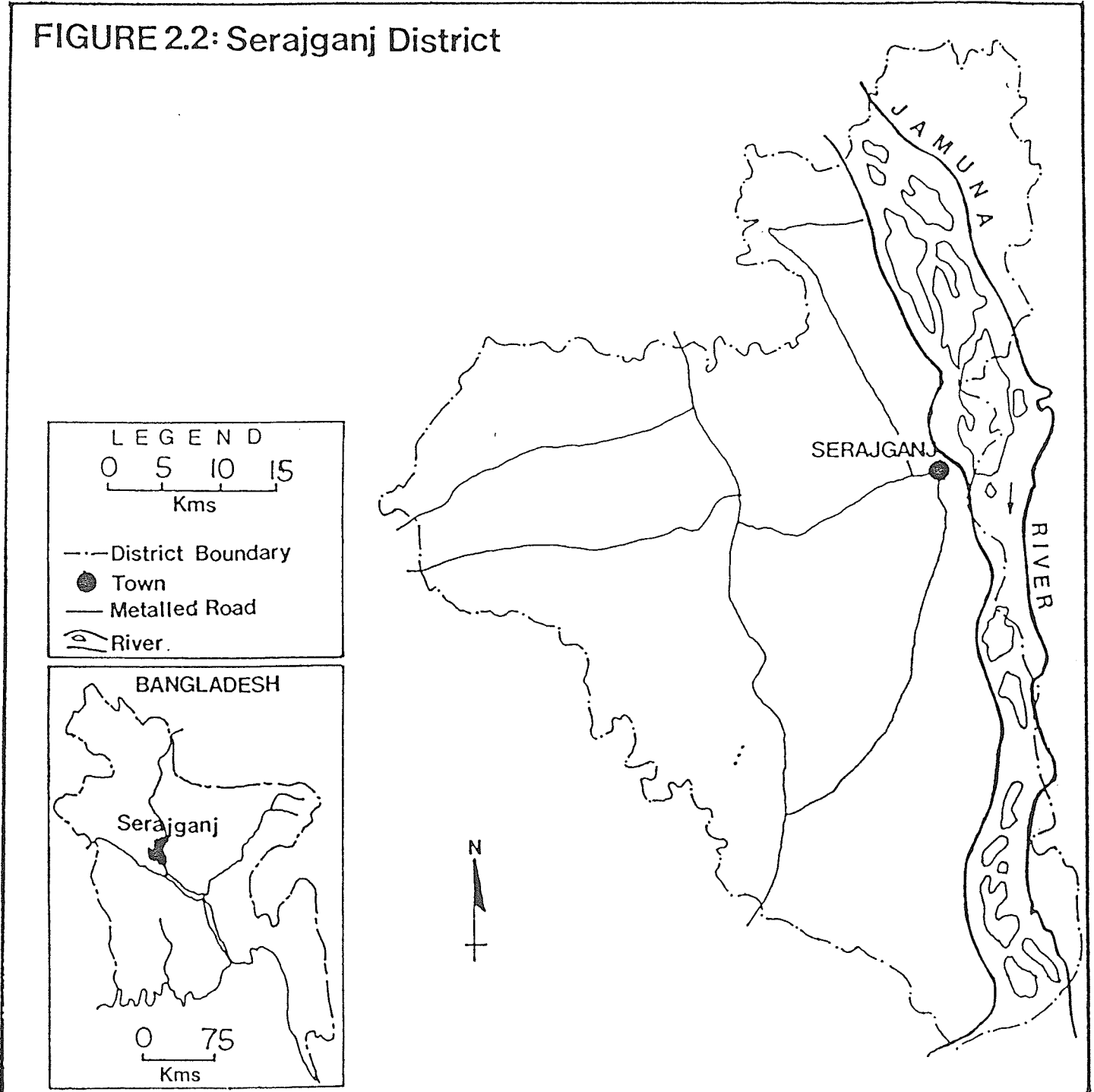
The impact of changing river courses is highly significant for millions of rural Bangladeshis. In describing the Ganges River of West Bengal, Bhattacharya (1978) stated, "... human settlements have definitely followed the swings of the streams." In Bangladesh, changes in the Jamuna's course have a pronounced influence on man's activities. In the rural areas of the sub-division of Serajganj, from which 84.5 percent of all displacees in Serajganj town originate, land determines the economy of the region, provides personal security (by ownership) for the rural population and ultimately influences the social and political status of an individual.

Small landholdings, capital shortage, underdeveloped technology and traditional agricultural practices make peo-

ple increasingly dependent on the limited available land resource. Tuan (1974) uses the term 'topophilia' to define man's sentimental ties with his material environment. In a wholly traditional agrarian society such as rural Bangladesh, topophilia is the powerful respect and allegiance which man possesses towards the land he depends upon and survives from. To illustrate the sentiment and power of topophilia, Evans-Pritchard (1940) suggested that despite the central Sudan's monotonously harsh conditions, its inhabitants - the Nuer - could not be persuaded that there existed better places outside of their domain. Similarly, Inuit in Canada's frozen north repeatedly turn down opportunities to settle in a more productive and fertile location. It is suggested here that a similar allegiance exists between the Bangladeshi farmer and his land. Hence it is clear that any loss of existing land resources is detrimental in numerous ways to the Bangladeshi peasant.

Aside from losing land, it is also important to consider the existing scarcity of land. Presently, Serajganj district has almost two million people within an area of 2,529 square kilometres (Figure 2.2). The population density is 738 persons per square kilometre, which is among the highest densities in all of Bangladesh (BBS, 1983). With Bangladesh's population growth rate of 2.8 percent, the already over-saturated carrying capacity of the land will be worse in the near future. In Serajganj district, average agricul-

FIGURE 2.2: Serajganj District



SOURCE: Pabna District Statistics, 1985.

tural land per person, is a mere .105 hectares (BBS, 1983). Further, this land shortage is coupled with a highly unequal distribution pattern. Table 2.2, based on the 1978 Bangladesh land survey, which de Vylder (1982) acknowledges as a considerable underestimation of the true degree of land concentration, reveals both a scarcity of land and a clear inequality of distribution.

TABLE 2.2

Distribution of Agricultural Land, 1978

Acres Owned	Percent of Rural Households	Percent of Land Area
Landless	28.8	-
0.01 - 2.00 (.004 - .810 ha.)	47.8	21.7
2.01 - 4.00 (.811 - 1.62 ha.)	12.8	22.4
4.01 - 10.00 (1.63 - 4.05 ha.)	8.2	30.7
10.01 or more (4.06 or more ha.)	2.5	25.2
TOTAL	100.0	100.0

Source: de Vylder, 1982

The fact that 23.5 percent of all rural households possess 78.3 percent of all the land clearly demonstrates an evident inequality of its distribution.

Table 2.3 shows the loss of land by riverbank erosion displacees in the Serajganj squatter settlements.

TABLE 2.3

Loss of Land Due to Riverbank Erosion Amongst Squatters in Serajganj

Acres Previously Owned	Number of Respondents	Percent of Respondents
Landless	12	5.8
0.01 - 2.00 (.004 - .810 ha.)	82	39.6
2.01 - 4.00 (.811 - 1.62 ha.)	53	25.6
4.01 - 10.00 (1.63 - 4.05 ha.)	48	23.2
10.01 or more (4.06 or more ha.)	12	5.8
TOTAL	207	100.0

Source: Survey Data

It is again revealed that the majority owned small landholdings, but on the whole only 5.8 percent were landless, compared to 28.8 percent for all of Bangladesh. This significant difference possibly indicates that many of the riverbank erosion affected population who were landless, remained in the rural areas as agricultural labourers. Those who migrated to Serajganj, generally had slightly larger than average landholdings than the rural population as a

whole. By viewing the amount and size of lost landholdings, again the destructive nature of riverbank erosion is realized.

With regular erosion and accretion of land, naturally conflicts develop regarding land ownership and possession. The Land Tenancy Act of Bangladesh has a long and varying history. But of recent, a 1972 Act declared that all accretional land is to be vested absolutely in the government for distribution among the landless. This declaration was changed in 1978, when accretional land became the holding of the original owners (Malik, 1983; Wahed, 1983; Ali, 1980; Zaman, 1985). The bureaucratic processes of making claim to the newly emerged land is both lengthy and complex. Most of the illiterate peasants have no idea of how laws operate and whether there even are laws which are supposed to protect them. This absence of knowledge makes them easy prey to land grabbers. The result is that the rich affluent landowners unlawfully claim the new land, often with the help of some corrupt land settlement officials.

Riverbank erosion displacement is not a one-time experience. It is a continuous process in the Serajganj district. Table 2.4 reveals that a majority of the squatters in Serajganj have been affected in the past.

TABLE 2.4

Number of Times the Displacees Have Been Dislocated by Riverbank Erosion

Number of Displacements	Number of Responses	Percent
1	54	26.1
2	43	20.8
3	30	14.5
4	29	14.0
5 - 10	44	21.2
More than 10	7	3.4
TOTAL	<u>207</u>	<u>100.0</u>

Source: Survey Data

In total 74 percent of the displacee households experienced riverbank erosion displacement more than once in their lifetime.

Since the land is so intimately tied into the life of the rural population, the loss of their single most crucial resource affects them socially, economically, psychologically and even physiologically. Riverbank erosion is more than just a physical phenomena, it is as much a socio-economic one. The strong emotional attachment to the land creates a curious fatalism in the mind of the people.

They take no steps to move elsewhere. But then again they literally have no place to go. They

wait till the last day, till the last moment when their homestead is also swallowed by the angry currents. (Malik, 1983).

When their land and homestead are claimed by the river, many displaced choose to migrate to the nearby cities, though the employment situation is harsh. The rate of growth of employment opportunities has not kept pace with urban population growth (de Vylder, 1978). Clay (1978) points out, "Rural-urban migration has merely shifted part of the unemployment and poverty problems to the towns."

Increasing urbanization is one of the most pervasive population problems in Bangladesh. The effects of rapid urbanization on over-crowded cities is adverse. The cities of Bangladesh, which are growing at colossal rates, cannot provide the minimum civic facilities to the already existing urban population. This urban growth is resulting mainly from rural to urban migration. In fact, growth from net migration in urban areas is three times as great as growth from natural increase (Stoeckel, 1972).

The Harvard University Population Centre (Choguil, 1984) suggests that, even if a drastic decline in fertility occurs, the number of urban residents in Bangladesh will increase tenfold by 2003. This would be the equivalent of adding twenty-nine cities the size of Dhaka in the last quarter of this century. In other terms, it translates to an increase from 5.3 million urban residents in 1973 to 55.3

million urban residents in 2003 (Choguil, 1984). Between 1951 and 1981 Bangladesh's population increased by 86 per cent; in the same period its urban population increased by 382 percent (Rahman, 1985).

The history of urbanization in Bangladesh in this century reveals a remarkable surge in the last 25 years. Table 2.5 demonstrates that enormous increases in urban population have taken place since 1961.

TABLE 2.5

Distribution of Urban Population

Census Year	Percentage of Urban Population	Intercensal Change in Urban Population	Rate of Growth		
			Urban	Rural	National
1901	2.4	15.0	1.39	0.85	0.87
1911	2.6	8.8	0.84	0.51	0.53
1931	3.0	22.2	2.0	0.64	0.68
1941	3.7	43.2	3.59	1.85	1.65
1951	4.3	18.4	1.68	0.00	0.00
1961	5.1	45.1	3.72	1.83	1.92
1974	8.8	137.6	6.70	2.33	2.62
1981	10.4	199.9	--	--	--

Source: Rahman, 1985

In the last 25 years, intercensal changes in the order of 137 to 200 percent have taken place for numerous reasons. 'Push' factors in the rural areas, such as population pressure, unemployment and underemployment of the agricultural labour force, decline of cottage industries, economic destruction from the 1971 war of liberation, the 1974 famine, frequent natural calamities such as cyclones, floods and riverbank erosion have all contributed to the immense amount of rural to urban migration.

The problem of riverbank erosion displacees clearly fits into this national problem of excessive urbanization. Many riverbank erosion victims migrate to the surrounding cities, but it must be mentioned that the majority of the displacees migrate elsewhere within the rural areas. Nevertheless, urban centres such as Serajganj receive an increasing number of erosion displacees each year. Riverbank erosion displacees optimistically enter a new urban life, but the outcome often proves to be disappointing.

2.3 SERAJGANJ

The origins of Serajganj city date back to the early nineteenth century when it began as a village market for immediate surrounding areas. By the 1830s, merchants from India arrived in this village market and established a permanently populated centre. In 1869 Serajganj was officially founded. According to the 1872 census, Serajganj had a pop-

ulation of 18,873 (Hunter, 1876). It quickly became an important jute market and trading centre, having established jute, textile and flour mills. Serajganj is a prominent inland riverport and also the railway head terminal for ferries connecting the eastern part of Bangladesh with its southwestern districts, including the international port of Khulna (East Pakistan Water and Power Authority, 1970). Today with 110,000 people, Serajganj is the twelfth largest urban centre in Bangladesh and acts as the headquarter city of the Serajganj sub-division in Pabna district (BBS, 1981).

Since its earliest years of population settlement, the Jamuna River has steadily encroached upon the city's western bank. Back in 1876 the erosive nature of the Jamuna River at Serajganj was realized. Hunter (1876) questioned the locational selection of Serajganj:

It will be asked how it came to pass that a place so badly adapted for the purpose came to be selected as the emporium of the trade of the Brahmaputra and its tributaries... it appears that the merchants have made up their minds to stand by Serajganj in spite of all inducements to move, as they are one by one building comfortable brick houses in the place of the mat and bamboo dwellings in which they for years resided.

As early as 1848, the entire settlement had to be removed to a new site to its west, owing to significant change in the course of the river. At Serajganj's inception in 1869, the municipality was 28.5 square kilometres. In the 1920s, approximately 6.5 square kilometres of its bank area was

eroded away. In 1957 new western portions were added to the city to give it 28.5 square kilometres again. But, between 1960 and present, another 6.5 square kilometres has slowly been eroding away, and again it is only 22 square kilometres (Bangladesh District Gazetteer, Pabna, 1978).

In 1947 the executive governor of Bengal approved construction of the first embankment for town protection. By 1960 it was totally submerged. The Bangladesh Water Development Board (BWDB) immediately built a second embankment, which despite the encroaching river still exists today. Also, in 1964, 3,000 metres of brick mattressing was constructed. In the succeeding years up to 1968, the brick mattress was either heavily damaged or portions were completely washed away. In the last 15 years constant replacement and maintenance of the mattressing has been undertaken at a considerable cost (East Pakistan Water and Power Authority, 1970). Other erosion protection measures have been attempted; dikes, groins, solid concrete, sand-cement blocks, iron net mattressing and cross dams, all with no effective results.

With the construction of the second embankment in 1960, the Baral River, a Jamuna tributary and navigable river through Serajganj was cut off from its principal source and soon dried up. Riverbank erosion displacee squatters, who for decades resided on the old embankment, took refuge on the new embankment and in the dried-up Baral riverbed. In

1972 the Bangladesh Railway Commission (BRC) disbanded one line in Serajganj and tore up the tracks, it was soon converged upon by more riverbank erosion displacees (excerpts from interview with Serajganj Pourashava Commissioners, 1985).

Each year, an increasing number of erosion displacees move to Serajganj. The city is unprepared to absorb such a large number of arrivals in terms of housing, employment and other urban facilities. Serajganj, like other cities in Bangladesh has been experiencing continuous growth of its squatting settlements as well as problems in providing them shelter and employment (Qadir, 1975; Elahi, 1972; Islam, 1976; Zaman, 1984).

Not unlike other developing countries, the cities of Bangladesh face a serious problem of expanding slums and squatter settlements. These settlements represent over one-third of the urban population in developing countries and in many cases they account for more than sixty percent (Todaro, 1985).

According to the Serajganj municipal office there are currently 30,000 people in the city who may be defined as slum dwellers, squatters or homeless. Of these 30,000 approximately 5,550 are riverbank erosion displacees. Hence, erosion displacees constitute nearly six percent of the total city population and over 18 percent of the total city

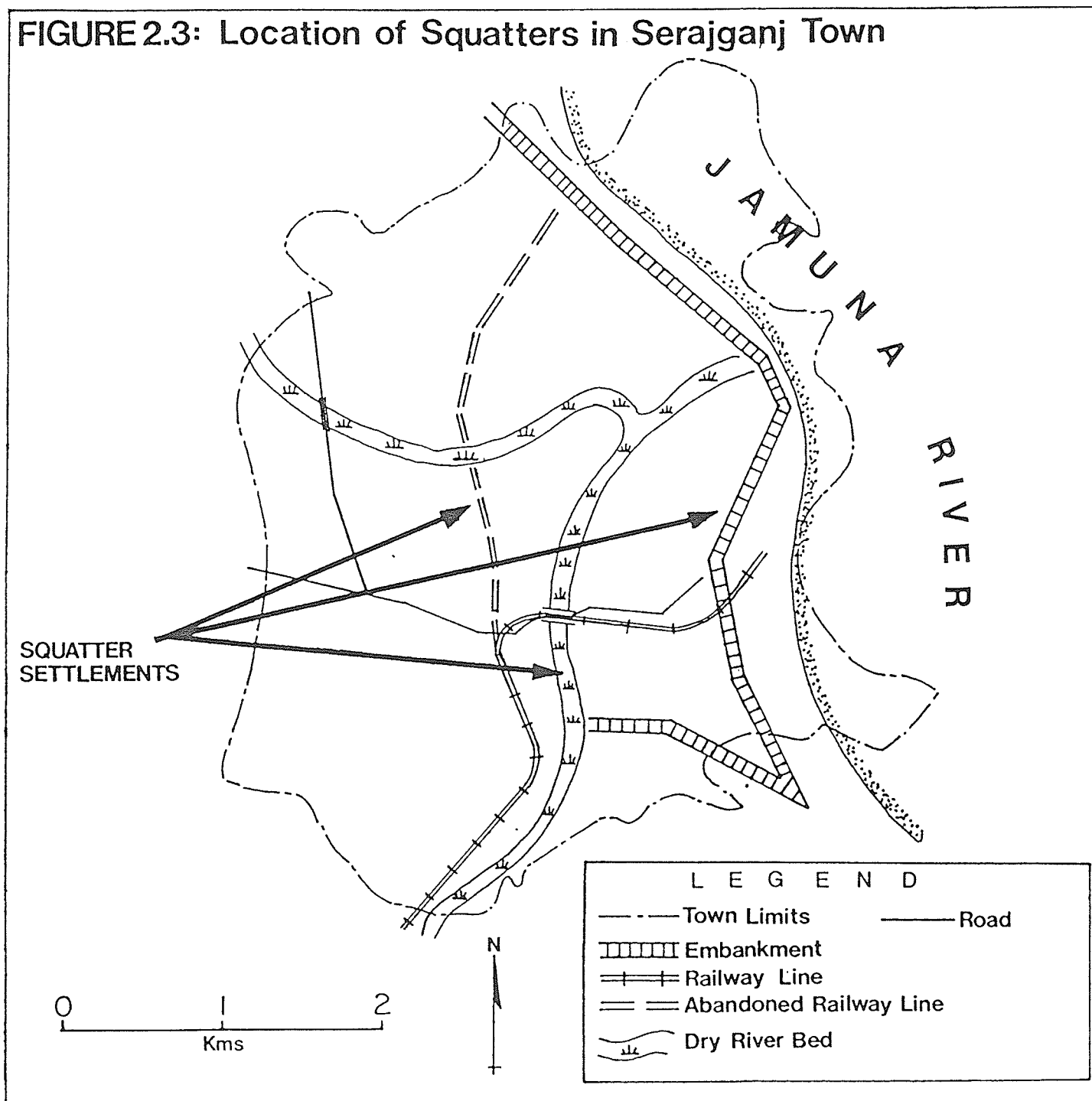
destitute population. The 5,550 erosion displacees comprise 975 households and as mentioned earlier are found in three squatter concentrations within the city (Figure 2.3). These are:

1. Embankment (520 households)
2. Dried-up riverbed (250 households)
3. Abandoned railway line (205 households)

When the displacees first arrive in Serajganj, their first concern is establishing shelter. The three squatter areas (mentioned above) contain unused free government land known as 'Khas' land. The majority settle on Khas land in one of the three squatter areas, some rent land and a few remain homeless, sleeping on streets, in train stations, in parks, etc. The status of those who reported "renting land" is unclear and somewhat confusing. There was indication that long-time residents of the squatter areas would rent out sections of their "territorial space" to newly arriving displacees for a fee.

Since the squatters do not own their land in the legal sense, their status is somewhat in question. The constant fear of eviction is a predominant concern. The local administration is reluctant to accept them as a permanent component of the urban population. The displacees receive few of the urban amenities afforded to the non-squatter population and they mentioned that they are often threatened by govern-

FIGURE 2.3: Location of Squatters in Serajganj Town



SOURCE: Based on a Map provided by Serajganj Pourashawa Office.

ment officials concerning eviction. In 1982, the Bangladesh Water Development Board (BWDB) decided to evacuate the squatter population from the embankment under Martial Law Order 15. The displacees protested against the decision and finally BWDB abandoned the eviction program on humanitarian grounds (Zaman, 1985). Still, the most damaging aspect to the squatters is that the local authorities consider the squatters temporary, and believe they will all leave Ser-ajganj when their land reemerges. The fact that over 50 percent of the households have been residing in these areas for fourteen years or longer rationally negates this myth of impermanence.

The following chapter (Chapter 3) will review the various methods of analysis used in this investigation. This will be followed by (Chapter 4) an examination of this existing perception gap between the squatters and the local authorities. Also, the three other hypotheses (as described earlier) will be tested utilizing the survey data.

Chapter III

PROCEDURE

3.1 RESEARCH DESIGN

A research project aims at answering specific questions or to illuminate a particular problem. The first step in the design of a research project is to identify a specific central problem in the subject area (Dixon and Leach, 1978). In order to clearly focus in on the problem, the processes acting on the environment containing the problem must be closely examined. This current research project adheres to Wilkie's (1974) approach to researching human behaviour:

The processes of change...can not be understood without first establishing what the structures are that are changing, nor can we understand the laws behind the structural systems without studying the processes and forces that are shaping them.

In this connection, the entire process of riverbank erosion, from actual loss of land to the river, to the eventual livelihood in the urban environment was examined in a holistic frame. Thus, in the current project the specific central problem is 'riverbank erosion displaces in an urban environment'. At the onset of the project, the entire process was to be looked at, but no formally worded hypothesis about specific relationships was defined. Certain bound-

aries of the field of study were set, but the actual focusing and defining of these boundaries did not take place until after the survey was complete. After preliminary investigations of the survey data, review of related literature, maps, government and local authority records and statistics was undertaken, then the hypotheses were set. The four hypotheses, namely; length of residence, informal sector poverty, health conditions and perception gap (as discussed in chapter one) were chosen with the belief that these represent four important aspects in the displacees' urban environment. A lengthier discussion justifying and illuminating these choices will be covered in chapter four.

3.2 CROSS-CULTURAL RESEARCH

The key term 'culture' has caused lengthy discussion and controversy over its definition. Kroeber and Kluckhohn (1952) listed over one-hundred and fifty definitions of culture and finally came up with their own all-encompassing extensively research definition:

Culture consists of patterns, explicit and implicit, of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievements of human groups, including their embodiments in artifacts; the essential core of culture consists of traditional (re: historically derived and selected) ideas and especially their attached values; culture systems may, on the one hand, be considered as products of action, on the other, as conditioning elements of further action. (p.180)

As Kroeber and Kluckhohn state, ideas and values comprise the central core of culture. In this respect, obvious problems arise when conducting research in an unfamiliar culture. Observational bias, applicability of tests, translation difficulties, relevance of experimental procedures and much more, potentially create problems with research methodology (Price-Williams, 1985; 995). Segall (1979; 48-54) argues that a test may be a good index of a construct in one culture but not a good index of the same construct in another culture.

In an attempt to understand the Bangladesh people - their values, motivations, and aspirations, one must examine the Bengali culture. This insight is vital in order to live and work with the people. A five month visit to Bangladesh certainly does not permit one to grasp a full understanding of customs and culture, but several important traits are important and directly related to social research.

For example, the very strong class distinctions seen in all regions of the country are important to acknowledge. Although over 85 percent of the population in Bangladesh are Muslim by religion, their ancestors all came from a Hindu orientation. This accounts for the highly stratified society. The myth of origin seems to be embedded deeply in all countries of the Indian sub-continent. The great G-d Brahma created the Brahmans from his head, the warrior caste from his shoulders, the merchant caste from his thighs and the

masses from his feet. The persistent class distinctions are important restraints to the displacee population, who in an urban context are generally relegated to the lower classes and consequently are repressed in attempting to improve their plight.

Another important cultural attitude that effected the research was that a Bangladeshi person is generally known to be forthright with his family and close friends but will be roundabout in his dealings with others. Especially in an urban setting, people interacting with strangers are conditioned to be roundabout at almost all times. In the villages most people are related or are friends, and forthrightness is the norm.

A final example of a cultural trait not familiar in the western context is the use of a 'go-between'. In order to maintain smooth interpersonal relationships, a go-between or mediator is necessary. It is often unreasonable to expect a Bangladeshi to be open and frank, especially concerning personal matters. While interviewing squatters in Serajganj, the accompaniment of a (new) local friend from the same settlement would help bring out honest feelings and opinions from the respondents.

Undoubtedly, the most effective assistance in overcoming the cross-cultural barrier was working in close contact with a local student, Md. Ziarat Hossain, a graduate student from

the department of Geography at Jahangirnagar University, who was also researching riverbank erosion displacees in the squatter settlements of Serajganj.

Hossain's assistance was invaluable. His cultural familiarity with the displacees helped in all aspects of research, especially in the actual delivery of the questionnaire - survey. None of the displacees spoke English and this researcher spoke no Bangla. Also, in the construction of the survey, Hossain's familiarity was important in choosing the correct wording of each question.

3.3 PRETEST

Several weeks before administering the survey-questionnaire, the study area was visited and twenty surveys on displacee households were tested. With the assistance of a Jahangirnagar University student and Hossain, it was possible to complete this in five days. The pretest yielded at least three important observations. Firstly, the questionnaire was too lengthy. Several questions were eliminated to shorten the questionnaire, which took about forty-five minutes. It was decided that a maximum duration of about thirty-five minutes was acceptable. Secondly, some questions were too complicated to be answered accurately. For example, a question concerning 'displacement history' was found to yield better results if the respondents were asked only to list their first and last displacement. Many respondents

had a long and complex history of many displacements and it was doubtful if they could answer the question fully and faultlessly. Thirdly, it became clear in the pretest that the questions could not be posed to the household's wife. The pretests that interviewed wives not only took a long time, but also 'don't know' responses were very numerous. In Bangladeshi's lower classes, wives have little decision making power and thus were not sufficiently informed to provide the answers that were sought. Household heads (usually husbands) were often unavailable, but the time spent waiting for them to return was more worthwhile than attempting to interview their wives.

Aside from reshaping the questionnaire, the field visit also allowed us to carry out a census (as described in chapter one) and investigate some other sources of information. It was found that the personnel at the Pourashava office (city hall), although friendly and cooperative, knew very little about the squatter population. They possessed no displacement records, or vital statistics on the displaced population. It was learned that the authorities' perception and information about the displaceds was distorted.

3.4 THE URBAN SURVEY

The questionnaire had 65 questions, (see Appendix), and was divided into four main sections:

1. An economic survey;
2. a social survey;
3. migration history;
4. a demographic survey.

A total of 207 questionnaires were administered by four interviewers, which included Hossain, a local college graduate and two students from Jahangirnagar University, in March-April, 1985. No antagonism or resistance on the part of the squatter respondents towards the survey was encountered. They were eager to talk and relate their problems to the interviewers. Frequently, squatters approached the interviewers and asked to be interviewed. Despite advising the squatters that the survey was not on behalf of government or some aid agency, many believed that an interview would render some measure of help for them at a later time.

Before the survey began, the interviewers were carefully briefed on the nature of the research, the importance of ensuring consistency, and which questions required probing and prompting, and which did not. Probing and prompting requires the skill of knowing when an answer is insufficient and needs to be expanded. The interviewers were all believed to have acquired this skill.

In Chapter One several limitations of the survey were discussed. At this time a comment must be made about the limitations of the 'survey instrument' as a means of collecting information. Bauman (1967) uses the analogy of a photograph to describe a survey. Each survey is administered at a point in time and it records only a "momentary slice of an individual's life." McGee (1975) expands on Bauman's analogy:

The reaction of the respondent may be distorted by the questioner's appearance; by his own immediate needs (at the end of a long tropical day - the need for food and sleep); by as many factors as one may conjure up. The photo may underexpose or overexpose - it is only a distorted moment of the individual's life.

Despite this unavoidable limitation, the survey at least indicates that households possess a complex and varying set of beliefs and standards. By examining 207 under and overexposed photographs, a picture close to actuality emerges. Many of the data collected (especially demographic traits and economic factors) have been checked and compared with national census data, and other similar type surveys, and prove to be valid.

During the survey period, several interviews were conducted with the local administrators to yield their views and opinions of the displacee population. Also, information concerning the administration of the squatter settlements was obtained. Two interview sessions were held with the Serajganj Pourashava Chairman and his commissioners. Single

interview sessions were held with the Serajganj District Chief of Police, the Public Health Engineer and the Upazila Relief Officer. These sessions proved to be very valuable, especially for acquiring an understanding of the authorities' perception of the squatter population. To further supplement the survey, 5 individual displacee case studies were administered to bear a more personal and particular perspective of the squatter population.

3.5 DATA ANALYSIS

The data were entered, stored and analyzed on the University of Manitoba's mainframe computer system, AMDAHL. The Statistical Analysis System (SAS) was used for executing the data analysis programs. SAS was chosen because it provides a system that meets all necessary computing needs; information storage and retrieval, data modification and programming, report writing, statistical analysis and file handling. Further, it is a system that allows the user to concentrate on results of data analysis as opposed to the mechanics of deriving them.

Due to the researchers' unfamiliarity of the study area before the project and the desire to avoid preconceived notions and biases, the hypotheses tested in this thesis were formulated after data collection. The experiences in Serajganj plus the collected data enabled the present research-

er to devise the hypotheses. Since they were devised after data collection, various issues not investigated by the questionnaire became evident. If the survey was done again, based on the same four hypotheses, several additional questions would be added. Questions concerning past employment record since being displaced would be added. Also, a question to illicit the displacee's attitude toward local authorities would have been valuable. More questions concerning health, medicine and mortality would also be added. Lacking certain aspects of the data is quite frustrating and cannot be rectified when the report is written 10,000 miles from the field.

To test the first two hypotheses, namely, length of residence and informal sector poverty, a chi-square significance test is applied. These two hypotheses are quantitatively tested for significance by measuring the lack of agreement between the data and the hypothesis. The third and fourth hypothesis, health conditions and perception gap are tested qualitatively.

Chapter IV

DATA ANALYSIS

The aim of this thesis is to understand the dynamics of adjustment processes experienced by riverbank erosion displacees in Serajganj squatter settlements. This chapter will be divided into four sections, where each of the four hypotheses will be tested. This chapter will demonstrate that there is strong evidence showing that Serajganj squatters are not adapting or adjusting to their urban environment. Not only do the statistics indicate that they are living a lifestyle far inferior to the native residents of Serajganj, but also that they display a lifestyle inferior to that previously experienced in their rural habitat. Moreover, there is little sign of any improvement to their plight in the future. Although they reside in an urban environment, they are not urbanized in the socio-economic sense. It is important to note that only riverbank erosion displacees who reside in the squatter settlements have been considered. There are undoubtedly displacees who, over time, have left the squatter settlements, and this group is not included in the analysis. The displacees who have moved out of the squatter settlements constitute those who have adjusted best to the urban environment. The displacees who are surveyed are the residual and the ones who have faced

the greatest difficulty in their adjustment. The investigation of non-squatter riverbank erosion displacees should be a consideration for future study.

4.1 HYPOTHESIS I - LENGTH OF RESIDENCE AND OCCUPATIONAL MOBILITY

Employment is an issue that demonstrates appalling conditions that exist for the squatters. When households were asked if employment conditions have changed since arriving in Serajganj, 55 percent said it has deteriorated and 71 percent said their income has become less despite a higher cost of living. Of the 1,180 people included in the 207 households sampled, 528 were either under 15 or over 65 years of age, which left 652 people in the working age group. Of these, only 289 are gainfully employed, which translates to an unemployment rate of 56 percent. This compares unfavourably with a 1980 study of the Bombay, India slums, that revealed an unemployment rate of 34 percent (Prakash, 1983).

The emancipation of Bangladeshi females into the workforce is improving rapidly in the urban areas, however, among the Serajganj displacees, only four percent of the total employed were females.

As to the type of work being undertaken, the squatters are employed predominantly in the lowest economic stature. Daily labour, which is low-paying, physically rigorous and

often demeaning, is overwhelmingly the most common type of work representing 37 percent of the squatter workforce (Table 4.1). The next largest group is rickshaw pullers - 11 percent - which is also a low-paying, ungracious occupation. Mill workers (jute, cotton, oil, spinning, saw) comprise ten percent of the workforce and shopkeepers five percent (Table 4.1). It is noteworthy that daily labour is not a permanent occupation, but is often seasonal and occasionally part-time. Within the squatter settlements there were many beggars, and it is a safe assumption that many unemployed daily labourers also beg.

The 55 percent of squatter households who claim that their employment conditions have deteriorated since arriving in Serajganj, suggest that their prospects are especially limited. For example, a 1977 study of urban migrants in Jakarta, Indonesia found that only 9 percent of the sample reported a decline in their occupational status (Krause, 1977; 66). Similarly, a study of urban migrants in the city of Ludhiana, Punjab found that "only" 25 percent of the sample experienced a decrease in income upon arriving in the city (Oberai and Singh, 1984; 509). In the Serajganj sample, 71 percent claimed their income declined. Also, both the Jakarta and Ludhiana studies concluded that occupational mobility potentially improves over time, a conclusion which is keeping with the literature on this subject (Lipset, 1959; Glass, 1954). Although Lipset's and Glass's research was in cities of the industrialized world, the Jakarta and Ludhiana

TABLE 4.1

Employment of Riverbank Erosion Displacees in Serajganj

Type of Employment	Number	Percent
Daily Labourer	107	37
Rickshaw Puller	32	11
Mill Worker	29	10
Shopkeeper	14	5
Agricultural Labourer	9	3
Boatman	9	3
Hawker	9	3
Printing Press Worker	6	2
Beggar	6	2
Other ¹	68	24
TOTAL	289	100

Source: Survey Data

¹ Consists of house servants, teachers, government service workers, porters and a wide variety of other positions.

studies were not. However, McGee (1971), who tested the assertion of occupational mobility among migrants in Kuala Lumpur, Malaysia, found that the hypothesis "length of residence affecting occupational mobility" was not valid.

Occupational mobility is an extremely important aspect of adjustment and adaption. It is a well known fact that rural to urban migrants arrive in cities with almost no possessions, inadequate education and few urban skills. The degree to which the city has a favourable economic climate for

migrants to upgrade their economic status is important to their subsequent success.

It is proposed here that unlike the findings of Krausse's Jakarta study, the Serajganj results are more like the findings of McGee's Kuala Lumpur study in that a favourable economic climate for in-migration is not present and consequently length of residence has little or no bearing upon their occupational mobility.

One method of analyzing occupational mobility is by examining workers' occupational status, and establishing whether they fall into the formal or informal sector. In the general literature, a common assumption is that the longer the length of residence, the greater the incidence of formal sector employment. Table 4.2 shows the effect length of residence has upon occupational status in the formal and informal sector among heads of households in Serajganj squatter settlements.

From this table it is difficult to test Hypothesis I with any quantitative confidence. However, it is clear that of the squatters who have been in Serajganj for 6-10 years, over 50 percent (51.1) are in the formal sector. In contrast, among those with 16 years or longer residence in Serajganj only 34.1 percent are in the formal sector. These two observations suggest that the common assumption stating length of residence effects occupational mobility is not

valid: indeed length of residence appears to have little or no effect upon occupational mobility.

TABLE 4.2

Length of Residence and Occupational Status

Length of Residence (Years)	Formal	(Percent)	Informal	(Percent)	Total
0 - 5	8	25.8	23	74.2	31
6 - 10	23	51.1	22	48.9	45
11 - 15	40	44.4	50	55.5	90
16 and more	14	34.1	27	65.9	41
TOTAL	85	41.1	122	58.9	207

Source: Survey Data

To further test Hypothesis I, a Chi-square significance test is applied to the data in Table 4.2. The Chi-square statistic indicates the patterns of 'independence' between length of residence and occupational status (formal and informal sector), as well as measuring statistically the lack of agreement between the data and the hypothesis by analyzing the deviation from "expected" values. The H_0 (null hypothesis) is tested by comparing it to the value that can be reasonably accounted for by the workings of chance. In this situation H_0 reads; there is no relationship between occupational status and length of residence.

Through Chi-square calculations it is found that $\chi^2 = 6.09$. Using 3df (degrees of freedom) at the .05 confidence level, the expected value is 7.81. Thus, H_0 is not rejected and the acceptance of Hypothesis I is confirmed.

In summary, riverbank erosion displacees in Serajganj do not improve their occupational status with length of residence. The processes that create a favourable environment for economic growth, as enumerated by Lipset, or as seen in Oberai and Singh's Ludhiana are not operating for the Serajganj squatters. It is not clear from this analysis what barriers exist that affect occupational mobility; however, there are clearly impediments, and the nature of these warrant further research.

A documentation to the testing of Hypothesis I can be drawn from one of the case studies, namely that of Abdul Ali Mirza, aged 25, a typical riverbank erosion displacee who was interviewed. His account of the problem is in no way unique and in fact typifies displacee households:

... In 1973 when I was a boy of 13, my family lost our one acre of land (jute and rice) to riverbank erosion. We moved to Serajganj town and lived on the abandoned railway line. My father died so I pulled rickshaw and my brother became an urban daily labourer. Now, 12 years later, my household which consists of my wife, 2 sons and mother, live in the same hut on the same abandoned railway line. I'm still pulling rickshaw and have made no economic progress.

4.2 HYPOTHESIS II - INFORMAL SECTOR AND POVERTY

When riverbank erosion displacees arrive in Serajganj the selection of employment opportunities opened to them is very limited, because of already high unemployment rates. As seen in Table 4.1, 63 percent of all workers are employed in one of four occupations: daily labouring, rickshaw pulling, milling or shopkeeping. The prospect of finding employment is low (as seen in a 56 percent unemployment rate), but when employment is found, the chances are it will be in one of the four mentioned occupations. A further observation is that employment will most likely be in the informal sector. The informal sector is characterized by small-scale production and service activities, very labour intensive, and at a simple technological level. Workers are generally unskilled and lack capital resources. As a result, productivity and income are low. Also, informal workers do not enjoy the protection of job security, controlled working conditions, and of pensions. Their motivation is simply to obtain a basic income for survival purposes: profit is not a motivation (Todaro, 1985; 280).

Table 4.2 shows that 58.9 percent of workers are in the informal sector. This compares with only 33 percent of all rural-urban migrants in the Ludhiana study who were engaged in informal activities. Table 4.3 shows the estimated share of urban labour force in the informal sector in selected Third World centres. Within the observed range, Serajganj

squatters display a very high percentage of informality.

TABLE 4.3

Estimated Share of Urban Labour Force in the Informal Sector in Selected Developing Countries

Location	Share (Percent)
Africa	
Abidjan, Ivory Coast	31
Lagos, Nigeria	50
Nairobi, Kenya	44
Asia	
Calcutta, India	40 - 50
Jakarta, Indonesia	45
Ludhiana, Punjab (rural-urban migrants)	33
Colombo, Sri Lanka	19
SERAJGANJ squatters	59
Latin America	
Sao Paulo, Brazil	43
Rio de Janeiro, Brazil	24
Quito, Ecuador	48
Caracos, Venezuela	40
Kingston, Jamaica	33

Source: Sethuraman (1981); Survey Data; Oberai and Singh (1984).

McGee (1971) argues that the expansion of manufacturing and industry in Third World cities is not keeping pace with the rapid rate of urbanization. Thus, informal, tertiary dominated activities are employing workers who would normally be employed in industry if cities expanded in a timely economic response to the in-migration (as seen in the European experience) (McGee, 1967; 22) states;

... the evidence suggests that unless national economic development fostering urbanization and industrialization concurrent with improvements in the agricultural sector, the cities of hope will become cities of despair.

Thus, unless conditions in the rural areas improve, industrialization in the cities must develop dramatically to economically absorb the migrants. In the case of the Serajganj squatters, the city they have migrated to is one that is not experiencing industrial growth. The result is the creation of a pool of surplus rickshaw pullers and daily labourers, and thus an excessively large informal sector. The size of this sector causes wages to be depressed and hours worked to be limited. Hence, poverty is exacerbated. Economic growth, social adaption, and physiological well-being are difficult to achieve when poverty is so endemic. Table 4.2 clearly indicates that with increasing length of residence, squatters are not released from the informal sector. Table 4.4 examines monthly income in Bangladeshi Taka earned by household heads in the formal versus the informal sectors.

This table shows how poorly paid the informal sector is. Mean monthly income earned by a worker in the formal sector was 1,112.34 Taka, compared to 832.19 Taka earned in the informal sector. This translates to a 25 percent differential of earnings in the informal sector. A second test applied to the data in Table 4.4 in order to verify that informal sector workers are paid substantially less than those in the

formal sector was a Chi-square significance test. A H_0 (null hypothesis) was set up stating that there is no difference in the incomes of formal and informal sector workers. Through Chi-square calculations we find $x^2 = 15.99$. Using 3df (degree of freedom) at the .05 confidence level, the expected value is 7.81. The H_0 is rejected, and thus the hypothesis that displaces dependent on the urban informal sector are poorly paid in relation to formal sector workers is validated.

TABLE 4.4

Monthly Income as Related to Formal and Informal Occupations

Income Per Month Taka ¹	Canadian Dollar	Occupation				Total
		Formal	Percent ²	Informal	Percent	
0- 500	(0-25)	4	26.7 (4.7)	11	73.3 (9.0)	15
501-1000	(26-50)	51	36.2 (60.0)	90	63.8 (73.7)	141
1001-1500	(51-75)	17	47.2 (20.0)	19	52.8 (15.6)	36
1501 and more	(76 and more)	13	86.7 (15.3)	2	13.3 (1.7)	15
TOTAL		85		122		207

Source: Survey Data

¹ 1985 value of 1 Taka was \$.05 Canadian.² Column percentages are indicated in parenthesis.

The confirmation of this hypothesis directly relates to Hypothesis I. Without a dynamic economic environment, which would include an expanding manufacturing sector, the displacees cannot free themselves from dependence upon informal sector employment and its resultant poverty. The lack of availability of employment opportunities outside of the jobs traditionally occupied by displacees (daily labouring and rickshaw pulling) ensures continuing poverty and inhibits adaptation.

To finally substantiate the outcomes of both Hypothesis I and II, a simple correlation coefficient test was carried out to seek the relationship strength between length of residence and monthly income per capita of household. When correlated, not only was no significant relationship found, but surprisingly a slightly negative coefficient emerged (-0.036). This finding (as verified in Hypothesis I and II) indicates that length of residence has absolutely no effect upon income. This observation is important, as it further demonstrates that endemic poverty is not relinquished over time and thus, adaptation is a process that becomes difficult to deal with.

This predicament was succinctly narrated by one of the case-study interviewees, namely, Amjad Hossain, a 40-year-old migrant, who states:

... I've been a victim of riverbank erosion 8 times. Finally in 1972 I migrated to a squatter settlement in Serajganj. I first pulled rickshaw,

but with my wife and 5 children I needed employment which provided more income. Now I work as a daily labourer in a brick factory, the money is better but it is only seasonal work. I find the urban environment very costly. One day I may achieve bank savings, something I have not had since 1972.

4.3 HYPOTHESIS III - HEALTH CONDITIONS

Informal sector employment not only ensures poverty for the displacees but also causes poor health. The inability to afford latrines, tubewells or hospital care when necessary, together with lack of a balanced diet, contribute to appalling health conditions existing among the squatters. Social, economic and physiological deprivation undoubtedly results in a marked hindrance to adaption. Aside from the inability to afford basic health care and inadequate appreciation of hygiene, adaption is further obstructed by emotional stress caused by their relocation. Fried's (1963) "grieving for a lost home" syndrome applies as much to Serajganj squatters as it does to those who are displaced in connection with urban renewal in the United States. Thus, a combination of poverty and stress has resulted in a drastic deterioration in health conditions among displacees and this consequently affects their ability to adapt.

The fact that Serajganj has a decent medical and health-care infrastructure intensifies the dismal situation the squatters face. In spite of better access to medical and health services, compared to their situation prior to dis-

placement, health conditions of the squatters have declined drastically. For example, while Bangladesh's population to doctor ratio is 11,000:1 (de Vylder, 1975), in the town of Serajganj, the ratio is 1,307:1 (BBS, 1981). Likewise, Bangladesh's (1974) ratio of population to hospital bed is 5,300:1, in Serajganj it is 778:1 (1982). What becomes evident from these data is that the riverbank erosion displacees reside in an environment which possesses the urban "luxury" of health care. Unfortunately, they are excluded from benefitting from this resource.

A significant contribution to poor health conditions is lack of adequate service facilities. A proper drainage system was found to be absent in the squatter settlements. The squatters' shacks sat on irregularly sloped plots resulting in stagnant water during monsoon season. Nor were organized garbage removal facilities found. Toilets were equally inadequate and unsanitary, latrines were merely open pits and sewage connection was non-existent. In fact, 18 percent of the households had no access to a latrine. This compares with a 1979 study of slum populations in Dhaka, Rajshahi, Khulna and Chittagong which found that only 4 percent of the households had no access to a latrine (Islam, 1979).

Access to controlled and clean water was also limited, there was no tap water in the Serajganj squatter settlements and 35 percent of households did not possess access to a tubewell. Many squatters drew water for washing, cooking

and drinking from ponds and the river. Those who had tubewells competed with numerous other households for access to them. The ratio of population to tubewell was very high, with some servicing hundreds of households. The result is excessive pressure on the pumps and consequently the tubewells would frequently malfunction or dry up.

The shacks squatters lived in were almost all of one room only, and were dilapidated, overcrowded and very close together. When asked about changes to their housing conditions since arriving in the town, 80 percent of respondents indicated experiencing deterioration while only 4 percent had experienced an improvement. The inability to afford better houses, combined with the unavailability of land for housing and the lack of service facilities together contribute to greater incidences of illness.

The stress associated with relocation increases the intensity of illness. Relocation coupled with disaster deepens their stress even further. Barton (1970; 38) argues that disasters represent stress situations which occur when members of a society fail to receive expected conditions of life. The fact that Serajganj squatters are not only migrants, but are also involuntarily dislocated by a disaster, increases their life-change and subsequent illness. The literature on the effect of disaster upon illness in the remedy¹ period is vast (Spiegel, 1957; Chapman, 1962). How-

¹ Powell and Raynor (1952) have designated 'remedy' as the

ever, only a few studies have investigated the nature and occurrence of secondary illnesses on post-disaster populations, years after the phenomena. Melick (1978) examined post-flood illnesses among white males in Wilkes-Barre, Pennsylvania, and found that flood-respondents were significantly more likely to report that their health was worse than before the flood, than were non-flood-respondents. Scudder (1968), researching populations displaced by man-made lakes in Africa, reported that despite improved medical services, mortality and morbidity rates appeared to rise. He presumed a combination of environmental, epidemiological, demographic (increased population densities), and psychological factors were involved. Also, the stress of disaster and/or dislocation combined with a temporary loss of identity in a new environment, contributes to physiological breakdown.

Table 4.5 examines various crude death rates (CDR) in Bangladesh. Considering the appalling conditions among the squatters in Serajganj, coupled with the intense stress they have experienced, the results, although disturbing, are not too surprising. Also, infant mortality (IM) rates are shockingly high in the squatter settlements, especially compared to national levels. IM of 216 per 1000 represents some of the highest in the world.

period immediately after the disaster.

TABLE 4.5

Crude Death Rate in Bangladesh by Location

Source	CDR (per 1,000)
University of Dhaka Study of slums in 4 urban centres (Islam, 1979)	19.14
World Data Sheets, Bangladesh (1985)	17.00
Serajganj Squatters (1985)	27.00

Source: Islam, (1979); Survey Data.

TABLE 4.6

Infant Mortality in Bangladesh by Location

Location	IM (per 1,000)
Rural Areas (1975)	162
Bangladesh (1980)	153
Bangladesh (1985)	133
Serajganj Squatters (1985)	216

Source: Population Reference Bureau (1985); UN (1981);
Survey Data.

Forty-one percent of the respondents indicated that the health conditions of their household has deteriorated since arriving in Serajganj. Table 4.7 attempts to establish a relationship between length of residence and perception of present health status compared to health status before arriving in Serajganj.

TABLE 4.7

Squatters Perception of Present Health Status Compared to Health Status Before Arriving in Serajganj by Length of Residence

Length of Residence (Years)	Perception						Total
	Improve- ment	% ¹	No Change	%	Deterior- ation	%	
0 - 5	18	58.1 (17.3)	3	9.7 (15.8)	10	32.2 (11.9)	31
6 - 10	20	44.4 (19.2)	3	6.7 (15.8)	22	48.9 (26.2)	45
11 - 15	45	50.0 (43.3)	9	10.0 (47.4)	36	40.0 (42.9)	90
16 and more	21	51.2 (20.2)	4	9.8 (21.0)	16	39.0 (19.0)	41
TOTAL	104	50.2	19	9.2	84	40.6	207

Source: Survey Data

¹ Column percentages are indicated in parenthesis.

The data from Table 4.7 show that length of residence has almost no effect upon perception of changing health status. Those who have been in the squatter settlements for 6-10 years show the highest incidence (48.9 percent) of perceived health deterioration. The differences by other years of residence do not appear to be very significant. One reason for this lack of a significant relationship is that squatters remain remarkably stable in their socio-economic status over time and that their poverty and consequent health conditions do not improve. The fact that health conditions do

not improve is a cause and a sign of problems with adaptation. More should be understood of the relationship between subjective perception of health and illnesses on actual health-related conditions. Also, to fully appreciate the issue of health, a longitudinal study with periodic data collection would be useful and valuable.

Another aspect worth investigating is the change of fertility among the displacees. In the agro-based rural areas, a large family is beneficial for successful farming and economic stability. In the urban areas, on the other hand, the large family is not essential and is often detrimental. In this connection, it could be anticipated that length of residence and household size would be negatively correlated. However, in a coefficient test an "unexpected" finding emerged (.1067). This observation demonstrates that the economic stimulus and motivation for smaller families is not present among the squatters. With high unemployment and high cost of living, one would suppose that average family size would decrease over the years in Serajganj. The fact that fertility remains high concurrent with significant infant mortality rates in the urban environment demonstrates the inability of the displacees to shed previous rural customs. Abu-Lughod (1961) in studying migrant adjustment in Egyptian cities states: "With a lower capacity for assimilation, they tend to build for themselves within the city, a replica of the culture they left behind."

High fertility, improper sanitation and service facilities and stress are all characteristics of the prevailing health conditions among the displacees. Also, rigorous working conditions can effect health. Abu Bakar, aged 19, a squatter residing on the abandoned railway line, relates his tale of how his health is failing while still a teenager:

... In 1970 my family lost our small plot of land and we moved to the Serajganj squatter settlements. In 1982 my father died and I was forced to pull rickshaw to support my mother, two brothers and sister. After only three years of pulling, I desperately need a new job. My health is continuously deteriorating because of the strain pulling puts on my body. I need a salary job with better working conditions. I like Serajganj and will probably live here permanently but I urgently need a healthier job.

4.4 HYPOTHESIS IV - PERCEPTION GAP

The previous three sections of this chapter dealt with some of the economic and physiological barriers that obstruct the process of adaptation for Serajganj squatters. Government administrators and planners are supposedly the agents with responsibility for alleviating poverty and integrating squatters. However, there is strong evidence that the Serajganj squatters are neglected by local government agencies, who appear not to comprehend the scale or nature of their plight. In fact, the administrators actually create barriers that make integration difficult.

Smith (1976), in his study of environmental quality in Windsor, Ontario found that urban residents and city plan-

ners have a different spatial awareness of various urban environmental hazards. He argues that policy-makers are not fully aware of some of the problems and hazards faced by the public. Concerning the same issue, Chapin (1965; 67) states: "There is a strong possibility that some planning may reflect more the values of the city planners themselves than of the people of the community."

Redclift (1973) claims that often in Latin American squatter settlements, the administrators purposefully keep squatters in poverty to maintain their political support. The powers of patronage is often bait for political parties to secure support among squatters in return for promises of financial or material assistance. Some politicians succeed in being elected mainly from the support of squatters. In most cases, however, elected politicians create little impact in improving conditions: their elections were founded on "empty promises" (Bamberger, 1968).

It is not clear whether such political manipulations are occurring in Serajganj, but there is clear indication that administrators are not paying proper heed to the squatters' situation. Firstly, the Serajganj Pourashava office lacked critical demographic and spatial statistics on the squatters: their ignorance on the squatters was evident. When asked questions concerning the displacees, their responses were highly inaccurate. For example, they claimed that there are approximately 500 displacees without homes (float-

ing population) in Serajganj. Our in-depth study of Serajganj's "floating population" revealed that there are only as few as 10 displacee "floaters". Also, Pourashava office claimed that a small prostitution village on the outskirts of town was heavily populated by displacee women. A survey of the village, however, revealed that not a single prostitute is a victim of riverbank erosion. This lack of awareness of the squatters and their problems is inexcusable. They have been a permanent component of Serajganj for many decades, and their numbers are increasing.

Secondly, the Pourashava office stated that there is no rehabilitation program for squatters. However, a rationing program exists. Various food items are regularly purchased from government stores (at subsidized rates) and distributed among the squatters. According to the Serajganj Upazila Relief Office, wheat, dates, meats and cash are regularly available for distribution. It does not appear that this distribution is as extensive as the Relief Office suggested. Table 4.8 shows respondent's reply to the question "have you or your household received any form of relief since arriving in Serajgang?"

Over 80 percent of households have never received assistance. An obvious question therefore emerges as to what happens to all the relief that is allocated for squatters. While local administrators in Serajganj recognize the benefits assistance can render, they are clearly not conducting

proper and fair distribution. It is no secret that corruption is common among many administrators and politicians at all levels of government, and there is a good chance that much of the relief is ending up in the hands of some corrupt officials.

TABLE 4.8

Number of Households Who Have Received Relief or Assistance Since Arriving in Serajganj

	Frequency	Percent
Have Received Relief	37	17.9
Have Never Received Relief	166	80.2
Don't know	4	1.9
Total	207	100

Source: Survey Data

Thirdly, there exists strong evidence that local authorities refuse to admit the permanent nature of squatters in Serajganj. The fact is, however, that displacees have resided in Serajganj for an average of 12 years, a few have been there as long as 50 years. The survey further demonstrates that 89 percent of households consider themselves permanent residents of Serajganj. Also, 61 percent stated that even if they had sufficient money to purchase land in rural areas, they would not, for fear of repeating their

displacement experience. It is important to stress the permanence of the displacees in Serajganj. Their condition of destitution and their lack of options is a response of their permanency. Yet, local authorities do not provide them with assistance, amenities, nor with opportunities of integration, and justify this by suggesting that they are only temporary residents of Serajganj. An example of this lack of recognition of squatters' needs can be cited in 1982, when a Global Asian Development Bank (GADB) project made 71 slab latrines available to the Serajganj Pourashava. None of these reached the squatter settlement: the area of the greatest need in Serajganj. The Pourashava Public Health Engineer suggests that since displacees reside on Khas (government owned) land, and because they will eventually return to their emerged land in the rural areas, they should not receive any of the slab latrines. The Public Health Office is also not authorized to sink tubewells or set up latrines on Khas land, yet a 1969 municipal law states that all households must have a latrine. The contradictory nature of these two ordinances is evident. Again, it is the squatters who suffer. Another example of the authorities' lack of concern is that while 120 people are employed by the Pourashava to clean streets, none ever clean the area on the abandoned railway line or on the embankment where the squatters live. The rationale for this is again justified by the myth of the squatters non-permanence.

There clearly exists a broad perception gap between administrators and displacees. The formers' perception of the reality of the squatters' situation is clouded and distorted. It can be assumed that administrators are cognizant of the permanency of the squatters, yet they refuse to accept them as long-standing residents. The essence of removing the barrier and closing the perception gap should be of primary concern.

This perceptual issue is not unique to Bangladeshi squatters. For example, a study of favelas (slums) in Rio de Janeiro, Brazil indicated that 75 percent of males and 80 percent of females believe that the State Governor does not give sincere help to the slum population (Bonilla, 1961). A significant percentage further believed that the President of Brazil also does not "sincerely care." Similarly, a 1984 article in a Bangladeshi newspaper suggested that the people of Serajganj believe that city officials do not care about conditions on the embankment, and are wasting and stealing money from the national government budget designated for improving and upgrading flood protection measures (Sangbad, 1984). The existing conflict between administrators and squatters is a very serious issue and should not be ignored. The displacees are not in a position to significantly help themselves and are forced to rely on state assistance and direction. Unless administrators correct their view of actual conditions, and begin to pay meaningful attention to

the squatters' predicament, the squatters' process of adaptation will become increasingly more difficult and remote.

In summary, this chapter has demonstrated that riverbank erosion displacees in Serajganj are not adapting to their urban environment. Their occupational status and health conditions are testimony to this. Also evident from this chapter is the existence of several significant barriers that act to hinder adjustment. The poor economic climate of Serajganj and the administrators' perception have been cited as critical barriers. The following chapter (5) acts as a summary to this study and suggests various measures for policy frame.

Chapter V
CONCLUSIONS

As long as riverbank erosion is a persistent problem in Bangladesh, rural agrarian population will be displaced, and consequently towns like Serajganj will continue to receive large numbers of involuntary migrants. The underlying goal of this thesis has been to evaluate the migrants' level of adjustment and adaptation in their new urban environment.

The process of adaptation to a new environment is a very complex and varied procedure. As migrants shift from one socio-culture to another, behavioural, economic and social characteristics useful in the original environment may prove maladaptive to the new setting. The migrants lose the support of socio-economic familiarities and values that were built into them throughout their life. Kunz (1973) compares the involuntary nature of a forced migration to a billiard ball "... devoid of inner direction, their path is governed by kinetic factors." This lack of self-control of their lives, coupled with the new maladaptive environment, leaves migrants in a misplaced and bewildered state. The migrant, in this unenviable condition, is forced to rely on his new socio-economic environment for support, assistance and rehabilitation. Unfortunately, in the case of Serajganj squatters, this necessary support is unavailable.

This final chapter will summarize the testing of the four hypotheses; provide recommendations for further action; and suggest various directions for further research in studying urban riverbank erosion displacees.

5.1 THE HYPOTHESES

Hypothesis I examined the effect of length of residence upon occupational mobility designated by formal and informal occupational status. It was clearly demonstrated that length of residence has little or no effect upon upward occupational mobility. This is in contrast to the Bombay situation, where Prakash (1983) reported that the informal sector serves as a useful entry point for the new migrants, who are ultimately absorbed into the formal sector. This is not the case for the Serajganj squatters who remain in the informal sector and show no sign of occupational improvement, a trait that is essential for adaptation and integration.

Hypothesis II tested the intensity of poverty among informal sector workers and demonstrated that endemic pauperization and low wages are maintained. The verification of this hypothesis, combined with that of hypothesis I, indicates that squatters are rarely able to escape poverty. This factor is further emphasized by the fact that there exists a 56 percent unemployment rate among displacees. This significant unemployment rate also attests to the deplorable

economic environment existing in Serajganj. This in turn reflects the difficulty to adapt, and, as Brody (1977) stated: "... (the) lack of economic opportunity constitute barriers to both acculturation and economic integration."

In hypothesis III, the relationship between the conditions of the displacees and their health (both real and perceived) were investigated. In respect to health status, two important observations are noted. Firstly, chronic poverty restricts squatters from accessing adequate health care, sanitation and clean water. Secondly, disasters such as riverbank erosion displacement create stressful situations and 'post-disaster' illnesses caused either by the stress of the phenomena itself or by the consequent relocation are widespread. Among the Serajganj displacees, there is a high incidence of ill-health as well as many cases of perceived health deterioration. Again, the observed situation is a clear barrier to displacee adaption, as poor health can create a resistance to cope with the environment and can serve to hinder economic as well as social productivity.

The fourth hypothesis examined the perception gap existing between squatters and administrators regarding the prevailing conditions. It was found that local administration's view was inaccurate and their treatment of the displacees was oppressive. Due to lack of knowledge and concern by authorities, the squatters are not receiving the assistance they require. Appropriate intervention in such

areas as relief, rehabilitation programs and construction of such basic civic amenities as latrines and tubewells, is needed to create environments in which the adjustment process is fostered. This perception gap that administrators have with regard to the squatters is undoubtedly a severe barrier and a hindrance to their economic integration, the reduction of their poverty, and their general adaptation into urban society.

5.2 POLICY RECOMMENDATIONS

Based on the testing of the above four hypotheses, some policy recommendations regarding the squatters are presented. The following recommendations, although based on the findings of the Serajganj squatter study, may be equally applicable to other urban areas in Bangladesh that are inundated with the slums and shanties of riverbank erosion displaces.

To date, it is believed that this is the first comprehensive work that examines the plight of riverbank erosion victims in an urban setting. Since no previous studies have been undertaken, it is safe to assume that government agencies or research institutions have not been in a position to devise remedial policies. Although a multitude of recommendations and coping-strategies can be suggested, the nature of Bangladesh's political, social and economic conditions restricts this. Also, many of the following suggestions are

wholly dependent on the initiative of local government which, unfortunately, has demonstrated a lack of effective concern.

Two sets of recommendations will be presented; preventative measures and adaptive measures. Preventative measures are based on evident suggestions that may avert further displacement into the squatter settlements. They are as follows:

1. Resettlement in rural areas.
2. Controlling the erosive effect of the river.

Due to failure or inefficiency of preventative measures, adaptive measures become necessary. These following needs are essential to speed up the adjustment process of displacees in towns and cities:

1. Improvement of employment conditions.
2. Upgrading of service and sanitation facilities.
3. More effectively organized local leadership.

Each of the five measures are discussed below:

Preventative measures

1. Resettlement in rural area:

One skill that almost all displacee households possess is their agricultural experience. Considering this, functional initiatives can be undertaken by

government to resettle urban squatters on newly emerged Char land within the Jamuna channels or in any other accreted areas. However, this policy must be accompanied by new and improved land tenure laws and stricter policing to prevent illegal claims to depositional land by powerful land grabbers.

2. Controlling the erosive effect of the river:

The most obvious yet least feasible solution is to control the erosive nature of the river. Many engineering solutions have been attempted with only negligible results. The low level of technology and the lack of public funds make this only a remotely feasible solution. Thus, surrendering to the fact that riverbank erosion will not be physically controlled in the near future, the problem of displaced population must firstly be acknowledged, and secondly, be tackled from an urban (squatter) perspective or a rural resettlement perspective.

Adaptive measures

1. Improvement of employment conditions:

The importance of the informal sector to the squatters cannot be overemphasized. The existing literature on measures that might be adopted to promote and improve the informal sector has been limit-

ed. However, the ILO (International Labour Organization) has devised some general suggestions that appear to be applicable to the Serajganj experience. To begin with, governments need to dispense with the current belligerent and antagonistic attitude toward the informal sector, and instead adopt a positive and sympathetic posture. Also, an attempt should be made to register these small informal enterprises, thereby generating information about them for future planning purposes. The government should provide training programs aimed at shaping the nature of informal activities, which would subsequently provide greater benefits to the city.

A major constraint to development of the informal sector is lack of capital. Better provision of credit would permit small enterprises to expand, improve and eventually generate more income and employment (Todaro, 1985; 283).

The prospects of displacees finding employment are very low because of existing high unemployment rates. There is an opportunity to direct cottage industries into the squatter settlements. Labour intensive and low capital operations such as handloom weaving or the construction of bamboo agricultural implements are within the realm of feasibility. Also, inter-bastee business potentially stimulates the economic condi-

tions of many of the squatters. There are currently some inter-bastee businesses such as shops, tea-houses or tailors, and they demonstrate a relatively successful economic and psychological stimulus.

2. Upgrading of service and sanitation facilities:

It has been made clear that health conditions among squatters are very poor. Undoubtedly, one of the most significant contributions to this prevailing health problem is the unsanitary conditions of latrine facilities and the lack of clean, potable water. The authorities must acknowledge that the majority of the displacees are in Serajganj permanently, hence, basic amenities such as tubewells and latrines are urgently required and should be considered a priority.

3. More effectively organized local leadership:

Finally, the squatters require better organized local leadership. They need a voice in local government offices to promote their specific local interests. The administrators need to be better sensitized to conditions in the squatter settlements, and this can only be accomplished by stronger representation of squatters in local government. The political participation of squatters has the potential of emphasizing their permanence in Serajganj.

However, it should be noted that if remedial policies for current squatter areas are introduced, there is the possibility that it will encourage more displacees to migrate to the urban areas. Thus, a 'no win' situation is created; the improvement and upgrading of conditions for squatters will encourage more in-migration. Therefore, it is necessary to develop rural areas concurrent with urban improvement in order to minimize rural 'push factors'. Much of existing literature (Todaro, 1985; Zaman, 1984) agrees on the central importance of "rural development" as the key to alleviating many of the urban problems, specifically unemployment. In the case of the Serajganj displacees, the circumstances of their movement differ from other rural to urban migrants because of the involuntary nature of their migration. During typical rural-urban migrations, the 'pull' of the city combines with the 'push' from the rural area to stimulate the migration. However, for the squatters, riverbank erosion is a total 'push' factor since life in their place of origin is no longer possible. Therefore, if the general conditions of Bangladesh's rural areas could be improved through rural development programs, many riverbank erosion victims would opt to remain in rural areas rather than migrate to towns and cities.

5.3 DIRECTIONS FOR FURTHER RESEARCH

There is much need for further research into the plight of riverbank erosion displacees in urban areas. This current study has in no way touched on all the significant issues and factors that characterize the displacees' predicament. This research of riverbank erosion is basically a pioneer work, and thus it possesses various limitations and restrictions.

Firstly, the study of a control group of non-riverbank erosion displacees living in squatter settlements would be valuable for direct comparative purposes. A similar questionnaire should also be administered to a native resident (non-squatter) control group. Such a crucial aspect of further research would yield a better understanding of the ways and means displacees differ socially and economically from non-displacees. With this knowledge, policy could be directed toward the areas of greatest need.

A second direction for further research should be the examination of squatters through a diachronic view. By examining the same displacee household over time, those who move out of the squatter settlements can be closely scrutinized. Especially when studying the effect that length of residence has upon displacees' adaptation, a longitudinal method would prove to be very worthwhile, since it would yield a comprehensive temporal data base that can provide a solid foundation for the development of a more in-depth policy frame.

Since occupational mobility and improvement is generally acknowledged as an important factor in the adaptation process, a more in-depth investigation into the economic environment of Serajganj is desirable. Thus, it is necessary to evaluate the economic resources of the town, and more specifically where and what the barriers are that hinder occupational mobility. Here again, a comparison between Serajganj and other third world cities would provide useful insight into the economic resources that promote occupational mobility.

One further suggestion for future research is the need to better understand the existing conflict and perception gap that is evident between administrators and squatters. The potential for the administrators to assist the displaced with the general integration process is great, yet a distinct barrier prevents this from happening. Research must be directed at ways to educate and sensitize local authorities to the needs and permanency of the squatters. Then, research could be concentrated on how administrators can work with, and not against squatters to promote adaptation and adjustment.

It is clear that riverbank erosion displaceds have not received the close attention they deserve from researchers. Finally, focus of research cannot afford to ignore the socio-economic conditions of the wider rural society. The most basic approach to solving the problem of urban poverty

- for both displacees and other rural to urban migrants - is by not confining research at the urban end, but to consider the broader rural-urban spectrum.

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APPENDIX A

QUESTIONNAIRE

URBAN SURVEY: Serajganj

Have you ever been displaced from the rural areas by riverbank erosion?

YES _____

NO _____

Location: EMBANKMENT _____
 OLD RIVER BED _____
 ABANDONED RAIL LINE _____

Interview number: _____

Household number: _____

Interviewer: _____

Checked by: _____

PART ONE: ECONOMIC SURVEY

The first part of the interview will focus on the economic characteristics of your household.

(DO NOT PROMPT / SINGLE RESPONSE)

1. How many persons in your household work? _____

(PROMPT / MULTIPLE RESPONSE)

2. We would like to look at the current occupations of all the working members of your household.

Person	Occupation	- (Per day) -		From which Year
		Hours	Income	
1.				
2.				
3.				
4.				
5.				
6.				

Note: If paid in KIND (clothing, food, etc.) state so in income column, but attempt to ascertain annual value of payment in Taka.

(PROMPT / MULTIPLE RESPONSE)

3. Prior to being displaced by riverbank erosion, what were the principal and secondary sources of income of your household?

Form of Employment	Income (Current value)
Principal	
Secondary	
Other	

(DO NOT PROMPT / SINGLE RESPONSE)

4. How many persons were in your household prior to displacement from riverbank erosion?

HOW MANY? _____

DON'T KNOW _____

(PROMPT / MULTIPLE RESPONSE)

5. We will now ask you about the ways you spend the income that your household earns. Can you please list your annual expenditures?

Sectors of Expenditures	Amount Tk.
Food (excluding Eid)	
Clothing (excluding Eid)	
Fuel	
Housing (construction and repair)	
Health	
Education	
Rent	
Transportation	
Eid/Puja	
Entertainment	
Other (specify)	
Other (specify)	

A = per annum;

M = per month;

D = per day.

(PROMPT / MULTIPLE RESPONSE)

6. Can you please list the replacement value of household assets you now possess and which ones were brought with you when displaced?

Current Household Asset	Number	Value (Taka)	If brought with you at time of displacement	
			Yes	No
Bicycle				
Motorbike				
Rickshaw				
Cart				
Boat				
Radio				
Tools				
Sewing Machine				
Livestock: a. Cows				
b. Goats				
c. Chickens				
Dwellings or parts of				
Other (specify)				

(PROMPT / MULTIPLE RESPONSE)

7. Can you please tell us what assets in Taka and number did you lose when you were displaced by riverbank erosion?

(next page..)

7. (cont'd....)

Item	Number	Taka
House/Structure		
Household durables		
Livestock: a. Cows		
b. Goats		
c. Chickens		
Land (decimals)		
Trees		
Other (specify)		
None		

(PROMPT / MULTIPLE RESPONSE)

8. Do you still own any land in the rural areas (i.e., still pay taxes on land), if so, what do you do with it?

HAVE NO LAND _____

	Amount (decimals)	Revenue
Lease out with payment		
Lease out without payment		
Sharecrop		
Kod		
Cultivate it		
Abandoned		
Submerged		
Not cultivable		

(PROMPT / SINGLE RESPONSE)

9. Did you sell any land when you left the rural areas, if so, how much?

DID YOU SELL ANY LAND _____

DID SELL:

Decimals _____ Value (Taka) _____

PART TWO: SOCIAL SURVEY

In the second part of this survey we would like to ask you questions on some overall social conditions you are experiencing in Serajganj.

(PROMPT / MULTIPLE RESPONSE)

10. As a result of displacement, has there been changes in your household's well being since coming to Serajganj?

	Improved	No Change	Deteriorated	N.A.
Type of Employment				
Income				
Housing				
Education of Children				
Health Facilities				
Family Cohesion				
Other (specify)				

(PROMPT / SINGLE RESPONSE)

11. In your opinion, how do the local people react to your permanent settlement in the present locality?

(CIRCLE)

- | | |
|--------------------|----------|
| 1. HOSTILE | GO TO 12 |
| 2. FRIENDLY | GO TO 13 |
| 3. INDIFFERENT | GO TO 13 |
| 4. OTHER (specify) | GO TO 13 |

(PROMPT / MULTIPLE RESPONSE)

12. If hostile, why do you think they are?

(CIRCLE)

1. LOCALS THINK WE ARE ENCROACHING ON THEIR LIVING SPACE
2. THEY LOOK DOWN ON US BECAUSE WE ARE POOR
3. OTHER (specify) _____
4. OTHER (specify) _____
5. OTHER (specify) _____

(PROMPT / SINGLE RESPONSE)

13. Do you think you can cope with urban living?

(CIRCLE)

- | | |
|---------------|----------|
| 1. YES | GO TO 14 |
| 2. NO | GO TO 15 |
| 3. DON'T KNOW | GO TO 16 |

(DO NOT PROMPT / MULTIPLE RESPONSE)

14. If yes, why?

(CIRCLE)

1. GREATER MOBILITY
2. LOCAL ASSOCIATION; KINSHIP
3. URBAN AMENITIES
4. JOB OPPORTUNITIES
5. OTHER (specify) _____

(DO NOT PROMPT / MULTIPLE RESPONSE)

15. If no, why?

(CIRCLE)

1. FINANCIAL INABILITY
2. WE HAVE LITTLE ASSOCIATION WITH LOCAL PEOPLE
3. NO URBAN SKILLS FOR EMPLOYMENT
4. OTHER (specify) _____
5. OTHER (specify) _____

(DO NOT PROMPT / SINGLE RESPONSE)

16. Do you think you will remain here permanently?

(CIRCLE)

- | | |
|---------------|----------|
| 1. YES | GO TO 17 |
| 2. NO | GO TO 18 |
| 3. DON'T KNOW | GO TO 19 |

(DO NOT PROMPT / MULTIPLE RESPONSE)

17. If yes, why?

(CIRCLE)

1. NO PLACE TO GO; NO LAND ELSEWHERE
2. WILL NOT FIND A JOB ELSEWHERE
3. PROXIMITY TO URBAN AMENITIES
4. MY FRIENDS AND FAMILY ARE HERE
5. OTHER (specify) _____

(DO NOT PROMPT / MULTIPLE RESPONSE)

18. If no, why?

(CIRCLE)

1. NO URBAN SKILLS FOR EMPLOYMENT
2. FRIENDS AND FAMILY DO NOT LIVE HERE
3. MY LAND MAY RE-EMERGE
4. I WILL EVENTUALLY ACQUIRE MY RE-EMERGED LAND
5. UNCERTAINTY; AUTHORITIES MAY ASK US TO LEAVE AT ANYTIME
6. OTHER (specify) _____

(PROMPT / MULTIPLE RESPONSE)

19. If land was made available and assistance was given to you for moving, would you settle permanently in one of the following places?

(CIRCLE)

1. NEARBY CHAR IN THE JAMUNA
2. OTHER CHAR AREA
3. RESETTLE TO OTHER URBAN AREA
4. ON AGRICULTURAL LAND IN THIS UPAZILA
5. ON AGRICULTURE LAND IN SOME OTHER UPAZILA
6. IN REHABILITATION AREAS IN CHITTAGONG HILL TRACTS
7. IN REHABILITATION AREAS IN COASTAL CHARS
8. DO NOT WANT TO SETTLE ANYWHERE ELSE

(DO NOT PROMPT / SINGLE RESPONSE)

20. If you had enough savings, and were able to acquire land in a rural area, would you consider returning?

(CIRCLE)

1. YES
2. NO
3. DON'T KNOW

(DO NOT PROMPT / SINGLE RESPONSE)

21. Do you have any plan to rebuild or reconstruct your present house?

(CIRCLE)

- | | |
|---------------|----------|
| 1. YES | GO TO 22 |
| 2. NO | GO TO 23 |
| 3. DON'T KNOW | GO TO 24 |

(DO NOT PROMPT / MULTIPLE RESPONSE)

22. If yes, why?

(CIRCLE)

1. TOO OLD
2. NEED REPAIRS; PROTECTION FROM RAIN, WINDS, ETC.
3. NOT BIG ENOUGH; NEEDS MORE SPACE
4. WE WANT TO MOVE TO A NEW AREA
5. OTHER (specify) _____

(DO NOT PROMPT / MULTIPLE RESPONSE)

23. If no, why?

(CIRCLE)

1. THIS HOUSE IS SUFFICIENT
2. CAN NOT AFFORD TO REBUILD OR RECONSTRUCT
3. OTHER (specify) _____
4. OTHER (specify) _____
5. OTHER (specify) _____

(PROMPT / SINGLE RESPONSE)

24. Has your household received any form of relief assistance when you were displaced, or since you have been displaced?

(CIRCLE)

- | | |
|---------------|----------|
| 1. YES | GO TO 25 |
| 2. NO | GO TO 27 |
| 3. DON'T KNOW | GO TO 27 |

(PROMPT / MULTIPLE RESPONSE)

25. What was, or is currently given?

(CIRCLE)

1. FOOD RATIONING
2. MONEY
3. HOUSING MATERIALS
4. OTHER (specify) _____

(DO NOT PROMPT / SINGLE RESPONSE)

26. In your opinion, has this relief assistance been enough?

(CIRCLE)

1. YES
2. NO
3. DON'T KNOW

(DO NOT PROMPT / SINGLE RESPONSE)

27. Does your household contain the same members as before displacement?

(CIRCLE)

- | | |
|---------------|----------|
| 1. YES | GO TO 28 |
| 2. NO | GO TO 30 |
| 3. DON'T KNOW | GO TO 30 |

(PROMPT / MULTIPLE RESPONSE)

28. If people have been added:

Relationship to household head:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

(PROMPT / MULTIPLE RESPONSE)

29. If household members have left:

NO ONE HAS LEFT _____

Relationship to Household Head	Separated Permanently	Separated Temporarily	Destination Serajganj	
			In	Out
1.				
2.				
3.				
4.				
5.				
6.				

(Check)

(PROMPT / SINGLE RESPONSE)

30. Do you have any relatives still living in rural areas, if so, how often do you visit them?

(CIRCLE)

1. REGULARLY (ONCE A MONTH)
2. INFREQUENTLY (A FEW TIMES A YEAR)
3. EID/PUJA
4. FUNERALS/MARRIAGES
5. HARVEST
6. NOT AT ALL
7. NO RELATIVES IN RURAL AREA

(PROMPT / SINGLE RESPONSE)

31. If they visit you, how often?

(CIRCLE)

1. REGULARLY
2. INFREQUENTLY
3. EID
4. FUNERALS/MARRIAGES
5. NOT AT ALL

(PROMPT / MULTIPLE RESPONSE)

32. If you have any close relatives in the rural area, how much land do they own?

(CIRCLE)

Decimals

1. OWN LAND _____
2. CULTIVATE (i.e., OWNED, LEASED KOT) _____
3. OTHER (specify) _____
4. DON'T KNOW .
5. RELATIVES IN THE RURAL AREA DON'T HAVE LAND
6. NO CLOSE RELATIVES IN THE RURAL AREAS

(DO NOT PROMPT / SINGLE RESPONSE)

33. Do you have access (i.e., they may sell or let you cultivate) to your close relatives' land?

(CIRCLE)

1. YES
2. NO
3. DON'T KNOW

(DO NOT PROMPT / SINGLE RESPONSE)

34. Does your household receive remittances?

(CIRCLE)

- | | |
|---------------|----------|
| 1. YES | GO TO 34 |
| 2. NO | GO TO 35 |
| 3. DON'T KNOW | GO TO 35 |

(PROMPT / MULTIPLE RESPONSE)

35. If your household does receive remittances:

In Bangladesh Out of Bangladesh Where?	Remitter's Relation to Household Head	Length of Time Re- ceived	Amount in Taka				
			Annu- ally	Bi-An- nually	Quar- terly	Mon- thly	Irr- egu- larly

(DO NOT PROMPT / SINGLE RESPONSE)

36. How many building structures does your household have?

(CIRCLE)

1. ONE
2. TWO
3. THREE
4. FOUR

(DO NOT PROMPT / SINGLE RESPONSE)

37. How many rooms do you have all together (in all your household structures)?

NUMBER _____

(DO NOT PROMPT / SINGLE RESPONSE)

38. Do any of your structures have a corrugated iron roof?

(CIRCLE)

1. YES
2. NO

(PROMPT / SINGLE RESPONSE)

39. What is the ownership status of your present homestead?

(CIRCLE)

1. OWNED
2. RENTED
3. KOT
4. LEASE
5. PERMITTED FREE OCCUPANCE
6. LIVING WITHOUT PERMISSION (SQUATTING)
7. OTHER (specify) _____

PART THREE: MIGRATION HISTORY

We are now going to ask you some questions about your displacement experiences.

(PROMPT / SINGLE RESPONSE)

40. How many times in your life have you been displaced by river-bank erosion?

NUMBER _____

(PROMPT / SINGLE RESPONSE)

41. Can you recall the earliest displacement?

(PROMPT / SINGLE RESPONSE)

42. What was the most recent displacement?

(PROMPT / MULTIPLE RESPONSE)

43. Where did you move during your displacements

	From		To		Distance of Move
	Mouza	Upazila	Mouza	Upazila	
Most recent move					
Earliest move					

(PROMPT / SINGLE RESPONSE)

44. How many different residences have you had since first arriving in Serajganj?

(DO NOT PROMPT / MULTIPLE RESPONSE)

45. What were the options you considered at the time of your last displacement due to riverbank erosion?

(CIRCLE)

1. EVACUATE HOMESTEAD
2. MOVE TO THE URBAN AREAS
3. BUILD NEW HOMESTEAD IN OWN LAND ELSEWHERE
4. MOVE TO MAINLAND RURAL AREAS
5. MOVE TO CHAR AREAS
6. MOVE TO EMBANKMENT OR OTHER AREA OF FREE OCCUPANCY
7. DID NOT CONSIDER ANY OPTIONS
8. OTHER (specify) _____
9. OTHER (specify) _____

(DO NOT PROMPT / MULTIPLE RESPONSE)

46. Give reasons why you chose the current destination?

(CIRCLE)

1. MATERIAL SUPPORT FROM RELATIVES/FRIENDS
2. BETTER JOB OPPORTUNITIES/WAGES
3. EXISTENCE OF KHAS LAND
4. AVAILABILITY OF LAND TO BE LEASED
5. FOLLOWED NEIGHBOURS
6. FOOD RATIONING SYSTEM
7. SCOPE FOR EDUCATION FACILITIES FOR CHILDREN
8. AVAILABILITY OF MEDICAL FACILITIES
9. OTHER (specify) _____
10. OTHER (specify) _____
11. DON'T KNOW _____

(DO NOT PROMPT / MULTIPLE RESPONSE)

47. Why did you not move to a more distant area when you were last displaced?

(CIRCLE)

1. BECAUSE I DID NOT WANT TO LEAVE MY ANCESTRAL LAND
2. BECAUSE I THOUGHT JOB OPPORTUNITIES WOULD BE BETTER HERE THAN FARTHER AWAY
3. BECAUSE I HAD TIES WITH LOCAL SAMAJ
4. BECAUSE I HOPED MY LAND WOULD RE-EMERGE AND I WOULD HAVE ACCESS TO IT
5. BECAUSE I HAD ACCESS TO LAND IN THIS AREA
6. BECAUSE I HAD NO TIME TO CONSIDER AN ALTERNATIVE PLACE
7. COULDN'T AFFORD TO MOVE FURTHER
8. OTHER (specify) _____
9. OTHER (specify) _____
10. DON'T KNOW _____

(DO NOT PROMPT / MULTIPLE RESPONSE)

48. Give some reasons why you did not remain in the rural areas?

(CIRCLE)

1. LOST ALL MY LAND
2. IF MY LAND RE-EMERGES I MAY NOT GET IT BACK
3. NO JOB OPPORTUNITIES
4. NO KHAS LAND
5. NEIGHBOURS LEFT
6. MY LAND MAY NEVER RE-EMERGE
7. NO WAY TO SUPPORT FAMILY
8. DON'T KNOW
9. OTHER (specify) _____

(DO NOT PROMPT / SINGLE RESPONSE)

49. Who took the decision to move to Serajganj?

(CIRCLE)

1. HEAD OF HOUSEHOLD
2. WIFE
3. BOTH
4. PARENTS
5. FRIENDS
6. SAMAJ
7. NEIGHBOURS
8. LOCAL LEADERS
9. OTHER (specify) _____
10. DON'T KNOW _____

PART FOUR: DEMOGRAPHIC SURVEY

We are now going to ask you some questions about your household structure.

(PROMPT / MULTIPLE RESPONSE)

50. Can your household afford to use the following facilities:

	<u>Yes</u>	<u>No</u>
1. HOSPITAL	_____	_____
2. MOBILE HEALTH UNIT	_____	_____
3. PARAMEDIC	_____	_____
4. SCHOOL	_____	_____

(PROMPT / MULTIPLE RESPONSE)

51. Does your household have access to the following:

	<u>Yes</u>	<u>No</u>
TUBEWELL	_____	_____
LATRINE	_____	_____

(PROMPT / SINGLE RESPONSE)

52. How often do you or any members of your household go to the moviehouse?

(CIRCLE)

1. APPROXIMATELY ONCE A WEEK
2. APPROXIMATELY ONCE A MONTH
3. APPROXIMATELY ONCE EVERY FEW MONTHS
4. APPROXIMATELY ONCE A YEAR
5. NEVER
6. DON'T KNOW

(PROMPT / SINGLE RESPONSE)

53. How often do members of your household eat meat?

(CIRCLE)

1. SEVERAL TIMES A WEEK
2. ONCE A WEEK
3. ONCE A MONTH
4. ONLY DURING EID
5. NEVER

(PROMPT / MULTIPLE RESPONSE)

54. Have there been any deaths in your household during the last year, and if so, tell us about them?

Relation to Household Head	Age	Sex	Cause

(PROMPT / MULTIPLE RESPONSE)

55. If you were still in the rural area and had land to cultivate, what would be the optimal number of children you would have?

TOTAL

HOW MANY SONS?

HOW MANY DAUGHTERS ?

(PROMPT / MULTIPLE RESPONSE)

56. But now you are living in the city, what do you think is an optimal number of children to have?

TOTAL _____

HOW MANY SONS? _____

HOW MANY DAUGHTERS? _____

(DO NOT PROMPT / MULTIPLE RESPONSE)

57. If you now consider a smaller family more desirable, why?

(CIRCLE)

1. DON'T NEED EXTRA HANDS FOR AGRICULTURAL WORK

2. LIVING QUARTERS ARE ALREADY TOO CROWDED

3. TOO EXPENSIVE TO FEED CHILDREN

4. OTHER (specify) _____

5. OTHER (specify) _____

(DO NOT PROMPT / MULTIPLE RESPONSE)

58. If you now consider a larger family more desirable, why?

1. SPECIFY _____

2. SPECIFY _____

3. SPECIFY _____

4. SPECIFY _____

5. SPECIFY _____

(DO NOT PROMPT / SINGLE RESPONSE)

59. Do you have any knowledge of family planning (birth control)?

YES GO TO 60

NO GO TO 63

(DO NOT PROMPT / MULTIPLE RESPONSE)

60. What are the sources of information?

(CIRCLE)

1. FAMILY PLANNING WORKER

2. RADIO / T.V.

3. NEIGHBOURS

4. RELATIVES

5. FRIENDS

6. BILLBOARDS

7. OTHER (specify) _____

(DO NOT PROMPT / SINGLE RESPONSE)

61. Did you practice birth control before arriving in Serajganj?

(CIRCLE)

1. ALWAYS

2. SOME OF THE TIME

3. NEVER

4. NOT APPLICABLE

(DO NOT PROMPT / SINGLE RESPONSE)

62. Do you presently practice birth control?

(CIRCLE)

1. ALWAYS
2. SOME OF THE TIME
3. NEVER
4. NOT APPLICABLE

(DO NOT PROMPT / SINGLE RESPONSE)

63. Do you believe that the problem of poverty in Bangladesh is because there are too many people?

(CIRCLE)

1. YES
2. NO
3. DON'T KNOW

(DO NOT PROMPT / SINGLE RESPONSE)

64.. Do you believe that the problem of land shortage in Bangladesh is because there are too many people?

(CIRCLE)

1. YES
2. NO
3. DON'T KNOW

(PROMPT / MULTIPLE RESPONSE)

65. The last section of this survey requests some information about each member of your household.

Person's name: _____ M or F

Person's number: _____

(CIRCLE)

- | | |
|----------------------------|---------------------|
| 1. HOUSEHOLD HEAD | 12. GRANDAUGHTER |
| 2. SPOUSE / WIFE | 13. GRANDFATHER |
| 3. SON | 14. GRANDMOTHER |
| 4. DAUGHTER | 15. SON-IN-LAW |
| 5. BROTHER | 16. DAUGHTER-IN-LAW |
| 6. SISTER | 17. BROTHER-IN-LAW |
| 7. HOUSEHOLD HEAD'S FATHER | 18. SISTER-IN-LAW |
| 8. HOUSEHOLD HEAD'S MOTHER | 19. OTHER RELATIVE |
| 9. SPOUSE'S FATHER | 20. LODGER |
| 10. SPOUSE'S MOTHER | 21. SERVANT |
| 11. GRANDSON | 22. OTHER (SPECIFY) |

Person's Age: _____

Marital Status: _____

Education: _____

(CIRCLE)

1. CHILD (0 - 5 YRS. OLD)
2. PRIMARY
3. SECONDARY
4. HIGHER
5. OTHER (MADRASHA, VOCATIONAL...)
6. ILLITERATE