GROWTH AND PATTERN OF SETTLEMENT IN THE CHAR AREAS OF SOUTH NOAKHALI : A CASE STUDY ON MAUZA HATIPUR, CHARDARBESH AND CHAR JABBAR

A Thesis submitted to the Department of Urban and Regional Planning, BUET, Dacca in partial fulfillment of the Degree of MASTER OF URBAN AND REGIONAL PLANNING

BY
S.M. JAMALUDDIN

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DACCA.

JUNE 30, 1979

T H E S I S

GROWTH AND PATTERN OF SETTLEMENT IN THE CHAR AREAS OF SOUTH NOAKHALI :-A CASE STUDY ON MAUZA HATIPUR, CHARDARBESH AND CHAR JABBAR.

BY

S.E.M. JAMALUDDIN

Approved as to style and content by :

Chairman of the Committee.

Member.

Member.

Member.

Member.

June 1979.

ACKNOWLEDGEMENT

The author takes this opportunity to acknowledge Mr. Golam Rahman, Associate Professor and Head of the Department of Urban and Regional Planning, BUET, for his constant guidance and advice all through the time of carrying out this research work.

The author is also indebted to Professor M. Aminul Islam of Dacca University and Mr. Daru Shamsuddin, Assistant Professor of Jahangirnagar University for providing invaluable advice regarding this thesis. It is worthy to acknowledge duly the prior suggestion and inspiration that were rendered by late Mr. A.F.M. Kalimullah, Associate Professor in the Department of Geography, Jahangirnagar University. The author mourns and condoles his sudden demise on February 4, 1979. Thanks are also due to Mr. Mahbubun Nabi, Assistant Professor in the Department of Urban and Regional Planning, BUET for rendering very kind assistance during site selection and conducting survey in the study areas of Noakhali.

The author is also grateful to some other persons in the Govt. and Semi-Govt. offices, educational institutions, who in many ways had rendered co-operation to complete this work.

Finally, the help and hospitality of the people of char villages under study also deserve to be mentioned.

ABSTRACT

The study of growth and pattern of human settlement in rural Bangladesh is one of the most significant themes of villages, predominantly devoted to agriculture. The very few studies that have been made on this subject provide evidence that many of the features of the rural settlements - their locational patterns, morphology and functional settings and even the nature are inefficient for the needs of modern living, economic well being and current social dynamics.

The charlands which comprise the major part of southern Bangladesh is one of the recently settled region. It represents some different socio-economic norms and pattern of human habitations developed over a short span of human existence in the vastness of the area which is characterized by complexities of physical features and resources. These new lands (chars) have been emerging from the mighty rivers or the Bay of Bengal are vulnerable to severe cyclone, tidal bore, land erosion and tidal inundation. The natural hazards and the morphological changes due to erosion and subsequent accretion of land in the vicinity of the area have tremendous impact upon the growth and patterning of settlement in this region yet to be investigated. As such, the study of char settlement

assumes strategic significance in the general program of rural development, modernisation and social change in this region of underdevelopment, and yet not much attention has been paid towards this important aspect.

For the purpose of the present study on char settlement of south Noakhali, three sample areas of the new charlands have been chosen at random and at different distances extending upto 15 miles south of the older part of Noakhali district. The three study villages were selected so as to cover a considerable area representative of the region on the one hand and be accessible on the other. Based on sample survey and mapping exercises some major features (factors) of the growth of char settlement and its spatial relation with the farmland were identified. The main problems of charland settlements which spring basically from its physical, social and economic condition were also brought into light. On the basis of findings and concoctions of this study, finally, some planning guidelines and two alternative proposals of balanced settlement growth and patterning have been made for sustaining regional development in the char areas of Bangladesh.

Title of Thesis : Growth and pattern of settlement in the char areas of south Noakhali - A case study on mauza Matipur, Chardarbesh and Char Jabbar.

Thesis Supervisor : Mr. Golam Rahman
Associate Professor and Head,
Department of Urban and Regional Planning,
Bangladesh University of Engineering and Technology, Dacca.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

CHAPTER - I

INTRODUCTORY

The study of settlements have been one of the most significant themes of human ecology. It has generally been referred, in this context, to the functional grouping and distribution of people on space. Kirk H. Stone defined settlement study as the description and analysis of the distribution of building by which people attach themselves to the land. It is not incidental. Rather it is a process of time, space and culture.[1]

The process of rural habitation is traditional and mingled with the origin of agriculture and settlement in Bangladesh dates back to the remote past. It is deeply rooted in Indo-Pakistan past history.[2] In most cases, the growth of settlement was unorganized and it is not certain when the first settlement took place. Evidence shows that Bengal was settled long ago by people of different ethnic backgrounds. The process of village formation has been

---

1. Stone, Kirk H., "The Development of a focus for the Geography of Settlement", Economic Geography, Vol. 41, No. 4, 1965, Pp. 346-355.
2. Basham, A.L., The wonder that was India, New York, 1959, P.11.

continuous due to the facts of population increase and movement of population among and within the villages. Thus, in the growth of human settlement there are both inward and outward forces at work.[3]

In newly formed chars* and islands in the southern frontier of Bangladesh settlement begins in the form of scattered hamlets. People moved from the crowded interior villages of the contiguous districts. These migrants paid the government for cultivation and occupancy rights. Although fertile, the lands remain insecure for human settlements due to the ravages of floods and cyclones.[4] The chars - the vast landmasses of southern Bangladesh are recently settled regions where settlements have evolved in their own traditional way as is evident in the older parts of this area. Peasants comprising the majority of the people here are settled in myriads of rural settlements. There are gigantic problem and great potentials and as such, the area assumes strategic significance in the general programme of rural development, modernization and social change.

---

3. Aras, . Mohammad, "The pattern of Rural Settlement in Sub-Hymalayan Region (East)", The Geographer, Vol. 6, No. 2, 1954, P. 25.

4. Blair, T.A. and R.C. Fite, Weather elements (4th ed.), New Jersey, 1960, P. 197.

* Char generally means any accretion in a river or in the mouth of a river.

Bangladesh is predominantly a rural country and within its rural areas the char lands reveal some special characteristics as the new lands are continuously emerging for human settlement. The southern part of Noakhali district is a typical char land, known as Bhangtee Mahal* in local parlance, may crop up some basic characteristics of settlement growth of the newly deposited areas of other districts of Barisal, Patuakhali and Khulna.

The older town of Noakhali stood in the danger of erosion during most part of its existence and has been destroyed twice within 15 years in the present century, first in 1936-37 and then in 1948-49. Ultimately the old town at Sudharam was washed away by the Meghna river and the new town was shifted to Maizdee court which is about 4 miles away from the older town.[5] Since 1951 Meghna river receded and shifted its course through the Chahabazpur Channel which is more than 25 miles away from the older course. As a result, a vast char land has been formed to the south of the new town of Noakhali extending upto the sea. Due to the contiguity of the mainland of the district to the sea and also due to the comparatively low level of

5. Govt. of Pakistan, Census Commission, District Census Report, Noakhali, 1961.

* Bhangtee Mahal means the char area, once subjected to erosion and had been in the river or sea.

the land surface, the district, particularly its southern part witnesses severe and frequent tidal bores which cause havoc to life and property. These landmasses in the sea frontier has yet to be stablised and have been undergoing morphological change due to erosion and deposition of land and diversion of river channels. Beside these hostile environmental conditions, the remoteness from the main territory, backward communication, underdevelopment and general backwardness make settlement growth and agriculture very difficult in the area. In recognition of the genuine difficulties of this region, the government has constituted the Coastal Development Board for the preservation, stabilization, reclamation and development of the lands and resources for sustained development in the coastal area as a whole.

The district has a heavy density of population, particularly in its older part and consequent high pressure on land cause inter-regional, intra-regional migration and redistribution of population. Beside these, other physical, social and economic conditions have also been setting their stamp upon the character of this recent settlement growth in the char land of Noakhali.

New settlement in a new land is an interesting phenomena, the query and pivot theme of this study. There provides ample scope for studying the dynamics of settlement growth. This study seeks to identify some planning efforts to evolve a suitable settlement pattern and effective land management which will ensure a better living condition of the masses in the region.

1.1 SETTLEMENT IN BANGLADESH

Human settlement has been an inevitable expression of culture and civilisation. The evolution of settlement through ages signifies that whatever may be the nature of its development, some of its basic characteristics are common. The condition of terrain and climate, in combination with certain economic and cultural factors have bestowed upon Bangladesh a distinctive pattern of rural settlement. In fact, the regional differences in geomorphology and flodding as physical factors influence the type and patterning of settlement to a great extent.

1.1.1 A VIEW OF BANGLADESH TERRAIN AND PHYSIOGRAPHY INFLUENCING SETTLEMENT AND AGRICULTURE.

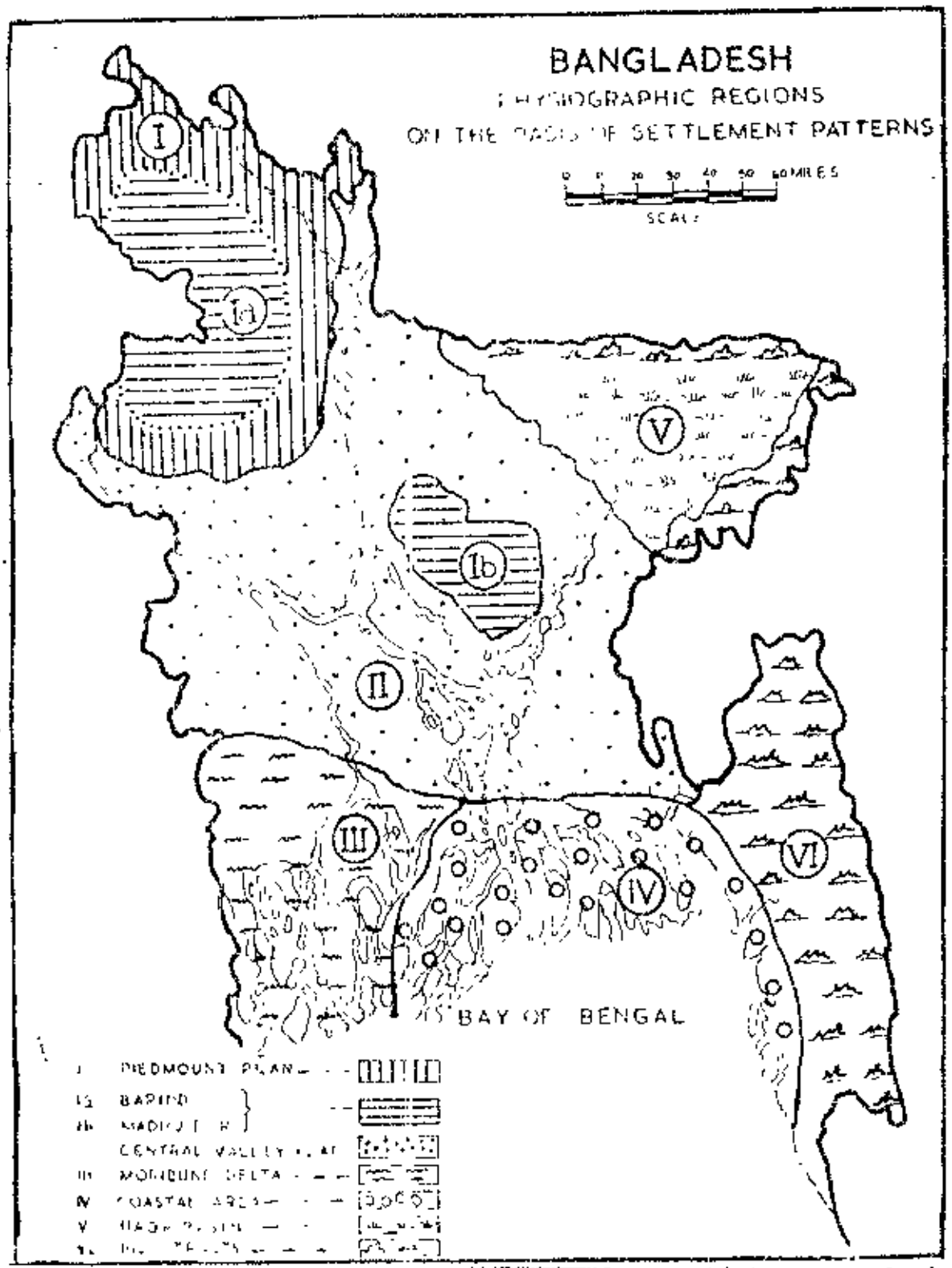
Bangladesh, generally speaking, is a flat deltaic plain formed of old and new alluvium. The areas of old alluvium

are located high above the general level plain. While the areas of new alluvium lie in the flood plains of recent origin. As the whole country is intersected by a network of rivers, the areas covered by recent alluvium are very large.

North-western part of the country lies at a higher level of which the northern part is built up as a piedmont alluvial plain which merges southward into the old alluvium tracts locally known as the Barind. The relief of the Barind is typical information and mostly consists of series of low domes making undulating terrain formed of calcareous and ferrugeneous concretions. It differs from recent alluvium which lies on the outskirts of the Barind. The soil is fertile but grows only one crop during the rainy season.

In the north-eastern part of the country the terrain is different and it consists of low depressions. To the east of this basin the land is comparatively higher, and towards the north it is intersected here and there by high lands locally known as 'tillas' (hillocks). These tillas undulate and gradually merge into the surrounding low plains. This region receives very high rainfall. The soil is suitable for the production of tea crops. The beels and low depressions contain the best inland fresh water fisheries of the country.

Fig. 1



Source : Govt. of the People's Republic of Bangladesh, National Report on Human Settlements, Bangladesh, HABITAT conference, Vancouver, 1976, P.51.

The eastern part of Bangladesh has a dissimilar topography than the rest of the country. The land features here are marked by hill ranges and low valleys lying parallel to each other. The hills are of gradually decreasing height to the west and ultimately merged into the coastal plain of Chittagong. In the valley, the spring line follows this alingment and the settlements are built along this line giving a linear pattern to it. Available cultivated fields are few. In this region, the far eastern part is occupied by high hills with dense forest. The major part of the Karnafuli-Kassalong valley is now covered with the artificial reservior (built for hydro-electric project) leaving a small area for settlement and cultivation.

In the central part of the country lies a vast plain commonly known as "the central valley flat" - the new alluvial plain through which innumerable rivers pass. This region is most suited to productive agriculture and the settlements have grown up along the levees.

In the south-west part of the country the conditions in the remote past were similar to those of the present central valley flat, but then the river course have

shifted to the east leaving a high dry Moribund delta. The pattern of settlement is in general linear which persists even after the change of river courses.

The plains, built by alluvial soil is fertile but due to lack of water in winter, agriculture is greatly hampered. Human settlements in the region face an uncertain pattern for another hazard of salinity intrusion adversely affecting the agriculture of the region.

The coastal areas and the off-shore island region are influenced by daily tide and salinity of the soil. In recent years, the coastal zone has been protected from tide and salinity by building an extensive network of polders. This region is however prone to severe cyclonic hazards. Settlements and agriculture are gravely affected by these natural calamities.

This present study is concerned with the extensive char lands in the deltaic region include the area within Khulna, Barisal, Patuakhali and Noakhali districts and that part of Chittagong district lying south-west of the Feni-Chittagong railway line. The Northern boundary is delimited by the mainland of those districts. The delta,

notably its active part, is situated at the mouth of the lower Meghna river, which is the combined lower course of the Ganges, Brahmaputra and Meghna rivers. In addition, there are numerous creeks and 'Khals' draining local areas with a large number of chars and mud-flats. The level of these coastal land and islands are only few feet above mean sea level, so the frequent flooding occurs due to high tides and general rise of the sea-level in the wet season.

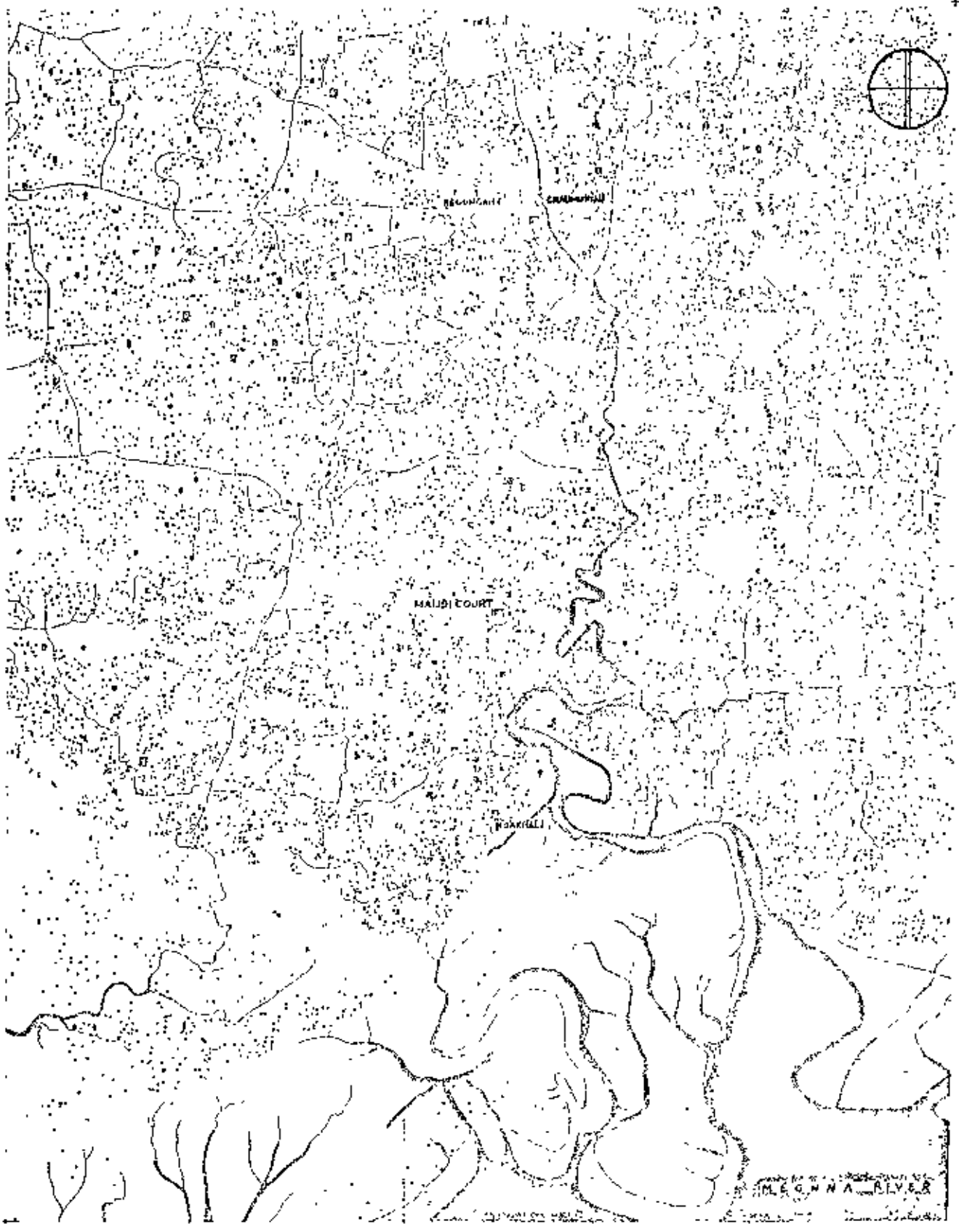
1.2. FORMS AND DIFFUSION OF RURAL SETTLEMENT IN BANGLADESH.

Bangladesh is predominantly an agricultural country. The economic life of Bangladesh has been characterised by the rural settlements as the people settled and organized their land pattern accordingly. The establishment of villages in Bangladesh owe their origin to agriculture which may be traced back to the plough culture state of development in the ancient Indo-Pak-Bangladesh sub-continent.[6] The beginning of settled agriculture in Bangladesh dates back to pre-Aryan history. The early villages were of different sizes and dimensions, and were mostly nucleated in a pattern which were suited to

6. Basham, A.L., loc. cit.

Fig. 2

MAIJDI - BEGUMGANJ - SUDHARAM AREA
DISTRIBUTION OF SETTLEMENTS



Source : Doxiadis Associates, Noakhali District Hegdquarters at Maijdee Court (Master Plan), 1964, P. 17.

an indigeneous agrarian culture and may be ascribed mainly to its security aspect in early days. And even now when there is no danger of hostile attack, the same pattern continues. However, there are wide various among the various villages by settlement pattern. Different physical, cultural and local conditions play a great role in shaping distinctive forms and patterns of rural settlement in Bangladesh.

With the predominance of plough culture, the classification of villages using functional distinctions is difficult to obtain. Whatever may be the variations in their nature and functions, three main types of rural settlements are prevalent in Bangladesh.[7] (1) Nucleated villages which indicate agglomerated homesteads. (2) Dispersed hamlets are types of settlements in which the human habitations stands isolated from each other. (3) Linear villages have the appearance of a long one streeted village winding its way accross the landscape.[8]

---

7. Rahman, G., "Rural Settlements in Bangladesh", Studies in Bangladesh Geography, BRGA, 1974, Pp. 256-263.

8. Smith, Lynn. T., "Farm Trade Centres in Lusiana, 1901, 1931", Lusiana A.E.S. Bulletin, 234 (Baton Louge), 1933, P.3.

In Bangladesh, nucleated types of settlement take their shape if natural growth occurs. Homesteads are, however, usually grouped around a pond thus forming a circular or even trangular nucleated form depending upon the shape of the ponds or lakes. The western part of the delta has nucleated settlements. In general, settlement types in Bangladesh are mixed and often it is difficult to differentiate between the dispersed and nucleated patterns. In Gunsenganj, Kishoreganj, Brahmanbaria, Tangail, Kushtia, Jessore and in tribal areas of the Chittagong Hill Tracts and at many other places, homesteads are built in a way which reflect the type of nucleation.

The dispersed hamlet is the dominant form of settlement in Bangladesh. The Census of Bengal stated that the homesteads are scattered over the whole face of the countryside. Spate writes, "Bengal especially the eastern delta is sue generis; there is indeed, much settlement that is not nucleated but dispersed".[9] In Barisal, Noakhali, Dacca and other inundated districts, widely scattered or dispersed settlements are the

---

9. Spate, O.H.K., "The Indian Village", Geography, Vol. XXXVII, No. 177, Part 3,P142.

dominant form. These settlements are built on artificial higher grounds and in the rainy season seem to float in the flooded landscape. These dominant forms of settlements are modified in some localities due to specific local variations.

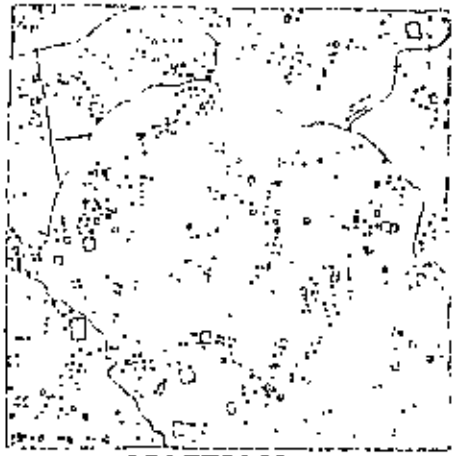
The linear village is found scattered through Bangladesh. This type of village developed along the lines of communication networks or even when development occurs along the shore of a natural lake. Mostly these villages occur at the junction of roads and rivers, or on alluvial fans, at the foot of steep cliffs, and along the levees in marshy lands. They may also follow a single road or a channel. These villages are considered to be formal in their pattern of growth and development and grow out of the needs of the people in relation to the terrain.

Settlement in the southeastern districts - In the true sense fully nucleated settlement pattern is found in the Hill Tracts District, where the tribal people live near the streams or on the highest ridges. In the lower part of the Chittagong Hill Tracts, mixed settlement patterns are found. Homesteads cluster on the valley

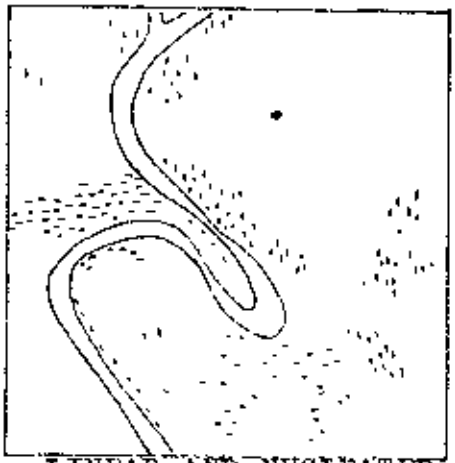
Fig. 3 : TYPICAL SETTLEMENT PATTERNS

LINEAR
KALAROA TH

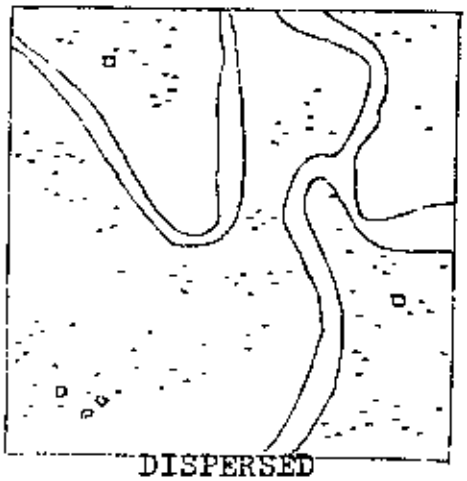
NUCLEATED
LAMA TH



SCATTERED
FENI TH

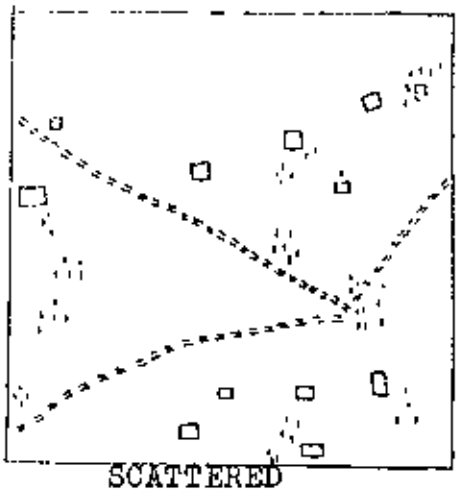


LINEAR AND NUCLEATED
ALONG THE KARNAPHULI RIVER



DISPERSED
SOUTHEASTERN BAKERGANJ

DISPERSED
SOUTHERN DACCA



SCATTERED
DINAJPUR-RANGPUR BORDER

Source: 1. Rashid, Haroun-er, East Pakistan-A systematic Regional Geography and Development Planning Aspects, Lahore, 1965, P.358.

2. Ahmed, N., "The pattern of rural settlement in East Pakistan", The Geographical Review, Vol. XLVI, 1956, Pp.389-397.

floors, hugging the river banks, or concentrate around tanks built for additional water supply. Westward near the coast, the characteristic scattered homesteads are more common. Faridpur, Bakerganj, Noakhali, the estuarine islands and other parts of southern Bangladesh have many settlement features in common and are widely scattered or dispersed over the higher ground.

Settlement in the northeastern districts - In the low lying marshy areas of Mymensingh homesteads are clustered together on mounds of artificially raised earth. In Madhupur Tract the homesteads are generally scattered. Over most of east and south Sylhet the settlements are dispersed. In western and southwestern Sylhet, where water-filled depressions are characteristic of the landscape, linear developments take place along the higher banks of the main streams and clustering of settlements on artificially raised mud surrounded by marsh and rivers.

Settlement in the southwestern districts - In the Moribund delta the tendency towards nucleation is strong. Though dispersed homesteads are still met over considerable areas of Jessore and Kushtia districts, the dominant pattern is one of concentration (nucleation). Along the

streams, ox-bow lakes, channel scars and roads the developments are linear pattern. Farther to the south, in the Sundarban region few homesteads are scattered and the habitations follow the raised bank of streams.

Settlement in the northwestern districts - Accross the Ganges in northern Bengal, in Pabna and Rajshahi districts the growth of scattered settlements are again typical. The Santhal settlements in the Barind and adjacent areas, however, present an entirely different picture. The Santhals like to live in closely knit communities with a concentration of houses. In Dinajpur the dispersed pattern is modified here and there. Numerous tanks are a special feature of the countryside (Fig. 3) in Dinajpur and western Rangpur.

CHAPTER-II

THE DESIGN OF THE STUDY

Bangladesh is a densely populated country with more than 91 per cent population living in the rural areas. But the study on rural settlement has so long been limited as an aspect of complementary studies on villages. And any comprehensive work with its settlement only is yet to be given importance. It is also recognised that within the rural areas of Bangladesh, the southern part of active delta portray some different physical and cultural features as new chars and islands emerge from the rivers or the sea for subsequent human settlement building. Obviously, it is thought that the factors and dynamics which mould the settlement growth in these chars and islands may also be dissimilar from other areas of this region in general and older parts in particular.

2.1. THE OBJECTIVES OF THE STUDY

The growth of settlement in the char lands of Bangladesh is spontaneous with the emergence of new land as a natural process. Cyclones, tidal bores, tidal erosion and other natural hazards are not unusual in these vast land masses.

Nevertheless, combatting and overcoming those natural calamities some ambitious people of the adjoining areas flock to the new lands as soon as these emerge and settled gradually. And there is no planning control for tackling the situation by organising settlement in the area. The study, therefore, is intended to :

1. Analyse the factors which are closely related to the growth of this settlement ;

2. Observe the trend of settlement development and its spatial relation with the farm land;

3. And on the basis of all this relevant information and traits of settlement growth, finally to make some policy suggestions and planning guidelines for a balanced settlement growth and improvement in the area as a whole.

2.2. METHODOLOGY

The study of human settlements, analysing as well as constructing them, has been mostly empirical. Consciously, this study also includes only the settlements in existence and project their past into the future. The new settlements that have been created, have for all practical

purposes been a continuation of those already in existence, and are closely related to its natural and cultural factors. The natural factor for char settlement growth indicates the coastal environments with some virgin landmasses in one hand and morphological changes of the areas on the other. The cultural conditions assume backward transport, low standard of living, illiteracy, lack of social exchange and areal remoteness from the modern culture of this country. Having all these facts in consideration, the present study on char settlements starts with direct observation of the existing phenomena and then proceeds to understanding them. Moreover, all factors are closely interrelated, therefore, this approach has by necessity a special significance for prosecuting this research work.

2.2.1. SELECTION OF SAMPLE VILLAGES

For a representative study of the char settlements of Noakhali, 3 sample villages of the new char lands have been chosen purposively at different depths extending upto 15 miles south of the older territory of Noakhali district. The villages were selected considering their accessibility in such remote area and desired variations of the local situation due to age and areal differentiation of settlement growth. In Matipur and Chandarbesh the

present settlements were not existed until 1958, whereas in char Jabbar the growth of settlement had begun at the beginning of this present century. Matipur, Char Darbesh and Char Jabbar, the selected villages for study are on an average, 7 miles apart from each other. However, these study villages are conveniently located being very close to the WAPDA embankment and crossdam which are the only major transport route to and from the region.

2.2.2. DESIGN OF THE SURVEY (DATA COLLECTION)

As an inevitable part of this research work investigation was made at two levels - the village as well as at the household level. For this purpose, information were collected in two ways : (i) through land use and (ii) socio-economic surveys in the villages under study. The land use survey was undertaken by direct observation in the field, along with the plotting exercises on Cadastral maps of the villages. For conducting the socio-economic survey a mixed form (both open and structured) questionnaire was prepared beforehand. In order to comply with the objectives of this study, a few test interviews and a pilot survey were also

carried out in the char areas, the already selected study area at Noakhali for framing the final questionnaire. The queries concerned with individual as well as family particulars, reasons of migration and settling in the present village, selection of particular plot for building homesteads, housing area and its periodical change, homestead-farmland relation, building material, water supply and drainage system, land ownership and crop yield etc. (see appendix).

2.2.3. SAMPLE DESIGN AND INTERVIEWING

The design of the sample has been decided upon in the light of what is practically feasible as well as what is theoretically desirable in this study. For undertaking socio-economic survey the sample unit is the household which refers to the members living together and having meal from same kitchen. For the purpose of household survey, the household census list of the 3 villages were made from Distribution Priority Registrar maintained by the Union Council Office. Considering practicability and suitability, 9.7 percent (or a total of 128) samples were chosen on an average from the 3 villages using the random number table. The sample house holds thus selected were identified in the

TABLE 1 : SAMPLE CHOSEN BY VILLAGE

Name of Villages	Total households	Sample size	Percentage of the total
Matipur	176	21	11.9
Charderbash	287	34	12.2
Char Jabbar	863	73	8.5
Total	1326	128	9.7

Lists for interviewing at the homes of villagers. The community survey was in general complementary to the household survey. One of the main concerns of the survey was interviewing. The head of the households was preferred as respondents and in case of their absence or inability, the responsible inmates were chosen. During questionnaire administration, best possible efforts were undertaken to collect and record the most acceptable answers. And before the filled questionnaires had been regarded as ready for tabulation and analysis, they were checked and edited for completeness, accuracy and uniformity.

2.2.4. OTHERS SOURCES OF INFORMATION

The data, maps etc. that are also necessary for the study have been collected from various sources including : 1) Govt. Census Reports, 2) District Gazetteer, 3) Survey of Bangladesh/D.L.R. Office, 4) WAPDA Office 5) Director of land reclamation scheme, 6) Settlement Office 7) Atomic Energy Centre, 8) Geography Department, Jahangirnagar University and 9) Different research organization and individual research papers and reports. And the sources have been duly acknowledged where they appear in the text.

2.2.5. DATA ANALYSIS

The whole work has been quantified by means of simple statistical measurement and later qualified, elaborated by the synthesis and explanation of the results supported by secondary references when required. The available data involved a large amount of processing and tabulation. In the text, in most cases, the final and summary tables have been provided and also appropriate information have been represented graphically wherever possible.

2.3. LIMITATION OF THE STUDY

A human settlement is created in order to satisfy certain needs of both its own inhabitants and of others in some other settlements. Following the creation and operation of settlement new functions are added, which have not been foreseen. The weakness of empirical method is that it cannot be of much help in new situations, specially when prescriptive action is required. The study of rural settlement in Bangladesh has been limited as a part of village study in general. In the present study, therefore, an emphasis has been given in attaining a better understanding of this particular aspect of rural study. It would have been better if few more village could be taken for this study. In view of the limitations of time and resources, it had to be restricted. Necessary socio-economic aspects were given due consideration and incorporated into the analysis but any comprehensive analysis was deliberately avoided. In different phases of this research work, the paucity of secondary materials have been greatly felt and in someway might have hindered the study. Despite all limitations, the aim throughout is to utilize the collected data to best advantage.

CHAPTER - III

STUDY AREA

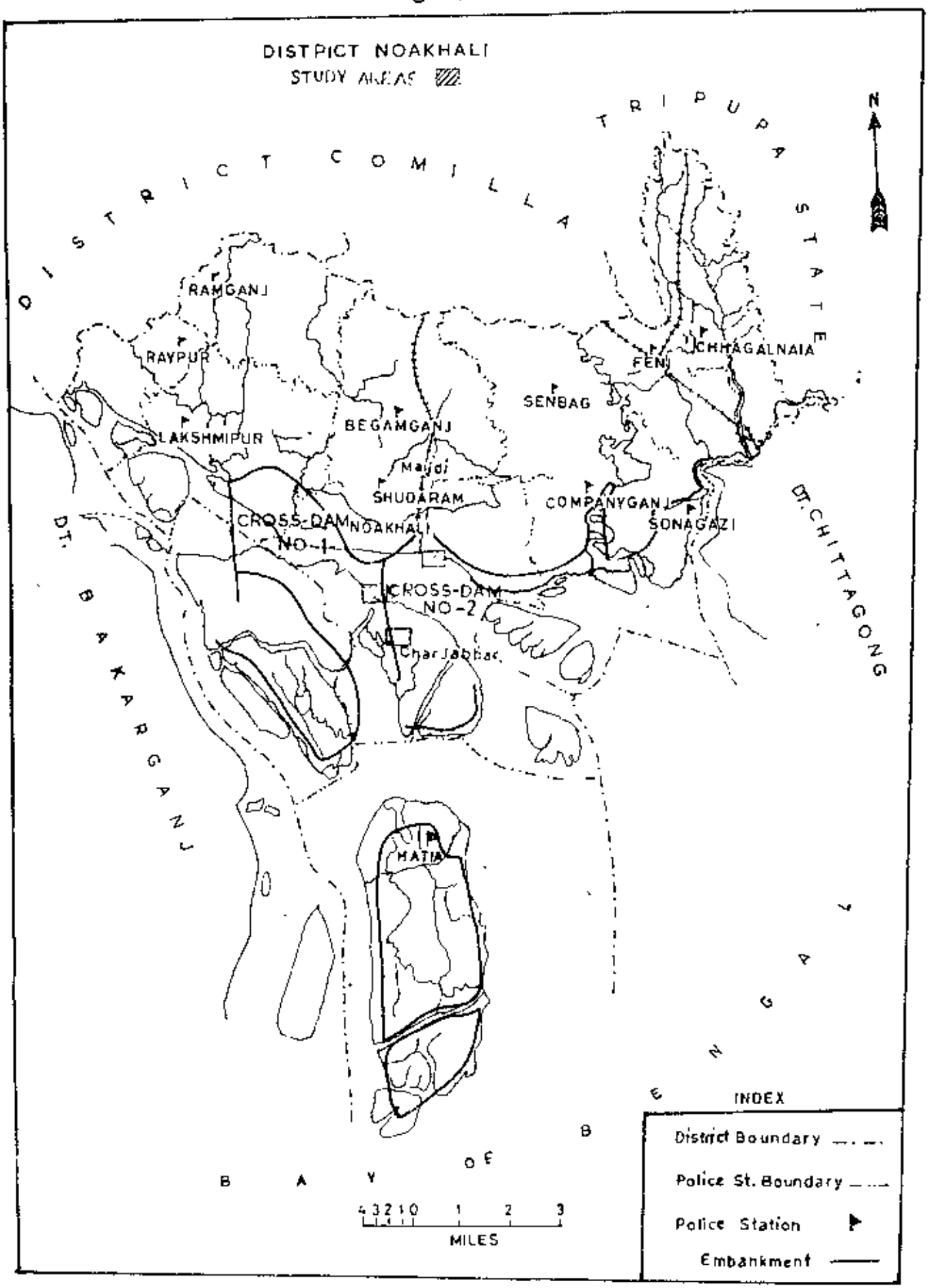
3.1. LOCATION & SETTING OF THE STUDY VILLAGES

Matipur, Chardarbesh and Char Jabbar - the 3 villages (Mauzas)* under study are all recently developing communities in the newly deposited land under Sudharam Sub-division of the district of Noakhali. Matipur and Chardarbesh are under Noakhali Union while Char Jabbar is the village after which the union has been named. These areas lie between 22^{0} - 40' and 22^{0} - 47' north latitude and 91^{0} - 02' and 91^{0} - 05' east longitude. These study villages are located at different distances to the southern char land of Noakhali District. Matipur is not far from the Noakhali Municipal area and is only one mile south of the Bangladesh Water Development Board embankment. Chardarbesh is located 6 miles south of Matipur and extends on both sides of the cross dam No. 2 which connects Char Jabbar and Char Baata with the mainland of Noakhali. The village Char Jabbar is again 8 miles south of the Chardarbesh village and is not

---

* Mauza means a surveyed & recorded area for the realisation of agricultural revenues. A union consists of a number of mauzas. Whereas village refers a socio-physical concept with a group of houses in the country, larger than hamlets but smaller than a city or town. In this context, however, the villages resemble the mauzas.

Fig. 4


DISTRICT NOAKHALI
STUDY AREAS
DISTRICT COMILLA
TRIPURA STATE
N
RAMGANJ
RAYPUR
LAKSHMIPUR
BEGAMGANJ
SENBAG
FENI
CHHAGALNAIA
Majdi
SHUDARAM
COMPANYGANJ
SONAGAZI
NOAKHALI
CROSS-DAM NO-1
CROSS-DAM NO-2
Char Jabbar
HATIA
DT. BAKARGANJ
DT. CHITTAGONG
BAY OF BENGAL
4 3 2 1 0 1 2 3
MILES
INDEX
District Boundary
Police St. Boundary
Police Station
Embankment

so far from the Hatia channel. As evident from maps Matipur and Chardarbesh were within the main course of Meghna river until 1948-49 when land formation began with the shifting of Meghna's course to Shahabazpur channel.[1] Char Jabbar is comparatively older, identified in 1911-15 survey for the first time and was an island between Meghna and Hatia channel until 1948. However, all three study area (villages) are now accessible by embankment and cross-dam through which even bus communication is possible in all seasons.

The three villages altogether cover an area of 3474 acres of which Matipur occupies 299 acres, Chardarbesh 1177.5 acres and Char Jabbar 1997.5 acres respectively.

3.2. GEOLOGY OF THE CHAR LANDS

Very little geological study has been done in the coastal region of Bangladesh. What has been done has proved the highly variable lithologic characteristics of the sediments, both in the lateral and in the vertical directions. As noted by J.P. Morgan and W.G. McIntire (1959), the geology of the Bangladesh delta is complex in that it has been the

---

1. Govt. of the People's Republic of Bangladesh, District Gazetteers Noakhali, 1977, Pp. 2 - 14.

site of sedimentary deposition by two of the world's major rivers. The Bengal delta, like other major deltas of the world, is composed of a number of overlapping sub-deltas and the deltaic region is assumed to be constantly subsiding, owing mainly to compaction of recent sediments and possibly to structural downwraping.[2]

The geologically recent deposits of the char area consists of clay, silts and varying grades of sands. The deposits are alluvial rather than of marine origin. The limited stratigraphic data available indicate that the sediments become progressively finer in a southerly direction until silts and clays are dominant in the southern part of the delta. The surface deposits of the off shore islands Hatia, Sandwip, Kutubdia and others also are composed of fine sands, silts and clay. Records of some bore holes in the coastal char lands of Noakhali are presented in the table below :

---

2. Morgan, J.P. and W.G. McIntire, Quarternary Geology of the Bengal Basin, East Pakistan and India. The Geographical Society of America, 1959, P. 22.

TABLE - 2 : THICKNESS AND PERCENTAGE OF CLAY, FINE SANDS, MEDIUM AND COARSE SANDS ENCOUNTERED IN DRILLING OF TUBEWELLS, BORE HOLES IN COASTAL AREAS (NOAKHALI), 1978.

Location	Total depth	Percentage of clay	Percentage of fine sand	Percentage of medium coarse sand	Thickness of medium coarse sand	Water quality
Vill. Bejugata P.S. Hatia	625	35.2	51.2	13.6	85'	Cl: 26 ppm Fe: 50 ppm PH: 7.9
Vill. Birbiri P.S. Hatia	725'	44.1	45.5	10.4	75'	
Vill. Alexander P.S. Rangati	1120'	17.9	49.1	35.0	360'	
Vill. Alexander P.S. Rangati	715'	28.0	70.0	2.0	15'	
Vill. Char Bancharam P.S. Sudharam	875'	37.1	42.8	20.0	175'	Cl: 550 ppm Fe: 20ppm

Source : Bangladesh Water Development Board, Geological and Water Resource Department 1978.

3.3. MORPHOLOGICAL BACKGROUND

Through the mouth of the mighty river system of Bangladesh, large quantities of water and enormous volumes of sediments are carried into the sea. This creates conditions favouring char formation, which is clearly noticeable; large tracts of land emerge, are being built up above normal high water, taken up for human habitation and cultivation and then again are partly retaken by the sea in a continuous process of accretion and erosion.[3] This area is presently in an active stage of delta formation, land reclamation may be an important factor in improving conditions in this deltaic char lands. The morphology of the area is governed by the upland discharge of the Ganges-Brahmaputra-Meghna river system at one side, and the tidal influence of the sea at the other side. According to a study of J.M. Coleman (1969) the annual load of suspended sediment discharged into the Bay of Bengal is in the order of 1.7×10^9 tons, which is the second highest sediment discharge in the world after the yellow river in China. The greater part

---

3. Kingdom of the Netherlands and Bangladesh Ministry of Foreign Affairs, Bangladesh Report on an Identification Mission on Land Reclamation & Estuary Control, 1975, Pp. 8 - 12.

of these sediments are transported into the Bay of Bengal, forming a huge submarine delta. The edge of the continental shelf is estimated to move in a southward direction at a rate of approximately 40 metres per year (Atlas of Oceanography, 1966) and the southern end is constantly being added to by new chars, and has grown over a thousand square miles in the last quarter of a century.[4] Although the greater part of the sediment load is lost in deep water off-shores, sediments are deposited in the delta as well, leading to morphological changes in the area. The sediments may either be deposited directly as river sediments or return from the Bay with the tidal currents. Furthermore, storm surges due to tropical cyclones may considerably affect the area. Remarkable morphological changes have been reported after the severe cyclone of 1970. A good indication of recent coastal developments can be obtained by comparison of maps derived from aerial photographs taken in different years (Figure 6 and 7 compare the erosion and accretion in the periods 1938-1963 and 1963-1971 respectively). Unfortunately, quantitative data on erosion and accretion cannot be derived from such maps. It is noted that the

4. Rashid, Haroun-er, East Pakistan - A systematic Regional Geography & its Development Planning Aspects, Lahore, 1965, P. 20.

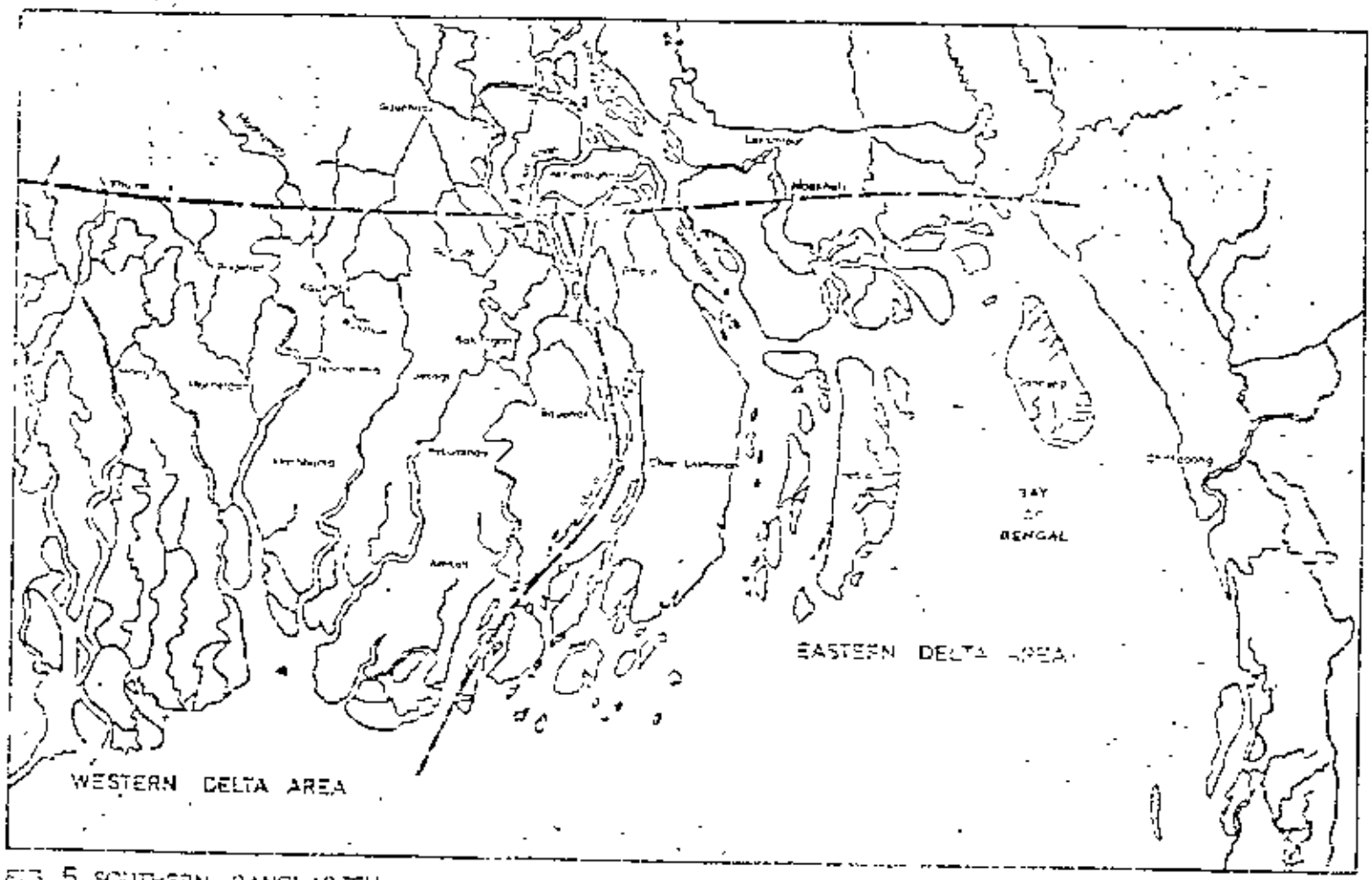


FIG. 5 SOUTHERN BANGLADESH

SCALE 1:1,000,000

Source : Kingdom of the Netherlands and Bangladesh, Ministry of Foreign Affairs, Bangladesh Report on an identification Mission on Land Reclamation and Estuary Control, 1975, Pp. 8.12.

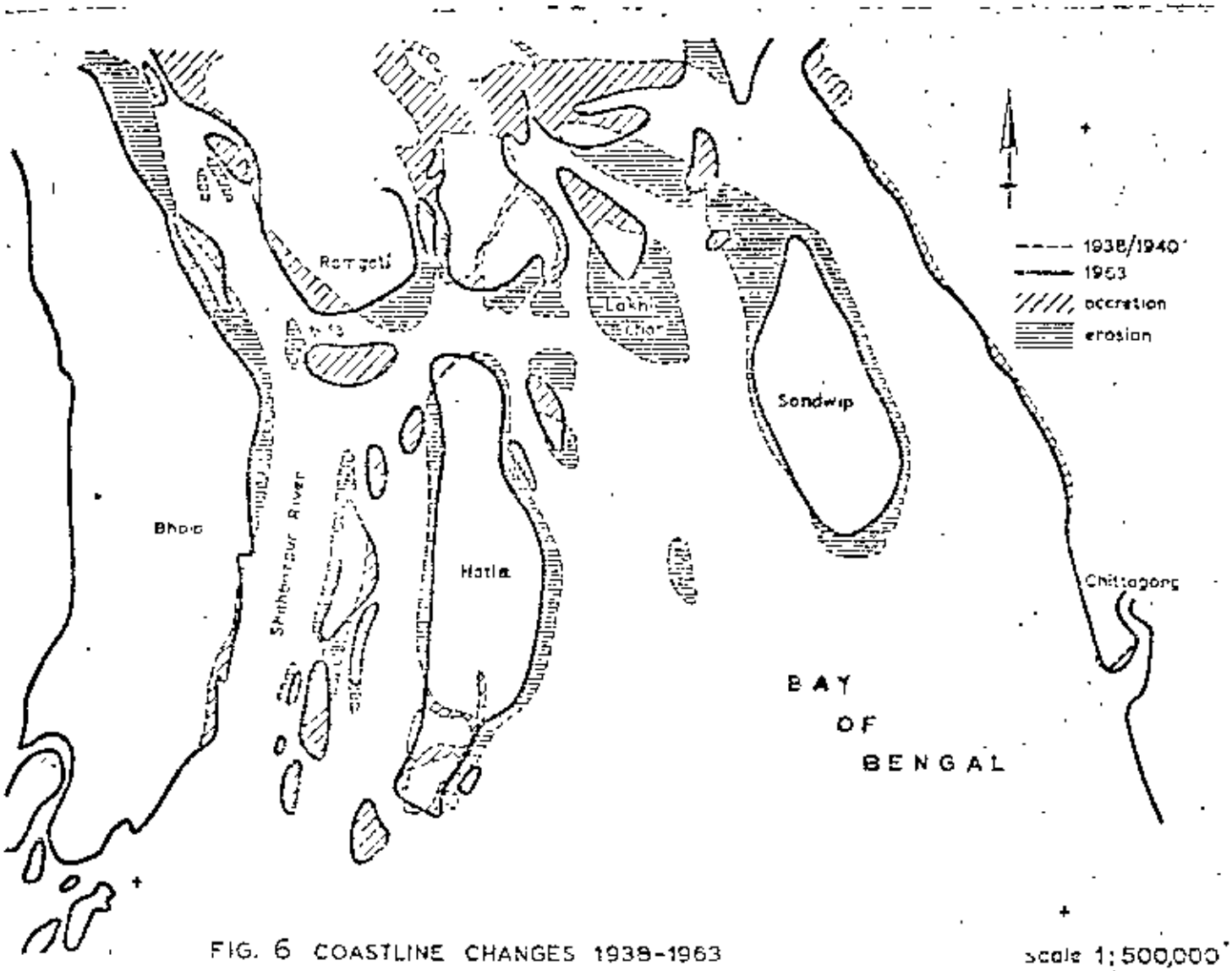


FIG. 6 COASTLINE CHANGES 1938-1963 scale 1:500,000

Source : Kingdom of the Netherlands and Bangladesh, Ministry of Foreign Affairs, Bangladesh Report on an identification Mission on Land Reclamation and Estuary Control, 1975, P.55,8.12.

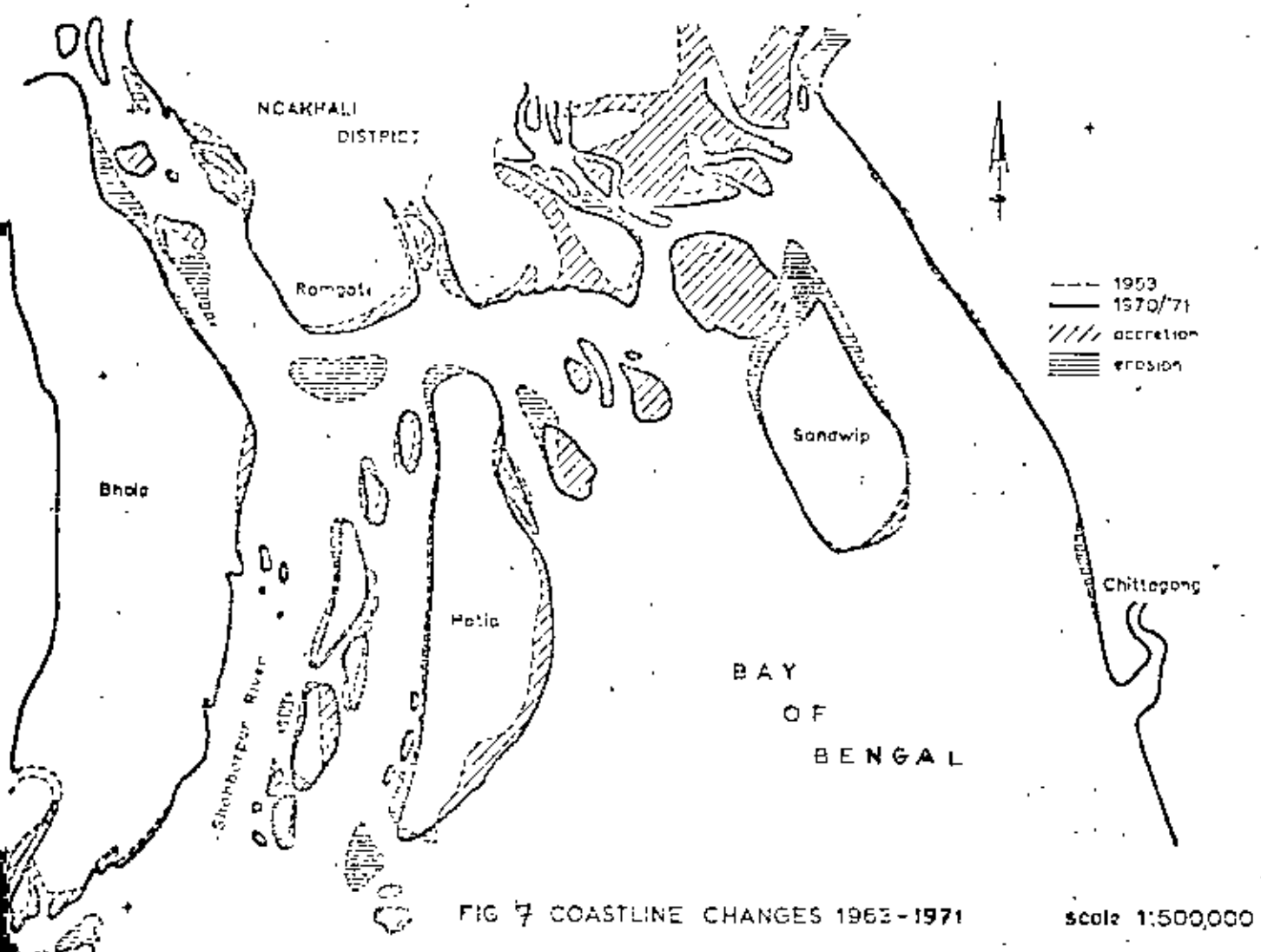


FIG 7 COASTLINE CHANGES 1963-1971 scale 1:500,000

Source : Kingdom of the Netherlands and Bangladesh, Ministry of Foreign Affairs, Bangladesh Report on an identification Mission on Land Reclamation and Estuary Control, 1975, Pp. 8.12.

Noakhali mainland has also considerably changed. In the area where originally one of the mouths of the Meghna river was situated north of Ramgati Island, has gradually silted up. In the later stage this process was accelerated by the construction of two cross-dams ("Land Reclamation in Noakhali District, NEDECO, 1963"). Since then the shoreline of the Noakhali District gradually proceeded in the southerly direction, and subsequent human habitation followed.

3.4. CLIMATE

Lying south of the tropic of Cancer, the study area enjoys typical tropical monsoon climate with a very high humidity throughout the year.[5] The climate is generally fair from the middle of November to middle of February. The place is visited by the thunder squalls which generally come from north-west or north during the months of March to June. Storms which form in the Bay of Bengal in the month of May, June and October strike the coastal areas some of them with violent force accompanied by the tidal bore.

---

5. Govt. of the People's Republic of Bangladesh, District Gazetteer Noakhali, op.cit., P. 20.

As recorded at Maizdee Court Station, the temperature of the District is moderate, the average varies from 77° to 80°F. The annual range of temperature or the difference between average of the warmest and the coolest months is usually less than 15°F. Daily range of temperature in summer months varies between 7° and 12°F. Daily range of temperature in winter months is usually 15° to 20°F. The rainfall is very heavy, the annual average being 115 inches.[6] Much of the rainfall is received in the months from June to September. These climatic features are in term characterizing the agricultural practices of the area to a great extent.

3.5. POPULATION AND ATTRIBUTES

The knowledge of population and its attributes are prerequisites for understanding settlement growth in its regional setting. The total household and population of the villages under study as enumerated in 1961, 1974 censuses and 1978 records in the Union Council Offices are given in the table below. It appears that the percentage increase of both households and population of the area are exceeding high from the national average of 2.8 per year. This rapid

---

6. Census Commission, Govt. of East Pakistan, District Census Report, Noakhali, 1961, P. 29.

TABLE- 3 : HOUSEHOLD & POPULATION INCREASE, 1961-1978

Name of Village	Total Fig. 1961		Total Fig. 1974		Rate of increase		Total Fig. 1978		Rate of increase	
	H/H	Popn.	H/H	Popn.	H/H	Popn.	H/H	Popn.	H/H	Popn.
Matipur	23	100	78	476	18.3	28.9	176	1206	31.4	38.3
Char Darbesh	114	563	144	744	2.0	2.5	287	1960	23.2	40.8
Char Jabbar	185	1470	662	3877	19.8	12.6	863	4465	7.5	3.7

Source : District Census Report Noakhali 1961, Village population Statistics, Noakhali 1974, Union Parishad household Registrar, 1978.

growth of settlement in the new char lands of Noakhali is obviously due to immigration of population from the adjoining areas accompanied by the natural process of population growth during the intercensal period of 1961 and 1974. It appears that population increase in Chardarbesh village was similar to the national average but very recently the rate of increase has become remarkably high due to the distribution of Khas land at the disposal of Govt. In Char Jabbar although has higher rate of increase shows a declining trend for the land is comparatively old and most of the lands have already been distributed.

3.5.1. POPULATION DENSITY

The density of population as worked out for Matipur, Chardarbesh and Char Jabbar villages are respectively 800, 650 and 700 persons per squire mile. It is significant to note that Matipur has relatively become crowded due to its proximity to the municipal area with major transport arteries and market centres. However, all these density figures are still lower that of the average population density Noakhali district of 1285 (1961) and of the national density of 1400 per squire mile (1974).

3.5.2. MALE - FEMALE RATIO

The preponderance of males over the number of females is also a significant demographic feature of these villages.

TABLE 4 : CHANGE IN SEX RATIO, 1961-78.

Name of Village	No. of Males per 100 Females		
	1961*	1974*	1978*
Matipur	112.7	109.6	102.8
Chardarbesh	120.7	115.7	104.6
Char Jabbar	155.6	105.3	102.8

* District Census Report, Noakhali, 1961; Village population Statistics, Noakhali 1974; Questionnaire Survey, 1978.

following the national trend (according to 1974 census, sex-ratio of Bangladesh 103.5). It is noted from census records that the size of male population was remarkably high in the previous years presumably due to the fact that majority of the pioneer settlers were male dominating.

3.5.3. FAMILY SIZE AND TYPE OF FAMILY

Another notable demographic feature of the villages is their average family sizes with 5 to 6 persons, which are not bigger than the national standing of 6 persons per

TABLE 5 : FAMILY SIZE AND TYPE OF FAMILY

Name of Village	Family Size	Types in percentage		
		Nucleus	Joint	Extended
Matipur	6	84.2	15.8	-
Chardarbesh	5.1	66.7	27.8	5.5
Char Jabbar	5.8	96.7	3.3	-

Source : Questionnaire Survey, 1978.

family. This relatively smaller family sizes are also indicated by large proportion of nucleus family as worked out in the table above.

3.5.4. RELIGION AND RESIDENT STATUS

Almost cent percent inhabitants in these villages are Muslims and almost all the inhabitants are permanent

TABLE 6 : RESIDENT STATUS

Name of Villages	In the Household (%)	Away from the Household (%)
Matipur	89.5	10.5
Chardarbesh	100.0	-
Char Jabbar	100.0	-

Source : Questionnaire Survey, 1978.

residents of the villages. This residence status for the people may be considered to imply the less active and less mobile character of the villagers at large.

3.5.5. MARITAL STATUS

It appears from the Table-7 that the percentage of unmarried population (about 62 percent) is quite higher than the percentage of married people. It indicates the predominance of young population over the adult and old population, thus affecting somehow the dependency ratio and the size of

TABLE 7 : MARITAL STATUS

Name of Village	Marital status in Percentage Term			
	Unmarried	Married	Widow/ Widower	Divorced
Matipur	59	36.8	3.5	.7
Chardarbesh	62.7	37.3	-	-
Char Jabbar	63.5	35.6	.9	-

Source : Questionnaire Survey, 1978.

working people participating in productive activities.

3.5.6. LEVEL OF EDUCATION

Literacy, as defined in the 1974 census to the ability to both read and write in any language has made very little headway in the villages as computed in the table and is

TABLE 8 : LITERACY RATE, 1961-78

Name of Villages	1961	1974	1978
Matipur	3	8.8	27
Chardarbesh	3.5	13.6	9
Char Jabbar	12.6	8.3	6.7

Source : District Census Report Noakhali 1961;
Village Population Statistics, Noakhali, 1974;
Questionnaire Survey, 1978.

much below the national literacy rate of 20.2 percent. Only recently a little higher literacy rate of 27 percent has been recorded in Matipur, probably due to its close contact with the town area having schools and colleges. A remarkably high percentage of illiterates i.e. on an average of about 85.7 percent for all these 3 villages is

TABLE 9 : EDUCATIONAL STATUS

Level of Education	Percentage of Villages		
	Matipur	Chardaipesh	Char Jabbar
Literate	6.9	-	-
Primary School	7.6	7.1	6.2
Secondary School	9.0	1.6	-
College	1.4	.3	.5
University	.7	-	-
Tech. Education	1.4	-	-

Source : Questionnaire Survey, 1978.

related to various socio-economic factors. People put very little emphasis on education and is reflected by the fewer number of children enrolled to the primary schools. Lack of motivation, encouragement and facilities have made this feature endemic.

3.5.7. OCCUPATION AND INCOME

As worked out in the occupation analysis of the household head and computed in to the table below, 53 percent of Matipur village, 100 percent of Chardarbesh and 93 percent

TABLE 10 : OCCUPATIONAL STATUS OF THE HEAD OF THE HOUSEHOLD.

Name of Villages	Major Occupation of the Household (%)					
	Farming	Business	Service	Agr. labour	House wife	Misc. Occup.
Matipur	42.1	10.5	5.3	10.5	10.5	21.1
Chardarbesh	100.00	-	-	-	-	-
Char Jabbar	91.8	1.6	3.3	1.6	-	1.6

Source : Questionnaire Survey, 1978.

of Char Jabbar village are directly engaged in agricultural pursuit. Considerable percentages in occupational groups other than agriculture in Matipur village are probably due to Matipur's locational advantage, that is, nearness to the activity centres of the town.

It is desirable to note that like many other villages of Bangladesh, with similar physical setting, the agricultural sector of these villages contribute most of the average

family income which in most cases is not high above the subsistence level. As computed in the table, the highest percentage of households in Matipur and Chardarbesh belong to Taka 300-500 income group which corresponds to national per capita income level, while in Char Jabbar the highest percentage belong to less than Taka 300 income group. There

TABLE 11 : AVERAGE MONTHLY INCOME

Name of Villages	Income in Taka by percentage of Households							
	Less than 300	300-499	500-699	700-899	900-1099	1100-1299	1300-1499	1500 +
Matipur	10.5	52.6	5.3	15.7	5.3	-	5.3	5.3
Chardarbesh	19.4	50.0	25.0	5.6	-	-	-	-
Char Jabbar	57.3	36.1	6.6	-	-	-	-	-

Source : Questionnaire Survey, 1978.

is no household in Chardarbesh and Char Jabbar with a monthly income of more than Taka 900 indicating the lack of subsidiary occupations that has been recorded in Matipur village. In Chardargesh and Char Jabbar, higher income level can be attained if reasonable price is secured with easy marketing facilities of their produce and possible scope is provided for secondary occupation.

3.5. LAND UTILIZATION

The present pattern of land utilization in the area is the product of its physical condition and land use norm that has been developed by the local people. A general survey of the land use pattern reveals that the area is under two major types of use as homestead land and farm land. Table 12 shows that more than 88 percent of the household's land is given to agricultural practices. It is

TABLE 12 : LAND UTILIZATION

Name of Villages	Land use Type in (%) of Total Holding		
	Homestead Land		Farm land
	With-Tank	Without Tank	
Matipur	18.8	11.7	81.2
Chardarbesh	6.2	5.0	93.8
Char Jabbar	7.9	6.5	92.1

Source : Questionnaire Survey, 1978.

also evident that more lands could be added to agriculture by minimizing and releasing some parcels of homestead land, and this can be made possible in many cases. In Matipur village, the percentage of homestead land (18.8%) is a bit higher because of the existance of a considerable number of

Fig. 8

MATIPUR

MAJOR LAND USES, 1978

Scale 4" = 1 Mile

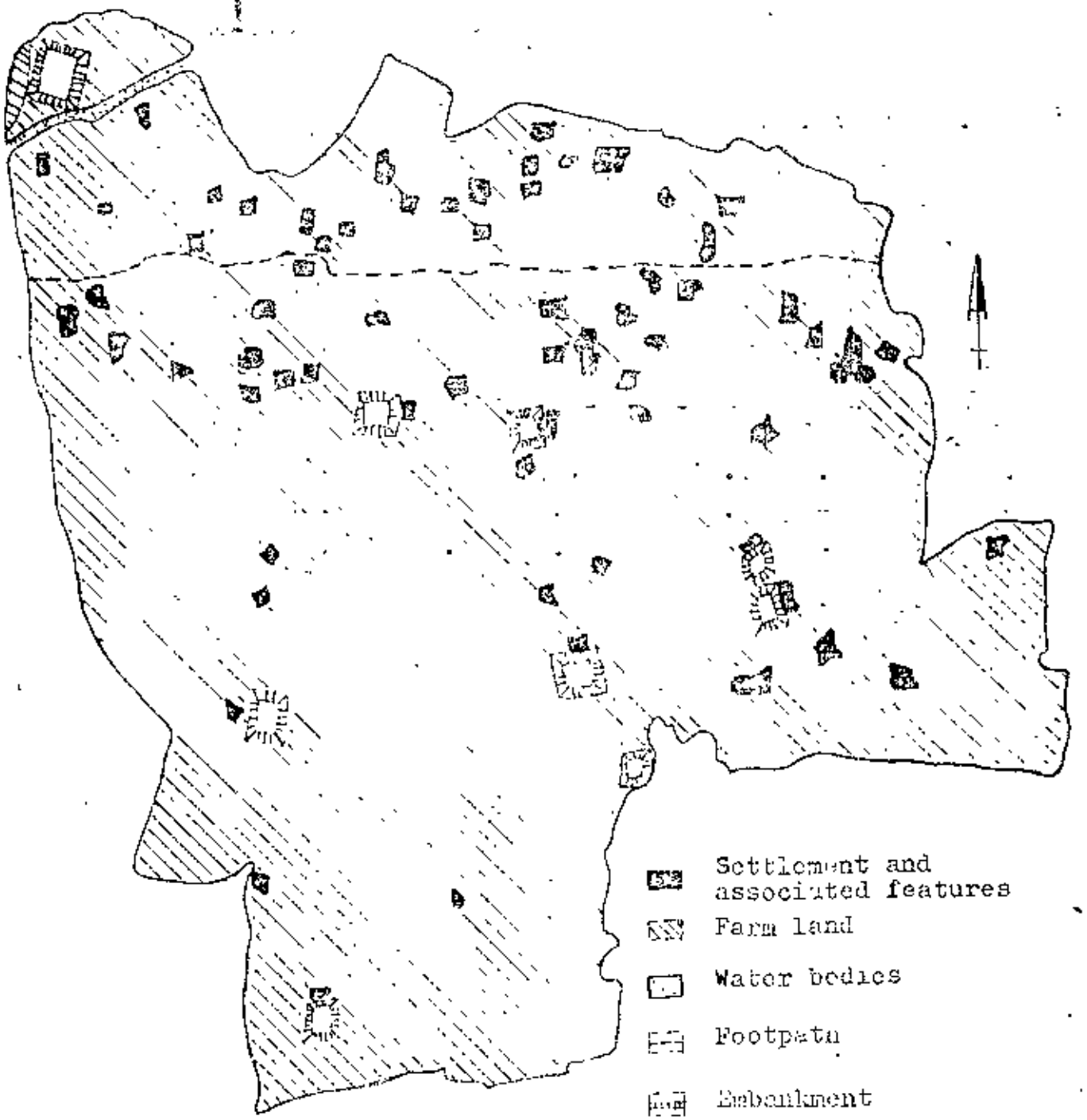


Fig. 7

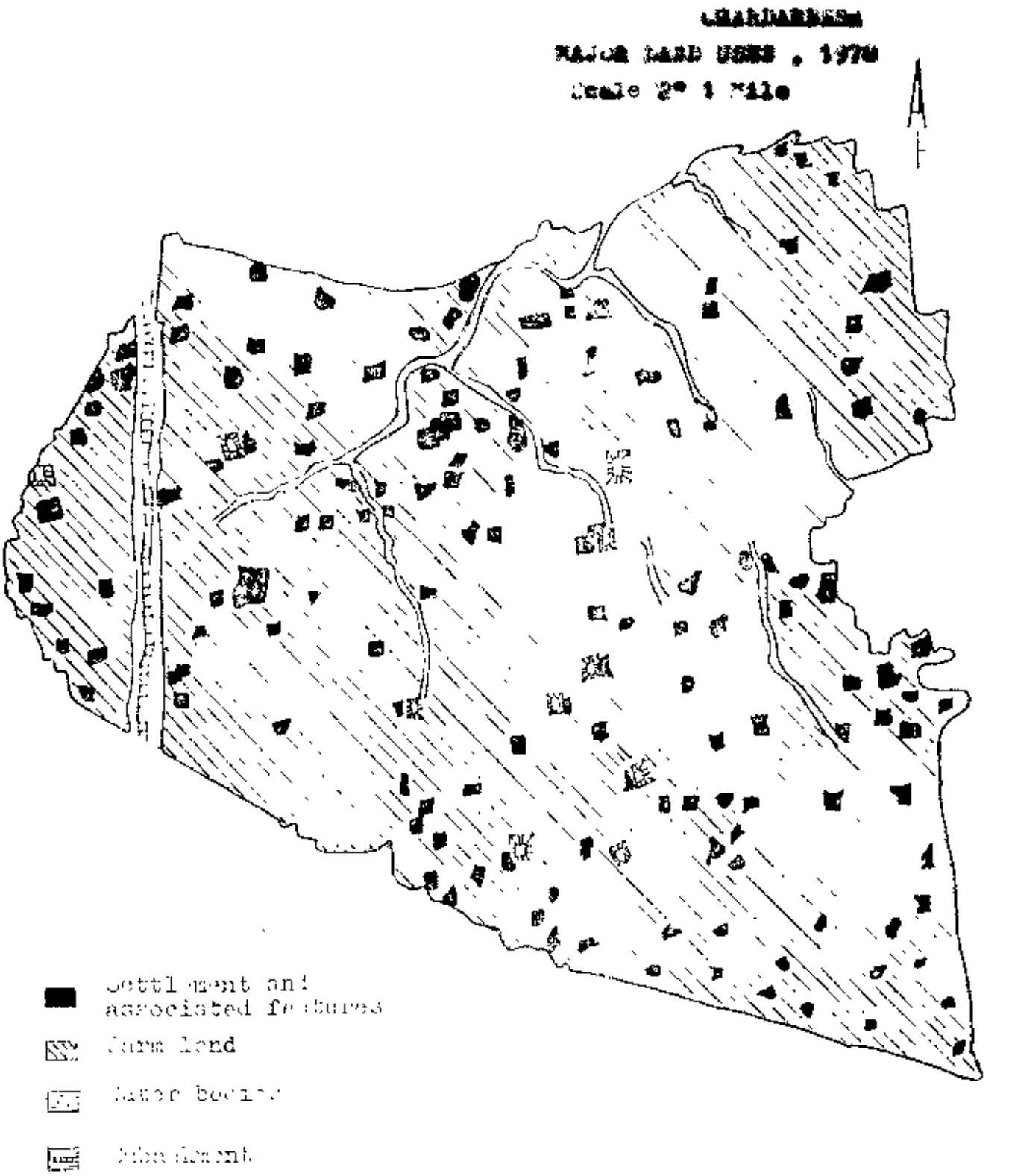
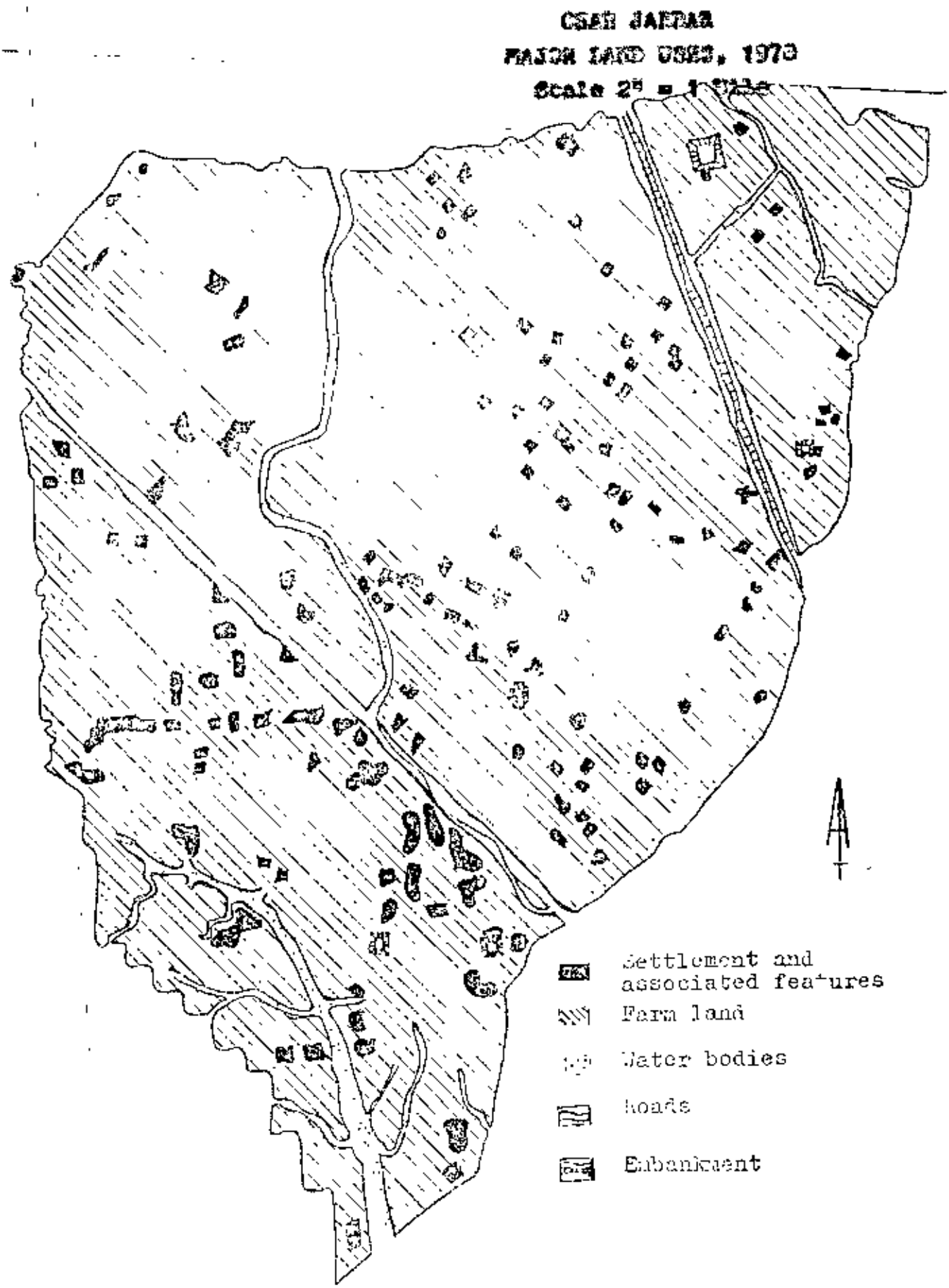

Scale 2" = 1 Mile
Settlement and associated features
Farm land
Water bodies
Woodland

Fig. 10


CSAR JANDAR
MAJOR LAND USES, 1973
Scale 2" = 1
Settlement and associated features
Farm land
Water bodies
Roads
Embankment

tanks and relatively bigger size of land area associated per homestead. The percentage of homestead land for all the 3 villages in general is recorded to be little high indicating clearly the irrational use or misuse of land in the area. If emphasis is given on its proper use, some parcels of homestead land, in many cases, would be available for agricultural production.

3.7. AGRICULTURAL PRACTICE

The understanding of agricultural practices in the area emphasises proper appreciation of the cropping system. It is significant that two factors - (1) influence of salinity and (2) severe drought in the dry season have put these villages, particularly Matipur and Chardarbesh fully under single cropping system with certain local variety of paddy suitably adjusted to this soil condition. Double cropping is possible only in small percentage of agricultural land of Char Jabbar where the soil is comparatively old.

TABLE 13 : CROPPING SYSTEM

Name of Villages	Cropping pattern in percentage of Total Agricultural land	
	Single	Double
Matipur	100	-
Chardarbesh	100	-
Char Jabbar	80.4	19.6

Source : Questionnaire Survey, 1978.

stable and most of the salt content has been leached out. Paddy is grown mainly in the wetter months of the year with the abundance of rainfall but the yield is very low as expected due little care and traditional method of agriculture. The output could be higher in such potential land if some modern techniques of agriculture with more use of fertilizer and high yielding variety of rice have been introduced in the area. Remarkably, it appears from the table that the yield of crop is not proportionate to the use of fertilizer and thus indicating some other factors like soil condition,

TABLE 14 : CROP YIELD AND USE OF FERTILIZER

Name of Villages	Yield per Acre (in Maund)	(%) of Agricultural Household using Fertilizer
Matipur	18.6	25
Charderbesh	13.5	38.9
Char Jabbar	19	47.5

Source : Questionnaire Survey, 1978.

salinity etc. which are also influencing it to a great extent. It is also evident that some socio-economic factors like sharecropping, absentee land-lordism etc. are also responsible for such a low productivity in the agricultural sector. As worked out in the table most of the agricultural households

in Chardarbesh village belong to the category of owner cultivator cum sharecropper (86 percent) while in Matipur and Char Jabbar the percentage of owner cultivator is relatively higher (68.5 & 42.7 percent respectively). This system of agricultural practice is correspondingly reflected

TABLE 15 : SHARECROPPING & LAND LORD CHARACTERISTICS

Name of Villages	Sharecropper household in % of total Agr. H.H.	% of land lord In the Vill.	In Town /elsewhere	Occup. of the landlor in % Service	Business	Other
Matipur	31.5	42.8	57.2	65.7	14.3	-
Chardarbesh	86.1	-	100.0	51.6	41.9	6.5
Char Jabbar	57.3	25.7	74.3	48.6	31.4	20.0

Source : Questionnaire Survey, 1978.

by the numerical size of the land lords for each village. It is also noticeable that most of the landlords live away from the village and are not directly related to agricultural occupation. This significant feature of sharecropping coupled with absentee landlordism which is evident also in the national context, is thought to be a structural impediment to the headway of agriculture in general and its productivity in particular.

CHAPTER - IV

GROWTH OF CHAR SETTLEMENT

Chars are the product of continuous action of rivers and the sea in the vicinity of coastal areas of Bangladesh. The emergence and re-emergence of the stretches of charland is a never ending process and none knows exactly when it began. As one moves farther and farther to the south, the scenes are changing and differ from other areas of the country.[1] The vast barren landmass without tall or permanent plants let human eyes ~~gaze~~ to the endless horizon. Cyclones, tidal bores, erosion and other natural calamities are not unusual in these areas. Combatting and overcoming those natural hazards some daring people of the area flock to the new lands as soon as these emerge and get settled in a small hut temporarily built by illegal possession of land. These people are generally the destitute of the vagaries of nature like erosion, cyclones etc. in one hand and life of poverty on the other. Their socio-economic condition is extremely low and quite different from other parts of the country. The extra-legal acquisition of new chars and existence of these people, however, in most cases are organised by

---

1. The Dainik Bangla (Dacca), March 13, 1978, "Poverty and wealth in Char areas" by Ahmed Nure-Alam.

vested interest groups from affluent sections of the society. Within such groups there are leaders or patrons who recruit and retain followers in the newly emerged chars on cropshare basis through a mixture of persuasive and coercive measures.[2] The patron's abilities include, on the one hand, close connection with the machineries of state and an ability to influence the pattern of state sanctions, acknowledgements, resources as well as the ability to organize and make use of selective extra legal violence in a private capacity. It has been admitted by the authority concerned that many khas lands have been traced in the new chars after a long time when these have already been inhabited by extra-legal acquisition of land by the group of people in close collaboration with the staffs of the respective government departments.[3]

In view of the complications involved with land revenue and land settlement in the char areas, it had become imperative on the part of the Govt. to adopt policy measures dealing with the allotment and distribution of

---

2. Adnan, Shapan and the village study group, Dacca University, Land Power and Violence in Barisal Villages, working paper No. 6 (mimeo), 1976.

3. The Dainik Bangla (Dacca), Loc. cit.

land to the people for agriculture and settlement as well. However, the major factors for growth of settlement in the char areas are as follows :

4.1. LEGAL AND POLICY FACTOR

A vast landmass in the Bay of Bengal has been coming up in a gradual process. It is reasonably anticipated that there are bright prospects for reclamation of this vast land for initiating settlement growth. This was thought true even by the British administration as early as 1825 with the promulgation of Bengal Alluvion* and Diluvion* Regulation.[4]

In the preamble of the Regulation, it is cited that "in consequence of the frequent changes which take place in the channels of the principal rivers, and the shifting of the sands which lie in the river beds, chars or islands are often thrown up by alluvion, whilest accessions of lands at the same time or in subsequent years gained by dereliction* of the water on the other side. Similar instances of alluvion, encroachment and dereliction also sometimes occur on the sea coast, which borders the southern and southeastern limits of Bangladesh. The lands gained as

---

4. Mitra, A.K., Essentials of Land Laws of East Pakistan, Dacca, 1968, Pp. 224-230.

* Alluvion, means land gained from a river or from the sea, Diluvion, meaning the washing away or submerging away of land under the surface of river or sea water. Dereliction, means a sudden but visible retreat of the sea or of the river.

such from the river or sea are frequent source of contention and affray and the court of justice have sometimes found it difficult to determine the rights of litigant parties claiming chars or other lands gained in the manner mentioned above. With a view to remove this difficulty, some rules have been enacted with the regulation for the general information of the public and for the guidance of the Courts of Justice, determining claims to lands gained by alluvion or by dereliction of river or the sea."[5]

The present government also finds it necessary and is keen to make the best use of the new land and expedite land formation in the coastal area. If brought under optimum use the newly accreted lands would most hopefully contribute, among others, to increase food production. Government is also concerned as to settle properly the landless farmers and to rehabilitate the uprooted families/farmers in the area under some organised pattern of settlement and to bring the lands under optimum economic and social use. As an essential pre-requisite for the above purpose, the government just after few months of liberation has been pleased to formulate the principles given below in the

---

5. ibid.

matter of settlement of agricultural lands at its disposal. These were undertaken by the Ministry of Land Administration and Land Reforms in supersession of all previous laws, order on the subject and the necessary amendement to the State Acquisition and Tenancy Act 1950 has been made.[6]

1. An agricultural family owning no land at all example. "Ukhrait", may be given agricultural land, free of salami upto one acre and a half only.

2. An agricultural family owning no land or which has homestead or non-homestead land, measuring less than one acre and a half, in the aggregate, may be given so much agricultural land, free of salami as would rise the total area of its land upto one acre and a half only. In all cases, preference should be given to the applicants of the area where the land is situated.

3. As among the agricultural families coming under the same category, the following order of priority has to be maintained.

---

6. Ministry of Land Administration & Land Reforms, Govt.of the People's Republic of Bangladesh, Memorandum on the Policy regarding settlement of agricultural lands at the disposal of Govt. 1972.

(a) Agricultural families whose land has been diluviated.

(b) Agricultural refugee families where they undertake to cultivate the land themselves.

(c) Other bonafide agricultural families.

4. Wherever any large block of khas cultivable land is available in char areas; the settlement of land in such block should be made for co-operative farming with the eligible candidate mentioned above, subject to the condition that they will form a co-operative society for the purpose.

5. Normally the mauza has to be treated as the unit for the purpose of giving settlement of agricultural khas lands. No person resident outside a mauza should ordinarily be entitled to get settlement of land in that mauza. But where an entire mauza has been diluviated and the ex-residents of the mauza are living elsewhere, they will be entitled to get settlement of land wherever available. Similarly, where sufficient land is not available for eligible families within their mauza of residence, they will be entitled to get settlement of land elsewhere.

The Government of Bangladesh attaches a great importance to the successful implementation of these land policies. Subsequently measures were taken for the conservation of emerging land out of the sea as evident from Land Sat-I in 1974. In 1976, a decision was taken by the Ministry of Land Reform to hand over this newly accreted area accounting 12,30,000 acres (Chittagong 195,000 acres, Noakhali 850,000 acres, Barisal 360,000 acres and Patuakhali 225,000 acres) of land in favour of the Ministry of Forestry, Fisheries and Livestock for driving afforestation programme under plantation scheme. This agreement was made valid for ten years only for conservation and stabilization of this deposited land, so that it would become cultivable and ready to distribute people according to the policy set by the government of Bangladesh.

4.2. LAND TENURE AND SETTLEMENT

The above mentioned motto and good endeavour taken by the Govt. has been successfully persued in the study villages. As envisaged and worked out with the way of owning both homestead and non-hom-stead agricultural land as evident from table 16, about 80 percent of the homestead and about 85 percent and 67 percent of agricultural lands in Chardarbesh

and Char Jabbar were owned through khas land allotment at the disposal of Government and later added with the lands purchased by the owner. In Matipur, most of the owners are resettlers and as such they owned their previous land through inheritary rights.

TABLE 16 : MODE OF OWNERSHIP

Name of Village	Homestead Land (%)				Agricultural Land (%)				
	Inheritance	Purchase	Khas allotments	Other way	Inheritance	Inh. + purchase	Khas allot.	Purchase	Other way
Matipur	68.5	21.0	10.5	-	31.5	15.8	15.8	15.8	5.3
Chardarbesh	-	15.9	80.6	3.5	3.3	-	83.4	11.1	-
Char Jabbar	1.6	16.4	80.3	1.6	4.9	1.6	67.2	24.6	1.7

Source : Questionnaire Survey, 1978.

The tenurel pattern that has evolved under the present legal, administrative and socio-economic condition of the area is also thought to have some bearing on the growth of settlement. It is evident in all the 3 villages that very few people permanently came to settle in the villages without any tenurel rights and most of the lands are individually owned

Only in Matipur, about 42 percent households jointly owned their lands due to the law of inheritence remains valid and implimented in this village to a great extent. The progressive imbalance of land man ratio under which the nation staggers to-day, is not yet such appaling in the char area. It is

TABLE 17 : LAND TENURE AND LAND HOLDING

Name of Villages	Ownership by Household (%)			Land holding in Acre	
	Individuals	Jointly	Ukhrait*	Per family	Per Capita
Matipur	52.6	42.1	5.3	4.9	.8
Charderbesh	97.2	2.8	-	12.7	2.8
Char Jabbar	98.4	-	1.6	4.8	.6

Source : Questionnaire Survey, 1978.

* Caretaking of land by the grace of absentee landlord.

indicated by the average land holding of 1.4 acres per person and 7.4 acres per family as estimated for all the 3 villages under study. The figure stand higher than that of national average of .5 acre and 3.2 acres respectively.

4.3. MIGRATION CHARACTERISTICS

The inter-area movement of population, alongwith immigration into the new chars from the adjoining order parts of Noakhali district, have been a significant feature of the continuing demographic adjustments to geographic and economic factors of this region. The appaling growth of population in Bangladesh is generally governed by its natural increase of about 3 percent per annum and population migration plays a very little role in it. But since the study areas were formed very recently from the river Meghna, habitation has been taking place through migration process and hence immigration is the single most important factor of growth as well as redistribution and settlement of population as well.

These movements indicate certain aspects of the evolving situation and the material welfare of the people from time to time. The overall influence of geographical factors has been considerable. In certain respects of fundamental importance like in determining the direction of movement as well as the extent of human adjustment to new environment.[7] Such

---

7. Ahmed, N., An economic geography of East Pakistan, Oxford University Press, London, 1968, P. 304.

geographical aspects as land erosion, vagaries of rivers, floods, stagnant water, salination, lack of fresh water, storms and cyclones etc. have driven people away from their homelands. Pressure of population, accentuated by land hunger, has been a powerful stimulus to emigration, while the appearance of new lands (chars), extensive silt deposits, land reclamation, healthy climate and general economic development have provided some of the attractions to new comers.

4.3.1. IMMIGRATION-

As to the study concerned with the villages of Noakhali char lands, it is evident that the process of internal movement of population, is the most important factor for settlement growth in this new lands. It is also desirable to note that about 75 percent of the new settlers moved in from within

TABLE 18 : ORIGIN OF IMMIGRATION

Name of Villages	Migration origin in % of Households		Range of movement			
	From within thana	From outside Thana	3 miles	4-6 miles	7-9 miles	above 10 miles
Matipur	89.5	10.5	74.7	10.5	5.3	10.5
Chardarbesh	55.2	44.4	-	13.9	22.2	63.9
Char Jabbar	77.0	23.0	1.6	6.6	9.8	81.9

Source : Questionnaire Survey, 1978.

the same thana boundary of Sudharam and significantly about three fourths of the new settlers of Matipur originated from within 3 miles for close proximity with the mainland while about 64 percent settlers of Chardarbesh and 82 percent of Char Jabbar village moved in from a distance of more than 10 miles as the village are away from the older territory. This stream of inter-area migration might have ensued with the policy regarding the settlement of agricultural land at the disposal of Govt. and the geographical factors characterising the area. Among the 3 study villages, Char Jabbar is comparatively old river built land where settlement of

TABLE 19 : PERIOD OF IMMIGRATION

Name of Villages	Migration Period						
	1906 1915	1916 1925	1926 1935	1936 1945	1946 1955	1956 1965	1966 1975
Matipur	-	-	-	-	-	73.8	26.2
Chardarbesh	-	-	-	-	-	91.7	8.3
Char Jabbar	4.9	-	6.6	19.6	31.1	22.9	14.8

Source : Questionnaire Survey, 1978.

population has been taking place since beginning of this present century and gained its momentum around 1950 when Matipur, Charcarbesh and many other villages were washed away by the Meghna river. Thhese village have been settled or resettled after 1955 and as worked out in the table more than 73 percent of Matipur and 91 percent of Chardarbesh population got settled at the end of fifties and at the beginning of sixties.

The causes of immigration are varied and complementary and involve both push and pull factors. In Chardarbesh and Char Jabbar more than three-fourths of the present settlers are those who had to move out from their place of origin due to river erosion and in Matipur about 84 percent cases are those who due to the lack of adequate residential land

TABLE 20 : PUSH FACTORS AFFECTING IN-MIGRATION

Name of Villages	Push Factor (Affecting H/H in %)				
	Inadequate residential land	Lack of farm land	Unfair relation/ dis-agreement	River erosion	Other reasons
Matipur	84.1	5.3	5.3	-	5.3
Chardarbesh	2.8	16.7	-	77.7	2.8
Char Jabbar	-	21.3	-	75.4	3.3

Source : Questionnaire Survey, 1978.

in previous location have migrated and settled in the said village. Allotment or leasing of Govt. Khas land is the most significant pull factors for founding settlement, specially in Chardarbesh (97%). After this is Char Jabbar (52%) where the new settlers also found buying land possible at a comparatively cheap rate, forming another

TABLE 21 : PULL FACTORS AFFECTING IMMIGRATION

Name of Villages	Pull Factors				
	Reformation of land	Govt. Khas allot.	Earlier homes of relation	Comparatively cheap land	Other reasons
Matipur	68.4	10.5	5.3	5.3	10.5
Chardarbesh	-	97.2	-	-	2.8
Char Jabbar	-	52.5	1.6	42.6	3.3

Source : Questionnaire Survey, 1978.

major pull factor (42.6%) for the growth of human settlement. In Matipur, the pull resulting settlement growth was mainly the retreat of old settlers (68%) with reclamation of land previously lost in the Meghna river . This is also a significant background for resettling in Matipur village. In

Chardarbosh and Char Jabbar most of the settlers are comparatively new and there are very few resettlers who left the villages before 1950, mainly due to river erosion

TABLE 22 : SETTLERS BACKGROUND

Name of Villages	New Settlers in % of total	Resettlers in % of total	Period of leaving		
			Before 1900	1900 1925	1926 1950
Matipur	31.6	68.4	-	-	68.4
Chardarbosh	83.3	16.7	2.8	13.9	-
Char Jabbar	93.4	6.4	-	3.2	3.2

Source : Questionnaire Survey, 1978.

as a natural disaster.

As pointed out, the main difficulties faced by the pioneer settlers were scarcity of water, cyclone hazard and social conflict. The paucity of water supply was tremendously felt due to the influence of salinity and drying up of water tank in summer. The social conflict arises mainly out of the present system of leasing of khas lands by the Revenue Department lead to feuds and litigation. Often the clash of

TABLE 23 : DIFFICULTIES OF PIONEER SETTLEMENT

Name of Villages	Main Difficulties Faced by Household (%)					
	Insuffi-cient water source	Badly affec-ted by cyclone 1958	Suffe-ring from both	Social con-flict	Other diffi-cul-ties	Facing no such diffi-culties
Matipur	10.5	5.3	78.9	-	-	5.3
Chardarbesh	27.8	-	-	22.2	25.0	25.0
Char Jabbar	6.4	-	-	13.1	23.0	57.4

Source : Questionnaire Survey, 1978.

interests centering the title to lands among the jotedars and other vested group took an acute and bloodshape, particularly during the harvesting time as expressed time and again in the public circulated media. Recently, in June '78, the Bangladesh Observer reported "Several persons were killed and many injured when landgrabbers and Lathials attacked the residents of Char Jubilee under Sudharam Police Station on June 20 evening".

4.3.2. OUT MIGRATION FROM THE ORIGIN

The process of inter area movement through which people have flocked from and to the villages is a form of internal migration, known as out migration from the place of origin in relation to the destination. The immigration that gave rise to settlement growth in Matipur, Chardarbesh and Char Jabbar villages is the result of out migration from some other places. As worked out for analysis of the process of out migration and as shown in table 24 most of the people simply left their previous abode to settle permanently

TABLE 24 : PROCESS OF OUT MIGRATION

Name of Villages	Arrangement of Assets for leaving (in % of H/H)					Way of moving out	
	By selling all land etc.	No such asset	By renting	Selling part	Other way	All at a time	At several times
Matipur	15.8	47.3	5.3	5.3	23.3	94.7	5.3
Chardarbesh	-	100.0	-	-	-	100.0	-
Char Jabbar	3.3	96.7	-	-	-	96.3	3.7

Source : Questionnaire Survey, 1978.

in the present villages and had very few tangible or intangible assets to be sold out. Many of the out migrants who settled ultimately in Hatipur village had to sell all their belongings (15.8%) or make some other arrangement for it (26.3%). It is also pointed out that the migratory movement did not take place by phase and about 97 percent migrants on an average left their previous residences simultaneously with the family. Also worked out with it is the fact that about 86 perdent migrants who moved in Chardarbesh and 72 percent in Char Jabbar village used

TABLE 25 : USE OF TRANSPORT BY THE IMMIGRANTS

Name of Villages	Mode of Transport in percentage					Cost incurred in Tk. in percentage				
	Boat	Train	Bull-ock cart	On foot	Ford than one mode	Negli-gible	less than 100	100 200	200 300	More than 300
Hatipur	5.3	5.3	-	84.1	5.3	84.2	15.8	-	-	-
Char Darbesh	86.2	-	5.5	2.8	5.5	-	2.8	38.9	19.4	38.9
Char Jabbar	72.1	-	14.8	8.1	4.9	-	24.6	24.6	19.7	31.1

Source : Questionnaire Survey, 1978.

boat for the purpose while in Matipur, majority of the people (64%) came on foot as they originated from a short distance. These modes of transport used and distance travelled by the migrants are indicated accordingly by the cost they had to incur for it.

4.3.3. LINKS AND COUNTER STREAM

Unlike all the inter-area movements of population which often have two-way flow of stream, these areas, generally involved no counter steam under normal circumstances. Even very few settlers of these villages particularly of Chardarbesh and Char Jabbar have only social links with their previous villages. However, the resettlers in Matipur village retain

TABLE 26 : LINK WITH THE PLACE OF ORIGIN

Name of villages	Link pattern (In % of H/H)			
	Social link	Property link	Both	No link
Matipur	57.9	5.3	5.3	31.5
Chardarbesh	2.8	-	-	97.2
Char Jabbar	3.3	-	-	96.7

Source : Questionnaire Survey, 1978.

some sort of social and sometimes property links with their former villages, possible for shorter distance and closer contract.

It is also envisaged through an investigation that the people of these char lands are less mobile and only a negligible percentage (.5%) of Matipur people enumerated to be living elsewhere in Noakhali, Chittagong, Dacca,

TABLE 27 : HOUSEHOLD MEMBERS NOW RESIDING ELSEWHERE

Name of Villages	Members living away (%)	Reasons for leaving (in %)	
		Employment	Matrimonial
Matipur	.5	86	14
Chardarbesh	-	-	-
Char Jabbar	-	-	-

Source : Questionnaire Survey, 1976.

Sylhet and Comilla mainly for employment and often matrimonial reasons as the case may be. Their case is again casual because those people still, have links with their villages homes in someway or another.

CHAPTER- V

PATTERN AND BUILDING OF CHAR SETTLEMENT

5.1. TWO-DIMENSIONAL ANALYSIS

Settlements are an essential part of the cultural landscape. It varies regionally in types as well as in pattern of distribution.[1] For many years, it was largely confined to a consideration of whether the settlements of a given region were 'nucleated', 'dispersed' or of an 'intercalatory' nature. Intricate explanations related to natural, social or economic conditions were offered to explain the particular form of the distribution of each region, but the actual method of defining nucleation or dispersion was essentially arbitary and certainly subjective.[2] Thus, although they were valid, the method of description was vague and imprecise.

More recently, the analysis of spatial distribution of settlement in a given area has employed much refined methods in order to describe not only the general destributional characteristics of seotements relative to each other, but

---

1. Chatterjee, S.P., "Presidential Address" 35th Meeting of Calcutta Geographical society, Geographical Review, India, 1969, P.11.

2. Toyne, Peter and Peter T. Newby, Techniques in Human Geography, Macmillan, London, 1971, Pp. 115-117.

also to indicate the variation in building densities within different areas.

In trying to describe their main destributional characteristics (nearest neighbour analysis), every building or settlement in a given area may be treated as a point (point analysis). The problem, therefore, of describing location is one of describing the destribution of a series of points in space and this is by no means easy. The method employed here is that of the two ecologists, Clark and Evans who first gave a lead in this field in 1954. They evolved a mathematical way of describing the distribution pattern. Their method was to measure the distance between every point and its nearest neighbour and to substitute these figures in a formula (given below) which would describe the distributional pattern under consideration.

$$Rn = 2\bar{D}\sqrt{(N/A)}$$

Where, Rn represents the description of distribution

$\bar{D}$ = The mean distance between nearest neighbours

A = Area under study (Unit same as D)

N = Number of points in the study area

The value of Rn will range between 0 to 2.15. The advantage of this is obvious. Instead of having only three descriptive terms (clustered, random, regular), a continuous description from 0 to 2.15 may now be possible.

In the present case study with 3 village of Noakhali charland, the above idea has been acknowledged and duly computed mathematically. As worked out for Matipur, Chardarbesh and Char Jabbar, the Rn values are .8, 1.1 and .8 respectively.

TABLE 28 : Rn VALUES BY VILLAGE

Name of Villages	Rn values
Matipur	.8
Chardarbesh	1.1
Char Jabbar	.8

Source : Settlement plotting and calculation, 1978.

Thus, indicating the trend of randomness and dispersal of the distributional pattern of settlement in this region. The Rn value for chardarbesh approximately equals to unity. Chardarbesh has thus been a typical entity with prevalent random characteristics of settlement growth.

5.2. SPATIAL DIFFUSION AND CHANGE IN SETTLEMENT

One of the most important contributions in the field of study of geographical forms of diffusion waves comes from Haggerstrand. After analysis of the distributions of various indicators at varying points of time, Haggerstrand suggested a four-stage model for the passage of innovation waves.[3]

1. Primary stage marks the origin and evolution of initial agglomeration.

2. Diffusion stage marks the diffusion process proper with a strong centrifugal effect and creation of new ones.

3. Condensing stage with an equal relative increase in all locations, and

4. Saturation stage characterised by a general but slow a-symptotic increase towards the maximum.

Similar contribution in the field of settlement diffusion has come from Byland, a Swedish Geographer who made an attempt

---

3. Hagerstrand, T., Innovation Diffusion as a spacial process. Translation and postscript by Prad, Allan, The University Chicago Press, Chicago and London, 1967, Pp. 53.56.

to place settlement expansion within a deterministic framework and suggested the ways in which 'waves' of settlements moved within his study area.[4] Under some assumptions, he also presented four hypothetical model of settlement diffusion (Fig. 11). All the four models assume a four-phase sequence for the process of spatial diffusion. A and B models assume spread from a coastal location while C and D from an inland location.

Taking a simulative approach in this present study it is appeared that char settlements in Noakhali show only the primary stage of settlement growth marking the origin and evolution of initial settlement. It is obvious that they will take a few more generations to enter into the other stages of innovation waves of settlements. The endeavour to find the type and year of settlement building reveals that most of settlements (95 per cent on an average and is constituted by 89 per cent of Hatipur, 100 percent of Chardarbesh and 95 per cent of Char Jabbar) are separated with a very few small clusters and all the settlements were foundevery recently. In Hatipur and Chardarbesh settlement took place only after 1956 at a high rate. In Char Jabbar, although settlement initiated at the dawn of

4. Bylund, E., "Theoretical considerations Regarding the Distribution of Settlement in Inner North Sweden", Geografiska Annaler, 42, 1960, Pp. 225-231.

this century it showed an increasing trend only in the second quarter of this century and the second stage of innovation wave of settlement is yet to take place.

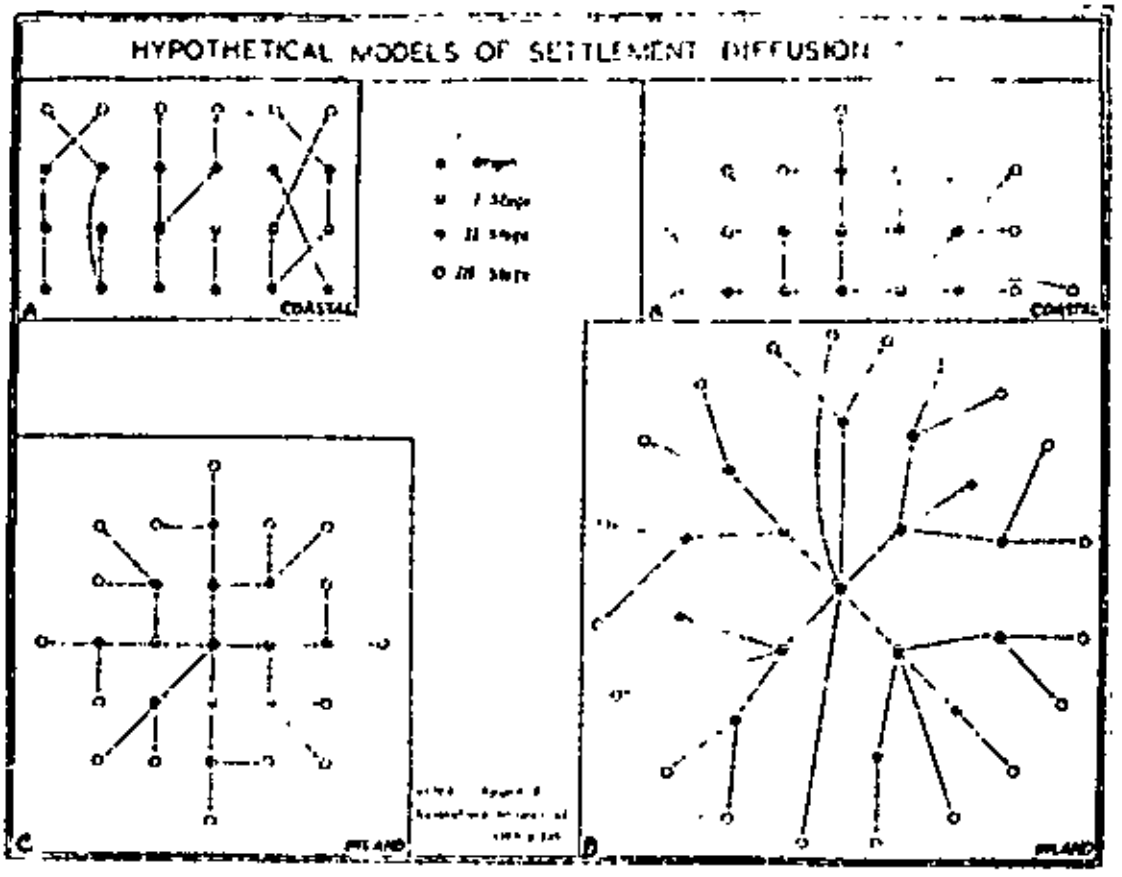


Fig. 11 Bylund's Hypothetical Models of Settlement Diffusion.

Source : Bylund, E., Theoretical considerations Regarding the Distribution of Settlement in Inner North Sweden", Geografisca Annaler, 42, 1960, P. 227.

However, it has been envisaged that the growth of settlement which is virtually a dynamic process and is subjected to quantitative change over a period of years, may eventually lead to a change in its qualitative pattern as well. As

TABLE 29 : TYPE OF SETTLEMENT

Name of Villages	Settlement type (%) Separate	Small cluster
Matipur	89.5	10.5
Charderbesh	100	—
Char Jabbar	95.0	5.0

Source : Questionnaire Survey, 1978.

TABLE 30 : PERIOD OF SETTLEMENT BUILDING

Name of Villages	Period of homestead foundation (%)						Period of building original house (%)				
	1906-1915	1916-1925	1926-1935	1936-1945	1946-1955	1956-1965	1966-1975	1906-1935	1936-1945	1946-1955	1956-1975
Matipur	-	-	-	-	-	73.7	26.3	-	-	-	100
Char Darbesh	-	-	-	-	-	91.7	8.3	-	-	-	100
Char Jabbar	4.9	-	6.6	19.7	31.1	22.9	14.7	11.5	13.7	31.1	47.6

Source : Questionnaire Survey, 1978.

Fig. 12

NATIVE

PATTERN OF SETTLEMENT, 1963-64

(SMALL CLUSTERING AND DISPERSED)

Scale 4" = 1 Mile

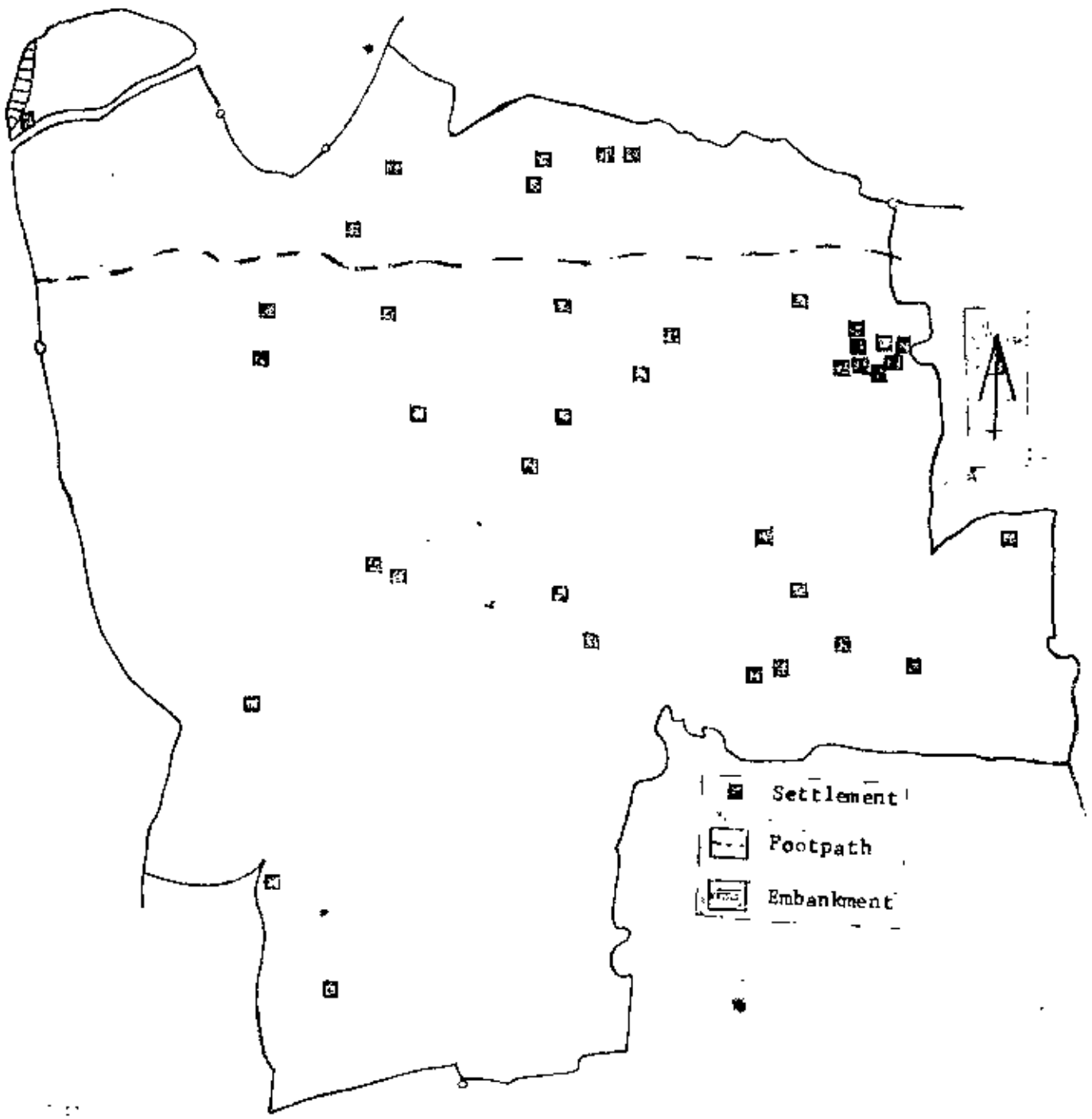


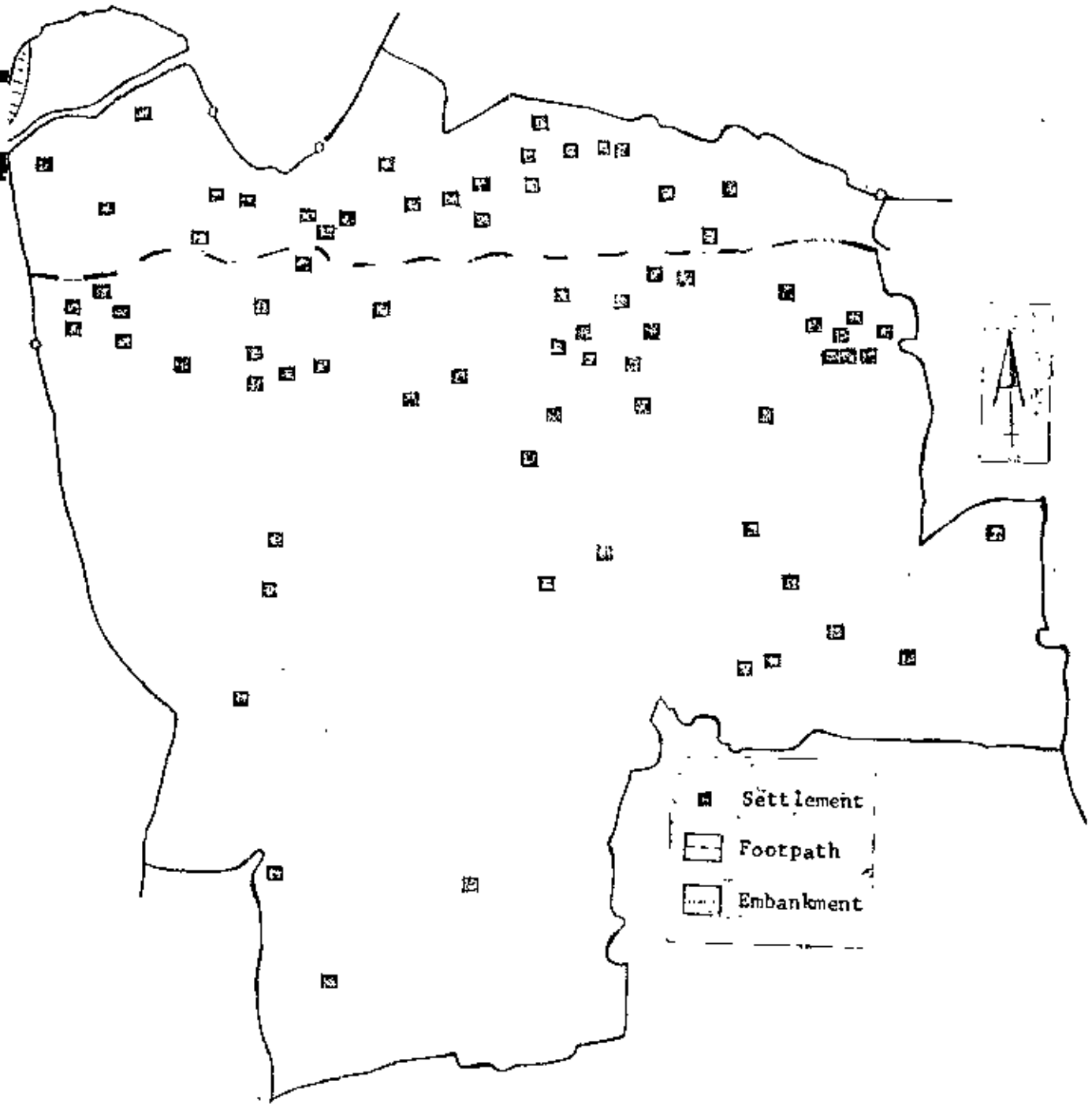
Fig. 19

BAZIPUR

PATTERN OF SETTLEMENT, 1973

(SMALL CLUSTERING AND DISPERSED)

Scale 4" = 1 Mile



CHARACTER

PATTERN OF SETTLEMENT, 1963-64

(DISPERSED)

Scale 2" = 1 Mile

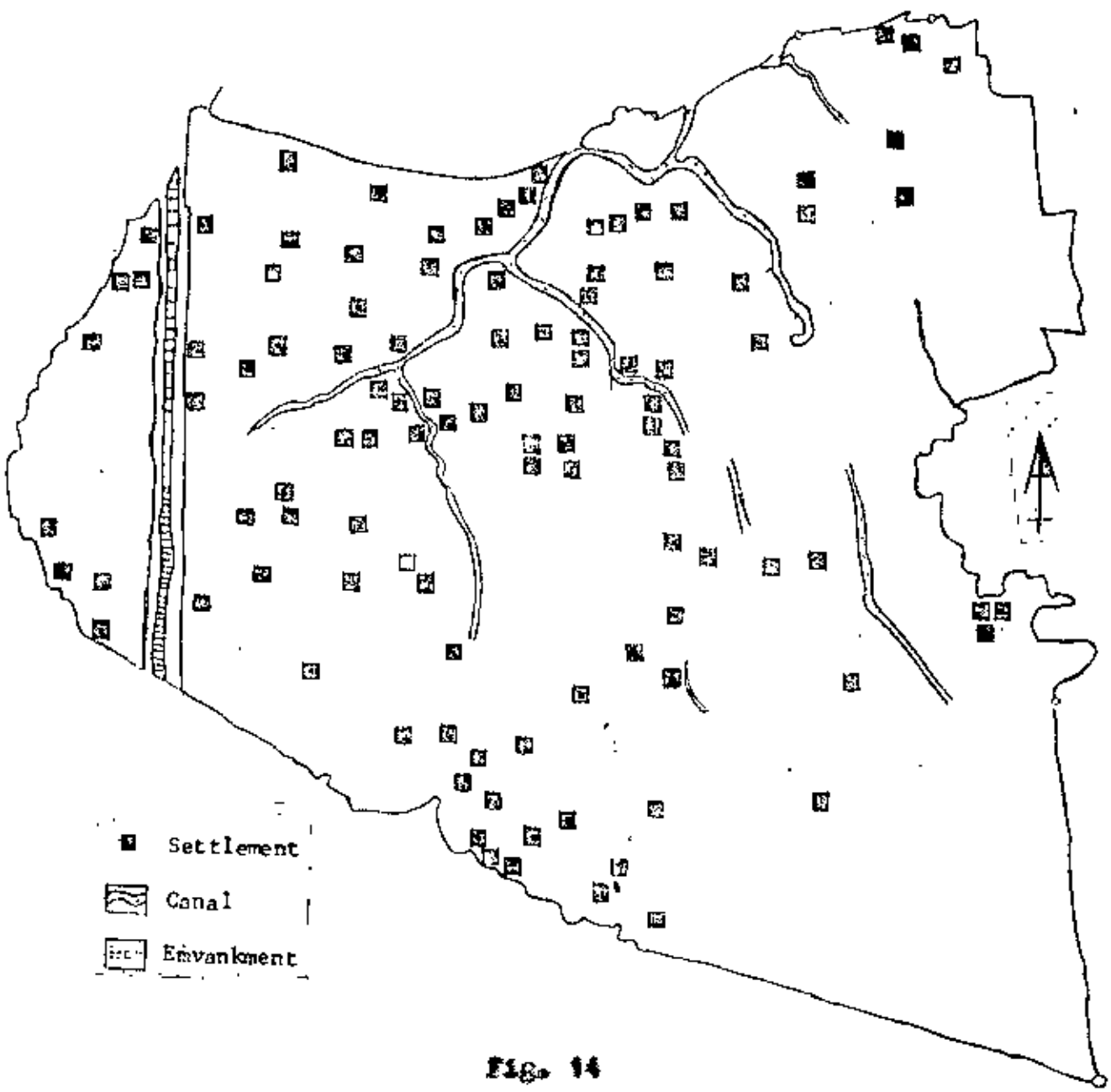


Fig. 14

CHARACTER
PATTERN OF SETTLEMENT, 1979
(DISPERSED)
Scale 2" = 1 Mile

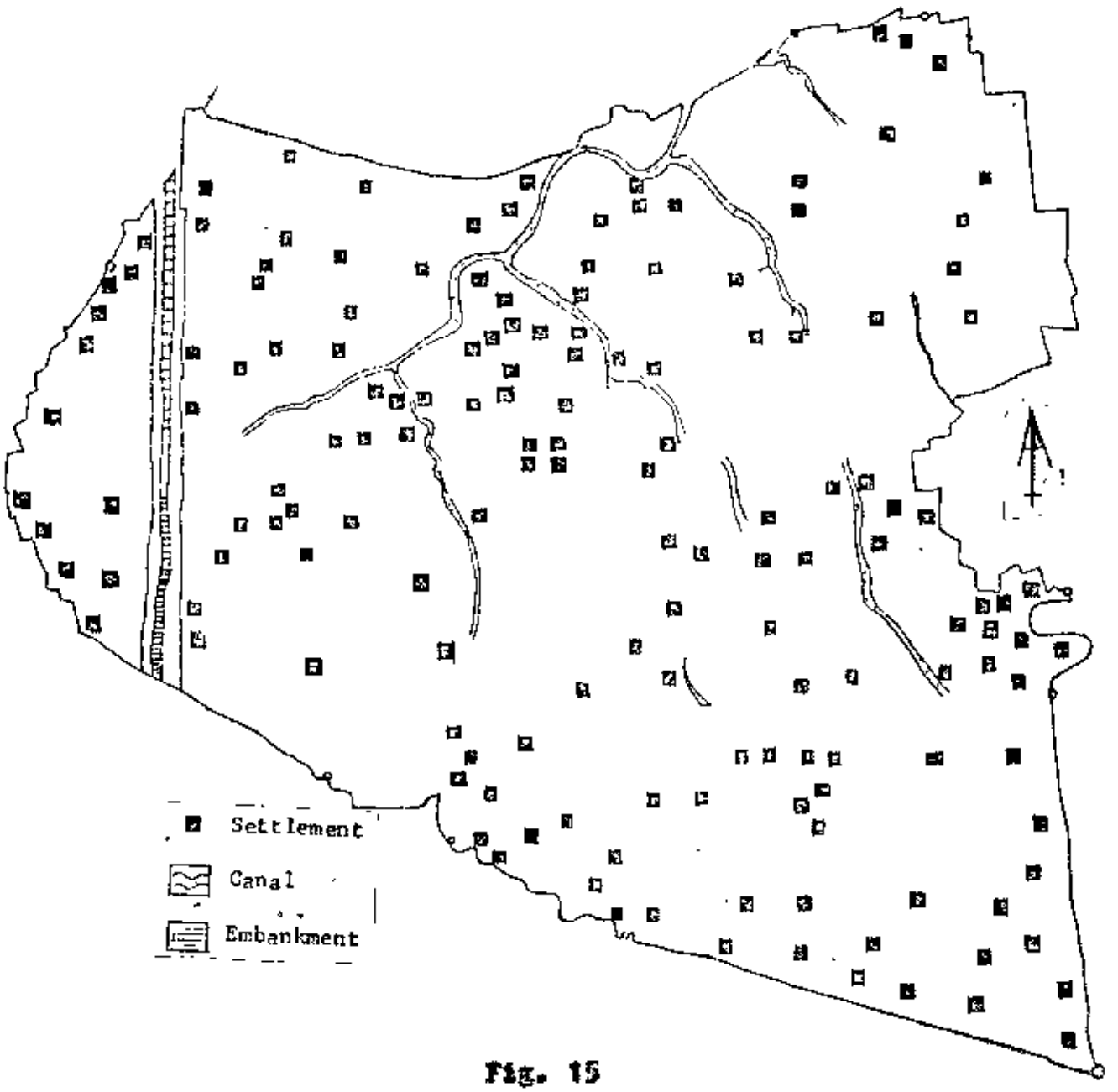


Fig. 15

Fig. 16

CHAK JABBA

PATTERN OF SETTLEMENT 1963-64
(SMALL CLUSTERING AND DISPERSED)
Scale 4" = 1 Mile

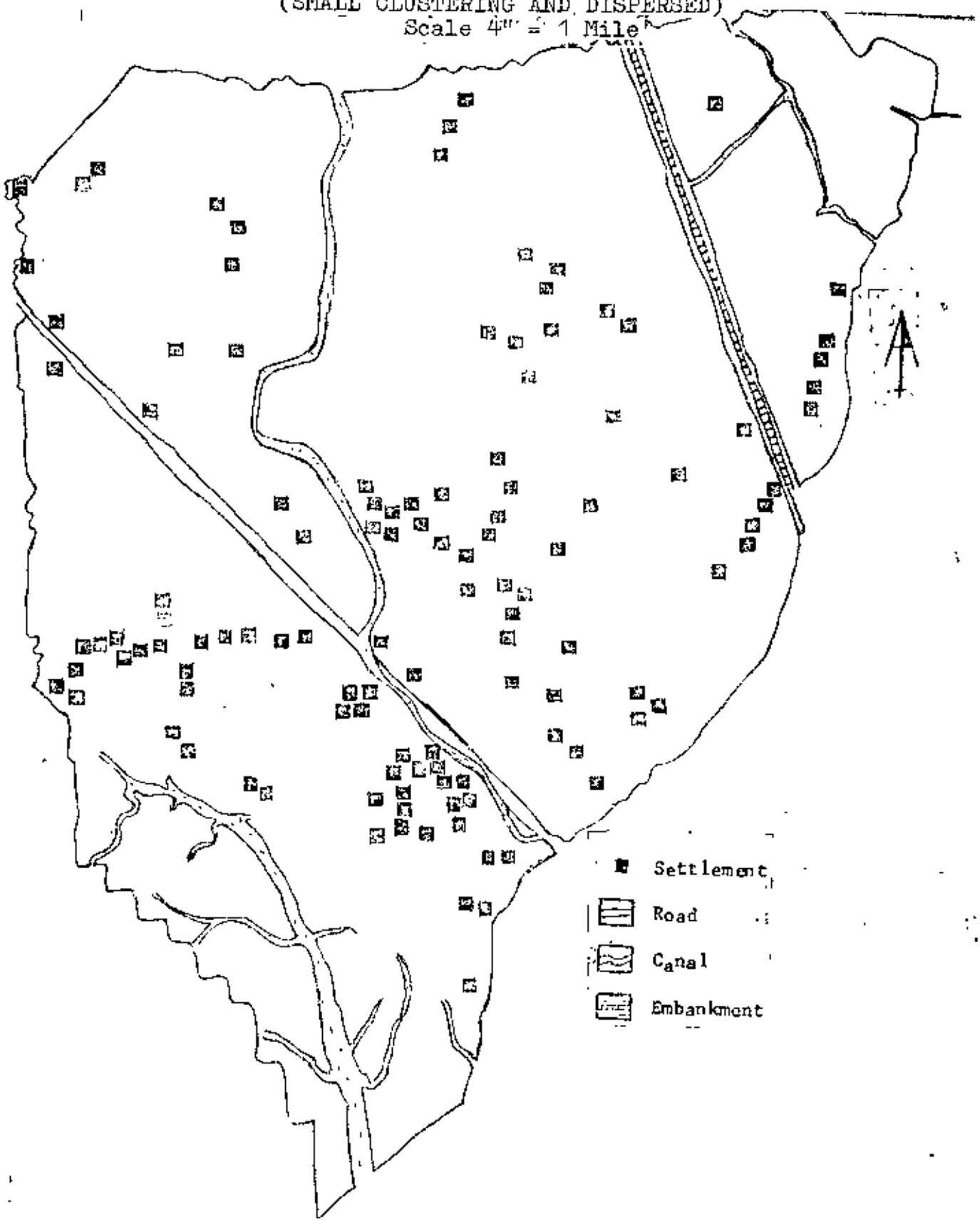


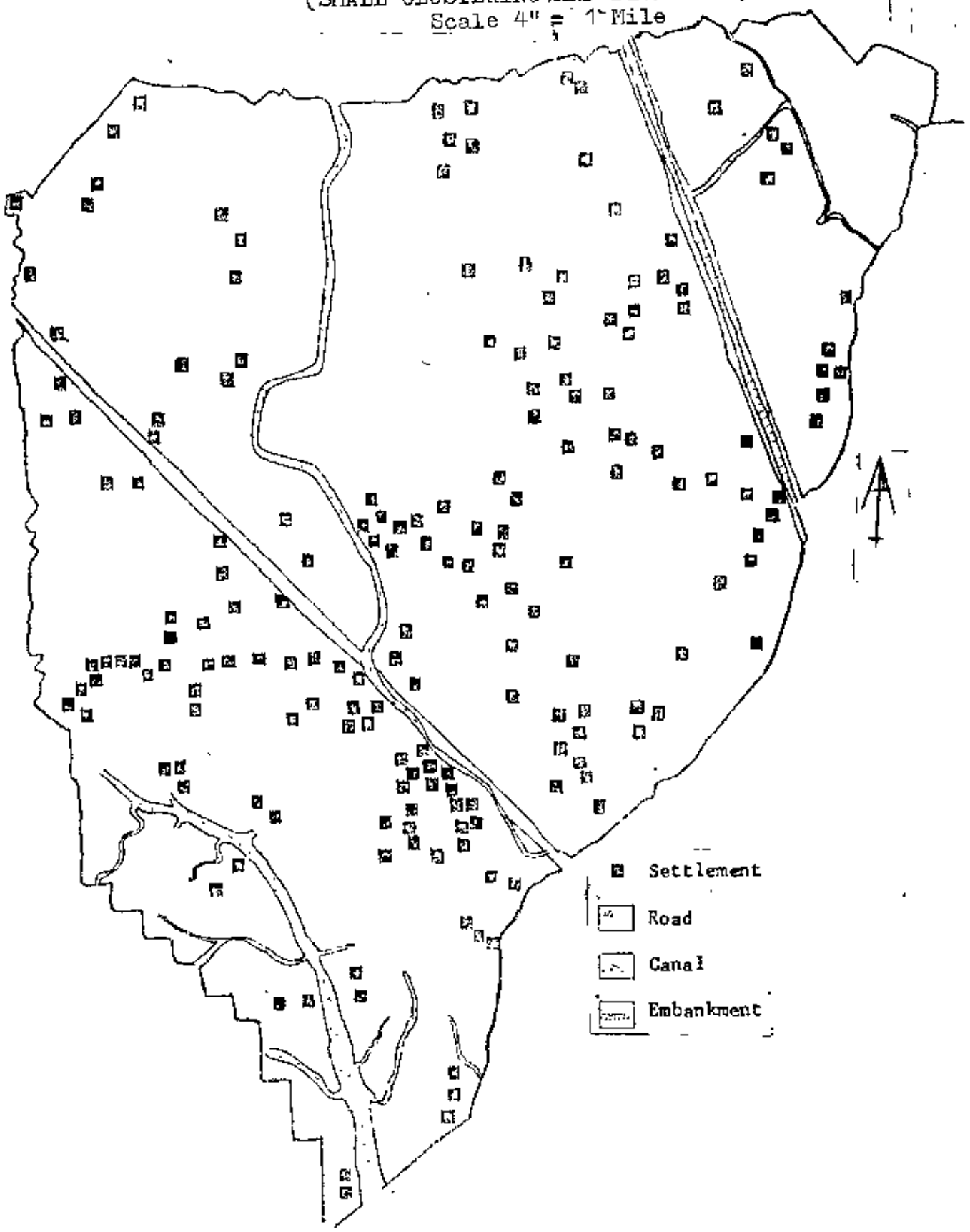
FIG. 17

CHAK JABBAR

PATTERN OF SETTLEMENT, 1973

(SMALL CLUSTERING AND DISPERSED)

Scale 4" = 1 Mile



worked out in table below, settlements in these char villages are growing in a geometrical progression and is similar to the nature of growth of its population. In Matipur village, the growth of settlement in the last 15 years period has more than doubled, presumably for the same reason of its

TABLE 31 : HOMESTEAD INCREASE OVER A PERIOD OF 15 YEARS

Name of villages	Number of homesteads, 1963-64	Number of homestead 1978	Growth of homestead (%)	Rate of increase
Matipur	38	80	110.5	7.3
Chardarbesh	111	190	71.1	4.7
Char Jabbar	126	200	58.7	3.9

Source : Analysis of Map 1964 and Field Survey, 1978.

locational advantages over those of the other two villages. In a detailed approach analysing the change in floor area, number of houses and liveble rooms of the 3 villages over a period of 20 years, it appears that the results are increasing being in the ratio of 1:1.3:5.7 respectively for the 3 study villages. During the 15 years period Char Jabbar shows a considerable increase in percentage of floor area (13%), houses

TABLE ◆ 32 : CHANGE IN FLOOR AREA, HOUSES AND ROOMS IN 20 YEARS

Name of Villages	% Increase of Floor Area	% of Increase of the No. of houses	% Increase of the No. of livable Rooms
Matipur	9.0	12.5	8.0
Chardarbesh	6.9	10.2	30.9
Char Jabbar	13.0	17.6	119.3
Average increase	9.0	13.4	55.4

Source : Questionnaire Survey, 1978.

(more than 17%) and particularly of living rooms (more than two fold, 119%) than that of the other villages. It also appears that the numerical increase of houses and rooms are quite inadequate to cope with the increase of population and is reflected by an occupancy ratio of 3 persons per room on an average. This pattern of growth, however, is thought to be intimately related to its socio-economic condition, life style and cultural norm that have been prevalent in the area.

5.3. LAND - SETTLEMENT RELATIONS

Settlement is built on land and land is also the most basic requirement for originating and spatial diffusion of settlement. Rural settlement by tradition in this country is obviously a part of rural culture and particularly to agriculture. In other words, the rural settlements of Bangladesh have been developed for agricultural pursuit and, therefore, the settlement in relation to agricultural land has a significant emphasis in this present study.

TABLE - 33 : DISTRIBUTION OF HOUSEHOLDS AGRICULTURAL LAND IN RELATION TO HOMESTEAD

Name of Villages	Location of Agricultural Plots (%)		Location of Nearest Plots (%)		Location of Farthest Plots (%)	
	Within the village	Both in and out of vill.	Adjacent to homestead	Not far from h.std. (½ M)	Far from homes (More than 1 mile)	Not so far from homes (less than 1 mile)
Matipur	63.1	36.9	89.5	10.5	31.5	68.5
Chardarbesh	63.9	36.1	91.6	8.4	11.1	88.9
Cher Jabbar	80.3	19.7	90.2	9.8	12.3	87.7
Average	69.1	30.9	90.4	9.6	10.3	81.7

Source : Field Investigation, 1978.

In an identification survey on the distribution of agricultural land with respect to homestead reveals a close spatial relationship between each other. For all the 3 villages, a great percentage of households have agricultural lands only within the village (about 63% of Matipur and Chardarbesh and about 80% of Char Jabbar) and about 30 percent on average have their agricultural lands both in and out of the villages concerned. It is very interesting to note that more than 90 percent agricultural plots lie just adjacent to the homesteads. Even the farthest plots are not so far and is only within half mile of the homesteads, constituting about 68 per cent, 89 per cent and 87 per cent in case of Matipur, Chardarbesh and Char Jabber respectively. Dissimilarly a considerable percentage (about 31 per cent) of households in Matipur village have lands more than one mile away from the homestead but they do not have any intention to move over there for advantageous location of the present residences. However, with some exceptions and other circumstances remaining same, the people of this char land in general tends to build homes very close to their agricultural lands. In other investigation with the probable or tentative reasons for building homes in the present particular plot

TABLE 34 : REASONS FOR HOUSEBUILDING IN A PARTICULAR PLOT (%)

Name of Villages	Land level	Nearness to farm land	Nearness to other homestead	Nearness to hats/ bazars	Nearness to road/ canals	Other reasons
Matipur	15	40	5	25	-	15
Char Sarbesh	50	19.4	2.8	5.5	8.3	13.9
Char Jabbar	67.2	18	-	8.1	6.6	-

Source : Questionnaire Survey, 1978.

appears that about 50 per cent and 67 per cent of Chardarbesh and Char Jabbar people attach great importance on land level and then followed by the nearness of their farmland (about 19 per cent). While in Matipur much emphasis is put on the nearness of farmland, and markets (about 67%) for locating homes on a particular plot. Although the area is an almost flat land, relative land levels are taken into consideration for the extent of floodibility which in term determine the suitability of homestead location among alternative plots. It appears from the table that most of the lands of Matipur (about 95%), Chardarbesh (72%) and Char Jabbar (78%) are usually non-flooded.

TABLE 35 : LAND LEVEL OF HOMESTEADS

Name of Villages	Land levels in percentage	
	Usually non-flooded	Flooded 2-3 months
Matipur	94.7	5.3
Chardarbesh	72.2	27.8
Char Jabbar	78.7	21.2

Source : Questionnaire Survey, 1978.

Even so, the homesteads are preferably built on a relatively higher ground for engendering some other associated features of settlement uses. -

In a further break up of the use of homestead land, it has been worked out that a considerable percentage of its area is covered by gardens (about 28% on an average)and the plants are not old enough, thus resembling the age of the settlements. Tanks or ponds often as an essential element of settlement building, has two-way implications by providing earth for housing plinth and supplying water to the people concerned. Floor space and yards are not less important and occupy about 20 per cent each on an average estimation. Only in Matipur, comparatively a less area (10.7%)

TABLE 36 : HOMESTEAD USES (%)

Name of Villages	Floor space	Yards	Garden	Tank	Fallow	Other uses
Matipur	10.7	15	32.1	37.9	1.4	2.8
Charderbesh	19.3	21.4	29.8	19.6	7.0	2.8
Char Jabbar	30.3	22.9	25.9	17.0	3.7	1.6
Average	20.1	19.8	28.6	24.8	4.0	2.4

Source : Field Survey, 1978.

is occupied by floor space while a bigger area is covered by gardens (about 32%) and tanks (about 38%) than those of the other villages. This may assumably entail a homestead-builtup ratio which is high in Matipur but low in Charderbesh and Char Jabbar. Typically gardens and tanks around or near the houses bear the impression of a settlement even from a long distance.

5.4. HOUSE BUILDING

A rural house, a predominant element in the cultural landscape, provides evidence of the complex relations

between man and his environment.[5] Indeed, in such a charland the traditional house is a symbol of its regional setting expressive both of the distinctive social characteristics of its inhabitants and their agrarian economy. As such, the peasant house is an interesting study since it reflects clearly the direct influences of environmental circumstances and exhibits a working balance of thinking, feeling and life style of the people. Their imprints are reflected through shape, size, type of construction, structural condition, roof, wall, orientation and other architectural features of a house.

TABLE 37 : CONSTRUCTION, STRUCTURAL AND ROOF OF HOUSES

Name of Villages	Type of construction (%)		Structural condition (%)		Roof type %	
	Kucha	Semi Pucca	Poor	Moderate	2 roofed	4 roofed
Matipur	80.3	19.7	66.7	33.3	11.1	88.9
Chardarbesh	100	-	87	13	-	100
Char Jabbar	100	-	68.8	31.2	5	95

Source : Field Survey, 1978

5. Bhattacharya, N.D., "Rural Dwellings and House-Types in Murshidabad", in R.L. Singh's (ed) Rural Settlements in Monsoon Asia, proceedings of I.G.U. Symposia at Baranasi and Tokyo, 1972, P. 376.

In a specific study as undertaken in the villages, it is appeared that 100 per cent houses of chardarbesh and Char Jabbar are of Kucha construction of which 87 per cent and 68 per cent possess poor structural condition as assessed by material and making of the houses. A little dissimilarity is shown in Matipur village having about 20 per cent semi-pucca houses and about 33 per cent houses are of moderate condition. The settlement structure as seen from roof types presents dominantly 4-roofed (abour 95% on average) which is very common in the area. Also worked out that cent per cent houses are single storied in the area. It is also noted for building material as computed in the table that about 80 per cent roofs of houses in Matipur and Chardarbesh are made of chhongrass

TABLE 38 : BUILDING MATERIAL.

Name of Villages	Roof material (%)		Wall material (%)			Floor(%)	
	Thatch	C.I. sheet	Bamboo	Tin	Others	Mud	Others
Matipur	59.2	40.8	85.1	3.8	11.1	100	-
Chardarbesh	83.3	26.7	92.6	3.7	3.7	100	
Char Jabbar	80	20	93.7	-	6.3	100	

Source : Questionnaire Survey, 1978.

or straw. Corrugated tin sheet is consi erably used (about 40 percent) only in Matipur. Bamboo fence is the single most important wall material used (about 90% on average) irrespective of villages concerned whereas cent per cent floors are of earthen material characterizing this char land houses.

It is also pointed out that people taps the local resources and generally builds houses out of those materials. Further, to know the sources of material collection are not beyond

TABLE 39 : SOURCES OF BUILDING MATERIAL (%)

Name of Villages	Own	Neighbouring vill.	Rural hats	Rural hats and city markets
Matipur	3.6	11.1	37.0	48.1
Chardarbesh	5.7	9.2	77.7	9.2
Char Jabbar	2.5	-	85	12.5

Source : Questionnaire Survey, 1978.

their reach and are available in some rural hats and only in some cases to the city bazars. However, the housing condition in Matipur seems to be relatively better than that of other villages, assumably for its preferential location and the existence of some little bit well-off people in the village.

In another consideration, it appears that almost all the households do not have separate kitchen and cooking is carried on within or outside the house. Although, not common but few people also maintain outhouse for entertaining guests and other casual uses. And it is worthy

TABLE 40 : HOUSEHOLDS HAVING KITCHEN AND OUTHOUSE

Name of Villages	Households with kitchen of kucha construction (%)	Household with out house of kutcha construction (%)
Matipur	94.7	10.5
Chardarbesh	86.7	25.0
Char Jabbar	53.8	6.6

Source : Field Survey, 1978.

to mention that all the kitchens and outhouses are of kucha construction and are in a poor condition.

Besides, another important feature of house building is its orientation which is thought to be dictated by sunlight and wind direction. In the study villages, sunlight has got greater appeal than wind and is indicated by the greater

TABLE 41 : HOUSE ORIENTATION (%)

Name of Villages	Eastward	Westward	Northward	Southward
Matipur	37.0	37	14.8	11.2
Chardarbesh	46.4	33.3	11.8	5.5
Char Jabbar	45.0	28.7	15.0	11.3
Average	42.7	33.0	14.8	9.3

Source : Field Survey , 1978.

percentage of houses facing east (average 42%) and west (average-33 %). However, there is no preconception for organising settlements accordingly and local norm rather play a traditional role for it.

5.5. AVAILABILITY OF SOCIAL FACILITIES

Settlement has often been evaluated on the basis of social services available for its people. In this emphasis, the availability of some basic social needs which have been existed either within or outside the study villages but readily as well as easily accessible to the villagers were recorded. In Matipur, there are no such social

TABLE 42 : AVAILABILITY AND LOCATION OF SOCIAL SERVICES

Name of Services	Availability (in number) by villages								
	Matipur			Chardarbagh			Char Jabbar		
	Within village	Adjacent to vill.	Not so far from vill.	Within village	Adjacent to vill.	Not so far from vill.	Within vill.	Adj. to vill.	Not so far from vill.
Police Foota	-	-	1	-	-	-	-	1	-
Post office	-	-	1	-	-	-	-	1	-
U.C. office	-	-	-	-	-	-	-	1	-
Mosque	1	-	-	3	-	-	3	1	-
Hat/Bazar	-	1	-	-	1	-	1	1	-
Primary school	-	1	-	-	1	-	1	1	-
Secondary school	-	-	1	-	-	-	-	1	-
Community centre	-	-	-	-	-	-	-	1	-
Health centre	-	-	1	-	-	-	-	1	-
Cyclone centre	-	-	-	-	-	1	-	-	1
Bank	-	-	1	-	-	-	-	1	-
Club	-	-	-	-	-	-	-	1	-
Bus stand/ stop	-	-	1	-	-	1	-	1	-
Railway station	-	-	1	-	-	-	-	-	-
Tubewell	6	-	-	17	-	-	14	7	-

Source : Field Survey, 1978.

facilities within or very close to the village (table-42). But as the village is located not so far from the outskirt of the old town of Noakhali, the people of Matipur has the opportunity to avail many of those facilities provided in the city. Among the 3 villages, Chardarbesh is the most unfortunate and is devoid of many important public facilities even within a considerable distance of easy access. In char Jabbar, however, all the more social needs like post office, U.C. office, bank, hat/bazar, schools, community centre, health centre, mosques, tubewells, bus stand etc. are available within and adjacent to the village at Char Jubolee. Char Jabber and Char Jubelee villages are comparatively old settlements, which have given rise this small rural centre with all important social services for common use of the people in this region. Now, it is assumed that the locational criteria and threshold requirements for this rural centre may support to develop it into a viable rural growth point with more social, commercial, small and cottage industrial and administrative activities, which are greatly felt for the progress of this char region.

5.6 WATER SUPPLY AND DISPOSAL FACILITIES

The provision of water supply and waste disposal facilities are essential universal needs for a settlement building. With this view, observation was made to the source of water supply and waste disposal system in the villages. It appears that pond or tank is the most important source of water for drinking as well as other uses. The other few alternatives are well and tube-well. In Matipur about 74 per cent people depend on tubewell for drinking water while cent percent of them use tanks for bath and other uses. The overwhelming dependency on tank in general and

TABLE 43 : WATER SUPPLY SYSTEM

Name of Villages	Drinking water (%)					Water for bath/other uses				
	Source			Distance		Source			Distance	
	Tank	Well	Tube well	In home stead	Out of H.S.	Tank	Well	Tube well	In H.S.	Out of H.S.
Matipur	26.3	-	73.7	42.1	57.9	100	-	-	100	-
Char Sarbesh	83.3	8.3	8.3	94.4	5.6	97.2	2.8	-	97.2	2.8
Char Jabbar	93.4	-	6.6	95	5.0	100	-	-	100	-

Source : Field Survey, 1978.

and particularly for bath and other uses is true in other villages too. And most of the tanks are located within the homestead. Tubewells in most cases serve the community and are put in a common place often out of homestead. As viewed in those villages, waste disposing is self managed and little care is taken for disposal of waste material, thus endangering public health. Most of the latrines

TABLE 44 : DISPOSAL OF WASTE MATERIAL

Name of Villages	Latrine system (%)		Drainage (%)		Garbage disposal (%)			
	Kucha	Pucca	None	Kucha	Ditch, thrown out	Heap, open	Other way	
Matipur	94.7	5.3	100	-	10.5	15.4	74.1	-
Char darbesh	100	-	77.8	22.2	36.1	11.1	50	2.8
Char Jabbar	100	-	50.8	49.2	41.0	3.3	55.7	-

Source : Field Survey, 1978.

(cent percent in Charderbesh and Char Jabbar) are kucha and pucca ones are very few as identified only in Matipur village. There is no drainage system and only in few cases kucha drains are used. The garbage is commonly kept among near the house. This poor conditions of waste disposal system, is in fact, directly or indirectly affecting the condition of health and hygiene of the villages people.

CHAPTER-VI

PROBLEMS OF CHAR SETTLEMENT

Bangladesh is a small rural country containing 55,598 squire miles of land and rivers and is inhabited by over 75 million people. Many socio-economic and cultural factors have developed intricate patterns of human habitations over a long span of human existence in this country, which is equally characterized by complexities of physical features as well as resources. The majority of the people have been traditionally agricultural, settled in myriads of rural settlements of diverse types and patterns. These settlements through evolutionary process ensued with many problems which are staggering in magnitude, mainly for the enormous and ever increasing population in the rural areas. In the char areas of southern Bangladesh the problem of land hunger is yet to be felt as the innovation wave for settlement growth is just taking ahead in such a land of very recent alluvial formation. However, char land problems spring basically from its social, economic and geographical conditions as envisaged in this study deserve mention in this context.

6.1. PHYSICAL IMPEDIMENTS

The problems of the coastal charlands of Bangladesh are complex. The entire southern area is interlaced with an intricate network of the tidal rivers and creeks that carry brackish water almost throughout the year. Since much of the land is below high tide level, it is periodically flooded with salt water. The problem of salinity intrusion is also becoming acute as the limit of salinity is showing a tendency of occupying upland even in the interior of the country. The influence of salinity along with the unstable soil condition of char lands, seriously affect the agricultural productivity there. This southern areas of the country by virtue of its geographical location is extremely vulnerable to cyclone hazard associated with storm surges which often caused havoc to life and property. Here, the cyclone of 1970, which lashed everything of the area deserves special catastrophic record in history. The past records reveal that there had been at least eight severe cyclones in the district accompanied by tidal boros over the last 10 years between 1960 and 1970. The cyclone of November, 1970 brought the severest and most devastating effect. An estimate by the Relief and Rehabilation Ministry shows that the total death of human lives was nearly

3 lakhs in the whole of the whole of the cyclone affected areas In Noakhali, 37,319 persons met their tragic death badly damaging the char and coastal areas of Sudharam, Senbag, Companiganj, Lakshmipur, Parshuram, Ramgati and the islands of Hatia. An estimated population of 7,43,600 were badly affected and a total of 138,000 cattle sheeps and goats were lost. 50,000 houses were completely and 15,000 partly damaged. The damages to crops were to the tune of 118,300 acres.[1] The other natural hazards, such as flood,river erosion and drought in summer months are also common features of physical constraints of settlement growth in this region.

6.2. DEMOGRAPHIC DISEQUILIBRIUM

The increase of char population is alarmingly high and surpasses all records of anywhere in Bangladesh. This tremendous increase of population is contributed mainly by the migration effort of the people originating from surrounding areas. Eventually many of the char villages are becoming crowded. The char villages under study

---

1. Government of Pakistan (Now Bangladesh), Ministry of Relief and Rehabilitation, 1970.

reveal 27 per cent increase on an average and is showing little sign of seizing immigration, which is the main underlying factor of population growth. This pattern of internal movement makes the population characteristics more unstable and thereby intensifying the magnitude of settlement problems of southern Bangladesh.

6.3. ECONOMIC PROBLEMS

The geographical setting particularly the physical characteristics of char areas acts negatively to any move of modernization vis-a-vis economic growth. The essential elements which are vital for the rejuvenation of rural economy are awfully poor or lacking in the area. As studied to the char villages, there are very few internal roads within the village and people generally moves through the plot boundaries. Boat, though slow moving is the convenient means during rainy season. Only recently some kucha roads have been constructed but most of them are narrow and inefficient for moving vehicular traffic. However, bus communication between Noakhali town and in such a remote areas of char Jabbar, Char Data has become possible only with the construction of embankments and cross-dams by EWDB. But both the means and media of transport are so deplorable that it involve a lot of

inconveniences. The resulting immobility is one of the principal obstacles to agricultural productivity, for mobility and accessibility have a part in the total process of growing and marketing food.[2] Agriculture inputs and implements needed are not arriving timely. So this backward transport in term causes for low yield and low price of their agricultural produce. Besides, the method of cultivation is very poor and traditional as in the other parts of the country. And double cropping is normally difficult due to the influence of salinity, unstable soil and drought condition during drier months of the year. It has been reported that only a particular local variety of rice is suitably grown in this char territory and the practice of HYV is yet to be introduced. Ultimately, these chars although fertile, become less productive area of Bangladesh and blended their agricultural economy to a subsistance level. Those natural constraints coupled with other factors have made the areas limited to single cropping only in the rainy season. Thus most of the people who depend on agriculture as their major occupation (as appeared from table-10) become unemployed or underemployed for about

---

2. Owen, Wolfred, Distance and Development, Transport and communication in India, Transport Research Program. The Brookings Institution, Washington, 1968, P. 48.

6 months in the year. This grave condition of subsistence economy is also reflected by low level of their average income (table-11) and poor living condition of the people at large.

6.4. SOCIAL AND LEGAL CONSTRAINTS

By far the most pressing socio-administrative problem of char settlement has been the problem of rehabilitating the uprooted families due to natural hazards like erosion and cyclones which very often frequent this area. The situation becomes worsen by the negligence of the authority concerned and misdeed of the staffs of Revenue and Settlement Department. In the prevalent complexities of administrative set up, land settlement system has become a chronic problem of the char areas. Due to the absence of an organised system of settlement with law and order on the basis of scientific method and practicability, the chars often become battle ground for the competing land hungry people, leading to long drawn litigations and murdering of many people. Mass ignorance, low literacy, traditional outlook, lack of social exchange, all these are exploded to the primitive nature of this char people. These factors also add to the endemic constraints of agricultural productivity and any

development effort aiming at the welfare of the region as a whole.

6.5. POOR ADMINISTRATIVE AND COMMUNITY SERVICES

The prevalent administrative infra-structure and community facilities are often indices to the settlement status of a rural community. These services although pose some important bearing to any transformation of this traditional society, badly lagging in the char region. All the necessary administrative set-ups are far away from this char at Sudharam thana headquarter located in the Noakhali town area. The people from all walks of life of this area faces lot of trouble to reach there. On the other hand, administrative and agricultural extention services at village level are awfully lacking in the area. Only recently, a temporary arrangement has been made for some police camps in Char Jubelee, Chardarbesh, Char Jabbar, Char Alexander and some other chars during harvesting time to control social conflict. But this is not a permanent solution for disturbances in the char societies. There is no institution for rural credit in the area. However, a commercial bank has been opened recently in Atcapalia hat of char Jabbar. The absence of rural health centre

in such inaccessable chars aggravated the condition of public health and complete dependency on the local coak and other indigeneous medical treatments. Community facilities, though very limited are essentially the hats, primary and secondary schools, post offices, mosques within or out of the villages concerned. But other amenities, games and club activities are seriously lacking and thus affecting the mental condition of the people. After the historic cyclone of 1970, some cyclone shelters in the form of community centres have been built in the char fields. But those are not always suitably located from accessibility point of view and are not duly maintained. Even so, in many cases these shelters are used as schools. However, if proper steps could be taken those would have been community centres in the true sense with manifestration of some elements of social respiration. Another significant problem, similar to some thousands of villages of this country is the absence of utility system, affecting environmental sanitation. Offensive disposal of rubbish and human excreta leads to pollution of water and air. On the other hand, if this problem is acknowledged carefully and treated otherwise this waste products may be converted

to manure for effective agricultural use. Inadequate sanitation, unhygienic drinking water and poor health services have often been identified as the cause of ill health of some village population and these have also been the cause of various diseases that sometimes break up in epedemic form.

CHAPTER - VII

PLANNING AND RATIONALIZATION OF CHAR SETTLEMENT

Planning is a process to maximise or optimise the usefulness of a set policy. The equilibrium of two processes, i.e. transformation and modification is the threshold in planning purpose. In char landscape the system of transport, water supply, land management, etc. are the elements for change and development of settlement and the rural activity centres are effective agents of rural change. Planning is a future oriented problem solving process and in this emphasis, planned settlement development by overcoming complex problems of such a char areas, however, urgent and desirable to facilitate a significant and continuous improvement in the quality of life as well as living environment.

With this undertaking, the present study has been intended to factual analysis of growth and the trend of growth of char settlement. On the basis of which a balanced growth of settlement may be suggested in those fringe areas of southern Bangladesh. As the land is new with newer settlements, some simulative approaches may be made here with

less interruption to the existing situation, thus demonstrating the advantages of a planned rural settlement scheme. The method used for achieving the objectives of this study was mainly empirical, based on observation and understanding of the present situation in 3 villages only. Obviously, this may not represent exactly the chars as a whole. The scope of the study had to be restricted in consideration of time and resources available for this purpose.

However, it is now acknowledged through the study that the charlands just as emerged with no population. Thereafter, people moved from adjoining areas for cultivation and occupancy rights of land, either legally or extra-legally. Therefore, the growth of population and settlement structures have been caused by a single most factor of migration or redistribution of population as a never ending process. And for this migration effort there are both push and pull factors at work. Poverty, landlessness, cyclones, land erosion and other natural hazards have involved these people to migrate while land owning by government khas allotment or inheritance or by purchasing at a cheap rate has attracted them to be settled in their present hearth

and home. What has emerged then that the general poverty, areal remoteness and culturral dislocation in combination with the low lying terrain and unstable soil condition have bestowed upon this area a dispersed patterning of settlement. The trend of settlement growth is so rapid and uncontrolled that it leads to such a crowded as well as unorganised pattern which is experienced in older parts of the district's mainlands.

In examining the major problems of char settlement, the natural hazards (cyclones, tidalbores, floods, land erosion, summer drought etc.), unstable population characteristics, backward accessibility, influence of salinity which hindering agriculture and crop yield have been identified to be appaling. The people of this region by nature is deemed to be ferocious, creating social conflict which leads to long drawn litigation and even murdering of many people. This happens mainly due to faulty system of land distribution, absence of effective law and order agency and alofness of the area from modern culture of this country. The area is also seriously lagging the needed community services, thus hampering its community aspiration, social exchange and cultural development. The very poor utility services in general and water supply in particular have been endangering the condition of public health.

In viewing the si nificance of findings of this study, the following policy proposals as given below have been suggested for an organised growth and patterning of char settlement which will generate rural development in the region. The implication of these findings and the suggested proposals were to provide guidelines for wider studies at the national and, more particularly, the regional and sub-regional levels. It is apparent that the present study is confined to a limited scope and dealt only with the factors and trend of settlement growth and patterning in the char region. The study, however, indicates the possibilities of further investigation on micro-level of the different aspects of char habitat. Further works in this field would undoubtedly be helpful to the researchers for better understanding of the dynamics of char population and settlement as well.

THE ALTERNATIVE PROPOSALS

1. NUCLEATION OR CLUSTERING OF SETTLEMENT : The welfare not only of the peasantry but also of the country as well depends, as we have been, on the planned resettlement of the sparsed homesteads as well as on the reorganisation

of farming and associated activities on rational basis What the improvement in the quality of rural life demands is indeed a comprehensive development plan for this countryside, so as to lay down the foundation of a permanent framework adaptable this rural landscape.[1]

The programme may start with experimentation on the approach of collectivising the entire landmass of the region and the ownership may be tried with the village Co-operatives. With a view to obtain higher productivity, the settlements are to be organised into nucleated pattern with a multipurpose production co-operatives. The advantages of larger agricultural production co-operatives based on nucleated settlement patterns are quite obvious and numerous.[2] These would make it possible to take advantage of the economies of scale in the use of machinery irrigation facilities, plant protection etc. and provision of community services for each settlement unit. The overall management of land and settlement may be carried on by an organised effort

---

1. Haq, M.A.Q.L., Reorganisation of rural settlements in Bangladesh, An unpublished Master's thesis submitted to the University of Sheffield, London, 1976- P. 37.
2. Ibid, P. 39.

made under legal and administrative framework of the country. Accordingly, the physical plan of these nucleated char settlements must relate to a detailed design for specific uses, such has housing, roads, markets, offices, schools, playground, mosques, graveyards etc. The manner of its layout is rather governed by the requirements of its inhabitants and it is to be pointed out that accessibility and transportation play a vital role in determining the location of settlement activities and thus, the use of land.

The physical planning of such nucleated village is by no means an easy task and involve many factors. The physical factors relate to the topography and other characteristics of the site. The social factors are, however, complex and intreatable, particularly to stride a balance between the conflicting demands of rights of individual and rights of the community. Recognising further that these problem pose a challenge to human understanding and thereby subject to criticism. The idea of nucleated settlement scheme has been disregarded by some authors/researchers on the issues of land use intensity. It has been proved

through several studies that the intensity of crop land use decreases as the distance from the central settlement increases.[3] Further, it involves a wide range of legal and policy measures for public acceptance. Even then, this system of planned villages may be conceived within the programme of regional planning and regional development for char areas. It is also anticipated that this pattern of settlement will have manifold advantages to support this people and their activities in spatial dimension.

2. CONTROLLING EXISTING SETTLEMENT THROUGH REGIONAL PLANNING : Rational planning should have alternative choise of preference consistent with overall public welfare. The study, as possible, put forward another practicable approach to consolidate the existing settlement by controlling their horizontal growth and at the same time stimulating vertical erection of settlement building with the recent innovation of low cost housing materials, collected from within or out of local environment. It has been pointed out earlier that internal movement of population as a factor of settlement growth in the char areas is of paramount

---

variable
in Landuse Analysis", The Professional Geographer, XX, No. 5, 1968, P. 338.

importance. And therefore, recommendation is to be made for minimising or controlling this migration effort. This in turn involves a wide policy measure to provide and recourse the excess or extra population to local urban centres or newly built regional centres based on viable cottage industries, dairy farming, vegetable gardening etc. and other growth potentials with ample job opportunities. The small scale industires should not be only those as could be based on agricultural by-products, but also those for local production of inputs like fertilizers, agricultural tools and implements, as well as of consumer goods like cloth, building materials, cattle feed and so on. Hence, the concept of village planning is to be encompassed within the framework of regional planning. It may also be proposed to develop such centres at a group-of-village level which could be 'grass-root' agents of social, economic and cultural change and modernisation in this countryside.[4] The frame for this consideration is that of the general

---

4. Singh, K.N., "A Case for Small Towns in Regional Planning in India" Applied Geography, N.G.S.I., Varanasi, 1968, Pp. 207-221.

pattern of rural settlements of the area, the existing socio-economic and political condition of the village and the inter village region, the state of transport and the needed structure of the char areas together with the concept of regional community. A tentative classification for services in this rural areas will consist basically of (i) agricultural services; (ii) Social and health services, (iii) community services and (iv) commercial, artisan services. The rural community unit or village may be composed of a group of families whose houses are located in the same area and receive their daily essential services from a community centre within the village. A number of such villages may be grouped around a bigger centre, which is a joint or inter village service centre. And in the last instance, these services are complemented by a regional service centre, completing thus a composite rural structure of communities which contains three district levels of services. But, whatever unit is suggested for the regrouping of the village, it is going to be an artifact which will have to be given form and content thorough the exercise of a set of

development functions.[5] No fixed size is being suggested for rural locality groups and will have to be grouped after a careful appraisal of local conditions, existing structure and dynamics of village growth.

In a general approach destined to char settlement improvement, some factors deserve special attention. The coastal char areas is in an active stage of delta formation; in places large parts of old and densily populated areas are being eroded away whereas elsewhere new land is being formed. As the lands are morphologically unstable and are subjected to continuous process of deposition and erosion, land reclamation and stabilisation has become inevitable. Pertinent to the issue, afforestation drive at large may be undertaken in coastal fringes in order to expedite land formation and to reduce erosion. The ultimate purpose of land reclamation is to gain new land for optimal agricultural use. The success of Meghna cross-dam-1 and cross-dam-2 for land reclamation emphasize that implementation of such works is possible in selected places in the estuaries and the shallow belt of the Bay. The closure of tidal extuaries may be

---

5. Juyal, B.N., "Toward a Structural Framework for Rural Development in India: Some Interdisciplinary perspectives", in R.L. Singh's (ed.) Rural Settlement in Monsoon Asia, proceedings of I.G.U. Symposia at Varanasi and Tokyo, 1972, P. 473.

an answer to the problem of salinity intrusion. After closure of estuaries it can be converted into sweet water reservoir by flushing out salinity through sluices.[6] This process possibly could be accelerated by leaching, using rainwater which is abundant in the wet season. Besides, frequent tilling of land and selection of crop may be taken to consideration as some crops may be salt-tolerant to some degree, while others may help to improve the structure of the soil.

As regards the socio-economic issues is to depopulate all the off-shore islands and disaster prone areas of coastal region. People from these areas should be settled in the available khas land in the main land and priority be accorded to rehabilate the uprooted farmers/families rather than to allocating land for afforestation itself. Because, the former is urgent whereas the benefit of the latter can be derived only after a long period.

---

6. Bangladesh Water Development Board, Land Reclamation and Estuary Control in Bangladesh, 1977, Pp. 6-12.

The initiative to any development effort in such a vast land mass in its regional context as cited above, highly demands a good communication infrastructure, particularly the road network. The realisation of the goal set above demands the creation of such a road pattern which would not only facilitate movement but also bring the isolated communities closer to each other for greater socio-economic intercourse and is an essential prerequisite for regional progress. The reorganised rural settlement, thus could be located advantageously at the junction of local roads. The major throughfares may suggest to be all weathered metallic construction for vehicular traffic flow.

To hold the potential out-migrants from the rural areas at their place of origin, rural life is to be made attractive. For this emphasis is laid not only on generating economic activities but also to introduce some basic amenities, such as theatre, community television, games etc. and utility services like drinking water supply, drainage, refuse removal, electricity etc. The char people is deemed with primitive nature as they are isolated from the modern society of Bangladesh, so the local authorities may provide protective services like police force etc. Conducive to the decentralisation

policy of the government, a feasibility study may be made to shift the present thana headquarter of Sudharam to a viable rural regional centre for an easy access of people to the necessary administrative services, together with schools, college, hospital, vocational training centres etc.

It is also maintained that under present socio-political condition, a drastic change in the existing pattern of social and physical condition of char settlement is neither possible nor desirable. However, it should be taken up as a gradual process with short term priorities and long range programmes. Again, it is very much important to note that any change into the rural community should have their favourable response. All the approaches, therefore, must start with the people and their resources, environment and capacities and by resolving the question of suitable plan programme, low cost and appropriate technology backed by supportive legal, financial and not any less, by political measures.

As briefed earlier it should enthusiastic to deal with settlements in the villages under study by clustering of homestead in a planned way. Clustered living will help to strengthen the spirit of co-operation. Services

and supplies can be provided properly, efficiently and timely. Safety and security measures from cyclone and tidal bore in this coastal land can be suitably taken to a group of people living together.[7] But it is not practicable with any individual village taking isoletedly, due to cost-benefit considerations, initially, it incurs a huge amount of moneytary investment and the benefits may be attained in the long run mainly in realm term. Moreover, the people under present sociopolitical condition will not welcome the scheme rather they will do the contrary. It is also envisaged that any single village cannot be planned independently and an integrated approach is desirable for village planning and rural settlement planning in Bangladesh. Within the framework of integrated char settlement scheme, the further growth of individual villages is to be resisted with an optimum man-land ratio. For this purpose, some advantageous points or growth points may be fostered to give the needed impetus for a better pattern of integration of settlements by removing functional gaps in the area.

---

7. Choudhury, S. Haque, Bishawgram Clustered Village, (a study on clustered housing in Noakhali District) BARD, 1974, P. 21.

In this undertaking, the potential settlements will not develop by compulsion rather necessary inputs, utility and community facilities are to be provided for spontaneous growth. In such a scheme, the people in general will flock together for attaining the benefits of a corporate living Among the three study villages, Matipur and Chardarbesh do not have any criteria of growth points for potential settlement development. Noticably, these two villages are unfortunately devoid of vital elements needed for a community living with agrarian economy and backward accessibility. Char Jabbar, however, may be treated as a viable point for initiating such a growth of settlement. It may also sustain the planning apprehension inmediated above. As identifiable, a small area occupying char Jabbar and its adjacent village char jubelee has got a suitable location for settlement growth potentials, already having some vital components like police outpost, post office, hats and bazars with some permanent shops, primary and secondary schools, rural health centre, bank, club, U.C. office, community centre, bus stop etc. which need more attention for supporting and planning the desired pattern and growth of settlement clustering. These, however, do not indicate fully the growth generating capacity, but virtually may lead to

form the basis of an ideal system for living in the char settlement.

A necessary corollary of establishing the above policy proposals and recommendations, however, is that they should be subject to fairly review and experiments. For this purpose, the authorities or bodies concerned like the Coastal Development Board, Water Development Board and some other organizations should so arrange its service and facilities that maximum possible use is made of them. Initially, there will of course be certain constraints on this. Probably the most important of these will be the costs involved. But other constrains like political decisions, public acceptance, technical know how may also be important.

BIBLIOGRAPHY

1. Adnan, Shapan and the village study group, Dacca University, Land, Power and violence in Barisal Village, Working Paper No. 6 (mimeo), 1976.

2. Ahmad, N., An Economic Geography of East Pakistan, Oxford University Press, London, 1968.

3. Aras, Mohammed, "The pattern of rural settlement in Sub-Hymalayan Region (East)", The Geographer, Vol. 6, No. 2, 1954.

4. Basham, A.L., The Wonder that was India, New York, 1959.

5. Bhattacharya, N.D., "Rural Dwellings and House-Types in Murshidabad", in R.L. Singh (ed) Rural Settlements in Monsoon Asia, Proceedings of I.G.U. Symposia at Varanasi and Tokyo, 1972.

6. Blair, T.A. and R.C. Fite, Weather Elements, (4th ed.), New Jersey, 1960.

7. Brown, R.C., "The Use and Misuse of Distance Variable in Landuse Analysis". The Professional Geographer, XX. No. 5, 1968.

8. Bangladesh Water Development Board, Land Reclamation and Estuary Control in Bangladesh, 1977.

9. Bylund, E., "Theoretical Considerations Regarding the Distribution of Settlement in Inner North Sweden", Geografisca Annaler, 42, 1960.

10. Chowdhury, S. Haque, Bishawgram Clustered Village, (A Study on Clustered housing in Noakhali District), BARD, 1974.

11. Chatterjee, S.P., "Presidential Address" 35th Meeting of Calcutta Geographical Society, Geographical Review, India, 1969.

12. Doxiadis, C.A., EKISTICS, An Introduction to the Science of Human Settlement, London, 1968.

13. Government of Pakistan, Census Commission, District Census Report, Noakhali, 1961.

14. Government of the Republic of Bangladesh, District Gazetteer Noakhali, 1977.

15. Government of Pakistan, Ministry of Relief and Rehabilitation, 1970.

16. Government of the People's Republic of Bangladesh, National Report on Human Settlements, Bangladesh for HABITAT Conference, Vancouver, 1976.

17. Hagerstand, T., Innovation Diffusion as a spatial Process, Translation and Prostcript by Pred, Allen, The University Chicago Press, Chicago and London, 1967.

18. Hamid, Abdul, Rural Planning - A measure for reconstruction of the cyclone devastated areas of East Pakistan (mimeo) Dacca 1971.

19. _____, An Approach to Reconstruction of cyclone Devastated Coastal Areas of Bangladesh (mimeo) Dacca, 1971.

20. Haq, M.A.Q.L., "Reorganization of Rural Settlements in Bangladesh", An Unpublished Master's Thesis Submitted to the University of Sheffield, London, 1976.

21. Juyal, B.N., "Toward a structural Framework for Rural Development in India : Some Interdisciplinary Perspectives", in R.L. Singh's (ed.) Rural Settlement in Monsoon Asia, Proceedings of I.G.U. Symposia at Varansi and Tokyo, 1972.

22. Kingdom of the Netherlands and Bangladesh Ministry of Foreign Affairs, Bangladesh Report on an identification Mission on Land Reclamation and Estuary Control, 1975.

23. Majumdar, R.C., History of Bengal, Vol. 1, Dacca, 1943.

24. Mitra, A.K., Essentials of Land Laws of East Pakistan, Dacca, 1968.

25. Ministry of Land Administration and Land Reforms, Government of the People's Republic of Bangladesh, Memorandoum on the Policy Regarding Settlement of Agricultural Lands at the Disposal of Government, 1972.

26. Morgan, J.P. and W.G. McIntire, Quarternary Geology of the Bengal Basin, E. Pakistan and India, The Geographical Society of America, 1959.

27. Moser, S.C., and Kalton, G., Survey Methods in Social Investigation, London : Heinemann Educational Books, 1975.

28. Owen, Wolfred, Distance and Development,Transport and Communication in India, Transport Research Program, The Brookings Institution, Washington, 1968.

29. Rahman, G., "Rural Settlements in Bangladesh", Studies in Bangladesh Geography, BNGA, 1974.

30. _____, Village Planning in East Pakistan, Master's Thesis (Unpublished) submitted to the University of Oklahama, 1969.

31. Rashid, Haroun-er, East Pakistan - A Systematic Regional Geography and its Development Planning Aspects, Lahore, 1965.

32. Singh, R.L., Rural Settlements in Monsoon Asia (Proceedings of I.G.U. Symposia), National Geographical Society of India, Varanasi (India), 1972.

33. Singh, K.N., "A Case for small towns in Regional Planning in India", Applied Geography, N.G.S.I., Varanasi, 1968.

34. Smith, Lynn T., "Farm Trade Centres in Lusiana, 1901, 1931", Lusiana A.E.C. Bulletin 234 (Baton Rouge), 1933.

35. Spate, O.H.K., "The Indian Village", Geography, Vol. XXXVII, No. 177, Part 3.

36. Toyne, peter and Peter T. Newby, Techniques in Human Geography, Macmillan, London, 1971.

APPENDIX

DEPARTMENT OF PLANNING, BUET, DACCA

Questionnaire on Growth and Pattern of Char Settlement (English Version)

General Information

1. District : 2. Thana
3. Union : 4. Name of Mauza
5. Households plot No. 6. Malaria/FP Card No.
7. Name of household head age
8. Name of the respondent age
9. Relation with the HHH Occupation
10. Family type :

    a) Single b) extended c) Joint

11. Religion : a) Muslim b) Hindu c) Others

Family Information

No. of Members			Educational Status				Occupation of the HHH.	
Total Male Female	Literate	Primary	Secondary	H.S.C.	Univ./ Tech.		Primary	Secondary

Resident Status		Marital Status	Average monthly Income	Remarks
In HH	Away from HH.	Unmarried Married Widow Widower Separate Divorced		

Population Information

1. Any birth in the last 12 month : Yes No.

If yes,

Total :

Male :

Female:

2. Any death in the last 12 months : Yes No.

If yes,

No. of Male No. of Female

Occupation Reason of death

Immigration

1. From where the HHH/forefathers of the HHH came

Thana : Mauza :

2. If forefathers, the relation with the present HHH

3. When come

4. How many relative HH came with them

5. How many HHs settled with them in this mauza

If, there is any permanent or semi-permanent entry in the HH within the last 12 months.

1. Male : Female :
2. His/her marital status
3. Relation with the HHH
4. When came
5. How long he/she will stay
6. His/her occupation
7. Reasons of coming
8. Any difficulties faced

Out Migration at the Origin

Reasons of leaving the previous residence by the HHHH/ forefeathers of the HHHH

1. Inadequate residential land
2. Lack of farmland
3. Conflict disagreement with relatives
4. Oppression by landlords/jotedars etc.
5. Matrimonia 6. Epedemic 7. Cyclone 8. Famine
9. Riot 10. River erosion 11. Other reasons.

Force of Attraction

Whether the HHH / his forefeathers were once the residence of this mauza :

If yes,

When left Reasons of leaving

What was the reason for settling in the present mauza :

1. Reformation of land lost previously by erosion
2. Previously connected by lands etc.
3. Homes of Relatives/neighbours/friends in the present village.

4. Govt. Khas allotment of land
5. Land was comparatively cheap in this village
6. Matrimonia reasons
7. Other reasons

Any difficulties faced initially, how ?

Process of Migration

A. How did you manage land and other properties of the previous village for settling in this village ?

1. By selling all tangible and intangible assets
2. No such assets to be sold
3. Just leaving all property
4. By leasing out
5. Mortgaged out
6. Other reasons

B. Did all members come at a time ? Yes No

Links and counterstream

A. Is there any link with the previous village to-day?

If yes - 1. Social 2. Property 3. Both

B. Is there any member of the HH returned to the previous villages ? Yes No

If yes — His/her/their relation with the HHH

1. Where residing in the previous village ?

Earlier homestead New homestead

2. Cause of the return -

a) To take care of property b) Quarrelling with relatives/sharers/ villagers etc.

c) Matrimonial d) Others

3. What arrangement he made for property in this village?

a) By selling b) Lease C) Mortgage

d) Some otherway

4. If any member permanently or semi-permanently left the HH :

Address : When left : Reasons :

Use of Transport

A. Transport used for coming in this village :

Transport means	Distance	Time taken	Cost incurred
Boat			
Bus			
Train			
Cart			
Rickshaw			
On foot			
Others			

Process of Settlement Growth

1. Area of the homestead (in acre)

Plinth area
Courtyard
Garden
Tank
Fallow
Others

2. Land level of the homestead : Never flooded
Flooded 2-3 months
Flooded 4-6 months

3. Homeownership :

Owned : Jointly owned : Ukhrait : Lease : Mortgage:

Way of owning : Inheritence. Purchase. Donation.
Other

4. Types of homestead : a) Small cluster b) Separated
5. When the homestead was founded? Year
6. Area of the present homestead (in acre)
7. Area of the homestead when founded first :

House building

1. Year of building the Ist house : Area - No. of rooms
2. Area of the present house : No. of rooms -
3. House type : 1 roofed 2 roofed 4 roofed building
4. Is there any member separated from the HH and build new house/houses within 10 years : If yes - where the new house was erected ? a) Same courtyard b) Adjacent courtyard c) In a new place

Housebuilding farmland relation

1. Total No. of land plots of the HH in this mauza.
2. Use of land plots by number
3. Reasons for building house on this particular plot of land.
4. Is there any plan to shift the present house to some other Plot : If yes, Why?

5. Main considerations in building the present homestead :

   a) Land level b) Nearness to farming land
   c) Nearness to roads/canals d) Nearness to hats/bazars
   e) Other reasons.

6. Building materials :

   Floor : Mud Brick Wall : Bamboo Tin Brick Others
   Roof: C.I. Sheet Thatch Brick Others

7. House orientation : South North East West

8. Source of building materials : Self managed
   In the Village
   Local Bazar
   Other source

Water Supply and Waste Disposal System

1. Sources of water supply : Tank Ditch Well Tubewell

2. Latrine system : None Kutcha Pucca

3. Drainage system : None Kucha Pucca

4. Waste disposal system : None Ditch Throwout

Information on agricultural land

1. Total agricultural land in the HH (in acre) :

   All owned All owned by other Self Owned

   + Other owned

   In case of sharecropper, where the landlord lives :

   a) In the mauza b) Neighbouring mauza

   c) Town d) Elsewhere

2. Total amount of land owned by himself (in acre) :

   a) Way of owning : Inheritence Khas allotment

   Purchase Otherway

   b) Total No. of land plots for farming

   c) Distance of nearest plot from the homestead

   d) Distance of farthest plot from the homestead :

3. Total crop-yield in the last harvest (in maund)

4. Did he use fertiliser ? If yes -

   How much : Costs