

**Trends in Land Use and Evaluation of Land Use
Policy of Bangladesh: A Case Study of
Muradpur Mouza of Chittagong
Metropolitan City**

A Thesis
Submitted by

Md. Tofazzel Hossain
BU ID NO. - 05272021

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BRAC University, Dhaka, Bangladesh

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**Center for Governance Studies
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Content and Style Approved
By
Supervisor

Dr. Akbar Ali Khan
Director
(Former Adviser to the Caretaker Government)
Center for Governance Studies
BRAC University, Dhaka, Bangladesh

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Center for Governance Studies
Dhaka, Bangladesh.

ABSTRACT

1. Bangladesh is the most densely populated delta in the world. Per capita land is the lowest except some city-based countries like Singapore. Per capita arable land has already reached to an alarming position; with only 0.1483 acres. The proportion of per capita land and per capita arable land is the highest (63%) in comparison to the world figure. Cultivable land is losing its fertility due to over exploitation. On the other hand agricultural land is decreasing and 3 million people are being annually added to existing 140 million people.

2. There is a tremendous pressure on land for ever-increasing population, to provide spaces for their work, residence and other related purposes. It is estimated that about 55 per cent of the total effective land is under cultivation. The marginal and sub-marginal lands have already been brought under cultivation. Though it is said that 17 percent of the total land area is under the forests, in reality it is much lower. This decline in the forestland has serious impact on the overall environment in the form of green house effect, soil erosion, and desertification; reduce of availability of timber and fuel wood etc.

3. Against the backdrop, this study aims at analyzing from issues. First, it examines the macro trends of land-use in Bangladesh. Secondly it compares the macro-trends with actual trends at field level. A field study of land use on the basis of plot-to-plot cadastral survey was undertaken in Muradpur mouza in Chittagong city. Selected respondents from this mouza were also interviewed to assess the awareness of the stakeholders about the emerging issues in land. Thirdly, some preliminary estimates on the requirement of land for the current population in Bangladesh were made. These estimates suggest an urgent need for land-use planning in Bangladesh. Finally, the major issues relating to land-use planning are examined in the study.

4. An analysis of macro trends suggests an ever-widening gap between the demand for land and the actual supply of land. The actual amount of land needed for a healthy environment is not easy to calculate. In comparison to world standard Bangladesh has only 19.79% land needed for a sustainable society. On the basis of per capita arable land (0.1483 acre) Bangladesh has 20.82 million acres of cultivable land to feed 140 million people. The 'net cropped area' is 35.13 million acres, which is the aggregation of single, double and triple cropped land. So land scarcity remains a major problem for the economy.

5. Macro trends are consistent with experience of field survey. A field survey in the Muradpur mouza of Chittagong City Corporation area shows that

agricultural land, hills, forest, wetlands are rapidly shifting into nonagricultural land, especially into residential plots. From a balanced environmental point of view the per capita land & forest is dwindling in the study area. Wanton destruction of hills & natural drainage system and unplanned settlements has created dislocations in the lives of inhabitants. Water logging, land-slide, insufficiency of floor space are some of them. The rapid expansion of population and urbanization has contributed to significant increase in the area under non-agricultural use. More alarming than the decrease in cultivated land is environmental degradation. Ever mounting demand has rendered land; a precious resource. The residential plot size is decreasing and high-rise apartments are increasing continuously.

6. At present Government interventions and activities together with private sector initiatives govern the land use pattern. As far as the land management is concerned there are large numbers of government ministries, directorates, city corporations, district administration, pourashavas, thana parishad, union parishad, etc are involved in the management of land both in rural and urban areas. No single agency is responsible for the execution of any project of land policy or administration. The responsibilities of each of these agencies are not clearly spelt out.

7. The study shows that sufficient legal steps were not taken to regulate the proper use of land. In reality the existing provisions are not only ineffective, but they are also quite inadequate. The biggest obstacle to preservation of agricultural land for purely agricultural use is the alluring prices offered by those wishing to convert such land to non-agricultural uses. It was observed that the best agricultural land was offered very high prize tempting poor agriculturalists to sell their land to industrialists and house-builders.

8. The study also suggests that most people consider land matters & land laws as complex issues and do not take active interest in land issues. Bangladesh has adopted a 'National Land Use Policy' in 2001. One of the principal objectives of the policy is to make efficient use of this finite land resource. People's awareness is the main tool to achieve the goal. Present study illustrates that more than 91% respondents did not hear about 'The National Land Use Policy'. People awareness about the importance of land use policy is an essential precondition for its success.

TABLE OF CONTENTS

	Pages
Abstract -----	ii
List of Tables -----	vii
Glossary of Terms -----	ix
Acknowledgement -----	xi
CHAPTER 1	
Introduction -----	01
CHAPTER 2	
Section 2.1 Literature Survey -----	04
Section 2.2 Gaps in the Existing Literature -----	08
Section 2.3 Methodology of Study -----	08
Section 2.4 Hypothesis of the Study -----	09
CHAPTER 3	
Trends in Land Utilization in Bangladesh- A Macro Study -----	11
Section 3.1 Land Use by Major Type -----	12
Section 3.2 The Conversion of Agriculture Land to Non-Agriculture -----	13
Section 3.2.1 Conflicts in Agricultural Land use -----	14
Section 3.2.1.a Agriculture versus Settlements -----	15
Section 3.2.1.b Agriculture versus Fisheries -----	15
Section 3.2.1.c Agriculture versus Livestock -----	16
Section 3.2.1.d Agriculture versus Industry/Brickfields -----	16
Section 3.3.0 Loss of Land -----	16
Section 3.3.1 Land Erosion -----	17
Section 3.3.2 Destruction of Coastal Land -----	17
Section 3.4 Urban Land Use -----	18
Section 3.5.0 Patterns of Land Ownership and its Impact -----	19
Section 3.5.1 Absentee Landlordism -----	20
Section 3.6 Conclusion -----	21
Section 3.7. An Assessment of Scarcity of Land -----	21
Section 3.8 Policy Implications -----	27
Section 3.8.1 Over View of the Existing System of Land Use Planning -----	28
Section: East Bengal State Acquisition and Tenancy Act 1950 -----	28
Section 3.8 (2) National Rural Development Policy, 2001 -----	30
Section 3.8 (3) Environment Policy, 1992 -----	31
Section 3.8 (4) Building Construction Act, 1952 -----	31
Section 3.8 (5) Urban Land Use Control and Planning Techniques -----	32
Section 3.8 (6) Weakness of Existing Institutions -----	34

	Pages
CHAPTER 4	
Trend in Land Use at Mauza Level: A Macro Study -----	36
Section: 4.1 Location of the Study Area -----	36
Section: 4.2 Land Use Categories in Muradpur Mauza -----	37
Trend .1 Rapid Increases in Residential Plots -----	38
Trend .2 Rapid Loss of Agricultural Land-----	41
Trend .3 Increase of Commercial Land -----	42
Trend .4 Increases of Road & Path -----	43
Trend .5 Shifting of Environmentally Important Land into Vita Land-----	44
Trend .6 Rapid Destruction of Hill & Hill Slope: An Environmental Alarm -----	45
Trend .7 Gradual Shifting of Khila Land-----	46
Trend .8 Various trends of Canal/Drain (Nala)/ Stream (Shora) -----	46
Trend .9 Rapid Utilization of Ponds for Building and Infrastructure -----	47
Trend .10 Rapid Squeezing of Forest -----	48
Trend .11 Generous Increases of Religious Centers -----	50
Trend .12 Minor Categories of Land, Major Shifting -----	50
Section: 4.3 People's Awareness about Land Matters -----	51
Section: 4.3.2 Access of Poor to Land is Decreasing -----	51
Section: 4.3.3 Environmental Issues are Largely Neglected -----	52
Section: 4.3.4 Trends in Homestead Plots Size -----	55
Section: 4.3.5 Land Litigation: A major Social Problem -----	56
CHAPTER 5	
Land Use Policy: An Over View of Bangladesh	
Section: 5.1 Aim of Land Use Policy -----	59
Section: 5.2 Situation of Bangladesh -----	60
Section: 5.3 Objective of Land Use Policy, 2001 -----	60
Section: 5.4 The Area of Land Use: National Land Use Policy, 2001 -----	62
Section: 5.5 Evaluation of National Land Use Policy-----	62
CHAPTER 6	
Conclusion and Recommendations -----	65
BIBLIOGRAPHY -----	70
ANNEXURE-1 -----	73
ANNEXURE-2 -----	76

LIST OF TABLES

	Pages
Table: 1 Land Utilization Statistics-----	12
Table: 2 Land use on housing project sites at time of land acquisition-----	14
Table: 3 Average Floor Space in sq. ft. per Bedroom bed per Person by Residence, 1991-----	18
Table: 4 Per capita Arable land & as % of total land-----	22
Table: 5 Comparison of Land areas with World Standard-----	23
Table: 6 Comparison of plots numbers and size in respect of PS and BS khatia-----	38
Table: 7 Residential Plots number and Area in respect to PS and BS khatia-----	39
Table: 8 Number of Homestead Plots in respect of different size (in acre)-----	39
Table: 9 Area (in acre) of Homestead Plots in respect of different size (in acre)-----	40
Table: 10 Classification of land presently used for housing projects in 1918 Settlement Operation-----	41
Table: 11 Total Agricultural Plots number and area -----	41
Table: 12 Numbers of Agricultural Plots in respect of different size (in acre)-----	42
Table: 13 Numbers of Shops Plots in respect of different size (in acre)-----	43
Table: 14 Numbers and Area (in acre) of Road & Path Plots in respect of size (in acre)-----	43
Table: 15 Numbers of Vita Plots in respect of PS & BS khatian.-----	44
Table: 16 Numbers of Hill & Hill Slope Plots in respect of PS & BS khatian-----	46
Table: 17 Numbers of Khila Plots in respect of PS & BS khatian-----	46
Table: 18 Numbers of Canal/ Drain (Nala) / Stream (Shora) Plots in PS & BS khatian.-----	46
Table: 19 Numbers of Pond Plots in respect of PS & BS khatian-----	47
Table: 20 Numbers and Area (in acre) of Ponds Plots in respect of different size (in acre)-----	48
Table: 21 Numbers of Forest Plots in respect of PS & BS khatian-----	49
Table: 22 Numbers and Area (in acre) of Forest Plots in respect of different size (in acre)-----	49
Table: 23 Numbers of Religious Center's Plots in respect of PS & BS khatian-----	50
Table: 24 Numbers of Miscellaneous Plots in respect of PS & BS khatian-----	50
Table: 25 Respondents' Knowledge about mouza name:-----	51
Table: 26 Ownership of Land -----	52
Table: 27 Types of houses-----	52
Table: 28 Categories of land during owning-----	52

	Pages
Table: 29 Average floor space (sq. ft.) per person-----	53
Table: 30 Does the average floor space (sq. ft.) per person is sufficient -----	53
Table: 31 Statistics of trees-----	54
Table: 32 Satisfactions about trees -----	54
Table: 33 Does water log/logged in this area?-----	55
Table: 34 Who is mostly responsible for water logging?-----	55
Table: 35 Size & Number of Residential plots according to the field study 2006-----	55
Table: 36 Distance between buildings-----	56
Table: 37 Does land matter is really a problem?-----	57
Table: 38 Did you ever heard about National Use Policy?-----	57

Glossary of Terms

- Acre : Unit of measuring area/land, 1 acre = 0.4046 hectare.
- Bigha : Unit of measuring area/land, 1 bigha = 20 kathas / 0.13378 hectare.
- BS : Bangladesh Survey.
Basically this is revision survey but in Chittagong it is known as BS Khatian. The BS Khatian of Muradpur Mouza was published in 1990.
- Chora : Nature made narrow channel / stream.
- CS : Cadastral Survey.
The first cadastral survey was conducted in Chittagong District (present Chittagong & Cox's Bazar District) during 1888-1898 and the second CS survey report was published in 1960.
- Decimal : Unit of measuring area/land, 100 decimal = 1 acre.
- Hectare : Unit of measuring area/land, 1 hectare = 2.47106 acre.
- Hill : An area of land which is higher than the land around it but not as high as a mountain.
- Hill slope : The area of land which gradually come down from a hill.
- Khai : Nature or man-made small size water bodies with irregular shape.
- Khal : Canal.
- Khas : Exclusive government land.
- Khila : Raised land other than vita or hill.
- Katha : Unit of measuring area/land.
1 katha = 720 sq feet / 66.91 sq.meters
- Khatian : Record of ownership right in land.
- Km : Kilometer, unit of measuring distance, 1 km = 0.62 mile.
- Mile : Unit of measuring distance, 1 mile = 1.609 km.
- MOL : Ministry of Land.
- Mouza : A unit of land having legal boundaries and use to administer.

Nal	: Agricultural land.
Nala	: A drain, water can discharge through it in rainy season or any time.
NLUP	: National Land Use Policy, 2001.
Pan	: Betel leaf.
Path	: A way or track made for or by people walking.
Pourashava	: Municipality / Urban local government.
PS	: Pakistan Survey. The PS Khatian of Muradpur Mouza was published in 1960.
Pacca	: Construction of permanent structure usually with concrete or bricks.
RS	: Revision Survey.
Shop	: A building or part of building where goods or services are sold to the public.
Sq km	: Unit of measuring area, 1 sq. km = 0.346 sq mile, or = 247.106 acre.
Sq mile	: Unit of measuring area, 1 sq. mile = 2.589 sq. km.
Upazila	: Administrative unit consisting of 150-200 villages.
Vita	: Land rose for building homestead.

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CHAPTER- 1

Introduction

Section: 1.0

Land is thought of as space – as room and surface within which life takes place. It is one of the most important but inelastic as well as non-renewable resources of the nature. Land provides a variety of services essential for the maintenance of the integrity of life-support systems and the productive capacity of the environment. Land is also considered as a factor of production as well as it is usually thought of as nature-given sources of the food, fibers, building materials, minerals, energy resources, and other raw materials used in the modern society (Murtaza, 2005).

Land is a key asset for the rural and urban poor. It provides a foundation for economic activity and the functioning of market (for example, credit) and non-market institutions (for instance, local governments and social networks) in many developing countries. For most of the poor countries, land is the primary means for generating a livelihood and a main vehicle for investing, accumulating wealth, and transferring it between generations. Land is also a key element of household wealth (World Bank, 2003). However, in addition to being an economic tool, land is also a political instrument. Land use policies are of fundamental importance to sustainable growth, good governance, and the well-being of and economic opportunities open to rural and urban dwellers-particularly poor people (Deininger, 2003).

Expanding human necessity and economic activities are placing ever-increasing pressures on land resources, creating competition and conflicts and resulting in sub-optimal use of land and land resources. In the early stage of human settlements the land-man ratio was so high. So the people did not think about the efficient use of land. But at present the scenario is totally opposite. The

supply of the land resource is limited, whilst the requirement for it has been regularly rising over the years. As a result in good number of countries around the world; land is inadequate. As such, it is important that the distribution, ownership and use of land are very closely regulated. In addition to these supply and demand dynamics, land is an important resource in the world because the majority of economies in the developing countries are based on agriculture. These factors account for the importance of land as an important resource.

The one-third of the earth is land and the rest is water body. The scarcity of land is likely to be more acute in future because of climate changes. Due to global warming sea level is rising. The projected rise in sea level by 14-24 cm by 2030 would mainly affect the low area all over the world. At present along the coast and on the banks of tidal and estuarine rivers, silt deposition by river and tidal flooding is expected to raise land-levels concurrently with the rise in sea level. These could reduce the areas suitable for agriculture. So the probable consequence of sea level rise is the increase of present pressure on land, which will lead the natural environment under threat.

The process of land-use change is a critical link between human activity and changes in the biosphere (Turner et al. 1995). Though land-use trends affect a variety of changes to ecological systems around the world but clear data on these trends is not always easy to acquire. Urbanization is the expansion of urban land uses, including commercial, industrial, and residential. Furthermore, there are important land-use changes at or beyond the urban fringe, including conversion of land in agriculture and forest. These changes, as affected by urbanization, need to be quantified because they affect large geographic areas and can have important cumulative effects on ecological systems as well as Gross Domestic Product (GDP).

Good governance can ensure the optimum utilization of natural resources. Land is an important natural resource and a remarkable component of economic development of Bangladesh. To fulfill the rising needs of increasing population a continuous pressure on land is prevailing. Instead of this, unplanned urbanization,

industrialization and lack of pragmatic land use policy have leads land use changes in a most horrible stage.

The task of socio-economic planning is to establish social objectives and goals within the constraint of national resources and find ways to realize those in the most economic and efficient manner. The task of physical planning is to implement these goals in spatial term in the form of development projects in the different sectors of the economy. Bangladesh suffers from acute land scarcity and yet each year large quantities of farmland are being used for construction of public buildings and facilities under the ADP. The Planning Commission or the Agricultural Ministry do not regulate land use and cannot ensure intensive use of land, which is vitally necessary to preserve farmland. Large cities like Dhaka and Chittagong cannot offer adequate employment to migrant farm workers and demand for urban jobs will rise much more in future. Maximum migrant people are landless and they usually come from the North Bengal and also from the river erosion prone area. Urban expansion would mean finding jobs for extra workers outside agriculture and providing for housing, education, health facilities for them and this would be a big challenge for our planner and economists during the next two decades.

This study aims at analyzing the main trends in land-use in Bangladesh both at national and local level. The analysis of local level is likely to provide a deeper understanding of national trends. In this connection, the effectiveness or existing land use policy in Bangladesh will also be studied.

This study is divided into six chapters. Chapter 1 provided an outline of the study. The second chapter reviews the existing literature, defines the scope of the study and describes the methodology of the study. The third chapter delineates the main trends of land use in Bangladesh. The fourth chapter describes a case study of the changes in land use in Muradpur Mouza of Chittagong district. The fifth chapter examines the effectiveness and weaknesses of land use policy of Bangladesh. The final section summarizes the findings and examines the policy implications of the study.

CHAPTER 2

Literature Survey

Section 2.1

Land is one of the critical issues in economic dynamics in agrarian countries like Bangladesh. However, most of these works relate to land tenure and land laws. There is a serious dearth of literature on land use in Bangladesh. This chapter aims at reviewing the existing literature on land use in Bangladesh. This chapter is divided into three sections. The first section reviews the major studies on land-use in Bangladesh. The second section identifies the main scopes in the existing literature. The third section formulates the major hypotheses of the study and the methodology used for testing this hypothesis in this study.

No comprehensive investigation of land use problems in Bangladesh had previously been attempted. Most of such studies were buried in reports of various departments which are not readily accessible. A limited analysis on land use zoning in Dhaka District was made by the Soil Survey Directorate (now SRD1) in 1975, which drew attention to the need for introducing measures to regulate the acquisition and use of agricultural land for non-agricultural purposes (Brammer, 1975).

Nuruzzaman (1979) undertook a study of physical planning legislation. He mainly described the needs for proper and adequate policy-making and planning regarding the use and development of land in urban areas. He pointed out conflicts of interest in the use of land and the haphazard construction of buildings in suburban areas, which produced unplanned urban sprawl. He suggested enforcement of legal action by a duly empowered authority.

In 1975 a study on zoning of land for agriculture and urban use In Dhaka district was undertaken by the Department of Soil Survey under Soil Survey Interpretation Project to study the serious threat posed to valuable agricultural land in the North and West of Dhaka city due to rapid expansion of urban and industrial

development around the metropolitan city. The study exposed that considerable areas of good agricultural land have already been lost at Tejgaon, Gulshan, Banani, Kurmitola and Tongi area and across the Buriganga and Shitalakhya rivers to the East of Dhaka city due to rapid urban and industrial expansion. The report expressed apprehension that further valuable agricultural land will be lost in Savar, Kashimpur, Tongi and Kaliakair area unless official steps are taken urgently to regulate acquisition of agricultural land for urban and industrial purposes. The report drew attention of both national and district planning authorities to the urgent need for improving land zoning regulation to prevent loss of fertile farm land for urban and industrial use. The report strongly recommended that only land of poor agricultural value should be allocated for urban use this will not only prevent farmers from being pushed off their land to join the ranks of landless workers but will also assist increasing the food supply to serve the needs of growing urban population of Metropolitan Dhaka city. The study also produced two maps indicating areas, which should be preserved for agricultural use and indicated areas of poor agricultural land in Savar, Kaliakair, Tongi area that may be used for industrial-urban expansion. The report also drew attention to rapid spread of habitation in the flood protected Dhaka-Narayanganj-Demra project area although the project area was primarily developed for agricultural purposes and recommended imposition of strict land zoning regulation for the project area.

In 1980 Government of Bangladesh, Asian Development Bank and United Nations Development Programme prepared a working paper on 'Dacca Metropolitan Area Integrated Urban Development Project'. The paper analyzed some of the issues of land Economics, Legislation and Administration relating to the development of Dhaka metropolitan area. It is divided into four sections. The first section is devoted to a brief survey of the economic background of the land market in Bangladesh specially, the trends in land utilization, land values and the size of holding. The second section presents the main features of the land laws in Bangladesh and examines the suitability of the existing land tenures for development of Dhaka metropolitan area. The third section identifies the main problems of acquisition of land by the government for

development activities. It also examines the possible remedies for the existing bottlenecks. The final section analyses the effectiveness of various techniques for recouping the unearned increment in the value of land in urban areas arising from the improvement schemes undertaken by the government (Khan, 1980).

Another Reconnaissance Study on changes of land use was conducted in 1981 under FAO/UNDP Land Use Policy Project. The objective of the study was to assess regional and national changes which have taken place in the recent years in the areas occupied by human settlement and associated non-agricultural land use (roads, canals, tanks, brick fields etc.) based on comparison of aerial photographs taken in 1952, 1963 and 1974. The study showed high rate of loss of farmland to human settlements, roads in an unplanned manner resulting avoidable wastage of valuable agricultural land in the wake of rapid development activities particularly after independence.

From the methodological point of view, 'Some Aspect of Peasant Behaviour in Bengal- a Neo Classical Analysis' by Akbar Ali Khan in 1982 is one of the pioneering attempts to reconstruct the economic history of Bengal using quantitative analysis based on neo- classical framework. This book seeks to analyze the economic behaviour of peasants in the erstwhile Bengal Presidency (which included Bangladesh, West Bengal and Bihar) in the historical perspective. Specially, it examines four aspects of peasant behaviour in Bengal during the period 1890-1914: (i) the relationship between population growth and the size of the cultivated area, (ii) the effects of population growth on the proportion of land used to grow commercial crops (iii) the price responsiveness of farmers and, (iv) the role of the money-lenders and landlords in coercing the peasants to grow commercial crops.

Ministry of Land, Government of Bangladesh, published a volume in 1992 on the Policy Seminar on 'Urban Land Management in Bangladesh' held during 14-17 January 1990 at Dhaka. The volume includes the full papers presented in the seminar, while the main contents of the speeches appeared only in the summary of the proceedings at the end of the book. The 20 papers of the seminar relate to such aspects as 'Urban Land Administration and Legislation', 'Urban Land Development and Land

Market', 'Ownership of Urban land', 'Access to Urban land by the Poor', 'Urban land Management' etc. These papers mainly illustrated the problem of urban land system and land management in Bangladesh.

Hugh Brammer studied 'Land Use and Land Use Planning in Bangladesh' in 2002. Part I of this study provides background information on Bangladesh's physical environment and land use. Part II comprises nine chapters describing wide-ranging land use studies made in support of agricultural development planning, ranging from the various ways in which farmers have intensified their crop production to legal aspects of land use regulation. Part III outlines the policies and principles involved in national and local-level land use planning, while Part IV provides information and guidelines for use in planning more intensive land use. Part V describes in details the various methods tried in the 1970s and 1980 to use soil survey information for village and Upazila development plans and for land use zoning.

In 1975 a study on zoning of land for agriculture and urban use In Dhaka district was undertaken by the Department of Soil Survey under Soil Survey Interpretation Project to study the serious threat posed to valuable agricultural land in the North and West of Dhaka city due to rapid expansion of urban and Industrial development around the Metropolitan city. The study revealed that considerable areas of good agricultural land have already been lost due to rapid urban and industrial expansion. The report expressed apprehension that further valuable agricultural land will be lost unless official steps are taken urgently to regulate acquisition of agricultural land for urban and industrial purposes. The report drew attention of both national and district planning authorities to the urgent need for improving land zoning regulation to prevent loss of fertile farm land for urban and industrial use. The report strongly recommended that only land of poor agricultural value should be allocated for urban use this will not only prevent farmers from being pushed off their land to join the ranks of landless workers but will also assist increasing the food supply to serve the needs of growing urban population of Metropolitan Dhaka city. The report also drew attention to rapid spread of habitation in the flood protected Dhaka-Narayanganj-

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Section 2.2 Gaps in the Existing Literature:

The existing literature is primarily based on national statistics. Apart from statistics collected by surveys, land records prepared on the basis of cadastral surveys could also be used for fruitful analysis. The cadastral survey data show the actual changes which are taking place. Secondly, most of the studies are theoretical and empirical analysis is very weak. Thirdly, regional patterns of land use changes have not been studied in details. These gaps underline the need for empirical studies on land-use in Bangladesh.

Section 2.3 Methodology of this study:

A serious crisis is looming in Bangladesh because of ever-rising population and decreasing area for cultivable land. This silent crisis is very often overlooked in the literature. A study at macro and micro level shows that though the shrinking of agricultural land cannot be stopped, its harmful effects can some extent be mitigated through effective land-use policy. In this connection, the present land-use policy in Bangladesh will be examined and its weakness will be identified.

Data for the study was collected at both macro and micro level. At macro level, data was collected from BBS publications, internet, journal, books and previous studies. However, it was felt that a better picture could be drawn on the basis of micro-data.

Cadastral survey data were collected from Muradpur mouza of Chittagong district. Muradpur was chosen for several reasons. First, it is located in Chittagong Metropolitan area. It used to be a mixed area where urban and rural settlements located side by side. The area has now been converted into a purely urban area. This mouza will be useful to illustrate the rapid changes in land-use in rural area. Secondly, it is an ecologically sensitive area. It contains hills, plains, agricultural land and wet land. The changes in the mouza will be helpful in understanding the environmental effects of land-use. Thirdly, Bangladesh has adopted National Land Use Policy in 2001. Are people aware of this policy? Does it have any effect on in land use? To find out these answers 150 respondents were interviewed. Thus primary data was collected from the study area on the basis of a questionnaire (Appendix 1, 2). The primary data were critically observed and compared with the secondary data.

In order to understand the changes in land-use, data of SA Khatian, PS Khatian and BS Khatian were collected. But the main work was done on the Pakistan Survey khatian (PS) and Bangladesh Survey khatian (BS) of Muradpur mouza of Chittagong Metropolitan City. Actually the PS khatian is the records of State Acquisition (SA) and the BS khatian is the records of latest Revisional Survey (RS). In Chittagong these two records are widely known as PS and RS khatian. The PS survey was conducted in 1960s and the BS survey was held in 1980s (published in 1990). This two survey reports (Khatians) were collected from the concerned land office of Chittagong metropolitan area. These khatians were compared with each other and critically analyzed.

Section.2.4 Hypothesis of the Study:

1. The agricultural land is rapidly shifting into non-agricultural purposes.
2. Environmentally sensitive land degradation is alarming.

3. Bangladesh is already experiencing acute scarcity of land by world standards. Both arable and non-agricultural land has reached such a critical position that it will not be possible to feed the people and to provide land for shelter, and also recreation and conserving the ecologically sensitive lands.
4. Though land is considered as a valuable resource, very little pragmatic attempt has been made to stop the present haphazard trends of land use. A pragmatic land use policy is needed to face the situation.

CHAPTER: 3

Trends in Land Utilization in Bangladesh-

A Macro Study

Section 3.0.

This chapter examines trends in land utilization in Bangladesh. Land is the most important resource in Bangladesh and is popularly believed to be free gift of nature. But 145 million people in an area of 147570 sq. km. the density is already around 983 persons per sq. km. Almost the whole of the cultivable land is now under the plough leaving practically no land for further expansion. Not only the forest, wet land and environmentally important fallow lands are bringing under cultivation. On the other hand, scarcity of residential area is leading the people for converting the cultivable land to residential purpose.

With the economic development of the country remarkable change in the structure of the economy is taking place and more and more people are shifting from agriculture to other sectors of the economy. Over the last decade shifting of labor force from agriculture to the other sectors has been from over 80% to 54%. New demand for land for construction of road network, irrigation and drainage canals, structures, housing, industry and similar other purposes has been increasing at a rapid rate. In addition, the high rate of growth of population is putting extra pressure on land.

At this stage the present chapter can be discusses under following head lines.

1. Major types of land use.
2. The rapid conversion of agricultural land for non-agricultural purposes.
3. Losses of Land
4. Urban land use.
5. Patterns of land ownership and its impact.

Section: 3.1 Land Use by Major Type

At present the total population of Bangladesh is 141.8 million and the projected population in the year 2015 is 158.96 million (BBS, 2006) and the possibility of perceptible increase of land area in future is unlikely. Bangladesh has a total land area of 1,47,570 square kilometers (36.47 million acre) out of which 19.84 (54.42%) million acre is the net cropped land area, 6.42 (17.60%) million acre forest, 0.74 (2.02%) million acre cultivable waste land, 0.96 (2.62%) million acre current fallow land and 8.70 (23.85%) million acre not available for cultivation. Within this 8.70 million acre of land 2.68 (7.35%) million acre is homesteads including tanks, and 2.32 (6.37%) million acre are water bodies (BBS-2006).

Table: 1 Land Utilization Statistics (Area in '000\acre)

Year	Not available for cultivation	Forest	Cultivable waste	Current fallow	Single cropped land area	Double cropped land area	Triple cropped land area	Net area sown (6+7+8)	Total cropped area (6x1+7x2+8x3)
1	2	3	4	5	6	7	8	9	10
1993-94	10355	4673	1564	984	7229	9497	2364	19090	33315
1994-95	10128	4862	1547	1000	7228	9530	2375	19133	33413
1995-96	9788	5317	1314	969	7875	8702	2704	19281	33391
1996-97	9681	5329	1295	963	7196	9722	2483	19401	34089
1997-98	9268	5572	1241	898	7083	10094	2513	19690	34810
1998-99	9141	5572	1100	1115	7408	9914	2419	19741	34493
1999-00	8435	6490	781	862	7395	10246	2460	20101	35267
2000-01	8427	6491	794	987	7141	10293	2536	19970	35335
2001-02	8676	6365	799	1005	7097	10200	2527	19824	35076
2002-03	8685	6418	764	957	7108	10193	2544	19845	35126
2003-04	8697	6418	736	957	794	10212	2538	19843	35129

Source: Bangladesh Bureau of Statistics, 2006.

There is a tremendous pressure on land for this ever-increasing population to provide spaces for their work, residence and other related purposes. Further, it is estimated that about 54.42 per cent of the total effective land are under cultivation. The marginal and sub-marginal lands have already been brought under cultivation. Even though it is said that 17.6 percent of the total land area is under the forests, in reality it is much lower. This decline in the forestland has serious impact on the

overall environment in the form of green house effect, soil erosion, and desertification; reduce of availability of timber and fuel wood etc.

Section: 3.2 The Conversion of Agricultural Land to Non-agriculture

In the absence of a comprehensive land use policy and its strict application, land use, land acquisition etc. is being practiced in an ad hoc manner. Agriculturally productive lands are being encroached upon by human settlement, expansion of urban centers and brickfields. There is continual misuse and abuse of scarce land resources. In the coastal areas, good agricultural land is being used for shrimp farming, resulting in long-term destruction of the natural crop ecosystem (Iqbal, 1997).

In some cases, for example in the coastal areas, land conflict exists between shrimp and rice cultivation. Saline water needed for shrimp cultivation pollutes adjacent paddy (rice) fields and degrades the soils, making them unfit for crop production. One particularly significant and difficult issue is how to deal with the problem of entrepreneurs who are known to come in, rent the land, produce shrimp for export and then move on, leaving behind the problem of salinity. These coastal and offshore island areas of the country occupy about 2.85 million hectares which covers more than 30 per cent of the cultivable lands areas (SOFA 1997). The low cropping intensity in country's salt water is another critical dilemma for the development of agriculture in the coastal areas especially in the southwestern part of the country.

Agricultural land is constantly converted for non-agricultural purpose like settlement, setup industries etc. Even the government lacks the political will to save the agricultural land from unessential land acquisition.

Table: 2 Land use on housing project sites at time of land acquisition

Classification	Area (acres)	Proportion (%)
Agricultural	753.09	64.13%
Fallow	109.00	9.28%
Non-agricultural	309.87	26.39%
Not reported	2.31	0.20%
Total	1174.27	100%

Source: Land Use and Land Use Planning in Bangladesh (Brammer, 2002).

The above table illustrates that 1174.27 acres land of Dhaka was acquired for housing project, among this 64.13% was agricultural land during acquisition.

Broadly speaking there are three distinct types of landscapes in Bangladesh. These are hills, terraces and floodplains. About 12 per cent of land surface of the country represent hill areas. More than 50 per cent of the hill areas are low hills and sloppy lands. These lands are suitable for horticultural crops such as fruits, spices, summer vegetables, rubber and tea. The steep hills could be used as reserve forests. The water bodies in the hills could also used for various purposes according to their suitability. There is no appropriate land use policy specifically for the hilly areas in Bangladesh.

It is estimated that in Bangladesh about 3 million hectares of land are prone to severe drought. The whole of Barind and Madhupur tracts fall within this classification. Each year about 18 per cent of the total land of the country is flooded. During the flood roughly 60% go under flood. Irrigation through fresh under ground water supply is increasingly become a problem for the management of water resources in Bangladesh.

Section: 3.2.1 Conflicts in Agricultural Land Use

The land area of Bangladesh, like any other country, is inadequate and the stress of the increasing population is ever mounting. Land is essential for industrial uses (factories and brick works), community services (hospitals, schools, and defense), communications (roads and railways), residential buildings, forestry,

water reservoirs and ponds, wildlife reserves and most of all agriculture (livestock and crops).

The Bangladesh National Conservation Strategy identified six important areas of conflicting land use: agriculture vs. shrimp and capture fisheries; forest land vs. shrimp and capture fisheries; agriculture vs. livestock; agriculture vs. settlements; agriculture vs. industries/brickfields and agriculture vs. conservation of newly accreted charlands (NCS, 1990).

Section: 3.2.1.a Agriculture versus Settlements

Land use competition between agriculture and non-agriculture is increasing rapidly in the floodplain areas, rather than in terrace and hill areas. Observation in a reconnaissance study on changes in land use indicates that physiographic units with good agricultural land tended to have a higher proportion of human settlements than physiographic units with poor agricultural land. In physiographic units where settlement had to be made on higher platforms because of deep seasonal flooding, such as in Sylhet basins, there is significant increase in neither settlement nor other non-agricultural use. Non-agricultural use of land has considerably increased within the flood-protected areas in the floodplains.

Section: 3.2.1.b Agriculture versus Fisheries

An estimated 120,000 ha of aman land have been converted to seasonal or annual shrimp cultivation over the past decades. In these areas where shrimp and rice are alternated seasonally the yield of rice is rapidly declining. In addition, horizontal seepage of saline water affects the surrounding lands. Large number of "Beels" and "Bheris" yielding fish crops are being reclaimed for agriculture without any consideration to fisheries losses ensuing on such reclamation practices. Chalan Bil, once a rich wetland for capture fishery, a safe haven for natural fish breeding and dry season grazing now turned to a single crop of Boro land.

Section: 3.2.1.c

Agriculture versus Livestock

Only few years back there were abundant separate roads to bring livestock for the grazing field to villages locally called “Halots”. Those were “Khas Lands”. There also had been vast areas in the low-lying lands normally used for grazing during dry season. In the name of agricultural development most of those areas have been leased out which were turned into single cropland. As a result, at present there are practically on “Halots” and community grazing lands for livestock in the villages.

Section: 3.2.1.d

Agriculture versus Industry/Brickfields

Good agricultural lands are often good sites for industrial complexes, brickfields etc. because either they occur mostly on the highland near the riverbanks or near the roads. A land, when selected by an industrialist to establish an industry does not see the market value of the land. He buys the land from the farmer at a high price and converts the land for industry. Growth of industrial complexes by such means on individual enterprises for selection of land for industry destroys good agricultural land.

Section: 3.3.0 Loss of Land

In Bangladesh growing population continue to be tied to the land because of overdependence on agriculture. Yet there is continuous conversion of agricultural land to non-agricultural use in last decades. So pressure on land is tremendous. But it is a major concern that the country is losing its valuable land resource due to some natural and man made reasons. Riverbank and coastal erosion is the most prominent natural cause. On the other hand coastal fish farming is the foremost reason of land loss. This loss of land is, however, compensated by new accretions.

Section: 3.3.1 Land Erosion

One of the important causes of land loss is riverbank, char (river and deltaic islands), and coastal erosion. These are localized on-going processes, but tend to accelerate and become more severe during times of floods and cyclones. Erosion processes along the rivers render landless many of the one million or so people exposed annually to them. In badly affected districts like Faridpur, Barisal, and Noakhali, the



Source: Ericksen et al 1993

proportion of landless households due to river bank and char erosion is 33, 37 and 42 percent of total households, respectively, whereas the national average is 28 percent of the affected households. The affected persons usually move within 3 km of their original home, and become under-employed laborers. Counterbalancing loss of land through erosion is the deposition of silt and the creation of new lands for settlement. However, erosion-induced landlessness has a more immediate adverse impact than the positive impact of a deposition-induced settlement.

Section: 3.3.2 Destruction of Coastal land

Bangladesh has world's largest and resourceful mangrove forest, which largely save the costal land from erosion. Recent shrimp farming spree has

destroyed much of this ecologically balanced and economically resourceful forests. Chakaria-Sunderban is a case in point. Once, a dense mangrove forest with its all kinds of wildlife and other bio-diversities has now turned into shrimp farms. The area had been the main source of fuel wood, timber for brackish water boats and other uses. It was source for honey, safe breeding ground for marine fishes and shrimps, safe haven for wildlife and migratory birds, which have been providing economic and social benefit to the surrounding inhabitants. Almost entire area has been deforested within a span of last few years mainly for shrimp farming. From this action, the immediate gain in terms of foreign exchange earning may seem to be profitable but in long term perspective this kind of changed land use is highly debatable.

Section: 3.4 Urban Land Use

In spite of the high density of population and high level of urbanization at present urban areas in Bangladesh cover about 2000 square miles or about 3.5 per cent of the total land. Further, it is estimated that both urban and rural settlements together cover nearly 7.35 percent of the total land. With the increasing population the land requirements for settlements by 2015 would be over 10 percent of the total land. To be more specific in the cases of urban areas, the share of urban population in total population stands at as per chart. The rate of urban growth in the country during the two decades has been one of the highest among the developing countries. It is projected that by the year 2010 urban population may rise to 39 percent (57 million) and 45 per cent by 2025 (80 million). Surely, this will put pressure on urban land (Murtaza, 2005).

Table: 3 Average Floor Space in sq. ft. per Bedroom bed per Person by Residence, 1991

Residence	Average Floor Space	
	Per Living Structure	Per Person (Bedroom)
Bangladesh	249	55
Urban	299	62
Rural	243	54

Source: Population Census (Sample Survey), 1991, BBS.

The nation wide census held in 1991 shows that Residence Floor Space in Bangladesh is 304 sq. ft. of them Living Structure is 249 sq. ft. and Per Person (Bedroom) is 55 sq. ft. Urban and rural living structure is 299 sq. ft. and 243 respectively. On the other hand per person Bedroom in Urban and Rural is 62 and 54 sq. ft. correspondingly.



Photograph: Unplanned settlement; a common scenario of Dhaka City.

There is a severe shortage of suitable land for settlement in Bangladesh. As a result agricultural land, forest, hills, wetland, ponds, unlawfully occupied canal and riverbanks are being used for settlement. Scarcity of land is creating various kinds of land litigations. Land litigation is one of the major causes of poor law and order situation.

Section: 3.5.0 Patterns of land ownership and its impact

The distribution of land ownership pattern both in urban and rural areas is extremely unequal and skewed. The urban land ownership pattern is much more skewed than that of rural areas. About 70 per cent of the populations in large cities such as Dhaka do not have any land in the city. Furthermore, less than 30 per cent of the total households in Dhaka city own more than 80 per cent of land.

The core problem facing Bangladesh is the scarcity of land. With a high and increasing rural population, farm sizes are declining rapidly and landlessness is rising. According to inheritance laws, land is divided equally among next generation and such fragmentation of landholdings is beginning to have serious repercussions. In general, fragmented landownership acts as an obstruction to modernization by reducing efficiency and delivery of services. Smaller farms have less access to credit, machinery and other productivity-enhancing inputs. They also have less marketing flexibility. The declining per capita land resource is one of the causes of persisting poverty and food insecurity in the country.

While most farms are becoming smaller in Bangladesh, about 10 percent of farm households own and operate 51 percent of agricultural land, while the bottom 40 percent of farm households own only 2 percent. The category of larger landowners has been increasing in size and power. The majority farmers in Bangladesh are sharecroppers or work the land as laborer for large landowners. There are various tenancy arrangements, sharecropping being the most prevalent, under which the tenant agrees to bear all costs and pay 50 percent (and in some cases two-thirds) of the gross produce to the landowner. In some parts of the country, landowners and tenants share the fertilizer and irrigation costs for growing High Yielding Variety (HYV) rice; in some cases, the tenancy arrangement is changing from sharecropping to a fixed rent, which is more conducive to the introduction of HYVs. Owing to the insecurity of tenure for most farmers, however, there is little incentive for farmers to think in terms of long-term sustainability of the land. As a result, investments in the long-term productivity of the land are not made, and short-term inputs and practices lacking environmental concern prevail (SOFA, 1997).

Section: 3.5.1 Absentee landlordism

Big landlords are usually absentee landlords. There is no reliable statistics how many families lease their total or major portion of agricultural land and live elsewhere. These absentee landlords pay less attention to their agricultural land

and on the other hand share cropper being uncertain whether the land will be given lease to him for next term, put minimum imputes and management only sufficient for production of the present crop. For obvious reason, the sharecropper not only harvest crops but also extracts stubs and crop roots from the field for use of fuel thus leaving the land barren (Rahaman, 1990).

Section: 3.6 Conclusions:

From the above analysis, the following trends are evident. First, there is scale of conversion of land of non-agricultural use. Second, there is intense competition among various uses for land. Third, land is used inefficiently in Bangladesh both in agricultural and non-agricultural used. Fourth, land degradation is a major problem in Bangladesh.

Section: 3.7 An Assessment of Scarcity of Land

To sustain economic and population growth the catalog of needed elements is long, but it can be divided more or less into two main categories. The first category includes the physical necessities that support all physiological and industrial activity- food, raw materials, fossil and nuclear fuels, and the ecological systems, which absorb wastes and recycle important basic chemical substances. These ingredients are in principle tangible, countable items, such as arable land, fresh water, metals, forests the oceans. The second categories of necessary ingredients for growth consist of social necessities.

Though we don't know the actual amount of arable land that we need to feed the total population, it is obvious that the contraction of arable land is a serious threat. The best part of the agricultural land is already has gone under cultivation. Due to very shortage of non-agricultural land it is all ready impossible to bring new land for crop growing.

Bangladesh is the most 'land scarce country' in the world except some 'city based countries' like Singapore. Here per capita availability of land is 0.2348 acre (0.095 hectares), of this arable land is 0.15 acre (0.06 hectares), which is 63% of

per capita land. Per capita land comprise all types of lands including cropped land, housing, roads, deserts, mountains, fellow lands etc. It consists of both agricultural and non-agricultural land. But per capita arable land is absolutely agricultural land. It may be single cropped or multi cropped land. If the land is double or triple cropped then the total figure of arable land increase respectively (double or triple). In the year 2003-2004 thus the total cropped land area was 35.13 million acre. (14.21 million hectares) including the multi cropped land area [BBS, 2006].

Table: 4 Per capita Arable land & as % of total land

Country	Arable land (acres per capita)	Arable as % of total land
<i>Bangladesh</i>	0.1483	63
Egypt, Arab Rep.	0.0988	03
Japan	0.0741	12
South Korea	0.0988	17
Netherlands	0.1483	27
Singapore	0.0012	02
Sri Lanka	0.1235	15
World Average	0.5683	11

Source: World Development Indicator, 2005.

The world average of per capita arable land is 0.5683 acre (0.23 hectares); it is 11% of per capita land. The average of Bangladesh is 3.83 times lower than world average. At present per capita land is only 0.2348 acre; of this 63% is arable land. Rest of it is for housing, road, industry, forest, , hills etc. Table 1 illustrates that per capita arable land of Netherlands is as same as Bangladesh. Singapore, Japan, Egypt, South Korea & Sri Lanka hold less per capita arable land in comparison to Bangladesh. On the other hand all of them hold more per capita land than Bangladesh. Population growth rate of the above countries is less than the rate of Bangladesh. Except Singapore, all countries grow sufficient agricultural products to fulfill their own needs. Population is not a burden on arable land of these countries. If these countries can protect their arable land from non-agricultural use then additional agricultural land will not be needed.

A report “The Limits to Growth” for ‘The Club of Rome’s Project on the Predicament of Mankind’ by Donella and others shows that 0.99 acres (0.4

hectares) arable land per person is sufficient to feed the entire world population; the US standards is 2.22 acres (0.9 hectares). A person also requires additional 0.20 acres (0.08 hectares) of land for housing, roads, industry, waste disposal, power lines and others uses.

According to the above calculation Bangladesh needs the following amount of land for her 140.4 million people:

1. Arable land----- $(140.4 \text{ mill.} \times 0.99 \text{ acres})$ ----- = 139 mill. acres.

2. Non-agricultural land (Housing, Roads, Waste disposal, Power lines, and others uses) ----- $(140.4 \text{ mill.} \times 0.20 \text{ acres})$ ----- = 28.08 mill. acres.

Total land needed ----- = 167.08 mill. acres

Apart from this, environmentalist suggests that at least 25% land area of a country should cover with forest.

The area of Bangladesh is 1,47,570 sq.km (36.47 million acres). This area includes arable land, non-agricultural land, river, bills, canals, etc. At present total land area is 33.05 million acres; arable land is 20.82 million acres and non-agricultural land is 12.23 million acres. Rivers, bills, canales and different types of water body cover 3.43 acres area of the country. Total forest area is 13.36% (4.87 million acres) of the land area which is included in the calculation of total land area.

Table 5: Comparison of Land area with World Standard.

Land Type	We have (million acres)	We should have (million acres)
Arable Land	20.82	139.00
Non-agricultural Land	12.23	28.08
Total Land	33.05	167.08

Availability of land for various uses is not only a problem but also a critical issue for Bangladesh. The situation is also serious in non-agricultural land; it is nearly 43.55% of standard amount. Grossly we can say that Bangladesh has only 19.79% land of an amount which a country should have. It might be assumed, for example, that no arable land will be taken from today for cities, roads, or other non-

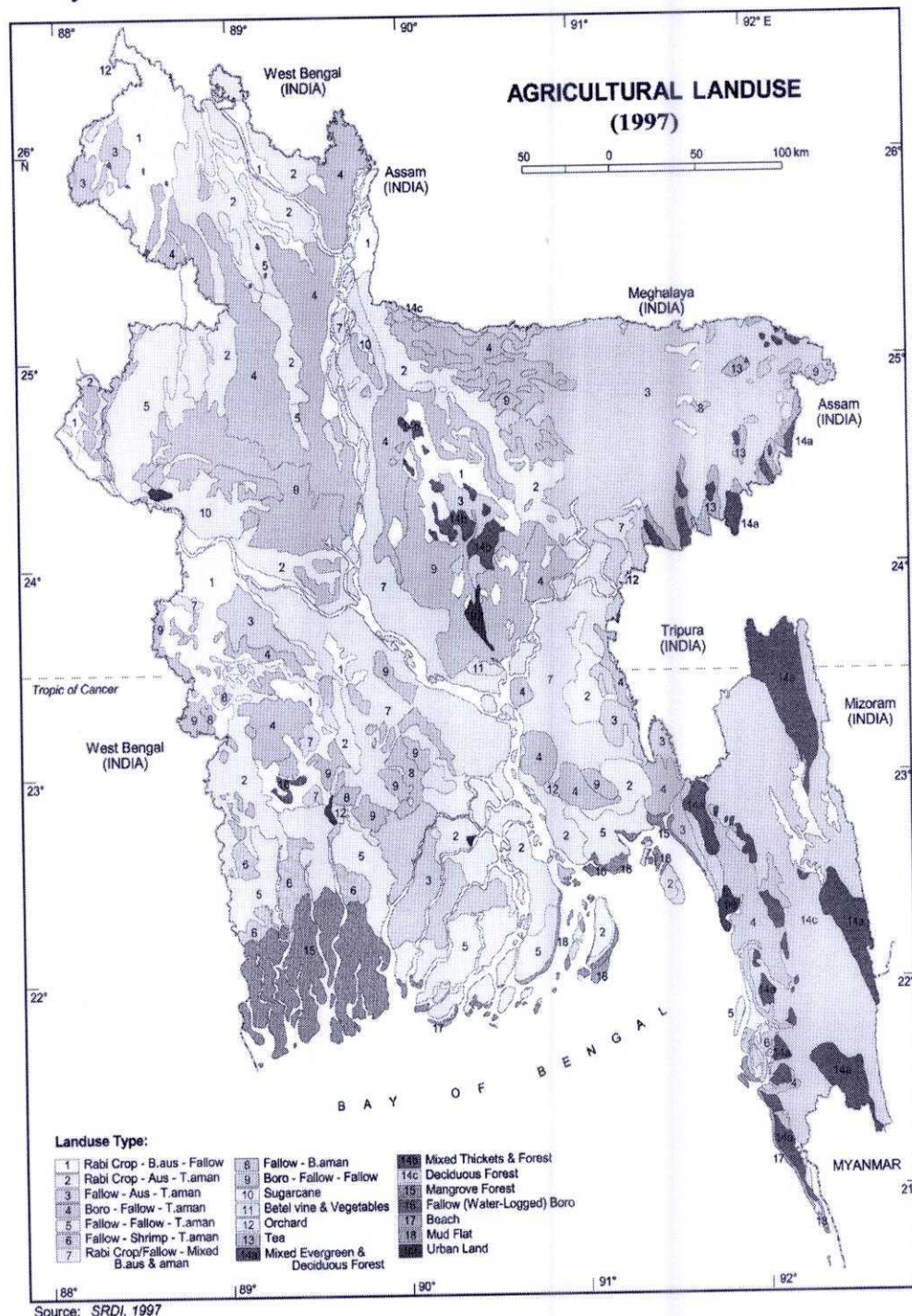
agricultural uses, no loss due to erosion. But reality is that country is losing 1% arable land and remarkable amount of non- agricultural land is coming under cultivation. More land coming under cultivation generally show the hiking of agricultural production but actually it does not keep a significant positive impact in economy due to environmental degrading and other factors.

On the basis of per capita arable land (0.1483 acre) Bangladesh has 20.82 million acres of cultivable land for feed her 140.4 million people. The 'net cropped area' is the aggregation of single, double and triple cropped land. On the other hand if the double and triple cropped land multiplies by 2 & 3 respectively then the addition of these 3 types of cropped land will be 35.13 million acres. This larger-than-life amount too is far away from the standard figure (139 million acres).

The total population of Bangladesh is now 140.4 million and 975 persons are living in every sq km. Population growth is alarming. From the year 2000 to 2005 the average annual growth in population was 2.02%. Average annual gives an idea about the future population. The projected population of Bangladesh in 2020 will be 181.2 million (BBS, 2006). Apart from this, Bangladesh is already over burdened and the present population growth rate demonstrates an alarming prospect for the country. Data also indicate that per capita arable land is gradually decreasing due to escalating population. Rapidly increasing population creates pressure on economy, food, school, hospital, and roads; everywhere in life.

It is assumed that 0.177 million tons of food grain is required to feed 1 million people. So at present Bangladesh needs 25 million tons of food grain to feed its 140.4 million people. At present, Bangladesh produces 23 million tons of food grain annually and imports 2 million tons to bridge the gap. This data shows that average food grain production per million acres is 1.19 million tons. In 2020 the projected population will be 181.2 million and per capita arable land will decrease from today. To feed this growing people 33 million tons of food grain will be required. If we consider that the production rate and per capita land will remain same then the country has to import 10 million tons of food grain at that

time. Being a developing country like Bangladesh it will be a serious challenge for her economy.



Present figure of production illustrate that Bangladesh is not self sufficient in most agricultural products. On the other hand, due to excessive exploitation land is losing its fertility. Lack of crop diversifications of different types of problems are arising. A large amount of cereal products like rice, wheat and

pulses, onions, garlic, are imported by expending valuable foreign currency. We can suppose that it is possible to double, or even triple, the productivity of the land through advances in agricultural technology and investments in capital, such as tractors fertilizer, and irrigation systems. Due to the law of diminishing returns each raise of yield from the land will be more expensive than the last one. These symptoms are already apparent in many parts in the country. Now 40% people are below the poverty line maximum of them do not get sufficient food and remain inadequately nourished. If sufficient food has to supply for this people then more agricultural production will be needed. This shortage could be made up by bringing more land under cultivation or increasing yields, which is impossible for first option and later one is possible by adding more production cost.

There is direct trade-off between producing more food and producing other goods and services needed or desired by mankind. The demand for these other goods and services is also increasing as population grows, and therefore the tradeoff becomes continuously more apparent and more difficult to resolve. Even if the choice was to produce food as the first priority, continued population growth and the law of increasing costs could rapidly drive the system to the point where all available resources were devoted to producing food, leaving no further possibility of expansion (Donella, 1985).

Above discussions illustrate that Bangladesh has already reached a critical condition of land utilization. Arable land is far away from the world standard and non- agricultural land is less than half of the standard amount. Firstly, the primary resource for producing food is land. There is non little scope to increase these finite land resources. So food deficiency remains a major problem for economy and as a most critical political issue. But there is considerable scope to increase yields and production (Brammer, 2002). So if the farmer can increase their yields to a reasonable standard and the arable land can protect from non-agricultural use than this may help the country from disaster. Secondly, the non- agriculture land is very much important for supporting sustainable development. Roads, industries, forest every thing is necessary for better living, a healthy environment needs

sufficient amount of wet land, forest which is based on land resources. In Bangladesh reality is that land use is one of the neglected issue for the policy makers. But the country has no time to set idle. So a pragmatic land use policy is needed to the save the valuable land resources and also save the country from a possible disaster.

Section: 3.8 Policy Implications

In Bangladesh most of the lands are privately owned, privately developed and privately used. But there is a wide range of public involvement starting from land laws to land record, registration and information storage. Government interventions and activities together with private sector initiatives govern the land use pattern. As far as the land management is concerned there are large numbers of government ministries, directorates, district administration, city corporations, pourashavas, union parishad, thana parishad, etc are involved in the management of land both in rural and urban areas. As such no single agency is responsible for the execution of any project of land policy or administration. The responsibilities of each of these agencies are not clearly spelt out. Furthermore it is extremely difficult on the part of one agency to follow other's system/policy due to various types of horizontal and vertical interference.

In fact Bangladesh has inherited the system of land surveys and registration for revenue collection introduced by the British Rule in India. Practically the system still continues with some modifications. With increasing population number of new families and related developments fragmentation of holdings have multiplied. Land transactions have multiplied even more. As such the problem of land records land registration and land administration management has become vastly more complex and extended. There is a great need for modernizing the land management and administrative system as well as the mode and method of land surveys and records.

Section: 3.8 (1) Over View of the Existing System of Land Use Planning

In Bangladesh land is one of the most finite and important asset but there is no government control and regulation over land use in the rural areas except in Chittagong Hill Tracts. Section 18 (1) of the Chittagong Hill Tracts Regulation, 1900 empowers the Government to make rules to regulate and restrict the transfer of land. In all over the rural area of the country; land owners determine the use of land under their control in a complete free atmosphere. The existing land use planning laws apply to the urban areas only and there are no specific statutory land use regulations for the rural areas.

East Bengal State Acquisition and Tenancy Act 1950:

A number of restraints on land use was laid down in East Bengal State Acquisition and Tenancy Act, 1950 a law relating to tenancies to be held under the state and other matters connected therewith. Prior to its enactment, agrarian law of Bengal was based on the Bengal Permanent Settlement Regulations of 1793 and the Bengal Tenancy Act, 1885.

Section 83 of the East Bengal State Acquisition Tenancy Act, 1950 (EBSATA) which is the basic law dealing with the land lays down that—

"A raiyat shall have the right to occupy and use the land comprised in his holding in any manner he likes".

Section 90 (1) and (2) of the EBSATA lay down—

"90 (1)...no person shall be entitled to purchase or otherwise acquire any quantity of land which added to the total quantity of land already hold by him for himself and his family exceeds 100 bighas."

(2).the holding of a raiyat or a share or portion thereof shall not be transferred whether by sale or gift of bequest or otherwise or except to a bona fide cultivator, and any other tenancy or a share or portion thereof shall not be transferred by any such means except to a person, who holds for the time being lands for himself and his family of a total area of less than 100 bighas."

Penalty for contravention of the provisions of the Act is forfeiture of land. Section 90 (5) of EBSATA provides-

"Any transfer of a holding or tenancy or of a share or a portion thereof made in contravention of the provisions of this section shall be void, and the lands comprised in the holding or tenancy or share or portion thereof so transferred shall vest absolutely in the Government free from all encumbrances".

Section 76 of EBSATA also lies down that no land shall be settled with a person unless he is an Agriculturist and that in making settlement of any cultivable land preference should be given for settlement who cultivates by himself or by the members of his family

Implementation of the existing laws and regulations are made through the Land Administration and Land Reforms Division and Land Administration Board at the national level and through their field officers at the district and Upazila level. These regulatory provisions of EBSATA unfortunately do not seem to have been enforced largely due to political influence of the land owning class. In practice, we find that fertile farm land adjacent to the cities are being purchased by non-farmers and are utilized for commercial, industrial, housing and other non-farming purposes in an indiscriminate manner without any let or hindrance (Choudhury, 1985).

In July 1982, Government set up a Land Reforms Committee to (i) identify problems and constraint of the existing land system in realizing optimum potential of land and (ii) suggest reform measures in relation to ownership, management and utilization of land for increasing productivity and facilitating equitable distribution of wealth and income in the country. The Land Reforms Committee presented their report in January, 1983 and submitted detailed recommendation to the Government. Government had promulgated a Land Reform Ordinance (Ordinance No. X of 1984) reforming existing laws relating to land tenure, land holding and land transfer with a view to maximizing production and ensure a

better relationship between owners and bargaders (share croppers). The salient feature of Land Reform Ordinance, 1984 are as follows:

- NO, malik (land owner) who or whose family already owns less than 60 standard bighas of agricultural land may acquire new land but the total such land shall not exceed sixty standard bighas.
- The right of tenancy for the share cropper has been recognized for a period of five years from the date of contract with the share cropper.
- If the share cropper dies before the expiry of the tenure, the cultivation of the land shall be continued by the surviving members till the tenure is over.
- No share cropper shall be entitled to cultivate more than 15 standard bighas of land.
- The produces of any share cropped land shall be divided in the manner that one-third goes to the land owner, one-third goes to the share cropper for his labor and one-third for cost of cultivation other than labor, to other share cropper or owner or to both.
- Eviction from homestead land up to one standard bigha used as homestead by any owner in the rural area would be exempted.
- All benami transaction has been prohibited and no person shall be allowed to purchase immovable property in the name of another person.

Section: 3.8 (2) National Rural Development Policy, 2001

The urban and rural population as on 1st July, 2003 was 31.3 million and 103.5 million respectively (BBS, 2004). Still nearly 40% people are bellowing the poverty line. Obviously majority of them are in the villages. It is believed that if the rural economy could develop, nation will automatically get rid of poverty. In Bangladesh rural economy is largely dependent on agriculture, which is directly or indirectly related with the utilization of land resources. So National Rural Development Policy, 2001 was adopted emphasizing on the land use guiding principle.

Section 5.3.3

Use of agricultural land; specially farming land with irrigation facility will be discourage for non-agricultural base development.

Section 5.4.4

Sustainable and environment friendly land use will be encourage for increasing agricultural production.

Section: 3.8 (3) Environment policy, 1992

Due to the emission of green house gas in world wide and rapid urbanization, industrialization, infrastructure development, excessive population growth in country; environment has gone under threat. Environment policy, 1992 was enacted for conservation of environment and ensures sustainable development. Environment is mostly dependable on land. Natural and man made acts, like unplanned land use, land erosion, excessive use of chemical fertilizer, pesticides pollute the environment. Environment policy, 1992 is based on following guiding principles:

1. Adaptation of a balanced & Environment friendly national land use policy and land use planning.
2. Protecting land erosion, preserving & enhancing the fertility of land, conservation and management of accreted land will be expedited.
3. Land use planning interrelated to the eco-system of the country will be given emphasis.
4. Protect the alkalinity and salinity of land.

Section: 3.8 (4) Building Construction Act, 1952:

The building construction act, 1952 was mainly enacted to forbid the unplanned and unsafe construction. Here few clauses were included to protect hills from merciless destruction of these valuable and important resources.

Section 3 lay down that a person could not excavate any water reservoir or destroy any hill with out the prior permission of the concern authority.

Section 3a demonstrate that if any landowner or house owner use his land or construct house which is contradictory to the existing Land & Building Use Master Plan then the concerned authority could order him to stop it or remove it.

Section 12 stipulates that if people will liable for the above charge then he will be bound to remove the illegal construction or will be punishing up to 2 years imprisonment or both of.

Section: 3.8 (5) Urban Land Use Control and Planning Techniques:

The responsibility for town planning and development was transferred as a matter of policy to specially set up autonomous bodies and a large number of improvement trusts were set up for planning, development and improvement of existing urban areas and imposition of building controls in expanding urban areas.

The Municipalities in Bangladesh were established at the later part of nineteenth century and they carried out public health, conservancy and other municipal functions in a limited manner.

The Bengal Municipal Act of 1932 was a very elaborate law and contained detailed provisions for regulating public health, conservancy, water supply, lighting, drainage and sewerage systems, regulations of buildings, building sites, erection of buildings, procedure of application of sanction for erection of buildings, provision of demolition or alteration of buildings, improvement of bustees (slums) etc. The Bengal Municipal Act of 1932 continued to be the basic municipal law till it was replaced by the Municipal Administration Ordinance of 1960 of Pakistan (Ordinance No. X of 1960) which applied to all the Municipalities in Pakistan, The Municipal Administration Ordinance provided the Municipalities with powers concerning public health, water supply, drainage, building controls, laying out of streets, parks, gardens, forests and other public facilities The two chapters of town planning and building control included in the Ordinance for the first time recognized the importance of town planning by the Municipalities and gave them specified powers to prepare Master Plan and development schemes for building control which were not provided earlier. In

1977 the Municipal Administration Ordinance was replaced by the Pourashava Ordinance (Ordinance No. XXVI of 1977) which consolidated and amended certain provisions of the previous Ordinance.

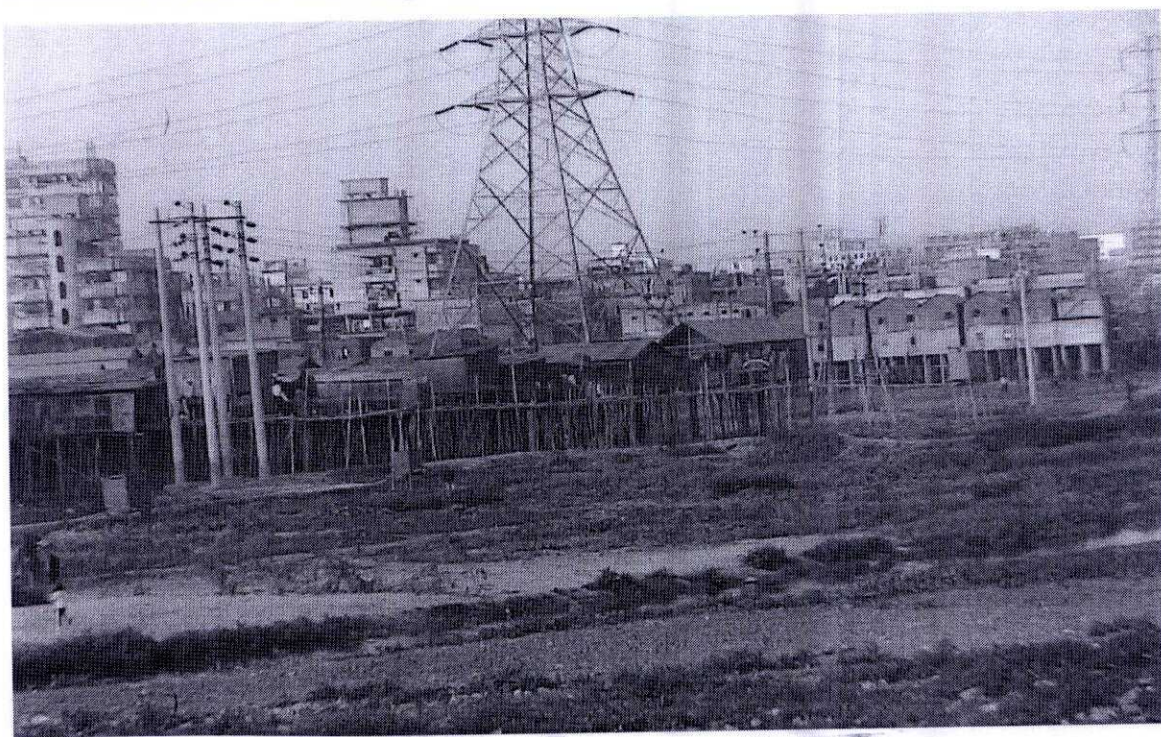
The Town Improvement Act of 1953 (T.I. Act) is the first statute in Bangladesh which recognized the need for a planned approach to city development. The T. I. Act which was closely modeled on the Calcutta Improvement Trust Act of 1911 created the Dhaka Improvement Trust' (D I T) for development of the capital city of Dhaka, Narayanganj, Tongi and some adjoining areas (240 sq. miles) in a planned manner under a Master Plan and granted D I T considerable authority to control private land development and building construction through the adoption of zone plans and approval of building plans.

Chittagong and Khulna Development Authorities were created later and their enabling laws also followed the Town Improvement Act of D I T and provided for preparation of Master Plan for their respective areas. However, Master Plan approach does not seem to have worked well in Bangladesh mainly because cities and towns have grown much faster than the Master Plan could foresee. Master plans soon became outdated due to lack of revision and expertise within their respective organizations. Chittagong and Khulna Ordinance required preparation of a Master Plan as a precondition to the formulation of improvement schemes and stipulated a sequence of (i) Master Plan, (ii) Five Year Development Programme and (iii) Specific improvement schemes based on five years programme.

Another approach to planning for development was through preparation and execution of site development schemes. Relatively small areas or zones within the greater urban area are taken up for detailed planning and development and such areas may be taken up for comprehensive development by the Development Authorities (DAS) in the public sector or the private development may be guided according to the detailed zonal plans. Slum clearance, area upgradation schemes, physical infrastructural improvement schemes are other techniques followed for local planning and urban development purposes (Choudhury, 1985).

Section: 3.8 (6) Weakness of Existing institutions:

No statutory steps were taken to regulate the proper use of land have been taken before the enactment of the East Bengal State Acquisition and Tenancy Act, 1951, except in the Chittagong Hill Tracts. The act was the pioneer legislation, containing prohibitory measures for protecting agricultural land from passing into non-agricultural use. In reality the existing provisions of the EBSATA, are not only ineffective, but they are also quite inadequate. In the first place, this act does not have any directives about non-agricultural land and does not provide for the prevention of agricultural land transfers as speculative transactions. Secondly, there is no bar to changing completely the character of agricultural land by way of excavations, as in the case of brickyards. The absolute right of a person to use his landed property in any way he like so long as it does not transgress on the rights of others can retard the use of the full potential of agricultural land. The absence of any effective machinery to enforce the provisions of sections 76, 90 and 96 of EBSATA is another retarding factor.



Photograph: Present scenario of Hateer Jel (200 meters east of Sgonargaon Hotel, Dhaka), which illustrate weakness of the existing institutions.

The biggest obstacle to retention of agricultural land for purely agricultural use is the alluring prices offered by those wishing to convert such land to non-agricultural uses. It was observed that the best agricultural land was offered very high prize tempting poor agriculturalists to sell their land to industrialists and house-builders. Unfortunately, too, the properties which make soil material suitable for brick-making are similar to those which make a good agricultural soil (Brammer, 2002).

Apart from EBSATA there are some rules and regulations for protecting land from misuse and improper use. But main problem is the implementation of law. The implementation of the existing laws need, to be geared.

CHAPTER: 4

Trend in Land Use at Mauza Level:

A Micro Study

Section: 4.0

An analysis of macro data on land-use may not provide a clear picture of what is happening on the ground. A study of a particular mouza provides more detailed picture of what is happening in land-use. This study summarizes the main findings of a comparative analysis of PS & BS khatians and the reactions of local people on land-use trends. This chapter is divided into three sections. The first section presents the changes of land-use on the basis of survey (PS & BS khatians). The second section summarizes the opinions of the people about land use. The final section examines the policy implications.

Section: 4.1 Location of the study area

Chittagong City is the principal city of the district of Chittagong with 4 million people and also the second largest city of Bangladesh. It is situated within 22°-14' and 22°-24'-30'' North Latitude and between 91°-46' and 91°-53' East Longitude and on the Right Bank of the river Karnafuli.

In 1947 the area of the town of Chittagong was only four and half square miles and was centered around the low and small hillocks which were found scattered all over the city. Muradpur, Dampara, Nasirabad, Katalganj, Kapashgola and Solokbahar bound the town on the north, the Karnafuli on the south, Chaktai nullah on the east and Madarbari, Pathantuli and Dewanhat on the west. Originally the town was confined within this limit. With rapid industrialization and development, the town soon grew into a city outstripping the old municipal area. The city extended southwest up to Patenga where the Chittagong International Airport is now located. Its expansion to the west incorporated the villages of

Halishahar, Askarabad and Agrabad. The government acquired the land of these villages to construct offices and commercial firms. To the north it extended up to Faujdarhat and the Chittagong Cantonment area and in the northeast up to Kalurghat.

The micro study was conducted in Muradpore Mouza of Chittagong City Corporation. This important mouza is located in the middle-north part of the city having both hilly and plain areas. Few decades back hills, agricultural land, wet land and plenty of natural vegetations were here. But recently this area has been experiencing rapid changes due to quick urbanization. As a result, the natural land patterns have been changing. Tremendous demand has made land a precious commercial commodity and has changed its use trends. In fact this is the common scenario of the whole Chittagong Metropolitan area with little variation.

Section: 4.2 Land Use Categories in Muradpur Mouza

Land use exhibits the relationship of man with resources. In Bangladesh, increasing population pressure on land results in rapid change in the land utilization pattern. Thus, the intensity of use of land has increased diversification (DLRS, 2004). In the present study, plot-to-plot land use category was calculated from the PS and BS khatian. During the calculation, about 30 categories of land were found. For their meaningful interpretation, the above 30 categories were grouped into 18 categories, which are defined here as generalized land use.

Table 6 shows generalized land use patterns of Muradpur mouza during the period 1960, 1990. In terms of plot number residential was found to be the dominant user of land, which occupied 211 plots out of 984 in 1960 and 408 plots out of 1119 in 1990, which was

Table: 6 Comparison of plots numbers and size in respect of PS and BS khatian.

Land Use Categories	Total no. of Plots & 10%		Total Area in acre	
	PS	BS	PS	BS
1	2	3	4	5
Residential	211(21.44%)	408(36.46%)	57.49(18.70%)	137.99(45.14%)
Agricultural land	182(18.50%)	102(9.12%)	64.22(20.88%)	23.23(7.55%)
Shop	26(2.64%)	36(3.22%)	1.58(0.51%)	2.11(0.69%)
Road	67(6.81%)	110(9.83%)	16.28(5.29%)	32.89(10.70%)
Path	39(3.96%)	42(3.75%)	1.73(0.56%)	2.27(0.74%)
Vita	88(8.94%)	107(9.56%)	12.35(4.02%)	19.02(6.18%)
Hill	66(6.71%)	33(2.95%)	62.67(20.38%)	33.30(10.83%)
Khila	105(10.67%)	88(7.86%)	29.98(9.75%)	27.28(8.87%)
Drain (nala)	15(1.52%)	35(3.13%)	2.05(0.67%)	3.63(1.18%)
Pond	96(9.96%)	95(8.49%)	19.33(6.29%)	9.29(3.02%)
Forest	12(1.22%)	07(0.63%)	3.06(1.00%)	0.38(0.12%)
Canal	08 (0.81%)	13(1.16%)	3.25(1.06%)	2.62(0.85%)
Graveyard/Mosque	24 (2.44%)	32(2.86%)	3.71(1.21%)	5.32(1.73%)
Khai	08 (0.81%)	04(0.36%)	0.75(0.24%)	0.46(0.15%)
Stream (shora)	07 (0.71%)	00%	1.74(0.57%)	00%
Play ground	06(0.61%)	00%	4.37(1.42%)	00%
Hill slope	10(1.01%)	00%	8.09(2.63%)	00%
Others	14(1.42%)	07(0.63%)	14.85(4.83%)	5.88(1.91%)
Total	984(100%)	1119(100%)	307.50(100%)	305.67(100%)

21.44% and 36.46% respectively in PS and BS survey. In terms of plot size agricultural land used the highest area with 20.88% of total land, hill was in the second position with 20.38% and residential plots were in the third position with 18.70% in 1960. But the study shows the totally different land use trends in 1990s. Not only in terms of plots' number but also in size residential plots occupied the highest area of the total land. The area was 137.99 acre that was 45.14% of the total mouza. Hill and Road occupied the second and third position respectively. In RS khatian Khai was the smallest category and in BS khatian Stream, Playground and Hill slope did not exist totally.

Trend .1 Rapid Increases in Residential plots

There are several reasons for changes in land use. The most important reason is population increase and consequent reduction in per capita availability of land (DLRS, 2004). The most common change that has been found in the study

areas was the conversion of agricultural land and hill into settlements. Actually these conversions occur more or less on every type of land. Between 1960 and 1990, the total number of plots increased from 211(21.44%) to 408 (36.46%).

Table: 7 Residential Plots number and Area in respect to PS and BS khatian.

Total no. of Plots		Total Area in acre	
PS	BS	PS	BS
1	2	3	4
211(21.44%)	408(36.46%)	57.49 (18.70%)	137.99 (45.14%)

In terms of area it increased from 57.49 (18.70%) acres to 137.99 (45.14%). In relationship to percentages it was 140.02% higher than the former survey year. Though it was not possible in current study (2006) to survey plot to plot but the result also shows at least 55% land is now under residential use. Land use in Muradpore mouza shows substantial conversion of Agricultural land, Hill, Ponds and Forest into human settlements, in terms of residential, commercial, industrial and infrastructures network. For example, in 1960 Agriculture land was 20.88% of total land but in 1990 it decreased into 7.55%, Hill was 20.38% and decreased to 10.83%, Ponds was 6.29% and decreased to 3.02%. On the other hand Shop, Road, Path, Vita, Drain and Canal increased remarkably. Due to commercial purpose shop area increased and one of the causes of the increases of Vita may be the illegal hill cutting process which is generally done step by step - from hill to vita and vita to homestead.

Table: 8 Number of Homestead Plots in respect of different size (in acre).

Plot Size→	>0-.05	>.05-.10	>.10-.15	>.15-.20	>.20-.25	>.25-.30	>.30-.35	>.35-.40	>.40	Total
1	2	3	4	5	6	7	8	9	10	11
PS Khatian	48	46	30	16	14	09	12	08	28	211
BS Khatian	53	78	51	52	43	43	20	20	48	408

The change in terms of plot size was very significant. The area of individual homestead plots decreased day-by-day. It was due to tremendous pressure of rapid urbanization to the finite land resource and inheritance law.

The number of plots in terms of plot size >0-.05 acre and >0.05-0.10 acre was 48 and 46 respectively but it increased into 53 and 78 from 1960 to 1991. The

total numbers of plots were 211 and 408 respectively in 1960 and 1990. General expectation was that the number of smaller size plots would be higher and larger plots would be lesser in 1990 than 1960. But from the numerical data we found that the number of plots increased in respect of all sizes. It happened due to the considerable increase of residential plot during 30 years. Important observation was that the large size plots were increased remarkably in this time. It was also found that the larger residential plots were the government owned housing in which the government officers and staffs live. In fact after independence of the country the government constructed a number of flats for the residential accommodation for government employees.

Table: 9 Area (in acre) of Homestead Plots in respect of different size (in acre).

Plot Size→	>0-.05	>.05-.10	>.10-.15	>.15-.20	>.20-.25	>.25-.30	>.30-.35	>.35-.40	>.40	Total
1	2	3	4	5	6	7	8	9	10	11
PS Khatian	1.20	3.45	3.75	2.80	3.15	2.48	3.90	3.00	33.76	57.49
BS Khatian	1.33	5.85	6.38	9.10	9.67	11.82	6.50	7.50	79.82	137.99

The field survey shows that the >. 05-0.10 acre size plots are increasing rapidly and maximum landowner did not leave any space in their residential plots. If they leave any land, it is due to fulfill the condition of Building Code or such other acts. But all inspection of the area shows that a large number of landowner didn't leave sufficient space according to Building Code. Some cunning landowners kept their main structure within the area which was approved by Chittagong Development Authority (CDA) and made illegal extension in the unauthorized area in the expectation that even if CDA takes any action for illegal construction, the house owner will be able to save his main structure.

At present Housing Society is one of the major converters of non-residential land as homestead. A housing society is a body corporate, constituted on a voluntary or cooperative basis under the laws of the land with the common objective of acquiring and developing land, providing other facilities and distributing the land among its members for building residential houses (Brammer, 2002). A large number of such housing societies are functioning in and around

Chittagong City. No reliable data about the land used by such societies around Chittagong City are available. But table 9 shows the data of land use trends in or around Dhaka City.

Table: 10 Classification of land presently used for housing projects in 1918 Settlement Operation.

Classification	Area (acres)	Proportion (%)
Agricultural	410.89	34.99
Fallow	228.96	19.50
Non-agricultural	534.42	45.51
Total	1174.27	100

Source: Land Use and Land Use Planning in Bangladesh (Brammer, 2002).

At present the 1174.27 acres of land which is using by housing society as homestead was classified as Agricultural land (34.99%), Fallow land (19.50%) and non-agricultural land (45.51%) in 1918 Settlement operation. The obtained data from Muradpur Mouza is comparable to this data.

At the time of the study, the respondents said that about two-thirds of the land had been agricultural before acquisition, about 10 percent cultivable land temporally lying fallow, about one-quarter land is non- agricultural land. Almost all the land had been acquired by purchase; less than 5 percent had been obtained on lease (Brammer, 2002).

Trend .2 Rapid Loss of Agricultural Land

The present study area is a hilly urban area and agriculture is not the main profession of the people of this area. Therefore, there is hardly any agricultural

Table: 11 Total Agricultural Plots number and area.

Total no. of Plots		Total Area in acre	
PS	BS	PS	BS
182 (18.50%)	102 (9.12%)	64.22 (20.88%)	23.23 (7.55%)

land in this mauza in the true sense. In 1960 the number of total agriculture plots was 182, which was 18.50% of total plots. In 1990 the number decreased to 102 that stood at 9.12 percent of total plots. In respect of area coverage in 1960 the total area of agriculture land was 64.22 acre that was 20.88% of the study area. But in 1990 it decreased remarkably to 23.23 acre and 7.55 percent respectively.

So during 30 years agricultural land decreased by 63.82 percentage that implies an annual decline 2 percent in agricultural land.

Table: 12 Numbers of Agricultural Plots in respect of different size (in acre).

Plot Size→	>0-.05	>.05-.10	>.10-.15	>.15-.20	>.20-.25	>.25-.30	>.30-.35	>.35-.40	>.40	Total
1	2	3	4	5	6	7	8	9	10	11
PS Khatian	45	36	18	16	11	10	09	05	32	182
BS Khatian	26	23	18	08	05	05	05	04	08	102

The study shows that the plot number decreased in every respect in 1990 than 1960 with the exception in plot range >.10-.15 acre which was equal (18) in number in the both survey period. This observation also gives an idea about the rapid urbanization process and also demonstrates the shifting of agricultural land to residential use. This is not only a phenomenon in urban area but also common to all over Bangladesh.

The high and rapidly increasing population density is an important factor to the present and future land use policy. In Bangladesh the present area of agricultural land is about 22 million acres, and there is little possibility to expand this area. Indeed, the growing population pressure will tend to reduce the cultivable area as new houses, factories, offices and roads are built.

Trend.3 Increase of Commercial Land:

The study area is not much important for commercial purpose only with the exception of two large shopping malls (Chittagong Shopping Complex & Mimi Super Market). In this study only 'shop' plots were calculated as commercial land but any other commercial land like industry, petrol pump and commercial space, etc in residential houses were not included because such type of land records were not available in the PS & BS khatian. In 1960 total numbers of 'shop' plots were 26, which rose into 36 in 1990, and the area was 1.58 acre and 2.11 acre respectively.

Table: 13 Numbers of Shops Plots. in respect of different size (in acre).

Total no. of Plots		Total Area in acre	
PS	BS	PS	BS
1	2	3	4
26 (2.64%)	36 (3.22%)	1.58 (0.51%)	2.11 (0.69%)

In respect of percentage, land under shop was small in amount but not insignificant. In 1960 the percentage of shop area was 0.51 and it increase into 0.69 percent in 1990.

Trend .4 Increases of Road & Path

Easy communication is an engine of development. Study shows that the total number of road plots were 67 in 1960, which increased 110 in 1990. The figure was 39 and 42 respectively for path. In 1960 the total area of roads was 16.28 acre and 32.89 acre in 1990, which is a significant increase among other plots. In respect of percentage the increase is about 102.03% during last 30 years. Actually this is a major shift of land from agricultural to non-agricultural use.

Table: 14 Numbers and Area (in acre) of Road & Path Plots. in respect of size (in acre).

Plot Size→	>0-.05	>.05-.10	>.10-.15	>.15-.20	>.20-.25	>.25-.30	>.30-.35	>.35-.40	>.40	Total
1	2	3	4	5	6	7	8	9	10	11
PS Khatian	37	21	17	04	06	03	03	05	10	67
BS Khatian	47	38	18	09	05	08	07	02	18	152

Path is the passage to interior plots from the main road. This category stood at the 0.56% and 0.74% of the total land of PS & RS khatian respectively. Generally path is a piece of land, which connect main road with another main road or connect housing plots with each other. Study shows that in 1960, 27 plots out of 39 path plots were smaller than 0.05 acre and there were no plots larger than 0.20 acre in size. In 1990 out of 42 plots, 29 plots were smaller than 0.05 acre. This shows the steadiness of path's plots during a long time. Majority plots are under the private ownership. Deputy Commissioner and Zila Parishad are also owners of some of the plots.

Trend .5 Shifting of environmentally important land into Vita Land

Land raised for building homestead is Vita Land. In 1960 total 88 plots were vita but in 1990 it increased to 107. Total 12.35 acre was under vita in 1960; in 1990 it increased to 19.02 acre. In respect of total land area 4.02% and 6.18% land area was under vita in 1960 and 1990 respectively. Generally vita is the intermediate stage of shifting of agricultural and hilly land into residential plots. In Chittagong, illegal hill cutters generally cut the topsoil of the hills just before rainy season, so that soil erosion takes place rapidly. Heavy rain washes the topsoil into ditch and government owned canal then the land grabber fills up the ditch and canal to make them vita. On the other hand through soil erosion the hills automatically turn into vita. In the recent years, without direct hill cutting this type of illegal slow process is widely used in Chittagong for converting hill to vita, then to residential plots.

Table: 15 Numbers of Vita Plots in respect of PS & BS khatian.

Total no. of Plots		Total Area in acre	
PS	BS	PS	BS
1	2	3	4
88(8.94%)	107(9.56%)	12.35 (4.02%)	19.02 (6.18%)

Large size vita is very much lucrative to the real-estate owners. So vita land is rapidly shifting into residential land and new vita is growing from agriculture land and hill. The study shows that 27% interviewers observed that their plots were vita while they purchased the plots. Khatian shows that out of 12.35 acre, 5.07 acre land was within more than 0.40 acre plots size categories in 1960. On the other hand out of 19.02 acre, 8.79 acre land was within the same categories in 1990. There statistics suggest how large size vita plots and several small size residential plots were created. During 30 years, vita areas increased by 59%. But at the same time 27% former vita had been converted into residential plots. Vita plots are generally used for vegetable culture or remain fallow before using them for residential purpose. This land use trends give apprehension for natural environment, because fallow land is decreasing day by day.

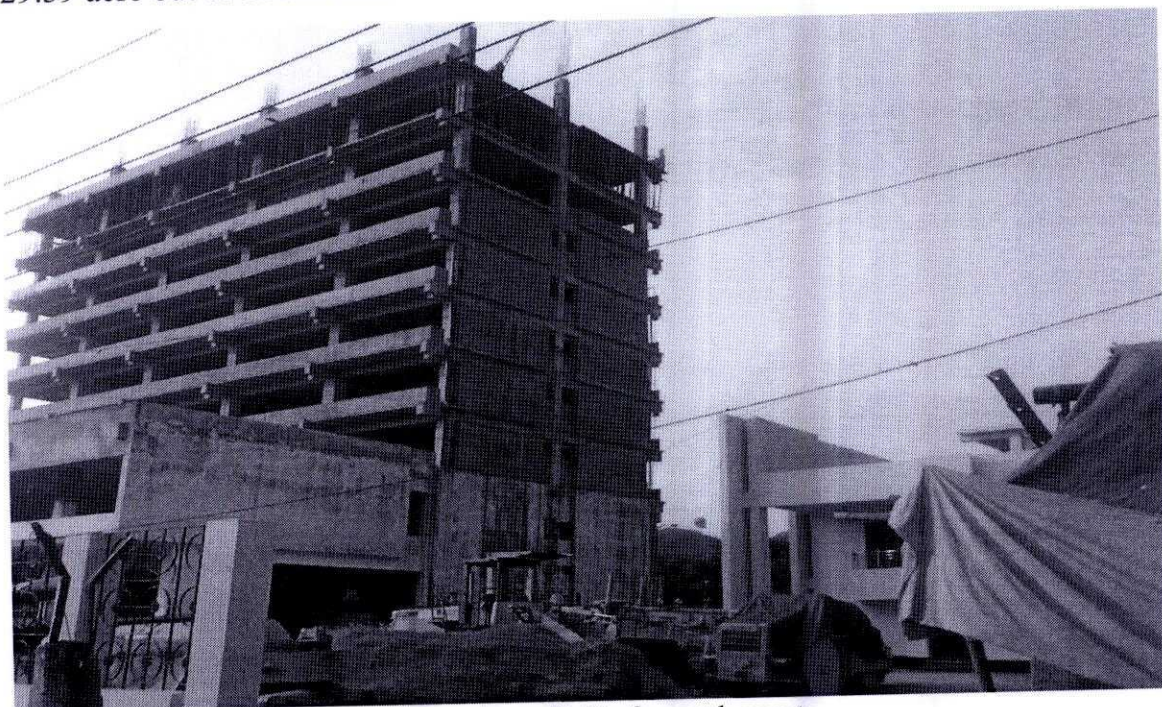
Trend .6 Rapid destruction of Hill & Hill Slope: An Environmental alarm

In 1960 there were 66 hill plots, they decreased by half (33) in 1990. The hill area was 62.67 acre in 1960, which was 20.38 percent of the total land.

Table: 16 Numbers of Hill & Hill Slope Plots in respect of PS & BS khatian

Land Use Categories	Total no. of Plots		Total Area in acre	
	PS	BS		PS
1	2	3	4	5
Hill	66(6.71%)	33(2.95%)	62.67 (20.38%)	33.30 (10.83%)
Hill slope	10(1.01%)	00%	8.09 (2.63%)	00%
Total	76 (7.72%)	33(2.95%)	70.76 (23.01%)	33.30 (10.83%)

In 1990 the remaining hill area was 33.30 acre that was 10.83 present of the total land. Nearly all the plots of hill were large in size. Out of 62.67 acre, 57.04 acre land was under the plot size more than 0.40 acre categories in 1960. In 1990 it was 29.39 acre out of 33.30 acre.



Photograph: Destruction of hills for settlement.

In 1960, 8.09 acre land was hill slope that was 2.63% of the total land but in 1990 there remains no land as hill slope. Due to tremendous pressure of urbanization hills are being destroyed for human settlement. 32 percent interviewees observed that they had seen hill from their residence when they built

houses but now only 4% said that they are still near hill. 27% residential plots saw hill during getting the ownership of the land.

Due to this merciless destruction of hills serious environmental degradation is occurring. Vegetations are being reduced day-by-day; drains and canals are depositing silt and losing the capacity of discharging water in the rainy reason.

Trend .7 Gradual shifting of Khila Land

Raised land other than Hill and Vita is called Khila. Usually this type of land is used for the culture of vegetable, pan, oil seeds, etc culture. In 1960 the numbers of khila plots were 105, which decreased to 88 in 1990. This is one of the consistent categories of land in Muradpur mouza.

Table: 17 Numbers of Khila Plots in respect of PS & BS khatian.

Total no. of Plots		Total Area in acre	
PS	BS	PS	BS
1	2	3	4
105 (10.67%)	88 (7.86%)	29.98 (9.75%)	27.28 (8.87%)

In 1960 the total area of khila was 29.98 acre, in 1990-it decreased to 27.28 acre. This khila land plays an important and positive role in the environment because it covered 9.75% of the total mauza in 1960 and 8.87% in 1990. Maximum plots of khila land are generally more than 0.40 acre in size. Rather than hills, khila land has the largest plots.

Trend .8 Various trends of Canal/ Drain (nala) / Stream (Shora)

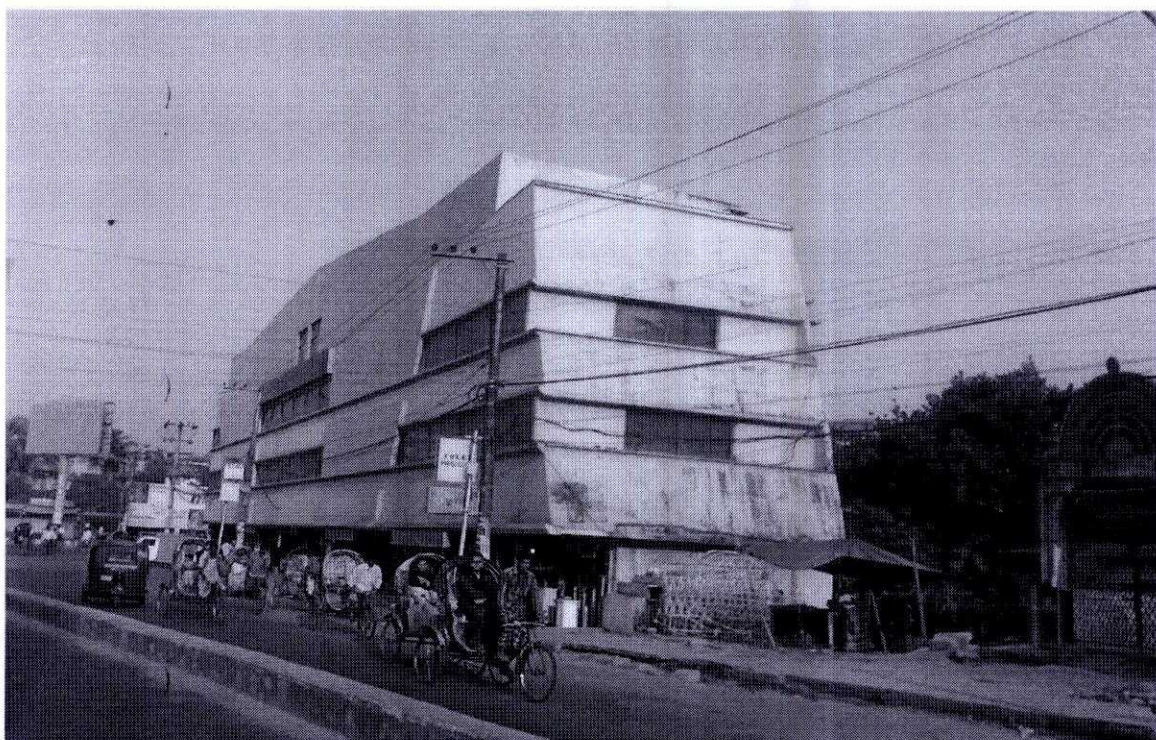
All these three categories are mainly government owned land and are used.

Table: 18 Numbers of Canal/ Drain (nala) / Stream (Shora) Plots in PS & BS khatian.

Land Use Categories	Total no. of Plots		Total Area in acre	
	PS	BS	PS	BS
1	2	3	4	5
Canal	08 (0.81%)	13 (1.16%)	3.25 (1.06%)	2.62 (0.85%)
Drain (nala)	15 (1.52%)	35 (3.13%)	2.05 (0.67%)	3.63 (1.18%)
Stream (shora)	07 (0.71%)	00%	1.74 (0.57%)	00%
Total	30 (3.04%)	48 (4.29%)	7.04 (2.30%)	6.25 (2.03%)

for discharging water. Due to hilly region, generally water does not stand in Muradpur mouza during rainy season. Except some government owned hills, all

hillocks were destroyed several years back. So at present silt does not come from hill during rain but several years back, when hill used to cut down silt used to be deposited in the canal, drain and streams. Chaktai canal is one of the best examples of choked canals.



Photograph: Chittagong City Corporation has built 'Premier University' building over a drain at Muradpur Mouza.

In 1960 the total plots of canal, drain and stream were 30. It rose into 48 in 1990. But the total area was 7.04 and 6.25 acre in the year 1960 and 1990 respectively. The number of plots increased 60% in 30 years but the figure of area shows that it decreased by 11% during that period. This result shows the trends of fragmentation of plots and decrease in water discharge capacity of the city.

Trend .9 Rapid Utilization of Ponds for Building and Infrastructure:

Ponds are one of the important categories of land use. In 1960, 96 plots were under pond category but in 1990 it remained almost constant at 95 plots.

Table: 19 Numbers of Pond Plots in respect of PS & BS khatian

Total no. of Plots		Total Area in acre	
PS	BS	PS	BS
1	2	3	4
96(9.96%)	95(8.49%)	19.33(6.29%)	9.29(3.02%)

In respect of area it was 19.33 acres but in 1990 it decreased to 9.29 acre. The rate of decrease is nearly 52% in terms of area. If this figure is compared with the number of plots then it will be found that the present average size of plots is nearly 0.10 acre but it was more than 0.20 acre 30 years back.

Table: 20 Numbers and Area (in acre) of Ponds Plots; in respect of different size (in acre)

Plot Size→	>0-.05	>.05-.10	>.10-.15	>.15-.20	>.20-.25	>.25-.30	>.30-.35	>.35-.40	>.40	Total
1	2	3	4	5	6	7	8	9	10	11
PS Khatian	0.67	1.05	1.63	1.93	1.57	1.10	1.30	1.13	8.95	19.33
BS Khatian	1.15	1.80	1.50	0.53	1.57	1.10	00	00	2.96	19.33

The decrease of ponds area was due to huge pressure of population. The ponds are longer used as source of drinking water owing to high price of land, nearly all the ponds have converted into residential plots. Study shows the existing ponds survived because of internal conflict in decision-making and ownership. These ponds could not also be used owing to ownership disputes.



Photograph: Destruction of Ponds at Muradpur Mouza.

Trend .10 Rapid Squeezing of Forest

In 1960 this mauza had total 3.06 acre forestland. It decreased into only 0.38 acre in 1990. In percentage the figures were only 1.00% and 0.12% respectively. Considering the plots numbers, 12 plots were forest in 1960 and it

decreased to only 7 in 1990. Out of 12 plots of 1960, 1 plot was larger than 0.40 acre and all others plot were smaller than 0.15 acre in size. The study shows that all the 7 plots of 1990's survey were less than 0.10 acre in size. From these data, conclusion can be drawn that the plots are not true forest plots. These are only temporary house-side gardens.

Table: 21 Numbers of Forest Plots in respect of PS & BS khatian

Total no. of Plots		Total Area in acre	
PS	BS	PS	BS
1	2	3	4
12(1.22%)	07(0.63%)	3.06(1.00%)	0.38(0.12%)

Wild animals are rarely seen in the study area. According to the survey 60% people stated that they have seen wild animals during their settlements but now only 6% claim that sometime they see them now. All of them told that they had seen foxes in their area. Only 8% people have more than 3 trees in their house premises and 4% have less than 3 trees. Study shows that 93% people think that when they had settled in this town vegetation was sufficient for a good environment, 7% think still it is not a problem for living though the vegetation has decreased.

Table: 22 Numbers and Area (in acre) of Forest Plots in respect of different size (in acre)

Plot Size→	>0-.05	>.05-.10	>.10-.15	>.15-.20	>.20-.25	>.25-.30	>.30-.35	>.35-.40	>.40	Total
1	2	3	4	5	6	7	8	9	10	11
PS Khatian	0.08	0.30	0.38	0.75	00	00	00	00	.83	3.06
BS Khatian	.08	0.30	00	00	00	00	00	00	00	0.38

Data shows that the forestland consists with only 0.12% of the total land. On the other hand 7% people think that vegetation is sufficient. It may be due to the ignorance of the interviewee or they do not expect viewing the worst situation of the other part of the Chittagong city or Dhaka City. Actually the remaining government hills bear different types of vegetations. So though the forestland is a few in data but in reality it is much higher.

Trend .11 Generous Increases of Religious Centers

There are several religious centers in Muradpur mouza. They are Mosque, Eidgha, Graveyards, Temples etc. In 1960 religious institute covered 24 plots. It rose to 32 in 1990. In consideration to the plot size 3.71 acre land was used for religious

Table: 23 Numbers of Religious Center's Plots in respect of PS & BS khatian

Total no. of Plots		Total Area in acre	
PS	BS	PS	BS
1	2	3	4
24 (2.44%)	32(2.86%)	3.71(1.21%)	5.32(1.73%)

purpose in 1990 but in 1990 it increased to 5.32 acres. It is significant that in a land scarce country the land used for religious purpose is increasing with a rate of 43% in 30 years. In 1990, 1.73% land of the mauza was used for religious centers.

Trend .12 Minor Categories of Land, Major Shifting

Except above cited categories, all other categories are discussed under this heading. Playground, Rail Way Track, Hat Bazar, Khai etc is included here. 19.97-acre land was under this category in 1960 and it decreased to 6.43 acre in 1990. In percentage the decrease is 67.75%. Study shows, expansion of residential plots is responsible for this decline. Both of these figures are not negligible in consideration to the total land of the Muradpur Mauza.

Table: 24 Numbers of Miscellaneous Plots in respect of PS & BS khatian

Land Use Categories	Total no. of Plots		Total Area in acre	
	PS	BS	PS	BS
1	2	3	4	5
Khai	08 (0.81%)	04 (0.36%)	0.75 (0.24%)	0.46 (0.15%)
Playground	06 (0.61%)	00%	4.37 (1.42%)	00%
Others	14 (1.42%)	07 (0.63%)	14.85 (4.83%)	5.88 (1.91%)
Total	28 (2.84%)	11 (0.99%)	19.97 (6.49)	6.43 (2.06%)

The above analysis shows that rapid expansion of population and urbanization has contributed to significant increase in the area under non-agricultural used. What is alarming is not the decreased in cultivated land but environmental degradation resulting from erosion of hills.

Section: 4.3 People's Awareness about Land Matters:

Statistics on land utilization reveal the main trends. However, they are silent on how the people are reacting to these changes. This chapter attempts to present the view of the stakeholders on the changes in land use in Muradpur mauza. About 150 residents of this mauza were interviewed to know their reactions to changing patterns of land use. Data were collected through a questionnaire which may be seen in Annexure- 1 & 2.

Landowners generally keep themselves aware of land matters; particularly the piece of land they owned. The people who had low & mid level education were conscious about the valuable land of them. Probably highly educated people have little time to think about their land because they may have alternative means of lively hood. Between 150 respondents 82 had their own houses and rest

Table: 25 Respondents' Knowledge about mouza name:

Respondent Type	Educational qualification and awareness							
	Known				Unknown			
	Bellow SSC	SSC - HSC	Bachelor and above	Total	Bellow SSC	SSC - HSC	Bachelor and above	Total
Owner of House	26 (34.21%)	28 (36.84%)	22 (28.95%)	76 (100%)	00 (00%)	2 (33.33%)	4 (66.67%)	06 (100%)
Renter of house	9 (50%)	6 (33.33%)	3 (16.67%)	18 (100%)	23 (46%)	7 (14%)	20 (40%)	50 (100%)

of the respondents live in the rented house. Maximum lessees do not keep touch with the information of their local land matters. Study shows that most of the residents posses only the preliminary idea of land affairs like mouza name. But they are not aware of secondary or other information.

Section: 4.3.3 Access of Poor to Land is decreasing:

In Bangladesh ownership of land sharply differ between rural and urban areas. Rural people mostly get ownership through inheritance. Majority urban dwellers purchased land at their convenient time.

Table: 26 Ownership of Land

Inherited	Purchased	Others	Total Respondents
28 (34.15%)	50 (60.97%)	4 (4.88%)	82 (100%)

61% people had purchased land in Muradpur mouza and 34% had inherited from their forefather's.

Urban land is the most valuable asset to its owner. As a precious asset the landowner tried her/ his best to bring every inch of land within the building area. Still rural land is not costly like urban area. Rural landowners generally keep some open/free area around their houses.

Table: 27 Types of houses.

Building	Semi-pacca	Kacha	Total
141 (94%)	8 (5.33%)	1 (0.67%)	150 (100%)

In Bangladesh nearly all the houses of metropolitan area are built of concrete. Generally the plots owners who keep their land for future use prefer to build semi-pacca or kacha houses for transitional period and thus ensure possession of land. The landless and the poor in the city are forced to live in the most inhuman conditions, in slums and squatters. It is necessary to initiate special programmes for the urban poor so that they have access to land in the city.

Section: 4.3.3 Environmental Issues are largely Neglected:

The rate of urban growth in Bangladesh during the last two decades has been one of the highest amongst the developing countries; annual average of 7 percent as against national population growth rate of 2.4 percent (Haque, 1990). To accommodate this rapidly growing population, pressure on land for human settlements is increasing. To mitigate this burden; environmentally sensitive

Table: 28 Categories of land during owning

Home estate	Agricultural	Hill	Wet land	Forest	Others	Total
31 (37.80%)	18 (21.95%)	12 (14.34%)	7 (8.54%)	9 (10.97%)	5 (6.10%)	82 (100%)

agricultural land hill, wetland, forest and fellow land are destroyed to build houses. It is a common phenomenon of the urban area of Bangladesh. Present study supports this hypothesis. Fifteen years back, among the existing houses only 38% land was home estate in Muradpur mouza.

Because of the highly dense population not only the fragmentation of land is increasing also the per capita floor space is decreasing rapidly. Like any other city area of Bangladesh the landowner of Muradpur mouza

Table: 29 Per capita floor space (sq. ft.).

Respondent	Up to 100	101-150	151-200	201-250	251-300	301-350	351-400	>401	Total
Owner of House	1 (1.22%)	2 (2.43%)	5 (6.10%)	9 (10.97%)	16 (19.51%)	26 (31.70%)	19 (23.17%)	4 (4.88%)	82 (100%)
Renter of house	2 (2.94%)	4 (5.88%)	11 (16.17%)	17 (25%)	20 (29.41%)	9 (13.23%)	4 (5.88%)	1 (1.47%)	68 (100%)

is using their land both residential and commercial purposes. Lessees are using the rented house as temporary shelter. The house owner is enjoying more space than the lessees. Generally the lessees are financially weaker than the owner. The above table illustrates the disparity on the basis of using floor space between these two groups.

Data suggest that the level of satisfaction of house owners and lessees about the floor space they use. More than 57% house owners feel that they have the sufficient floor space but more than 66% lessees feel that they have insufficient space.

Table: 30 Does the per capita floor space (sq. ft.) is sufficient?

Respondent	Sufficient	Insufficient	Total
Owner of House	47 (57.32%)	35 (42.68%)	82 (100%)
Renter of house	23 (33.82%)	45 (66.18%)	68 (100%)

Majority people are passing their days in an inhumane condition with in very little space. Land use disparity is sharp here. In Dhaka city 30% privileged people use 70% land of the total area and the rest 70% people only use the 30% land; the picture of Muradpur mouza is more or less same.

The SA khatian of Muradpur mouza shows the existence of sufficient hills, forest, canal, ponds and so that it was an environmentally balanced area. But latest survey

Table: 31 Statistics of Trees

No. of trees	00	1-3	4-6	7-9	10-12	13-15	>16	Total
No. of plots	58 (38.66%)	56 (37.33%)	19 (12.67%)	8 (5.33%)	6 (4%)	2 (1.33%)	1 (0.67%)	150 (100%)

shows that this image is now part of history. At present there is not a single tree in 39% plots and 38% houses contain only 1-3 trees. The trees are not so bushy. A hand some amount of trees is in the remaining hills.

Table: 32 Satisfaction about trees.

Present situation		Past situation	
Sufficient	Insufficient	Sufficient	Insufficient
48 (32%)	102 (68%)	142 (94.67%)	8 (5.33%)

Though the trees in the houses premises is not notable but the residual forest in the hills give impressions to a remarkable number of respondent that the trees are still sufficient in this mouza.



Photograph: Still some green area remains at Muradpur Mouza.

Majority of the respondent are not satisfied with the present status of trees in the area. Environmentalist recommends that at least 25% forest area is needed for a healthy locality but this figure is far away from the reality of the study area.

Data suggest that the area was more or less free from waterlogging in previous time but now waterlogging is a problem in rainy season. In the last decades canals and drains were mercilessly destroyed. Natural drainage system has collapsed. Private owned water discharging land has turned into residential

Table: 33 Does water log/logged in this area?

Present		Past	
Yes	No	Yes	No
96 (64%)	54 (36%)	5 (3.33%)	145 (96.67%)

plots. Such types of government owned land has been occupied by land grabbers. In some cases initiative had taken to recover the lands but it was so late because in that time the influential land grabbers usually gave a legal coverage on behalf of their ownership. Now very little land is left to store water in the time

Table: 34 Who is mostly responsible for water logging?

City corporation	Unplanned roads	Unplanned housing	Hill cutting	Others	Total
10 (6.67%)	16 (10.66%)	43 (28.66%)	72 (48%)	9 (6%)	150 (100%)

of heavy flushing. Nearly all the natural drains have turned into pacca drains under the supervision of City Corporation. Chaktai Khal, once a major canal passing through is now a pacca drain of this area. Destruction of hills and wetland is responsible for serious deposition of silt in the water-discharging route. Unplanned land use for settlements is also a major cause of this problem.

Section: 4.3.4 Trends in Homestead Plots size

The field survey illustrates that the smallest category of plots is increasing remarkably. Residential plot size having 0.05-0.10 acre area is the highest in number; it was 41.34% of total plots. The total numbers of surveyed plots were

Table: 35 Size & Number of Residential plots according to the field study 2006.

Plot area (in acre)	>0-.05	>.05-.10	>.10-.15	>.15-.20	>.20-.25	>.25-.30	>.30-.35	>.35-.40	Total
Number of plots	36 (24%)	62 (41.34%)	32 (21.34%)	11 (7.33%)	07 (4.67%)	01 (0.66%)	01 (0.66%)	00 (00%)	150 (100%)

150. Among them the plots size >0- 0.05 acre were 36 in number, which was 24% of total residential plots. The report of the latest settlement operation published in 1990 shows that residential plots of this size were 12.99%. This may be due to the general tendency of more attentiveness of upper middle class in town area of Bangladesh. This type of landowner doesn't leave any free space. It was also found that they generally built their main structure inside their own boundary but extended their building towards the government road or khas land (if any) from first floor and on ward.

The plots size >0.40 acre were 11.76% in the last settlement operation but the plot size of more than 0.35 acre was not included in the field study. Because the larger residential plots are government owned, which was kept out of present survey because the government staffs are temporary residents and they generally don't have the information on land matters of the locality

According to the government regulations a landowner has to leave at least 3 ft. around her/his building. Thus 6 ft. open space remains between two buildings.

Table: 36 Distance between buildings

Distance (in ft.) of nearest building.						Total
Distance in ft.→	4-6	7-9	10-12	13-15	>16	
Number of Houses→	57 (38%)	48 (32%)	31 (20.67%)	10 (6.66%)	4 (2.66%)	150 (100%)

Chittagong Development Authority (CDA) does not accept the plan of building without fulfilling this condition. But in reality many landowner left this free space in the ground level and encloses in the upper story and as a result sufficient space does not remain between buildings.

Section: 4.3.5 Land litigation: A major Social problem

Study shows that out of 150 people 103 (in proportion 68.67%) believe that land matter is really a problem for our country and 47 (in proportion 31.33 %) people think that land matter is not a major problem. Mainly the middle (SSC-HSC) literate group those who have the highest knowledge about mouza name of

the study area (table 26) they also are the highest in number who considered land matter as a real problem for country.

Table: 37 Does land matter is really a problem?

	Yes	No	Total
Number of Respondents	103 (68.67%)	47 (31.33%)	150 (100%)

One of the causes may be that they are much involved in land matters or they have much time to gather knowledge about land. In our country the highly literate and illiterate people are busy with their own business to face the struggle of life. On the other land the middle literate group (SSC-HSC) can't cope with physical laborious activities or get their desired job. So most of them remain unemployed and spend their time gossiping in tea stall or else where. Thus they gather much information about many social problems. So this may be one of the causes of their awareness about land problems.

Table: 38 Did you ever heard about National Land Use Policy?

	Yes	No	Total Respondent
Number of Respondents	13 (8.67%)	137 (91.33%)	150 (100%)

Study shows that out of 150 people only 13 had heard about National Land Use Policy (NLUP) before this interview, which is 8.67% in respect of proportion. On the other hand 91.33% people did not know that they have a 'National Land Use Policy' in their country. The 13 of those who answered that they have heard about NLUP the next question to them was – when you have hard it? 5 of them revealed that they heard it 6-8 years back which was incorrect. Then again 8 Of they told that they had heard it 6 months to 1 year back. The next question was asked to the 13 persons that do they know when the NLUP was enacted. Every body said that they don't know it. Actually the National Land Use Policy was enacted on June 13, 2001.

After the enactment of the NLUP, 2001 five years had passed but many citizens even don't hard it. The clause 17 of the NLUP, 2001 illustrated, "no policy can be fully effective if it is not acceptable to the mass people. So the

Policy has a target to inform it to the mass people”. The present study shows that the authority was totally failed to inform the citizen about the ‘National Land Use Policy’.

Maximum people consider that land matters & land laws are a complex issue and it is impossible for the general people to understand; so they do not feel any interest in the matters. One of the principal targets of national land use policy is to make the efficient use of this finite resource. People’s awareness is the main tool to achieve the goal. Present study illustrates that more than 91% respondents did not hear about the adaptation of this policy.

CHAPTER: 5

Land Use Policy: An Over View of Bangladesh

Section: 5.1 Aim of Land Use Policy

In view of continuous decrease in agricultural land and the environmental degradation resulting from rising population, a land use policy is essential for proper utilization of land in Bangladesh.

Land policy may be defined as a set of basic principles, guidelines and rationale upon which land legislation, together with the strategies and infrastructure for their implementation, can be developed. A comprehensive national land policy is required in order to give reasonable clarity, consistency and certainty necessary to provide the confidence for the promotion of economic development (Munro-Faure, 1997).

National land policies have in common, the overall objective of providing an enabling framework for the development and implementation of land related legislation in an integrated, harmonious manner. In addition to this overall, shared objective, the land policies of specific countries have more specific objectives. These vary, depending on the prevailing and historic circumstances, and therefore, the purposes of policy.

Some common purposes are like below-

- to democratize access & control over land
- to provide the guidelines for land reform processes
- to provide for more optimal use of land
- to underpin economic growth
- to improve household welfare & alleviate poverty
- to facilitate an efficient land delivery system

- to provide & facilitate timely & accurate land information to institutions and the general public facilitate the process of physical planning
- to ensure the implementation of development plans and good land management maintain identified tenure systems
- to address historical/contemporary inequalities
- to foster national reconciliation & stability

Section: 5.2 Situation of Bangladesh:

Land, water, the monsoon climate, and the inherited experience and skills of its people are Bangladesh's most important natural resources. Until recently, these resources were sufficient to support the country's population at a modest standard of living, except in years with catastrophic floods, cyclones or drought. However, the rapid rise in population in the past few decades has surpassed the capacity of these resources to support all the country's population at a satisfactory level using traditional production techniques within the traditional social system. (Brammer, 2002)

The present land management model is the legacy of the British colonial rule which is fully revenue-based administration; neither people oriented nor environment friendly (Bhuiyan, 2005). The British-India land administration was not motivated by sustainable development; rather it was modeled by revenue collection, record preparation, record management and dispute management. So, traditional land administration is incapable and not interested to address the issues of long-standing economic, social and environmental growth. Fortunately, Bangladesh's wealth of natural resources is such that production can be greatly increased by the use of appropriate modern technology such as irrigation, drainage, improved crop varieties and fertilizers. (Brammer, 2002).

Section: 5.3 Objectives of National Land Use Policy, 2001

There are nine objectives of the National Land-use Policy, 2001. The responsibilities of the land management authority for land-use planning and

development are indicated in The National Land-use Policy. Main objective of The National Land-use Policy is minimum use of land but getting maximum utility from it (Bhuiyan, 2005).

Objectives are as follows:

1. To protect the sharp decreasing tendency of agricultural land which is being used for agricultural production to fulfill the gradually increasing demand of the food for people;
2. With a view to ensure optimum utilization of land, the zoning system should be introduced considering the features of the land of different locality by which rationally control the recent tendency of unplanned extension of residential, Industrial and commercial setup;
3. With a view to ensure optimum utilization of naturally, silted Alluvial land of river, haor and seabed, the landless people should be rehabilitated on the such type of alluvial land;
4. To reserve some land specially *khasland* for future use of development purpose;
5. To ensure prudent use of land to keep balance of the natural environment;
6. With a view to alleviate poverty and generate employment as well as protect the increasing number of landless, maximum utilization of land should be ensured;
7. With a view to protect natural forest, river erosion and degradation process of hilly area should be stopped;
8. To protect the pollution process of land; and
9. To get the maximum utility from minimum area of land, construction of the multi-storied building of government and non-government organization should be ensured (MOL, 2003).

Section: 5.4 The area of land use: National Land Use Policy, 2001

The principal areas of land uses, which have been illustrated in the National Land Use Policy, 2001, are as follows:

- Agriculture
- Homestead
- Forest
- River, irrigation & outlet of water, pond, water body (?).
- Road and highways
- Railway tracks
- Commercial and industrial space
- Tea & rubber garden, horticultural garden
- Coastal forest
- Char land
- Others

Section: 5.5 Evaluation of National Land Use Policy, 2001:

Land and water are the basic resources of the community and should be used in a manner that will ensure its continuing usefulness for the welfare of the community. Land use planning should aim at development and efficient use of land for producing food grains, industrial raw materials, livestock, fisheries and forest products to meet the requirements of the country and also to support the population at a satisfactory standard of living. The future of Bangladesh is highly dependent on the integrated development and optimum utilization of its land and water resources.

Land in Bangladesh is fertile and its climatic condition congenial for crop production in all the seasons yet Bangladesh is unable to produce enough food grains and industrial raw materials to meet our minimum requirements. Few countries in the world are burdened with such a high rate of population growth and density and yet very little attention has been paid to land use planning or for implementing the National Land Use Policy, 2001 to conserve this highly scarce national resource. Bangladesh is also slow to recognize the way in which we are misusing and abusing our land resources and no effective laws and regulations have been made to prevent

such practices. The consequences have been identified as transformation of valuable agricultural land for setting up factories, Governmental office, Institutional buildings, Power Stations, training institutions, Universities and colleges, housing colonies etc. The Government agencies in many cases are the worst users of land as they acquire agricultural land much in excess of their requirement for constructions of buildings roads, design spacious layouts for office buildings, schools, hospitals, colleges and universities which cannot be justified in a poor land hungry country like Bangladesh.

Land use planning should ensure that land will be used in such a way so that it can be handed over to the future generation in an improved condition so that it does not harm the legitimate interest of the groups of the community and minimum possible amount of arable land will be taken out of productive use for conversion to urban, industrial and other non-agricultural use. Use of land for any purpose, which may cause its continuous degradation, should be discovered as it reduces capability of the land rapidly. The objectives of planning land use at the national, district and local levels will be the same but different types of information are required and the objectives need to be defined more precisely at the local level than at the national level. A major objective at the national level would be to ensure that there are adequate amounts of land needed for subsistence and also to provide for better quality of life. At the district level objective should be aimed at the proper allocation of land for urban and rural uses as urban development is expanding at a rapid rate without much control or consideration of its impact on shrinking supply of cultivable land. Location of urban and industrial development should be based on social consideration rather than economies of the market place. At the local level decisions are taken by large number of rural landowners and farmers where physical condition of the land and the economics of production will in most cases determine land use.

The planning for land use also depends on the life style and standard of living of the communities. Affluent communities are more concerned about keeping sufficient land for recreation whereas poorer communities are concerned about halting degradation and having sufficient cultivable land to provide for substance.

In the context of Bangladesh the objectives of land use planning in the rural areas should be to achieve rapid growth in agricultural productivity, self-sufficiency in production of food grains, increased production of industrial raw materials, expansion of non-farm income and employment opportunities in the villages. The existing imbalance between rural and urban distribution of income and employment opportunities should be narrowed down through the creation of more income earning opportunities in the rural areas. There are about 1,000 important market places and trading centers in the countryside which should be developed into rural growth centers catering to the needs of the rural community, providing input and support services for agriculture and related activities rural banking facilities, repair and service centers for maintenance of agricultural implements and other equipments, providing for small agro-based processing facilities, public utilities, general administrative services, education, health, family planning and other social welfare services.

The principle objectives of land use planning in the urban areas should be prevention of haphazard and unplanned growth of towns and cities and improvement of existing urban situation. Scarcity and high cost of urban land are already imposing severe constraints on urban development projects. Competition for urban land is intensifying sharply in Bangladesh primarily due to increased demand for such land from Bangladeshi expatriates working in the Middle-East Urban land prices have already gone beyond the reach of the low income groups and farmers are finding it difficult to check the temptation of selling their farm lands for non-farming uses such as housing. Major problems being faced by cities and towns are high rate of growth, extreme poverty, lack of job opportunities, poor transport facilities and lack of basic civic services such as water supply, sewerage, sanitation and housing for low-income groups. The situation has been further aggravated by continued migration of surplus landless laborers and agricultural worker to the cities in search of job and income opportunities.

Conclusion and Recommendation

The principal goal of the Bangladesh Government's economic policy is to reduce poverty so as to gradually lift the vast majority of the people above the poverty line and improve the quality of life for the average citizen. Given the paucity of land, its intense utilization and the predominance of small-holders, classical notions of land reform based on large-scale redistribution of private land do not represent a meaningful policy option in the Bangladesh contest. Yet, this is not to deny that land remains important in a variety of ways in the economic and social life of the country. There has been a growing realization that the critical policy issues pertaining to land have to do with land administration reform and a rational land use policy including ensuring better access to land by poor and community groups.

The government has introduced a National Land Use Policy, 2001 which aims at reforming present land administration system, updating the different laws relating to land administration reform, preventing the alarming loss of agricultural land, protecting the state-owned land to meet the needs of the development projects, prevailing soil degradation, zoning of land, preventing wasteful use of acquired land, encouraging optimal use of agricultural land and establishing a data bank for khas land, fallow land, acquired land, char land and others (PRSP, 2005).

It is very urgent and significant that, Bangladesh formulates a realistic, comprehensive national land use policy covering and introducing multi-disciplinary and inter-sectoral approaches to integrate and safeguard the interests of all sectors. To sustain the productive capability of the limited natural resource base, regeneration efforts should be taken to improve the total productivity of the ecosystem, i.e. terrestrial and aquatic productivity. Building an updated and reliable natural resources database with modern facilities to create intervention and

planning options at a point of demand is urgent and will be useful. This will assist the allocation of resources and to sustain their productivity.

In the traditional model of economic growth the concept of “grow first and clean later” is the underlying principle. In the last decade, particularly after the Rio Summit in 1992, it has been realized worldwide the sustainable development cannot be achieved without proper use of natural resources and environmental conservation. The government of Bangladesh has now realized the need of a pragmatic National Land use Policy and for that reason the Government has enacted National Land Use Policy in 2001. The policy has given emphasis on proper use of every inch of land of the country.

To protect the land resource, a balanced environment and healthy economy, different Ministries and Department of the Government of People’s Republic of Bangladesh can jointly play an important role. However, the Ministry of Land can play a coordinating role in this respect. The Rules of Business of the Ministry of land should incorporate integrated land management system.

A series of interventions at deferent time frames is required to improve overall conditions of land management and to ensure a sustainable development through effective management of degrading land resources. For achieving this objective, the Ministry of Land should undertake a holistic plan with strategic cooperation and coordination with other departments and organizations. Specially, the following measures may be undertaken.

- The existing Land-use Policy needs to be properly implemented through integration of different government and non-government organizations.
- For better implementation and effective coordination of The National Action Plan, a National Land Commission has been setup in which Prime Minister is the chairperson of the commission. The commission should be made more effective through provision of proper secretarial services by the Ministry of Land.
- Agricultural land should be used as per National Agricultural Policy, and acquisition of existing and potential irrigated land must be stopped

completely. Existing cropland should not be converted into non-agricultural land.

- Keeping a close watch on the movement of prices of agricultural land so that alluring prices do not tempt agriculturalists to sell their land for non-agricultural uses and to check land speculation.
- With a view to discovering deforestation, The Environment Policy, 1992 and The Forest Policy, 1994 should be implemented by GO, NGO's and community groups.
- A comprehensive housing policy should be introduced to stop unplanned rural and urban settlement to minimize transformation of good agricultural land, hills and wetland to settlement.
- The government may prepare comprehensive and single land legislation. In this initiative the scattered provisions of land laws should be categorized and if necessary it may be codified in a general form. For better sustainable, stakeholdersfriendly and pro-poor land management existing policies, laws, rules and regulation should be updated and sensitized with long-term land use strategy.
- Without modernization of land survey and land management system it is neither possible to implement the Land-use Policy successfully nor possible to manage land efficiently. Under the GIS (Geographical Information System) or GCS (Geodetic Central Survey) preparation of land record is a must so that all sorts of environmental and geographical information including land use trends are collected for sustainable land management. Under this modern survey system classification of land as well as features of the land can be identified correctly and scientifically. Such information can be used and stored in a Central Data Bank for appraisal of land and environment at the sometime the information can be used by other related sectors for integrated land management.

- In the field level, the local government organizations should undertake the comprehensive action and plan and then activities should be coordinated with NGOs and community organizations. Finally it is suggested that the stakeholders, community and respective management authorities should be empowered.
- There should be Division-level and district level Committees be establish to will direct and implement national land use policy within their respective areas of responsibility. They will initiate a review of proposed land use development schemes, and will recommend or approve the allocation of funds for implementing such schemes within the limits of their financial authority. These boards and committees will comprise respective Divisional/District heads of the relevant development Ministries, Directorates, Corporations and Commodity Boards, together with an appropriate number of Members of Parliament from the area.
- Thana and Union Development Committees, with the help of appropriate Thana and Union officials, will continue to be responsible for identifying, planning and implementing small-scale land use development schemes according to the established procedures of the Upazila and Union Works Programme and Irrigation Programme.
- Upazila and Union Councils will also be responsible for making and enforcing appropriate regulations (bye-laws) governing land use within their boundaries. This responsibility will include the zoning of land to ensure that, to the maximum possible extent, good quality agricultural land is preserved for productive use, that the minimum amount of land is sacrificed for housing, offices, roads and industrial use, and that land used for brickyards is restored to specified productive use within a specified time-limit.
- The Ministry of Land, the Ministry of Agriculture and the Bangladesh Water Development Board (BWDB) will make available existing technical information on climate, soils, topography, surface-water and groundwater hydrology, present land use and use potential in a readily usable format for

use by officials and the people elected representatives at national, Divisional, District, Thana, Union and village levels. These organizations will arrange for training of officials and elected representatives in the use of information for planning improved land use. They will also arrange for additional regional and local surveys and studies to be carried out so as to improve existing knowledge of land and water resources, land use practices and socio- economic factors influencing national economy.

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১. বয়স :
২. পেশা :
৩. শিক্ষাগত যোগ্যতা :
৪. বর্তমান আবাসিক ঠিকানা : মৌজা ওয়ার্ড
৫. আপনি কি ধরনের মালিকানার বাড়ীতে থাকেন ?
ক) ভাড়া বাসা খ) নিজস্ব গ) অন্যান্য (দয়া করে উল্লেখ করুন)..... ।
৬. কি ধরনের বাড়ীতে থাকেন ?
ক) পাকা বাড়ী খ) সেমিপাকা গ) কাঁচা ঘ) অন্যান্য..... ।
৭. বাড়ীটি নিজের হলে কি ভাবে মালিকানা লাভ করেছেন?
ক) পৈত্রিক খ) ক্রয়সূত্রে গ) অন্যান্য (উল্লেখ করুন) ।
৮. কত বৎসর যাবত এ বাড়ীতে আছেন?মাস/বছর ।
৯. জমির পরিমাণ কতটুকু?শতাংশ ।
ক) ভবনশতাংশ খ) অন্যান্যশতাংশ ।
১০. জমির মালিকানা লাভের সময় শ্রেণী কি ছিল?
ক) ভিটি খ) কৃষি জমি গ) জলা ভূমি ঘ) বন
ঙ) অন্যান্য উল্লেখ করুন).....
১১. পারিবারিক সদস্য/সদস্যা সংখ্যা :জন ।
১২. পরিবারের ধরন :
ক) একক খ) যৌথ

১৩. বাড়ীটি কত তলা?তলা ।

১৪. বাড়ীটিতে বসবাস কৃত এলাকার আয়তন কত?বর্গফুট ।

১৫. এ বাড়ীতে মোট কত লোক বসবাস করছে? জন ।

১৬. আপনি কি মনে করেন মাথা পিছু প্রাপ্ত আয়তন একটি লোকের বসবাসের জন্য

ক) যথেষ্ট খ) যথেষ্ট নয় ।

১৭. আপনার বাড়ীতে কয়টি কি ধরনের গাছ আছে? -----

১৮. বর্ষার সময় চলাচলের রাস্তায় পানি জমে কি?

ক) হ্যাঁ খ) না

১৯. জমলে কতক্ষন স্থায়ী হয়?ঘন্টা/দিন

২০. রাস্তায় পানি জমার জন্য দায়ী কে?

(ক) সিটি কর্পোরেশনের অব্যবস্থাপনা (খ) অপরিকল্পিত রাস্তা (গ) অপরিকল্পিত বাড়ীঘর

(ঘ) পাহাড় কর্তন (ঙ) খাল/নালা নর্দমা ভরাট করে বাড়ী ঘর নির্মান

(চ) অন্যান্য (উল্লেখ করুন).....

২১. আপনার ভবন হতে সবচেয়ে নিকটের ভবনটির মধ্যকার দূরত্ব কত?.....ফুট/গজ ।

২২. আপনার ভবন হতে সবচেয়ে দূরবর্তী ভবনের দূরত্ব কত?.....ফুট/গজ ।

২৩. আপনি এ শহরে কত বছর যাবৎ বসবাস করছেন?.....মাস/বছর ।

২৪. সে সময়ে (প্রথম বসবাসের শুরুতে) কি এলাকায় বর্ষার পানি জমতো?

(ক) হ্যাঁ (খ) না

২৫. সে সময়ে পানি নিষ্কাশনের যথেষ্ট প্রাকৃতিক ব্যবস্থা ছিল কি?

(ক) হ্যাঁ (খ) না (গ) বর্তমানের মত একই ধরনের ।

২৬. ঐ সময়ে যে পরিমান গাছপালা ছিল তা কি এ সময়ের তুলনায় বসবাসের জন্য বেশী উপযুক্ত ছিল?

(ক) হ্যাঁ (খ) না (গ) একই ধরনের আছে ।

২৭. বর্তমানে কি এ এলাকায় কখনো বন্য প্রাণী চোখে পড়ে?

(ক) হ্যাঁ (খ) না

২৮. উত্তর হ্যাঁ হলে সর্বশেষ কবে দেখেছেন?দিন পূর্বে

২৯. আপনি যখন এ শহরে প্রথম বসবাস শুরু করেন তখন কি বন্য প্রাণী চোখে পড়েছে?

(ক) হ্যাঁ (খ) না

৩০. উত্তর হ্যাঁ হলে কত দিন অন্তর দেখেছেন?.....দিন।

৩১. ঐ সকল বন্য প্রাণীর নাম কি ছিল?.....

৩২. ২৭ নং প্রশ্নের উত্তর হ্যাঁ হলে বন্য প্রাণীর নাম কি?

৩৩. আপনি যখন এ শহরে প্রথম বসবাস শুরু করেন তখন আপনার বাসা হতে কত দূরত্বে

(ক) পাহাড়/টিলা ছিল?.....ফুট/গজ। (খ) বর্তমানে আছে..... ফুট/গজ।

(খ) বন ছিল.....ফুট/গজ। (খ) বর্তমানে আছে..... ফুট/গজ।

(গ) খাল ছিল?ফুট/গজ। (খ) বর্তমানে আছে..... ফুট/গজ।

(ঘ) জলা ভূমি ছিল?ফুট/গজ। (খ) বর্তমানে আছে..... ফুট/গজ।

৩৪. আপনি যে বাড়ীতে বসবাস করছেন তার প্লান কি CDA অনুমোদিত?

(ক) হ্যাঁ (খ) না (গ) জানি না।

৩৫. যদি অনুমোদিত হয় তবে আপনার মতে এ অনুমোদন কি সঠিক হয়েছে?

(ক) হ্যাঁ (ক) না (গ) মন্তব্য নেই।

৩৬. আপনি কি কখনো ভূমি ব্যবহার নীতিমালার কথা শুনেছেন?

(ক) হ্যাঁ (খ) না

৩৭. শুনে থাকলে কবে শুনেছেন?.....মাস/বছর পূর্বে

৩৮. জাতীয় ভূমি ব্যবহার নীতিমালা কবে প্রণীত হয়েছে তা জানেন কি?

(ক).....মাস/বছর পূর্বে (খ) জানি না।

৩৯. আপনি কি জমি সংক্রান্ত সমস্যাকে প্রকৃত পক্ষেই সমস্যা মনে করেন?

(ক) হ্যাঁ (খ) না

৪০. প্রশ্নের উত্তর হ্যাঁ হলে দয়া করে বলবেন কি এ সমস্যা কিভাবে সমাধান করা যেতে পারে?

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1. Age :-----
2. Occupation:-----
3. Educational qualification:-----
4. Present Address:-----
5. Ownership of the house:
 - a) Rented house b) Own house c) Others
6. Which type of house do you live in?
 - a) Building (Pucca house) b) Semi pucca c) Kucha d) Others
7. If the house is yours, how did you get its ownership?
 - a) Inherited b) Purchased c) Others
8. How many years you are living in this house? ----- months/years
9. Size of the plot? ----- decimal.
 - a) Building area ----- decimal b) others area ----- decimal
10. The category of land during its ownership?
 - a) Home state b) Agricultural land c) Wet land
 - d) Forest e) Hills e) Others (please specify)
11. Number of family members: -----
12. Family type: a) Single b) Combined
13. How many storey the house is? -----
14. Living area of the house? -----sq.ft.

15. How many persons live in this house? -----
16. Do you think that the per capita floor space is sufficient?
a) Yes b) No
17. What Kind of trees do you have in your residence? -----

18. Does water logging take place in the roads during the rainy seasons?
a) Yes b) No
19. If waterlog, how much time it stands? ----- hours/day.
20. What factors is responsible for water logging?
a) Mismanagement of City Corporation
b) Unplanned roads c) Unplanned houses
d) Hill cutting c) Constructions of housing by filling drains. d) Others
21. Distance of your building from the nearest one. -----ft.
22. Distance of your building from the farthest building. -----ft.
23. How many years have you been in this city? -----
24. Did water logging occur at that time (at the beginning of your settlement)?
a) Yes b) No
25. Was there any sufficient drainage systems during that time?
a) Yes b) No c) Like these days
26. Was the amount of trees sufficient for environment in
comparison to these days?
a) Yes b) No c) Like these days
27. Can wild animals be seen these days?
a) Yes b) No
28. If the answer is positive then when did you see
them at latest?----- days/ months
29. Was there any wild animals those days?
a) Yes b) No
30. If the answer is "yes" then when did you see? -----month/year ago.
31. What were their names? -----

32. If the answer of the question no. 27 is positive then
what were their names? -----
33. At the beginning of your settlements what were the distance
of your house from:
- a) Hills were----- ft./yard far a.1) Now hills is -----ft./yard.
 - b) Forest were----- ft./yard far b.1) Now forest is -----ft./yard.
 - c) Canals were---- ft./yard far c.1) Now canals is -----ft./yard.
 - d) Wet land were---- ft./yard far d.1) Now Wet land is ----ft./yard.
34. Did the plan of this house approved by CDA?
- a) Yes b) No c) I don't know
35. If it is approved then do you think it is correct?
- a) Yes b) No c) No comment.
36. Did you herd about National Land Use Planning?
- a) Yes b) No
37. If yes, when did you hear? ----- months/years ago?
38. When did you come to know?
- a) -----months/years ago b) I don't know?
39. Do you think that land litigation is really a problem in our country?
- a) Yes b) No
40. If the answer is yes then please tell me how the problem can be solved?