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FAP 16

# BANGLADESH FLOOD ACTION PLAN

Ministry of Water Resources  
Flood Plan Coordination Organization (FPCO)

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## Upper Jamuna (Brahmaputra) Charland Socio-Economic RRA

April 1995

Prepared by

Environmental Study

FAP 16

 **ISPAN**

IRRIGATION SUPPORT PROJECT FOR ASIA AND THE NEAR EAST

Sponsored by the U.S. Agency for International Development

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## PREFACE

This report is one in a series of reports covering the immediate riverine lands of the major rivers of Bangladesh—the Jamuna, Ganges, Padma, and Meghna. Riverine charlands are defined in this study as areas frequently subject to erosion and accretion within and adjacent to the main rivers of Bangladesh and unprotected by embankments. This report presents the results of a Rapid Rural Appraisal (RRA) designed to provide socio-economic information on the charlands of the northernmost reach of the Brahmaputra-Jamuna River, also known as the upper Jamuna River.

The full set of reports is shown in the table below.

Overview Reports	Inventory Reports	Other Reports
Charland Summary Report	The Dynamic Physical and Human Environment of Riverine Charlands: Brahmaputra-Jamuna	<i>Upper Jamuna (Brahmaputra) Charland Socio-Economic RRA</i>
Charland Socio-Economic Summary Report	The Dynamic Physical and Human Environment of Riverine Charlands: Meghna	Middle Jamuna Charland Socio-Economic RRA
	The Dynamic Physical and Human Environment of Riverine Charlands: Padma	Upper Meghna Charland Socio-Economic RRA
	The Dynamic Physical and Human Environment of Riverine Charlands: Ganges	Meghna Confluence Charland Socio-Economic RRA
		Padma Charland Socio-Economic RRA
		Ganges Charland Socio-Economic RRA
		Charland Flood Proofing Study



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The study was jointly coordinated by Dr. Mustafa Alam and Dr. Suzanne Hanchett. It involved very intensive fieldwork under rather difficult circumstances, and those who performed this work are gratefully acknowledged. The contents of the report are based primarily on information obtained from people living in the charlands, all of whom were extremely helpful in patiently providing the necessary information. Interviews were also held with government officials and NGO field workers. The cooperation of all these participants is also gratefully acknowledged.

We are grateful to the Flood Plan Coordination Organization and to its Panel of Experts for providing overall direction to this study.

## GLOSSARY

acre	-	Acre = 0.4047 ha
aman	-	Late monsoon season paddy planted before or during the monsoon and harvested November-December
amin	-	Land surveyor
arat	-	Wholesale shop
aratdar	-	Wholesale trader with warehouse
aus	-	Early monsoon paddy planted in March-April and harvested in June-July
B. aman	-	Broadcast aman paddy, usually grown in deeper water
bangsha	-	Lineage-mates
BARC	-	Bangladesh Agricultural Research Council
bari	-	A homestead, usually consisting of more than one structure arranged around a central common area
BBS	-	Bangladesh Bureau of Statistics
BDR	-	Bangladesh Rifles
beel	-	An area of open water away from a river
bhatiya	-	People from downstream
BIDS	-	Bangladesh Institute of Development Studies
bigha	-	A local unit of area most commonly equalling 0.33 acre or 0.14 ha
bir	-	Stable
boro	-	Dry season paddy transplanted in December-January and harvested in April-May
BRAC	-	Bangladesh Rural Advancement Committee
BTM	-	Bangladesh Transverse Mercator (map projection)
BUET	-	Bangladesh University of Engineering and Technology
bustee	-	Slum
BWDB	-	Bangladesh Water Development Board
catkin grass	-	<i>Saccharum</i> spp. grasses that are prevalent in the charlands
chaura	-	Original settlers in the Ganges char areas
china	-	<i>Panicum miliaceum</i> , a variety of millet
chowki	-	Bed/platform
cumecs	-	Cubic meters per second
dacoit	-	Bandit
dal	-	Any of a variety of pulses (lentils); a high-protein food staple usually eaten with rice
decimal	-	Unit of area equal to 0.01 acre
denga	-	Land near a river
desh	-	State
deshi	-	Original settlers in Ganges char area
DEM	-	Digital elevation model
dhaincha	-	<i>Sesbania aculeata</i> , a nitrogen-fixing plant used as live fencing, fuel, and building material
diara	-	The low bank of a river
district	-	A large administration unit under the authority of a Deputy Commissioner, now known as a zila
doaba	-	Submerged
EIA	-	Environmental Impact Assessment
FAP	-	Flood Action Plan



FCD/I	-	Flood Control and Drainage or Flood Control, Drainage, and Irrigation
<i>fitkiri</i>	-	Alum
FPCO	-	Flood Plan Co-ordination Organization
FWC	-	Family Welfare Centre
GIS	-	Geographic Information System
GPS	-	Global Positioning System
<i>goala</i>	-	Person trading in dairy products
<i>gur</i>	-	Locally produced molasses
<i>gushiti</i>	-	Lineage-mates
<i>haor</i>	-	Deeply flooded basin of NE Bangladesh
<i>hat</i>	-	Periodic market
hectare (ha)	-	Hectare = 2.4711 acres
<i>hogla</i>	-	A bulrush ( <i>Typhus angustata</i> ) used for making mats
HSC	-	Higher Secondary Certificate
HTW	-	Hand tubewell
HYV	-	High Yielding Variety
ISPAN	-	Irrigation Support Project for Asia and the Near East
<i>jangal</i>	-	Ground cover shrubs used for fuel and as herbs
<i>jhau</i>	-	Tamarisk bush used as fuel and an herb
<i>jotedar</i>	-	Landlord
JPPS	-	Jamalpur Priority Project Study
<i>kabiraj</i>	-	Traditional healer
<i>kaisha</i>	-	A variety of catkin grass ( <i>Saccharum spontaneum</i> ) giving three cuttings a year
<i>kani</i>	-	Local unit of measure equal to .13 ha (.33 acres)
<i>karati</i>	-	Saw operator
<i>kash</i>	-	<i>kaisha</i>
<i>kayem, kayemi</i>	-	Permanent, old, or established
<i>kaon</i>	-	Fox-tail millet
<i>khas</i>	-	Publicly owned
<i>kheya</i>	-	Local boat landing point
<i>khal</i>	-	A drainage channel or canal either natural or man-made
<i>kharif</i>	-	Summer/wet season
kilogram (kg)	-	Kilogram = 1.11 sheer
kilometer (km)	-	Kilometer = 0.625 miles
<i>kutchra</i>	-	Flimsy construction of a temporary nature, in the chars usually of grass, bamboo, straw, or similar materials
<i>lathiyal</i>	-	A stick-wielding private army employed to carry out the will of a locally powerful leader
<i>macha</i>	-	A raised platform
<i>mashkalai</i>	-	A type of pulse (lentil); see <i>dal</i>
<i>matbar</i>	-	Leader of the local community
maund	-	A unit of weight, 1 Maund = 40 sheer = 37.5 kilograms
mauza	-	A village revenue collection and cadastral mapped unit
MCSP	-	Multipurpose Cyclone Shelter Program
mile (mi)	-	Mile = 1.6 kilometers
MPO	-	Master Plan Organization (of Ministry of Irrigation Water Development and Flood Control), now called WARPO (see below)
MSS	-	Multi-Spectral Scanner (Landsat satellite sensor)



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<i>musur</i>	-	A type of pulse (lentil); see <i>dal</i>
<i>nara</i>	-	Straw
NGO	-	Non-Government Organization
PACT	-	Private Agencies Collaborating Together
<i>paiker</i>	-	Wholesale trader
<i>para</i>	-	Neighborhood
PoE	-	Panel of Experts (of FPCO)
<i>pourashava</i>	-	a municipality, usually the urban center of a district
<i>pucca</i>	-	Sturdy construction of a permanent nature, usually of such materials as brick, concrete, or corrugated iron sheets
<i>rabi</i>	-	Winter/Dry Season
RDRS	-	Rangpur Dinajpur Rural Service (an NGO)
REIS	-	Riverbank Erosion Impact Study
return period	-	average interval in years between floods of a given magnitude
RRA	-	Rapid rural appraisal
<i>sadar</i>	-	The urban core (administrative headquarters town) of a thana or district
<i>salish</i>	-	local informal court
<i>samaj</i>	-	Society, community; a formal arrangement between members of a community whereby each member has certain rights and privileges
<i>sarik</i>	-	Lineage-mates
SCI	-	Service Civil International (an NGO)
<i>shabuk</i>	-	Ancient
sheer	-	A unit of weight = 1/40 maund = 0.94 kg
<i>shon</i>	-	A variety of grass ( <i>Imperata cylindrica</i> ) giving one cutting a year; also a generic term for thatching grass
SPARRSO	-	Space Research and Remote Sensing Organization
SPOT	-	System Pour Observation de la Terre
SRDI	-	Soil Resources Development Institute
SSC	-	Secondary School Certificate
<i>tahsil</i> office	-	Local land record and survey office
Taka (Tk.)	-	Bangladesh currency, US\$ 1 equalled approximately Tk. 40 in late 1992-early 1993
T. aman	-	Transplanted aman paddy
thana	-	A sub-division of a zila, or district
<i>til</i>	-	Sesame ( <i>Sesamum indicum</i> )
<i>tishi</i>	-	Linseed
TM	-	Thematic Mapper
ton	-	An imperial ton = 1,016 kg
union	-	Sub-division of a thana
upazila	-	Previous name for a thana (subdivision of a zila or district)
<i>ustha</i>	-	Bitter gourd ( <i>Momardica charantia</i> )
<i>uthuli</i>	-	An informal contract between a landholder and a temporary migrant, under which the migrant is allowed to shelter on the landowner's property in exchange for labor services
WARPO	-	Water Resources Planning Organization
<i>zamindar</i>	-	Landlord
zila	-	A large administration unit formerly known as a district



## EXECUTIVE SUMMARY

The chars and mainland adjacent to the main rivers are prone to the twin hazards of floods and erosion, which destroy crops, homesteads, and land, and bring death and suffering to their inhabitants. This rapid rural appraisal (RRA) investigated social and economic conditions in an area of island chars and nearby mainland (including mainland separated from adjoining areas by secondary channels) in the upper Jamuna (Brahmaputra) River. The report presents, in addition to the socioeconomic information gathered by the RRA, cultural materials reflecting local views of char and mainland life, as well as an account of charland flood experiences observed in 1993 by the RRA team.

The study found that the charlands in this relatively remote part of the country, while being somewhat less densely populated than areas farther south, were subject to many of the same problems as were found elsewhere. The findings of the Charland Inventory for this river reach indicate that, over the period 1973-92, the region witnessed less bankline change—especially less erosion—than reaches farther to the south. Still, most of the area within the bankline has eroded at some time in the past five years, and there has been some accretion. The general instability of the charlands affects the economic and social structures of their people.

The economy of the upper Jamuna charlands, where some 80 percent the island and attached char settlers worked their own or others' land, was almost entirely dependent on agriculture. The export of agricultural labor was also found to be quite significant for the study area population. For four or five months of each year, during January-May and September-November, this region sends many laborers to neighboring districts in search of work. Rangpur, Bogra, Dinajpur attract most of them; but some go as far as Tangail, Mymensingh, Sherpur, Munshiganj, Gazipur, or even the greater Dhaka area. Fishing, while it was often practiced on a subsistence level, was not of major commercial importance to the charland dwellers.

Livestock rearing is a mainstay of the local economy. As in other char areas, grazing opportunities are ample; but an additional advantage of this region compared to chars in the central Jamuna and lower Padma or Meghna, for example, is that there is less animal theft. This advantage is due, at least in part, to the presence of government border security forces in the region; but it may also indicate that levels of factional conflict in the area are low.

Although health care facilities are virtually unavailable in the char settlements, health services were found to be more available than expected. In each place it was reported that all children and pregnant women had been immunized for some time by people who visit the chars every one to three months. Primary education, which is available in three-quarters of the region's mauzas, is rather more available than in some other char areas.

In the places visited by the RRA team there does not seem to be much controversy about ownership of newly accreted lands if the lands in question are recorded as belonging to a specific owner before erosion. Rights over government-owned lands, however, are the subject of local controversy and manipulation by locally influential men, and distribution of newly accreted government lands is usually skewed in favor of the elite.

Ten to 60 percent of the land in the focus mauzas is cultivable. Rabi crops such as sweet potato, millet (*kaon*), wheat, and some pulses are planted in all study mauzas. Only in the case of Narayanpur has rabi cultivation expanded to include cash crops, such as groundnuts, watermelons, and potatoes. Extension services and capital would be needed to make full use of such crops as groundnuts in the other mauzas, where most people are unfamiliar with methods of cultivating them.

The main problems of farmers in this area are: weeds, sand carpeting, excessive rainfall in the



monsoon season, hail storms, flood during kharif I (affecting aus crops), and erosion. Most farmers also have inadequate capital; improved access to credit would help subsistence farmers, who depend on chemical fertilizers (urea and TSP), to produce their rice crops.

None of the mauzas has irrigation. Although RDRS had provided some treadle pumps for homestead irrigation in Narayanpur, these now are used only for drinking water. People in all mauzas had little understanding of crops that need irrigation.

In each season, people say they have some difficulty with local transportation. During the dry season, when it is necessary to walk, moving heavy goods is very difficult. During the rainy season high waters, strong currents, and waves also can make navigation difficult, sometimes even halting travel and causing economic losses.

Chars in this reach of the river are prone to flooding almost every year, and many even flood as many as two or three times in a single year. Floods, caused by increased flows from the hills of India or by runoff from upstream catchment areas, normally occur between mid-June and mid-October. In the past decade the region has experienced four unusually high floods: in 1983, 1987, 1988, and 1991, and in July and August of 1993 some (though not all) chars were again more deeply flooded than usual when sudden rushes of high water came into the area from the northwest.

In two of the chars visited, Jhaukti and Parbatipur, a large number of households must seek shelter away from their homes during normal monsoons for 10 to 20 days. These households also move their livestock each year to embankments located 2 to 10 km from their chars.

This area was severely damaged in the 1988 flood, which lasted from mid-August to mid-September and inundated nearly all fields. Low agricultural lands were under six meters of water, and even high agricultural land was two meters underwater. Aus and aman paddy crops were completely

destroyed. All houses were flooded, about 90 percent of them over floor level and at least two-thirds to their roofs or more. More than half of all houses were damaged, and about one-third were completely destroyed. Some 60 percent of all people left their homes to seek shelter elsewhere, staying away from two to four weeks. Those who had cattle and other valuable assets tried to stay home as long as possible to protect their belongings. Cattle and other livestock also were seriously affected.

Recovery from this flood was a serious problem for most households, who needed to sell cattle or borrow money to repair houses. Many people found it necessary to go to distant places and work as day laborers to meet family survival and recovery needs. Community members were so overwhelmed by their own problems that they found it difficult to help each other with house repair; so this was managed individually by each family.

## Chapter 1

### INTRODUCTION

#### 1.1 Background to the Study

##### 1.1.1 History

The original design of the Flood Action Plan (World Bank, 1989) included among its components a socioeconomic study of the active floodplains of the Brahmaputra-Jamuna, Ganges, Padma, and Meghna rivers. The active floodplain was defined at that time as areas within the main river channels and nearby areas of mainland, both of which are frequently subject to erosion and accretion and cannot be protected from floods. The aims of the active floodplain study were to:

- assess present agricultural practices, settlement patterns, and disaster responses;
- estimate the number of affected households living on chars (mid-channel islands created by accretion) and within a short distance of the riverbanks;
- estimate the number of households living on existing embankments; and
- prepare guidelines to be used in feasibility studies to ensure that in project planning full account is taken of the active floodplain populations.

As the detailed terms of reference (TOR) of FAP 14, the Flood Response Study, were being drawn up by the government of Bangladesh and finalized with donor agencies, it became apparent that the intended study would not immediately be possible. A more general study first needed to establish—for the full range of flood environments inside and outside the chars—the context in which flood response occurred. In addition, the active flood-

plain study required the use of remote sensing data and satellite image interpretation, but the facilities and trained staff to achieve this within the FAP would not be ready until at least late 1991.

During 1991, the first full year of FAP studies, it became clear that regional studies were unable to devote sufficient resources to the specialized work of socioeconomic study of the active floodplain. Most used the main rivers as their study area boundaries. Of the regional FAP studies only FAP 3.1, the Jamalpur Priority Project, attempted detailed socioeconomic studies in the chars, investigating those along the reach of the Jamuna adjacent to the project in 1992 (see Section 1.1.4). In addition, FAP 14, the Flood Response Study, carried out socioeconomic surveys in 10 active floodplain villages.

Finally, in 1992 on advice from the Flood Plan Coordination Organization (FPCO) ISPAN agreed to undertake an inventory of resources and people in the main river charlands. This study, then, fulfills the need—foreseen in the Government of Bangladesh/World Bank Flood Action Plan of 1989—for a socioeconomic study of the people and resources of the active floodplain. Although it does not consider in detail the populations living long-term on embankments along the main rivers, analysis of erosion and accretion patterns has been added.

The inhabitants of the charlands are among the most hazard-prone people of Bangladesh, exposed as they are to floods and erosion. Structural flood protection measures are unlikely to benefit these people, and embankments may even raise flood



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levels within the charlands, increasing the risks to which they are exposed. Reliable information about these areas and the people who live in them has always been scarce. The difficulty of gaining access to chars and their constantly changing environment has made studying them a complicated undertaking. As a result, prior to this study, what little information was available did not cover in any detail all the main river charlands.

### 1.1.2 The Charland Study

The Charland Study is a special study under the Bangladesh Flood Action Plan (FAP). It was jointly carried out by FAP 16, the Environmental Study, and FAP 19, the Geographic Information System (GIS), both of which are undertaken by the Irrigation Support Project for Asia and the Near East (ISPAN) and funded by USAID.

This study has two objectives. The first is to develop databases and a geographic information system (GIS) that can be used as planning tools both for direct interventions in the charlands and for other interventions (such as embankments) that may affect the char areas. The second objective is to use the data collected, along with additional socioeconomic studies, to make general policy recommendations for the charlands and to test and develop means of rationally assessing the potential benefits of flood proofing measures in these areas.

The objectives have been addressed with five tasks.

- Making an inventory of resources, people, and infrastructures in the Brahmaputra-Jamuna, Meghna, Padma, and Ganges charlands and collecting additional information on hazards (led by FAP 16).
- Using digital satellite images to analyze physical changes and land use in these areas, and integrating this analysis with inventory data using a GIS (FAP 19).
- Conducting supplementary socioeconomic studies using rapid rural appraisal (RRA) methods in six river reaches (building on the Flood Response Study, FAP 14).

- Conducting detailed studies of flood losses and flood proofing potential in two areas along the Jamuna River (building on the Flood Proofing Study, FAP 23).
- Integrating the results of the above tasks into a comprehensive report.

This is a report of the findings for one of the six rapid rural appraisal (RRA) study areas—the northernmost reach of the upper Jamuna River (also known as the Brahmaputra River). Figure 1.1 shows the charland study areas.

## 1.2 Methods

### 1.2.1 RRAs

RRA methods are essentially non-quantitative, and involve direct observation and collecting qualitative information from a range of key informants or small groups in representative villages in the study area. The method is systematic in the sense that standard checklists form the basis of the information gathering (see Charland Methodology Report), and in the way in which information is cross-checked and verified from a range of informants and sources. Locational biases are avoided by visiting both remote and more accessible areas, and socioeconomic biases are avoided by including coverage of groups such as women and the landless whose opinions might otherwise not be heard. In this way reliable information can be built up by an experienced team of specialists covering a range of disciplines based on an iterative process of questioning and expert judgement.

Additionally, RRAs in the Charland Study have the advantage of access to some quantified data from the inventory and GIS for all the mauzas (revenue villages) within the study reach, and this is integrated where appropriate into the RRA report.

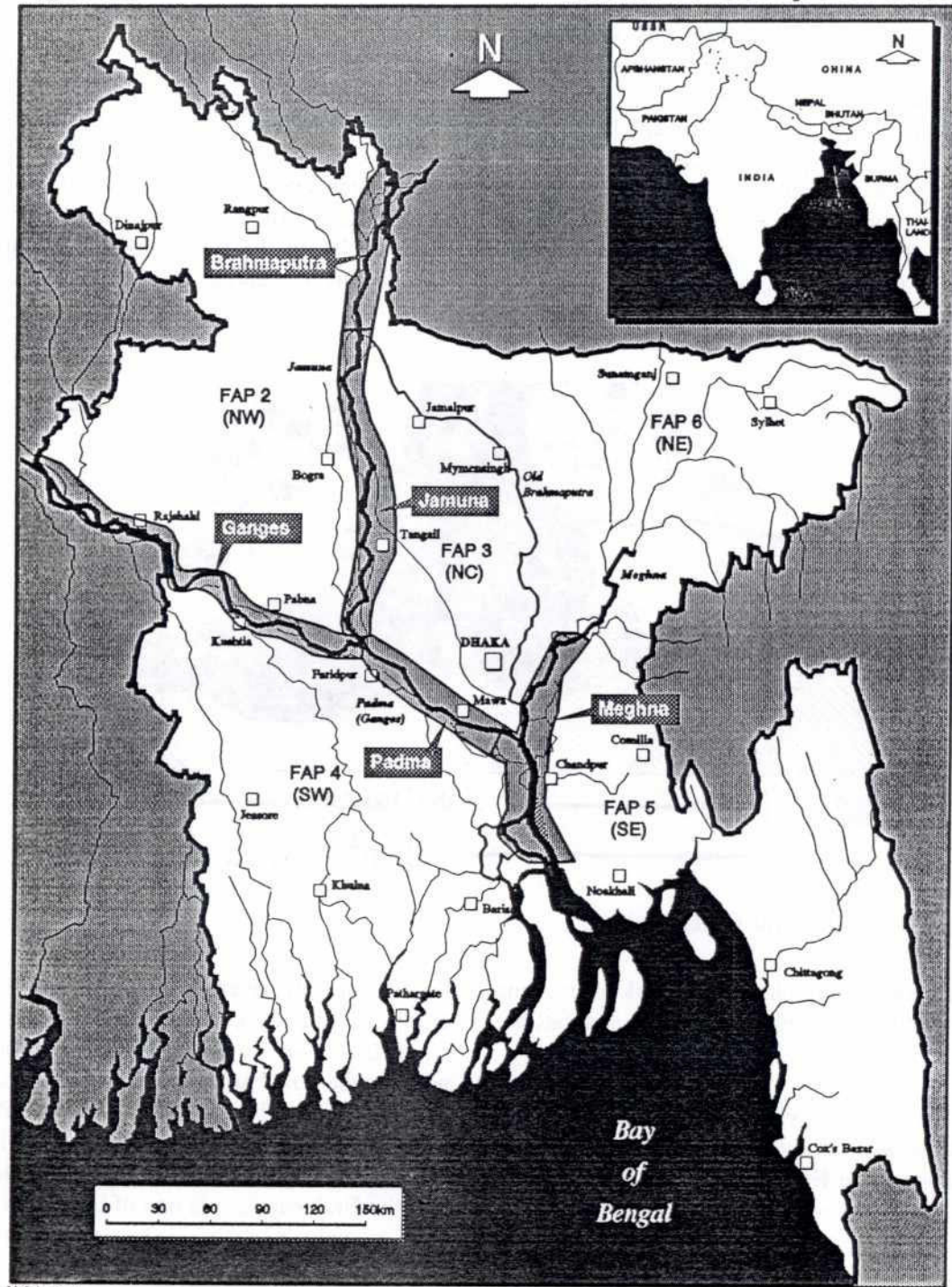
### 1.2.2 Work Schedule

The RRA team included specialists in: geography, economics, social anthropology, fisheries, and



Figure 1.1

# Charland Study Location





engineering. Fieldwork took place in May 1993 and was based in Jatrapur Village. The primary sources of information were key informants; for example, knowledgeable farmers, members and ex-members of union parishads, schoolteachers, fishermen, traders, landless, and women living in charland villages. Access was by boat, so it was not possible to walk transects through the area.

The RRA team selected a group of focus mauzas in each study area and covering a range of environments. The selection was aided by a SPOT image map of the area. Each RRA covered both

appropriate. In this way important differences between villages could be investigated and more general information could be cross-checked between different groups of informants within a mauza.

### 1.3 Introduction to the Study Region

The Jamuna study region and location of the RRA study mauzas are shown in Figures 1.3 and 1.4, respectively. In the portion of the Brahmaputra-Jamuna River<sup>1</sup> nearest the northern Bangladesh

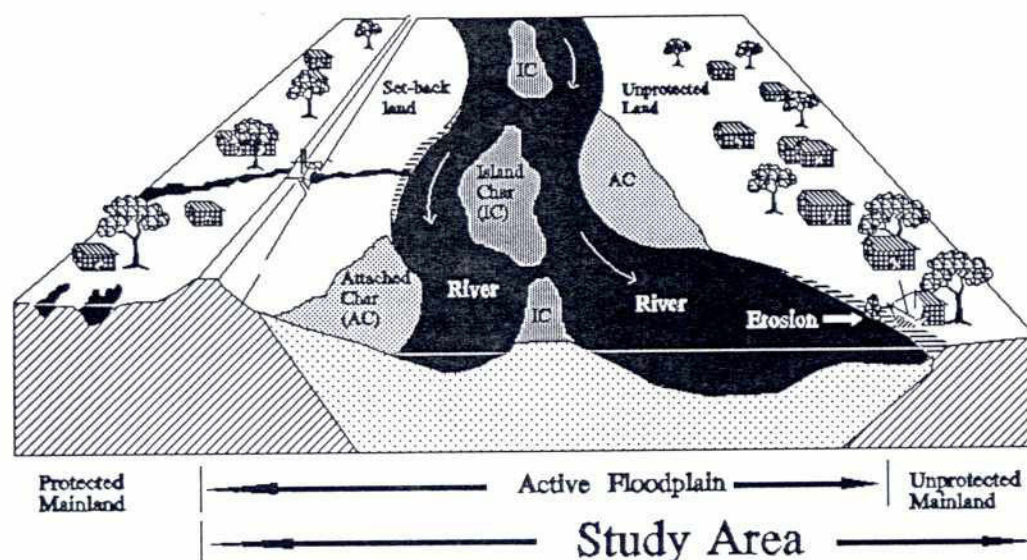


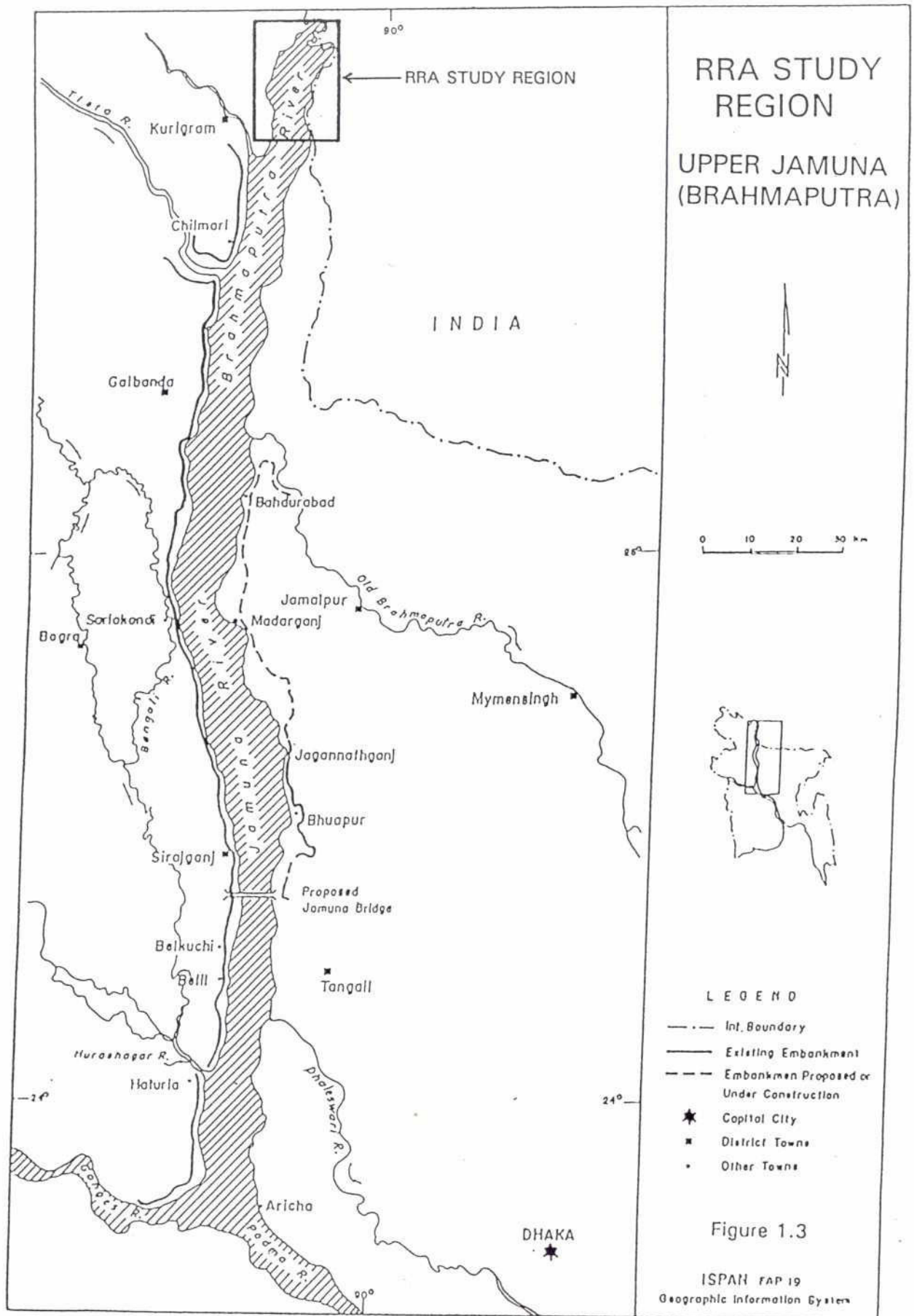
Figure 1.2 Charland Classification.

old and new island chars, attached chars, and some unprotected mainland. These char types are illustrated in Figure 1.2.

Most of the mauzas visited contain a number of villages (*grams*) or neighborhoods (*paras*). Once in the mauza, the RRA team split up. Each individual team member then collected information on his or her subject area. The information gathered, while for the entire mauza when possible, concentrated on the experiences of the inhabitants of a particular village. Hence the discussions and tables refer to villages/neighborhoods or mauzas as

border, narrow river channels thread their way around frequently changing land masses. Of the seven thanas in Kurigram District, six are composed mainly of char areas: Nageshwari, Kurigram Sadar, Ulipur, Chilmari, Rajibpur, and Roumari. This area, together with the places where the Gangadhar, Dudhkumar, and Dharla rivers flow into the Brahmaputra, is one of the prime Bangladesh examples of a "braided river" system.

Despite the fact that local people frequently travel within chars and between chars and the mainland, the region has a placid, open look. Even on





# LOCATION OF RRA STUDY MAUZAS UPPER JAMUNA (BRAHMAPUTRA)

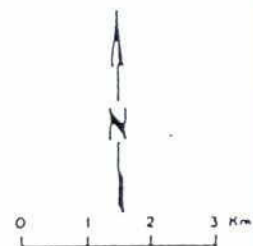


Figure 1.4

Table 1.1 Focus Mauzas

Mauza (union, thana)	Land Type	Estimated Households	Facilities	Erosion Status
Jhaukuti (Narayanpur, Nageshwari)	Island	210	1 primary school 1 mosque 1 club	NW segment: occupied NE segment: accreting, not occupied S segment: stable, occupied
Parbatipur (Jatrapur, Kuri-gram)	Attached/Island & Unprotected Mainland	310	1 primary school (to class III) 4 mosques	Mainland portion: some erosion Island portion: accreting, not occupied
Nunkhawa (Nunkhawa, Nageshwari)	Island	380	2 primary schools 1 club 1 mosque	Western side: stable Eastern side: older area, more houses, frequent erosion & accretion
Daikhawar Char (Shaheber Alga, Ulipur)	Island	280	2 primary schools 3 mosques 1 post office	Mauza trisected by two wide river channels. Only 15 percent is above water. Northern tip and central parts inhabited. Southern side accreting and newly habitable.
Kalir Alga (Jatrapur, Kuri-gram)	Island	220	1 primary school 1 mosque	Mauza has been accreting since 1990 after being about 75 percent submerged in 1985-87. Most households are crowded into small northern area; southern area still largely uninhabitable.
Narayanpur (Narayanpur, Nageshwari)	Island	700	1 primary school 1 junior high school (to class VIII) 9 mosques 1 post office 2 clubs Union Council office RDRS office	Large, stable

Source: Charland RRA



market days few boats ply the rivers. Char areas are dotted with enough markets (*hats*) to meet daily and other trading needs, but urban centers are remote.

Following a malaria epidemic in 1872-1891 that killed about 4 percent of the Rangpur District population, immigrants from Pabna, Bogra, and Mymensingh started to move into the district, especially into the char areas. This immigration is credited for an increase of more than 10 percent in the district population between 1901 and 1911 (Khan 1977:52). It is possible that *zamindars* or their agents recruited the new settlers to work district lands. At least some of the new settlers were forced out of other areas by river erosion.

*...Between 1901 and 1911...there was a great influx of Muslims from Pabna and Mymensingh to new formations in the Jamuna river. As in other parts, the people who lived on the chars formed in the rivers were in some measure a race apart, and the new formations on the Rangpur side [i.e., the west side] of the river were colonized not by the people of the adjoining mainland but by people whose land on the other side of the river and further down had been washed away. (Khan 1977:53) ....In Kurigram subdivision, Nageswari and Bhurungamari police-station contained char areas and they together with Rahumari had received from the districts of Mymensingh, Pabna and Bogra, immigrants commonly known as Bhatiyas who had colonised the chars. (Khan 1977:55)*

The charland descendants of immigrants from old Pabna and Tangail districts still refer to ancestral homes in places such as Sirajganj or greater Mymensingh. As the above quote describes, such migrants

came to be known as *Bhatiya*, or "people from downstream." Those who were original settlers, in contrast, call themselves *Bangalis*, or "people of Bengal." The distinction between these two groups is still strong in the region, and social intercourse between them is somewhat restricted.

The RRA team visited six mauzas,<sup>2</sup> general descriptions of which are in Table 1.1 on the preceding page. Five of the mauzas were island chars, and one had a mainland (unprotected) portion and an island portion. One of the island chars, Jhaukuti, has a section so close to the mainland that it resembles an attached char. Two of the mauzas, Narayanpur and Daikhawar Char, were adjacent to the border of Bangladesh and India.

According to the FAP 16 Brahmaputra-Jamuna Inventory Survey, the focus mauzas were originally settled between 1858 and 1956. At least three, Jhaukuti, Kalir Alga, and Parbatipur, trace their history back more than 100 years. Such statements, it should be noted, probably refer more to the social entities of named settlements than to land formations themselves, since the land has undergone considerable change over time in most, or even all, cases. In this area, as in other char areas, a group of people may take its village name with it when it moves to a new land mass; so it should not be assumed that these specific land masses either have existed, or have been continuously occupied since those times, even if some parts of them may have been.<sup>3</sup>

**Table 1.2 Physical Description of the Study Region**

Land Category	Island Char	Attached Char	Unprotected Mainland	Total
Area (ha)	21,323	13,332	17,694	52,349
% of Total Area	41	25	34	100
Water (%)	25	23	3	17
Sand (%)	17	18	2	12
Vegetated (%)	58	59	95	71

Source: Charland Inventory



Table 1.3 Distribution of Land Types in Study Region Mauzas\*

Thana	Submerged	Island Char	Attached Char	Unprotected Mainland	Total
Nageshwari Mauzas Area (ha)	0	11 6,304	11 6,225	14 9,099	36 21,628
Kurigram Mauzas Area (ha)	0	4 4,933	5 2,035	12 5,503	21 12,471
Ulipur Mauzas Area (ha)	0	13 10,086	9 5,072	5 3,092	27 18,250
Total Mauzas Area (ha)	0	28 21,323	25 13,332	31 17,694	84 52,349
Percent of Area		41	25	34	100

Source: Charland Inventory

\*If a mauza has more than one land type, it is classified according to its predominant land type.

#### 1.4 Profile of the Study Region

##### 1.4.1 Physical Description

Tables 1.2 and 1.3 present FAP 16 Charland Inventory data on the physical characteristics of the area covered by the RRA. The area of the region is approximately 52,349 ha (or, 523.49

km<sup>2</sup>), of which 71 percent is vegetated land, 12 percent is sandy land, and 17 percent is water. Forty-one percent of the mauzas are located on island chars, and 25 percent are on attached chars.

Erosion and accretion phenomena greatly influence the lives of people who live in chars. This region of the study has witnessed less bankline

Table 1.4 Char Age and Duration of Vegetation, Cultivation, and Settlement in the Study Region

Attribute*	Island Chars (Total Mauzas = 27)						Attached Chars (Total Mauzas = 19)					
	Mauzas Report- ing	1-3 Yrs.	4-10 Yrs.	11-20 Yrs.	21-30 Yrs.	>30 Yrs.	Mauzas Report- ing	1-3 Yrs.	4-10 Yrs.	11-20 Yrs.	21-30 Yrs.	>30 Yrs.
Char Formation	27	1	1	1	1	23	19	-	1	1	2	15
Natural Vegetation	26	2	-	2	-	22	19	-	1	1	3	14
Crop Cultivation	27	2	2	1	-	22	19	2	-	1	4	12
Settlement	26	2	1	1	-	22	19	-	1	1	5	12

Source: Charland Inventory

\*The Brahmaputra-Jamuna Inventory questionnaire asked for the earliest dates known to the local population; the questionnaire for other rivers asked for most recent dates. This data therefore cannot be compared with that of other rivers.



**Table 1.5 Population of the Study Region**

	Island Char	Attached Char	Unprotected Mainland	Total
Area (km <sup>2</sup> )	213	133	177	523
1981 Population*	26,802	33,682	109,867	170,351
1993 Est. Population†	59,571	42,042	132,891	234,504
1993 Est. Households†	9,368	7,003	22,917	39,288
1981 Population/km <sup>2</sup>	126	253	621	325
1993 Est. Population/km <sup>2</sup>	279	315	751	448
Est. Change in Population, 1981-93 (%)	+121	+25	+21	+38

\*Source: Bangladesh Bureau of Statistics, 1981 Census

†Source: Charland Inventory

change—especially less erosion—over the 20-year period 1973-92 than reaches farther to the south. Still, most of the area within the bankline has eroded at some time in the past five years, and there have been slight changes in the west bank, including some accretion. Information from the FAP 16 Inventory, presented in Table 1.4, indicates that most of the settlements have been in existence for more than 20 years. This finding is somewhat ambiguous, however, as the question was asked, "When was the first human settlement on this mauza?" Answers may refer to early time periods, and since then a char may have disappeared and reappeared one or more times.

#### 1.4.2 Population and Infrastructure

Table 1.5 shows that the study region has an overall population density of approximately 448 people

per km<sup>2</sup>, which is much less than that of some char areas farther to the south. This probably is due to the remoteness of the area and the consequently greater dependence on the vagaries of charland agriculture. The FAP 16 Inventory data do suggest that the charland population density has increased over the past decade, nonetheless. Population pressure on mainland resources is among the more plausible reasons for this trend.

Infrastructure and public facilities are moderately available to the charland population, as Table 1.6 shows. Health care is virtually unavailable in the char settlements themselves (a finding confirmed by the RRA team's investigations). But primary education, available in three-quarters of the region's mauzas, is rather more available than in some other char areas. The reasons for this are unclear, but the pattern no doubt indicates that

**Table 1.6 Infrastructure and Facilities in Inhabited Mauzas of the Study Region (percent)**

Facility	Island Chars	Attached Chars	Unprotected Mainland	Total
Health Care	7	5	0	6
Primary School	85	58	100	76
High School	15	11	33	14
Weekly Market ( <i>hat</i> )	15	21	33	18
NGO Active	4	5	0	4

Source: Charland Inventory

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local people care enough about primary education to preserve schools. It may have something to do with the comparative stability of community life relative to other areas—i.e., a continuity of community groups that survives land changes. As discussed later in this report, weekly markets are

available to the charland population, who use engine boats to travel to them. The activities of Rangpur Dinajpur Rural Development Service (RDRS) may be more extensive in the area than the table indicates; but RDRS is no doubt the NGO referred to in the table.

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## NOTES

1. The Brahmaputra River enters Bangladesh from India in this area and then branches off to the east farther south, where most of the flow is carried directly south in the Jamuna River. The whole Brahmaputra-Jamuna reach from the Indian border southward is often referred to as the Jamuna.
2. The river reach covered by this RRA included parts of Nageshwari, Kurigram, and Ulipur thanas. Unions in this region were: (a) in Nageshwari, Ballaverkhas, Bamandanga, Berubari, Kachakata, Kaliganj, Kedar, Narayanpur, and Nunkhawa; (b) in Kurigram, Ghogadaha, Jatrapur, and Panchgachhi; and (c) in Ulipur, Begumganj and Buraburi.
3. The Rangpur District Gazetteer (Khan 1977:5-6) has a pertinent comment that relates to the question even of river names: "Dr. Buchanan Hamilton, in his manuscript account of Rangpur, written about the year 1809, noticed that 'the rivers of this district have undergone such changes that I find the utmost difficulty in tracing them. The soil is so light, and the rivers in descending from the mountains have acquired such force, that frequent and great changes are unavoidable....The nomenclature is therefore, exceedingly difficult. After tracing the name of a river for some distance, you lose it all of a sudden, and perhaps recover the same name at a distance of twenty miles, while many large rivers intervene....The confusion that has arisen from the circumstances is so great that Major Rennell seems to have been overpowered, or unwilling to waste time in the investigation, and, owing to the contradictory accounts given by the natives, to have altogether avoided giving names to many of the rivers'."



## Chapter 2

### SOCIOECONOMIC ORGANIZATION

#### 2.1 Overview

The social life of char people is organized according to principles similar to those of rural people in the mainland, with some important variations imposed by the nature of the environment. Char villages have neighborhoods (*paras*) as elsewhere, but these change frequently as people move their houses around to avoid erosion or take advantage of accreted lands.

Society is structured by kinship groups—lineages (*gushti/sarik*) or marriage networks—and the all-important *samaj*, or "society," a community of people committed to mutual support. In matters of kinship, char society is relatively isolated from the mainland, although more affluent people try to arrange marriages with mainland families as a way of expanding their social options and opening avenues of upward mobility.

The *samaj*, as in other areas, dictates rules governing community life, settles disputes, and so on. But unlike mainland *samajes*, those on chars have accommodated to the frequent moves of their members by being somewhat more changeable or flexible in admitting new members or allowing transfers of membership to people who move. The charland *samaj*, like that on the mainland, is often organized around a powerful man who controls land and other resources; but the quality of the patron-client relationship also is affected by the nature of the chars, which creates a less secure base even for those who are skilled at gaining control of land. (The *samaj* is discussed further in Section 3.3.)

#### 2.2 Settlement Patterns

Groups of homesteads are set amid fields or sandy lands. In some settlements a footpath connects one neighborhood to another; and in others there is none, the only passage being through cultivated fields or patches of catkin grass. Table 2.1 identifies the neighborhood and other social divisions found in each mauza surveyed.

A mauza is a revenue village with fixed boundaries defined by government survey for tax collection purposes; but the people who reside in a mauza have their own, socially defined boundaries that are rarely the same as those of the mauza. Each settlement is made up of one or more villages (*grams*), and several neighborhoods (*paras*), consisting of one or more groups of homesteads. In conversations with villagers, the team found some people, especially women, rather vague about what their village was; they seemed to identify more closely with their neighborhoods and to be more sure of the names of the neighborhoods. It was not clear whether the village always had a social meaning. Landowners were very aware of their mauza locations. It should be kept in mind that all geographical aspects of these settlements have changed over the years—and continue to change—through erosion and accretion; and it is therefore almost impossible for the outside observer to discern a mauza's village or neighborhood boundaries.

The linear settlement pattern is the main type found in this area, with clustered groupings of households less frequent. Homesteads of each



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Table 2.1 Characteristics of Settlements

Mauza	Villages ( <i>gram</i> )/Neighborhoods ( <i>para</i> )	<i>Samajes</i>	Lineages
Jhaukuti	3: South, East, West	3	8-10
Parbatipur	3: Uttarapara/North, Majherpara/Middle, Dakkhinpara/South. (A fourth, Paschimpara/West, is in an adjacent mauza.)	3	13-14
Nunkhawa	2 (in eastern part) (West: no information)	3: E 1: W	No information
Daikhawar Char	3: Aeramarar Char, Daikhawar Char, Cherager Alga	3	4-5
Kalir Alga	3: Mandalpara, Mridhapara, Musullipara	3	No information
Narayanpur	5	10 (4 connected with adjacent mauzas)	No information

Source: Charland RRA

settlement are arranged in groups of two to 20 in continuous or broken lines set apart from each other at angles around a char. There are two local explanations—one geographic and one social—for arranging homesteads this way. First, the central spine of an island is a naturally occurring high, long ridge, most often running north-south in this area, and because it is least likely to be affected by rising water levels, is a common place to build homes. Second, building homesteads close together in lines is said to deepen the social and mental ties between neighbors who can move easily from one homestead to another; and to allow for quick assistance in times of danger. A footpath may or may not run parallel to such a line of homesteads, but passage from one courtyard to another within the line is easy. Many courtyards have semi-overlapping fences across their entrances for visual privacy, but these do not at all interfere with movement. (In two mauzas, Narayanpur and Parbatipur, clustered settlement patterns were combined with linear. The linear pattern predominated in the other four mauzas.)

Homesteads (*baris*) are organized similarly to those on the mainland, most having a group of three or four separate buildings for cooking and

sleeping set around a central courtyard that is partly shielded by small fences. Adjacent homesteads tend to be occupied by closely related lineage-mates (*sarik*), such as "cousin-brothers" and their families, and people interviewed reported the presence of two to seven distinct lineages (*gushti*) in their neighborhoods.

Table 2.2 describes the settlement patterns and house types found in study mauzas. The durability of building materials varies. A thatched roof needs replacement every 1½ to 2 years, while a corrugated iron (CI) roof lasts 30 or 40 years. Catkin walls need replacement either every 3 to 4 years (for lighter weight hay) or every 4 to 5 years (for thicker straw). Like CI roofs, CI walls are long-lasting, needing replacement only once in 40 or 50 years.

## 2.2.1 Homestead Resources

### 2.2.1.1 Trees

Trees and other vegetation are indicators of a char's stage of development and the confidence settlers have in their future there. Another determinant of a char's vegetation pattern is the proba-



Table 2.2 Distribution and Cost of House Types

Mauza	Settlement Pattern	Percentages and Average Costs, by House Type, for Typical Sizes		
		All Straw Size: 5.5m x 3m	CI Roof, Straw Walls Size: 7m x 4.5m	All CI Size: 9m x 5.5m
Jhaukuti	Discontinuous linear	90 % Tk.1,500-1,600	8 % Tk.9,000-10,000	2 % Tk.22,000-23,000
Parbatipur	Mixed (clustered and linear)	80 % Tk.1,600-1,800	20 % Tk.10,000-12,000	0
Nunkhawa	Discontinuous linear	92 % Tk.1,000-1,200	6 % Tk.8,000-10,000	2 % Tk.20,000-22,000
Daikhawar Char	Linear	92 % Tk.1,500-1,600	8 % Tk.10,000-12,000	0
Kalir Alga	Discontinuous linear	78 % Tk.1,500-1,800	20 % Tk.12,000-14,000	2 % Tk.22,000-25,000
Narayanpur	Mixed (clustered and linear)	80 % Tk.1,200-1,300	15 % Tk.10,000-12,000	5 % Tk.20,000-22,000

Source: Charland RRA

bility of submergence during the monsoon season. Sandy lands are filled with catkin grass (*Saccharum spontaneum*). The most common and first-planted trees are: banana, *jiga* (*Lannea coromandelica*), *dhol kolmi* (*Ipomoea fistulosa*), and sometimes bamboo—all of which are very useful for house building and repair, and/or protection from wave action during floods. Older and more stabilized chars, such as Narayanpur, have more varied flora which may include: jackfruit, black berry (*Syzygium cumini*; Bangla, *jaam*), mulberry, and *shimul* (*Salmalia malabarica*),<sup>1</sup> and possibly some mango, coconut, betel, guava, teak, or plum. Fruit trees, mainly bananas and occasionally others, and vegetables are grown in small patches in and around homesteads, where they are tended by women.

### 2.2.1.2 Fuel Sources

Unlike many mainland rural areas, the char settlements of this region do not seem to have shortages of cooking fuel, except in some cases during prolonged floods. Items used for fuel are: dried cow dung, rice husks (*tush*), hay stalks (locally called *paol* or *jaba*), twigs (locally called *khari*) or

wood, jute sticks, driftwood, pieces of straw found floating in the river, bamboo branches, and catkin stalks. In Nunkhawa the rainy season supply of driftwood is so large that they sell it in the market.

## 2.3 Subsistence Activities

Table 2.3 presents FAP 16 Inventory data on the occupational profile of the study region. As the table shows, agriculture—direct cultivation or day labor—is the main livelihood of some 80 percent the island and attached char settlers; and the proportion drops slightly in the population of the unprotected mainland. Among those dependent on agriculture the ratio of households dependent on day labor to those doing direct cultivation is much larger than those doing direct cultivation in island and attached chars (43/39 and 49/32, respectively) than on the unprotected mainland mauzas where it is much lower (29/48). As might be expected, more char households depend on fishing (8 percent) than mainland households (2 percent). Business occupations increase on the mainland, where there are more opportunities. Paid household work, a basic support for most females, including



**Table 2.3 Main Occupations of Study Region Households**

Occupation	Island Char (%)	Attached Char (%)	Unprotected Mainland (%)	Total (%)
Agriculture	38.7	31.9	48.0	39.5
Fishing	8.3	7.9	2.3	6.9
Business	2.2	2.6	5.7	3.0
Day Labor	43.1	48.9	28.8	40.7
Paid Housework	4.1	6.1	5.4	4.6
Unpaid Housework	0.04	0.2	1.4	0.4
Other	0	0.3	4.5	1.0
None/No Information	3.6	2.1	4.0	3.4
Estimated No. Households	12,789	2,671	4,053	19,513

Source: Charland Inventory

female household heads, is found in both chars and mainland mauzas, with attached chars having the largest percentage of households dependent upon this source of income. These data are based on mauza-by-mauza estimates, but they clearly indicate certain patterns.

Table 2.3 summarizes occupational data (approximate percentages) of household heads in the focus mauzas. The data show that, typically of the area, nearly all of the population is primarily dependent on agricultural production for its livelihood, either as cultivators or as laborers. (Curiously, despite the emphasis on agriculture, this area, unlike other agricultural areas of the country, has no rice mills to serve the population of agriculturalists.)

Day labor is known locally as either *badli kamla* or *din hazira*. The former type is an occupation pursued mainly in the home area, or for at least seven or eight months a year during the summer and rainy seasons. This group tends to be unemployed at other times, when they spend time mainly repairing houses and doing other homestead work. The pay for agricultural labor of this type is Tk.15-30 per day without a meal or Tk.10-25 with two meals. House-building or earth-cutting laborers (*badli kamla*) are paid Tk.20-25 per day without a meal or Tk.15-16 with two meals.

The day labor known as *din hazira* is pursued mainly away from the region. For four or five months of each year, during January-May and September-November (Bangla months Magh-Falgun, Baishakh-Jaisthya, and Ashwin-Kartik), this region sends many laborers to neighboring districts in search of work. Rangpur, Bogra, Dinajpur attract most of them; but some go as far as Tangail, Mymensingh, Sherpur, Munshiganj, Gazipur, or even the greater Dhaka area. Such trips out of the region are spoken of locally as going "abroad" (*bidesh*). Staying away for one or two months, *din hazira* workers earn what are considered large amounts of money either as agricultural laborers, earth cutters, rickshaw pullers, or sawmill workers (*karati*). Harvesting paddy in *bidesh* places can pay as much as Tk.55-60 per day, or Tk.40-45 with two meals. In non-agricultural jobs, laborers earn Tk.65-70 per day without meals or Tk.50-60 with two meals. Laborers travel in groups based either on their area, their neighborhood, or their *samaj*.

There are few female day laborers in the study mauzas; but in nearly every mauza there were reports of some 10 or more women working for others in paddy drying or other agriculture-related activity. According to some people, women of the *Bhatiya*, or more recently settled groups, tend to

be more conservative than the longer-settled *Bangali* women, who are willing to work in others' houses.

Livestock rearing is a mainstay of the local economy. As in other char areas, grazing opportunities are ample; but an additional advantage of this region compared to chars in the central Jamuna and lower Padma or Meghna, for example, is that there is less animal theft. This advantage is due, at least in part, to the presence of government border security forces in the region; but it may also indicate that levels of factional conflict in the area are low.

Additional sources of income exist, although they are less well documented. For example, milk selling is known to be an important household-based business. Milk is sold in each mauza and at regional markets, such as Jatrapur. Women may sell milk from their homes, but men take it out for sale. Ownership and care responsibility for milk cows is shared by men and women, although men are more likely to own them. Cattle are traded at the Jatrapur market. Despite the high level of local interest in cattle, herds are not large (see Chapter 6).

Other locally produced items are traded as well, either directly (in villages or in markets) or through middlemen. Women, for example, mentioned that they sell eggs to traders for Tk.2 each or Tk.6 per four (*hali*). Many people catch and sell fish to supplement their income, using the cash to buy commodities such as rice or kerosene. Women make quilts and sell other handmade items or repair house plinths for supplementary income. Twenty-five percent of women in Daikhawar Char were reported to do paid household work. The RRA team heard some unsubstantiated rumors of smuggling activity, a business that would be im-

possible to document under these circumstances. It is common for people to repay loans with labor.

## 2.4 Education

People in all but one focus mauza have access to primary education up to grade 5. (In Parbatipur the school only goes up to grade 3.) Pursuit of education beyond this level depends on family resources and attitudes. School attendance was estimated at about 50 percent in those places where such data was gathered. There is some interest in arranging for boys to get more education, hopefully at least up to S.S.C.; but there was little enthusiasm for girls' education in the groups contacted. One group, for example, commented that there was little point in educating girls because they would be married at a young age, possibly before reaching grade 5, and they would be marrying local, uneducated boys. Local estimates were that about one-third of girls were in school; and it was unclear how many expected their daughters to finish even the full five years of primary education typically available to them. Almost all adults were illiterate.

Sending boys to board with relatives and attend school on the mainland seems to be common practice among affluent char families. In Daikhawar Char one group said there were about 10 or 20 local boys studying elsewhere, usually in Kurigram or Ulipur, nearby urban centers. In Kalir Alga one group said that 25 boys had gone to Ulipur, Kurigram, or Rangpur to study. Another group, in Daikhawar Char, said that some boys who study elsewhere marry and settle in those places.

## NOTES

1. "The *simul* (*Salmalia malabarica*) is common in Rangpur. Some fishermen use it for making canoes which are easily wrought and remarkably buoyant, but they do not last more than a year as the wood cannot stand exposure to the sun or rain." (Khan 1977:15)





## Chapter 3

### CHANGES IN LAND AND SETTLEMENT

#### 3.1 Impact of Erosion and Accretion on Mauza Populations

It is very common in this area, as in other charlands, for households to move from place to place when erosion claims their homestead or fields. Each of the six mauzas visited had numerous households that had come recently from other places because of erosion. Displaced families may stay close to home on more secure land (one's own or another's) in same mauza, or a nearby mauza, or move to distant places where work opportunities exist or relatives may provide shelter. Many are awaiting the re-emergence of their lands while temporarily settled in a new place and plan to return if possible, while others relocate permanently.

Table 3.1 summarizes the migration data reported for the study mauzas. Although there are a number of local or regional arrangements by which displaced families are accommodated, they do not absorb all the displaced population. The mauzas covered by this RRA all had seen large numbers of households permanently leave because of dramatic changes in riverine land formations. With the erosion of land in the chars comes a parallel erosion, as it were, of the local population. There also are cases of in-migration when chars accrete; those mentioned to the team were all cases in which people forced to leave nearby chars sought homestead lands and agricultural opportunities in these areas. Because this study focussed on the chars themselves and not on populations that had migrated out of the area, factors deciding whether or not families move back to the chars after leaving for distant locations are unknown.

#### 3.1.1 Uthuli Settlement

One option for displaced families is to settle on others' property under *uthuli*<sup>1</sup> arrangements. This rural institution has been analyzed in the Sirajganj area by Indra and Buchigniani (1992), and findings of this RRA confirm and expand on their work. Those in *uthuli* status are living in homesteads built on lands they do not own, and for which they do not pay rent. In the northern Brahmaputra-Jamuna it seems to apply specifically to homestead land, as in the case of some residents of Jhaokuti mauza who owned agricultural land in a section of the mauza where they had relocated, but still had to settle as *uthuli* on others' property because they did not have land suitable for the construction of homesteads. As explained in one group discussion, an *uthuli* family is one that has been displaced (presumably by erosion), has no land, takes shelter on another's land, and is free to leave whenever they wish to. (Other reports show also that they must leave if their host demands that they go.) If one pays rent, one is not *uthuli*.<sup>2</sup> Several people mentioned that *uthuli* settlers may be expected to perform services at times for free, or for nominal payments, for those who allow them to settle on their lands. *Uthuli* settlers may be restricted in other ways. For example, they may not be allowed to keep cattle, lest their animals damage the land or eat others' crops; or they may be charged money for the privilege of keeping animals. Local landlords (*jotdars*), who still exercise some of the privileges they had during the *zamindari* period, are common providers of land for *uthuli* settlers. In one mauza the RRA collected an interesting report from a group of erosion-displaced *uthuli* women who had migrated there sometime within



Table 3.1 Migration Data for RRA Study Mauzas

Mauza/village	Migration Year	Households Prior to Erosion	Households After Erosion	Destination	Reasons for Destination Choice
Jhaukuti	1978	380	100	Nearby mauzas: Chouddaghari, Kanyamati, Pakhi Ura	Own land; agricultural day labor
				Dinajpur	Agricultural day labor
				Nageshwari	Rickshaw pulling
Parbatipur	1981-82	700	100	Mauzas of Kurigram, Nageshwari, and Bhurungamari thanas	Own land; near relatives; sharecropping opportunities
				Dinajpur, Feni	Agricultural day labor
				Parbatipur	Jobs in saw mills and rice mills
Nunkhawa	1984-85	250	40	Nearby mauzas: Dumurda, Bhagabatipur	Own land; near relatives; sharecropping opportunities
Daikhawar Char	1989	350	100	Dinajpur Rangpur Sylhet	Agricultural day labor
Kalir Alga	1985-87	250	100	Within mauza	Safer land
Narayanpur	1975-76	400	100	Rangpur, Dinajpur, Lalmonirhat	Agricultural day labor; work in saw mills; driving push carts

Source: Charland RRA

the past year. These *uthuli* settlers had taken loans from wealthy people of the new place in order to build new homes for themselves. To repay the loans, they had to work as day laborers. The terms of the arrangement were vague and exploitative of the *uthuli* laborers. Although the daily pay rate was supposed to be Tk.20-25, they had to work for five months to repay a loan of Tk.500, far more than the 20-25 days they would have to work if they actually were being compensated at that pay

rate. (It was unclear whether their husbands also were so obligated, or if they were present at all.) This case demonstrates that the obligations of *uthuli* settlers may entangle them in patron-client relationships in which they are exploited and from which they can escape only with great difficulty. It is common for relatives (in-laws) to allow each other to settle on *uthuli* terms. The differences between these kinds of arrangements and those between non-relatives are unclear.



One reason given for staying in one's own mauza as an *uthuli* settler was that the arrangement is a secure one for the families of the many men who migrate out of the area to earn money by planting, doing harvest labor, earth digging, in construction or by other work. In Narayanpur mauza, a group of people displaced by erosion in 1975-76 had settled within the mauza, living on the land of relatives and others as *uthulis*. They started out by supporting themselves as laborers or sharecroppers but gradually were able to recover financially, and some had purchased land of their own by the time this RRA team visited in 1993.

*Uthuli* is a stigmatized and insecure status sought only by those who are desperate; Indra and Buchigniani have emphasized this point in their study of the Sirajganj area. In the northern Brahmaputra-Jamuna river reach covered by this RRA, however, some people's comments suggested that there may be less embarrassment associated with the status. One young woman and her husband, for example, were staying as *uthuli* settlers with her parents, a fact she announced loudly and unashamedly in one group discussion. Her lack of shame may be due to the fact that she was with her natal family, and the RRA team did not know how her husband felt having to depend on others. It is common all along the river for women to use their family ties to secure *uthuli* shelter for themselves and their husbands, so this was not an uncommon situation.

### 3.1.2 Preparing for Displacement

There are several ways in which households seek to diversify their options in case they may need to relocate. The most effective way is to purchase land in nearby chars, in the hopes that if they have enough land, at least some of it will be above water at any given time. This option, of course, is only available to people with enough capital to invest in land. Another method is to use marriage arrangement to build family relationships with a cross-section of places, perhaps including some mainland areas. This option—if it is to include mainland ties—also requires unusual amounts of capital, because few if any mainland girls wish to

be married into the chars; and sending off daughters of char families to the mainland requires higher dowry payments than marrying them within char areas. Thus, most families seem to marry off their children within chars. A few families seek to send their sons off for further education in the mainland, as mentioned earlier, and if the boys happen to marry in the places where they had gone to be educated, upward mobility occurs for the boy himself along with a useful expansion of kinship ties for his family.

Investment in land seems to be the most popular (and the most effective) way of preparing for displacement. When the northwest section of Jhaukti was almost completely eroded in 1976-77, for example, 75 families moved to nearby mauzas, 25 of them to places where they owned some land. Similarly, when many residents of Nunkhawa mauza had to move in the mid-1980s, those with their own land in the other places did not find it difficult to maintain themselves, but those who had to live on others' property and work as day laborers had a hard time. The pattern of multi-mauza land investment in two RRA mauzas, Jhaukti and Daikhawar Char, was similar, in that extra lands were in nearby mauzas.

## 3.2 Land Rights

### 3.2.1 Claims on Newly Accreted Lands

The charlands of the Brahmaputra-Jamuna are more or less clearly described in the Cadastral Survey Map, the most important reference item used in deciding rights to accreted lands. Laws or regulations concerning land ownership and taxation have changed over time. Within recent history rights to charlands were determined by (1) the *zamindari* system and (2) reforms instituted immediately after the dissolution of the British empire in 1947. During the British period, *zamindars* controlled most of the chars of this area, which they sublet to tenants. In the early 1950s the Pakistan government abolished the *zamindari* system and gave ownership to tenant leaseholders



through the State Acquisition and Tenancy Act of 1950. The Section 86 of the act assigned rights of repossession to owners of submerged land once it reappeared, if those owners paid tax on it and if the loss was less than 20 years previously. Section 87 of the same law assigned rights to newly emerged land to the owner of adjacent land under most circumstances.

Soon after Bangladesh Independence laws were changed dramatically. According to Presidential Order No. 135 of 1972, all newly emergent lands previously lost to erosion ("diluvion") become property of the government rather than being returned to the original owners. The intent of this law, which remains in effect, was to recover large landlords' holdings and redistribute them among landless and small peasants in need of resettlement opportunities. This law was amended in 1975 by President's Order and Ordinance LXI (Section 87), which qualified the government's right to newly emerged land, assigning rights to owners who could prove they had ownership previous to 1972.<sup>3</sup>

To ensure compliance with laws allocating government charland property (*khas* lands) to the landless, the government has issued an order to the Thana Land Surveyor to identify such property each year, but the local land revenue (*tahsil*) officer actually seems to be handling the responsibility in the area.

In the places visited by the RRA team there does not seem to be much controversy about ownership of newly accreted lands if the lands in question are recorded as belonging to a specific owner before erosion. Boundaries are demarcated by private, locally available surveyors, or *amins*. In cases of difficulty with surveys, official surveyors may be called in from the mainland; but people said they prefer not to get the government involved in this process. Small controversies are handled by influential men of the concerned locality. Council meetings (*salish*), either local or regional, settle complicated disputes over land rights along with other kinds of disputes.

Some cases were mentioned in which people with eroded lands sold the "papers" (ownership documents) on their land for low prices to stronger individuals, if they were unsure of establishing their ownership rights to the land once it surfaced. This was the practice mainly of people who did not have proper or up-to-date ownership documents, and who therefore did not feel able to defend their claims. Rich people, even when they did not have proper documents, did not face such problems.

### 3.2.2 Rights to Government-Owned (*Khas*) Lands

Between 10 and 40 percent of the above-water lands of mauzas visited were locally estimated to be government-owned. Some of these lands came to be recorded thus when Hindus left the region during the Bangladesh Independence war or earlier. Others became government-owned when they submerged and re-emerged. Rights over government-owned lands, unlike privately owned lands, are the subject of local controversy and manipulation by locally influential men, and distribution of newly accreted government lands is usually skewed in favor of the elite. Certain people over the years have established themselves as "owners" of it. Even if the land is eroded and accretes again, these "owners" manage to retain control of it.

If rights in government-owned land are disputed, some people try to formalize their control of it by taking leases through the local land revenue (*tahsil*) office through an arrangement known as "DCR," or Duplicate Carbon Receipt, which may be used as evidence of a person's right to pay taxes, i.e., evidence of land ownership.

### 3.2.3 Payment of Taxes

People of this area do not pay all of their land taxes. For example, one local land revenue official said that even in the most stable and productive chars it may be only 20 percent at best, and in some of the new, sandy chars it may be as low as



one percent of assessed amounts. Inability to pay is one reason for low payment rates. Another reason may be resentment among char people that their taxation rates are the same as those of mainland people, even though their lands are less productive.

Landowners are not required to pay taxes on eroded/submerged lands, but some continue to pay in order to conceal the fact that their lands no longer exist, and to avoid having it revert to government ownership when it re-emerges. General practice in this area is to not pay taxes on submerged lands, mainly because most of those who have lost lands to erosion are financially incapable of doing so.

### 3.2.4 Absentee Land Ownership

Absentee land ownership appears to be less common in this area than elsewhere. One reason for this is the propensity of more affluent people to invest in mainland property rather than in chars. In the few places where absentee landlords have holdings, these are cultivated mainly through sharecropping arrangements (see Section 5.4).

### 3.3 Social Organization of Response

Social units within the mauza, as mentioned above, are: neighborhood (*para*) and village (*gram*), kin groups such as the lineage (*gushti*, *sarik*, or *bangsha*), and local societies called *samajes*. Dispute settlement and, in some cases, relocation decisions are handled by the society or by assemblies of local leaders in a process called *salish*.

The Neighborhood (*para*). As in mainland villages, there are neighborhood divisions, but because of the frequent shifting of homesteads neighborhood names and definitions may be less clear than on the mainland. In two RRA sites we were told that "there are no *paras* here", even though neighborhood names were mentioned later. One man commented that in Parbatipur they gave names to neighborhoods because this was necessary to organize elections. However they represent them-

selves to outsiders, neighbors are commonly expected to help each other to the greatest extent possible during floods, erosion, or other crises.

Kinship Ties. The most important kin group is the lineage (patrilineage), which is the group through which most property rights pass, and which presently shares or previously shared food, homestead shelter, and land. Lineages—groups of brothers or "cousin brothers" and their families—have names. A man interviewed in Narayanpur Village said there were 20 lineages (*sarik*) in the village. Counts for other villages were 13-14 in Parbatipur, 4-5 in Daikhawar Char, and 8-10 in Jhaukuti. The most common term for lineage is *sarik*; other terms used elsewhere, such as *gushti* or *bangsha*, are less widely used in this region.

As the unit in which people have the clearest legal rights, the lineage may tend to cohere when erosion or other factors cause displacement. Obligations to provide shelter and other kinds of support are strong within this social unit. As one man said, When moving "we take land somewhere from our lineage and settle on it". Or, according to another, "We live near each other. Who else would give us a place?" When moving, however, lineage members cannot always manage to stay together if resources are scarce. Common property may have been divided, for example; or tensions may have disrupted family unity. Rather than depend on the support of lineage-mates, said one woman, "Everyone tries to stand on their own feet".

As mentioned earlier, in the resettlement process extensive use is made of relatives by marriage. For example, one man in Parbatipur said he would settle with his wife's brother if that man had land available and he needed a place. Marriage arrangement may be done with an eye to diversifying resettlement options, as discussed above.

*Samaj* and *Salish*. All villages visited had at least one *samaj*; one, Parbatipur, had four; and Narayanpur, 10. The *samaj* is a basic community group found throughout rural Bangladesh. When asked what a *samaj* was, people of the RRA sites defined



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it as a group that (a) prays together at Eid Holiday, (b) shares in the distribution of meat of animals sacrificed during Eid, and (c) gathers to bury its members ("Others will not come" to funerals, said one man). The *samaj* also is the group within which minor quarrels are settled and important decisions made affecting the lives of its members. For example, a Daikhawar Char *samaj* was described as having persuaded an old widower not to remarry lest he die and leave his young family without any means of support. According to other researchers, *samaj* groups center around wealthy and powerful men who at times may become involved in factional conflict; and whether or not they conflict with each other, *samajes* usually center on hierarchical patron-client structures. Serious disputes or problems that cannot be handled by the *samaj* are taken up by assemblies of village leaders in a local court-like proceeding called *salish* that may or may not include representatives of multiple *samajes*.

In responding to erosion displacement the *samaj* provides a work force of men and women who help to move a homestead from one part of a char to another. Such activity was described in Parbatipur and in Daikhawar Char, one such move was observed in progress (described in Appendix A). The work of fellow *samaj* members is rewarded with a very elaborate meal and an obligation to provide reciprocal labor if needed by others at some time.<sup>4</sup>

It seems possible that a *samaj* might relocate as a group when it is necessary to move off of a char, but people interviewed on this RRA did not say in interviews that they had moved with their *samajes*. Some people said, in fact, that resettlement was an individual household affair, but further inquiry might show the process to be more complicated than this.

The *salish* is a council of leaders that settles disputes. The types of cases heard are: land disputes, fights between children, situations in which animals eat food crops, and marital problems or divorces. In one village, Nunkhawa, there are two *salishes*, one for each of the two *samajes*, according to one group interviewed. The court-like *salish* process can become involved in solving resettlement problems, according to information from these RRAs.<sup>5</sup> In one village, Parbatipur, the *salish* was said to allocate land when people without land elsewhere need to move. At the time of the RRA another, regional-level *salish* was reportedly deliberating on a dispute about rights to some newly emerged lands. The local *salish* had made a decision, but one of the parties did not accept it; so the decision was appealed, as it were, to a higher level of regional leadership for reconsideration.

## NOTES

1. Local pronunciation of this word is *utuli*, rather than *uthuli*, the form used by Jamuna people to the south.
2. A similar exclusion exists if the family has some definite rights to settle, as one would have, for example, with lineage-mates (Indra and Buchigniani 1991).
3. This summary of land laws depends on the FAP 3.1 report, volume 2, annex B; and on Elahi and Rogge (1990), who argue that "the 1975 amendment must be modified or revoked." (p. 60)
4. In the observed case of a homestead move a crew of women said to be of the same *samaj* as the moving household was building the plinth of the new homestead. Unlike the men in the same crew, however, the women were reportedly being paid in cash and meals.
5. This point also was mentioned in the comments on char life in the North West Regional Study (FAP-2) Draft Final Report, Volume II, page 4-1: "Unlike many of the mainland communities their social conscience is strong. They have a *salish* (community arbiter) who settles disputes and is consulted on access to reclaimed land which has not been grabbed by powerful mainland interests."



## Chapter 4

### FLOOD RESPONSE

#### 4.1 Flood Occurrence

Chars in this reach of the Jamuna are prone to flooding almost every year, and many even flood as many as two or three times in a single year. Floods, caused by increased flows from the hills of India or by runoff from upstream catchment areas, normally occur between mid-June and mid-October. In the past decade the region has experienced four unusually high floods: in 1983, 1987, 1988, and 1991, and in July and August of 1993 some (though not all) chars were again more deeply flooded than usual when sudden rushes of high water came into the area from the northwest.

In two of the chars visited, Jhaukti and Parbatipur, a large number of households must seek shelter away from their homes during normal monsoons for 10 to 20 days. These households also move their livestock each year to embankments located 2 to 10 km from their chars. Poorer people use small boats or banana trunk rafts for the annual move, often seeking shelter in the homes of more affluent neighbors.

#### 4.2 Flood Forecasting

People use various methods to determine the likelihood of severe floods. They closely observe rates of increase in river water levels and the direction of the winds; an east wind often precedes an increase in water level. They find the radio an unsatisfactory source of information, because flood depths are not covered on an area-by-area basis on the broadcasts. They expressed great interest in having better flood forecasts on the radio, espe-

cially if they were given soon enough to allow people time to prepare.

#### 4.3 Flood Preparation Measures

Although houses in older chars may be on high land and therefore not much affected by flood, many precautionary measures are taken annually throughout the area to minimize possible flood damage. For example, vegetation is placed on the sides of homesteads most likely to be hit by waves. House plinths are raised whenever possible; this task is performed by both men and women.<sup>1</sup> Men and women also share responsibility for rebuilding houses after floods. Virtually all households have elevated platforms (*machas*) for storing fuel and grain. Those who can afford to do so raise the levels of cattle sheds by building high, packed earth floors; others temporarily elevate cattle sheds by building beds of leaves or other materials enclosed in temporary wooden frames. Protective measures may cost anywhere from Tk.300 to Tk.800.

#### 4.4 Impact of the 1988 Flood

This area was severely damaged in the 1988 flood, which lasted from mid-August to mid-September and inundated nearly all fields. Low agricultural lands were under six meters of water, and even high agricultural land was two meters underwater. Aus and aman paddy crops were completely destroyed. All houses were flooded, about 90 percent of them over floor level and at least two-thirds to their roofs or more. More than half of all



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houses were damaged, and about one-third were completely destroyed. Some 60 percent of all people left their homes to seek shelter elsewhere, staying away from two to four weeks. Those who had cattle and other valuable assets tried to stay home as long as possible to protect their belongings. Cattle and other livestock also were seriously affected. Approximately one-third of all cattle died due to lack of fodder and diseases caused by having to stand in flood waters for a long time. Many people fed their cattle banana leaves, banana stalks, catkin grass, bamboo leaves, and water hyacinth because they could not save enough normal fodder from flood damage.

People in five of the six mauzas visited were able to store food grains, fuel, and other valuables on platforms (*machas*) in their houses. Jhaukti, however, was so deeply flooded that all houses were submerged to roof level and about 75 percent were washed away by the current. In some households people found that platforms constructed at roof level placed too much weight on the top of their houses, causing them to collapse.

Tubewell water was available only in Nunkhawa, where a wealthy house shared their supply with others. In the remaining five mauzas, all tubewells were submerged.

Recovery from this flood was a serious problem for most households, who needed to sell cattle or borrow money to repair houses. Many people found it necessary to go to distant places and work as day laborers to meet family survival and recovery needs. Community members were so overwhelmed by their own problems that they found it difficult to help each other with house repair; so this was managed individually by each family.

#### 4.5 Floods in 1993

In July 1993, some members of the RRA team observed many of the same people coping anew with flooding. A subsequent report from the area by a visitor to Dhaka in September 1993 indicate

that this was a bad year for flooding in the area, and many lives had been lost.

In July 1993, there was a sudden increase in the river level due to heavy rainfall in the Indian hills. When the team visited the study area, they found that water had entered 90 percent of the houses, and some were already flooded to roof level. Sixty percent of the crops—mainly aus (paddy), and millet were inundated. In Pipulbari, people were stranded on small elevated homesteads and were finding it difficult to move from one to another because the village was divided into five segments by newly formed channels. Cattle were observed standing in about two feet of water, but most were crowded into the only three high places in the village—two houses and an NGO (RDRS) office. The animals were so crowded that there was hardly any extra standing room and not enough space for any to lie down; those that had managed to do so were lying in mud. Straw packed under the animals was already being submerged by rising water. People were using banana trunk rafts to collect grass and water hyacinth to feed to their livestock. They said that if the flood lasted more than five or seven days, they would take their livestock to an embankment on the opposite (west) bank of the river.

People in flooded houses were miserable. Each house had a platform raising people about two feet above the floor. There was about 12 inches of water in each house, however, and people were afraid large snakes and other animals would be carried in on river currents. Many had no food to eat and no dry fuel to cook. Untreated river water was all that was available to drink. The only way to answer calls of nature was to go out on a raft; men and women alike were forced to do so.

This was an especially difficult time for those with no relatives on the mainland and no alternative shelter but the Water Development Board embankments or a local school. It was going to cost them Tk.20 per cow, or Tk.5 per goat or sheep, to move their livestock to the embankment; and it would be necessary to arrange for someone to stay



there with the animals, which would require finding ways to feed and shelter that person as well. About 95 percent of the people contacted had no boats, but some families were cooperating to build banana trunk rafts. They planned to use the rafts to transport goats and sheep to safer areas, and even to move homesteads if necessary.

Although in July people expected this situation to end soon, it went on for a long time in some parts of the area, and new rushes of water came in from the northeast. Erosion had accelerated in some of the areas visited earlier (Kalir Alga and Daikhawar Char), and many cattle had been lost. The water

level had risen so suddenly in some places that it was almost impossible for anyone to provide assistance. Some people had to climb trees to avoid being drowned, and many houses washed away. Many people vacated their homes and went to stay with relatives elsewhere. Sand deposits were making some land uncultivable, and silt deposits were creating some new chars. Fatalities were discussed in local markets, where people said many children and old people had drowned. There was local speculation that someone in India might have opened a dam—perhaps at a place called Dudhkumar—and let all this water rush through. (There is no such dam.)

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## NOTES

1. The practice of raising house floors and courtyard levels has expanded since the 1988 flood, but it is an expensive process and thus not done by all households.

## Chapter 5

## AGRICULTURE

As Table 5.1 shows, 10 to 60 percent of the land in focus mauzas is cultivable. Different erosion/accretion patterns and flood-produced siltation or sand deposition, of course, have created varied agricultural conditions in the study mauzas. Fur-

(about half in Parbatipur, Kalir Alga, and Narayanpur) under one to three feet of water. In Nunkhawa, farmers cultivate crops only on medium and high land. In Kalir Alga, low land is exclusively single-cropped. Homesteads in Parbatipur and

Table 5.1 Land Use Percentages by Mauza

Mauza/village	Underwater year-round	Homestead	Cultivated	Non- Cultivated	Char Type
Jhaukuti	20	5	25	50	Island, 3 inhabited parts
Parbatipur	50	5	15	30	Attached, under erosion risk
Nunkhawa	5	40	50	5	Island, 2 inhabited parts
Daikhawar Char	50	5	10	35	Island, 2 inhabited parts
Kalir Alga	10	20	30	40	Island
Narayanpur	10	20	60	10	Very Stable Island

Source: Charland RRA

\*Based on eastern part of mauza

thermore, changes in soil quality have forced farmers to change cropping patterns over the years. For example, jute was cultivated in Kalir Alga until the 1988 flood produced extensive sand carpeting on agricultural land; since then jute cultivation—once a lucrative activity—has been impossible.

### 5.1 Land Types

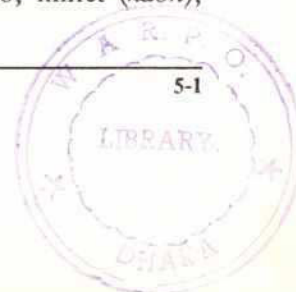
As Table 5.2 shows, 50 percent of low land is usually covered with water by May-June in two mauzas, Kalir Alga and Daikhawar Char. By July-August all mauzas have some of their high land

Nunkhawa are built on some high land that would otherwise be suitable for cultivation. This situation indicates considerable pressure on available land, a circumstance that exists in all mauzas to some degree.

### 5.2 Cropping Patterns

All mauzas have some triple-cropped areas, the maximum being 40 percent of available land in Narayanpur (see Table 5.3).

Table 5.4 identifies crops planted in each season. Rabi crops such as sweet potato, millet (*kaon*),





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Table 5.2 Percentages of High, Medium, and Low Land and Seasonal Inundation Depth

Mauza/village	Low Land/May-June		Medium Land/June-July		High Land/August	
	%	Depth (m)	%	Depth (m)	%	Depth (m)
Jhaukuti	20	2.4-3.0	60	1.5-2.1	20	0.6-1.2
Parbatipur	40	1.2-1.5	60	0.3	-	-
Nunkhawa	25	3.0-3.6	50	1.2-1.5	25	0.3
Daikhawar Char	50	1.8-2.7	25	0.9-1.5	25	0.3-0.6
Kalir Alga	50	3.0-4.5	50	0.3-0.6	-	-
Narayanpur	30	1.8-2.7	30	1.2-1.5	40	0.6-0.75

Source: Charland RRA

Table 5.3 Cropping Intensity, by Mauza

Mauza/village	Single Cropped	Double Cropped	Triple Cropped
Jhaukuti	60	25	15
Parbatipur	50	30	20
Nunkhawa	25	50	25
Daikhawar Char	50	30	20
Kalir Alga	40	40	20
Narayanpur	25	35	40

Source: Charland RRA

wheat, and some pulses are planted in all study mauzas. Wheat was introduced to Narayanpur as part of an agricultural rehabilitation program following the 1988 flood, and it gradually came to be cultivated in other mauzas as well. Narayanpur is the only place where rabi cultivation has expanded to include cash crops, such as groundnuts, watermelons, and potatoes; approximately 20 percent of these crops are consumed, and the remainder are sold. These were introduced by RDRS, an NGO, and the government Agricultural Extension Department. Extension services and capital would be needed to make full use of such crops as groundnuts in the other mauzas, where most people are unfamiliar with methods of cultivating them.

In kharif I and kharif II, planting aus and aman at the same time is commonplace. This is because the local aman variety used needs a long time to grow, so it is broadcast with aus to save labor and plowing effort. In Narayanpur some farmers have been cultivating transplanted aman instead of broadcast aman since 1985, when agricultural land was raised after the flood. For two years some have been trying to cultivate rain-fed irri paddy. Jute, a kharif I crop in some mauzas, is no longer cultivated in Daikhawar Char because the market price has declined.

Catkin is harvested and sold in all of the study mauzas but Nunkhawa. Depending on the yield, an acre of catkin may sell for Tk.300 to Tk.3,000.



Table 5.4 Study Mauza Cropping Patterns

Mauza/village	Crop	Rabi			Kharif I			Kharif II				
		%*	Yield (md/ha)	Price (Tk/md)	Crop	%*	Yield (md/ha)	Price (Tk/md)	Crop	%*	Yield (md/ha)	Price (Tk/md)
Jhaukuti	Wheat	60	15-20	180-200	B. Aus L	100	30-37	160-200	B. Aman L	100	37-44	180-200
	Sweet Potato	20	198-296	50-55								
	Kaon (millet)	10	15-25	130-160								
	Pulse & Others	10	-									
Parbatipur	Kaon (millet)	50	30-37	150-175	B. Aus L	100	15-20	180-200	B. Aman L	100	22-30	180-200
	Wheat/paira	35	7-12	180-200								
	Khesari (pulse)	15	15-20	250								
	Kaon (millet)	50	49-62	150-175	B. Aus L	90	37-44	180-200	B. Aman L	100	49-54	180-200
Nunkhawa	Sweet Potato	30	99-123	50	Jute	10	62-74	150				
	Wheat	20	49-62	200								
	Wheat	30	30-37	180-200	B. Aus L	100	15-25	160-200	B. Aman L	90	30-37	180-200
	Khesari (pulse)	30	7-12	225-250					T. Aman L	10	44-49	180-200
Daikhawar Char	Sweet Potato	25	296-370	50-60								
	Paira	5	15-25	180-200								
	Masur	5	7-25	500-550								
	Kaon (millet)	5	7-25	160-170								
Kalir Alga	Kalai	40	15-20	300-350	B. Aus L	100	15-25	160-200	B. Aman L	100	15-25	180-200
	Sweet Potato	30	296-370	45-50								
	Wheat	20	30-37	180-200								
	Paira (millet)	5	15-25	180-200								
Narayanpur	Oil Seed (mustard)	5	7-12	400-450								
	Wheat	50	49-62	180-200	B. Aus L	95	44-59	180-200	T. Aman L	70	44-49	180-200
	Kalai	15	25-37	300-350	Jute	5	62-74	150-200	B. Aman L	30	25-30	180-200
	Sweet Potato	15	296-370	50-55								
	Groundnut	}										
	Watermelon											
	Gourd (kumra)											
	Potato											
Spices	20											
Mustard												

Source: Charland RRA

\*Percentages refer to total area cultivated, not absolute percentages of cultivated lands.

10



September-October was the reported harvest time for catkin.

None of the mauzas has irrigation. Although RDRS had provided treadle pumps for homestead irrigation in Narayanpur, they now are used only for drinking water. People in all mauzas had little understanding of crops needing irrigation.

In Daikhawar Char, some groups of households were reported to exchange labor during the harvest, so group members do not have to pay to have the work done. Men cut crops, and women do threshing work. Plowing and weeding also may be done on the same basis. Other households in the same mauza pay for laborers' assistance during the harvest at a rate of Tk.25 per day with a meal or Tk.30 without a meal.

### 5.3 Homestead Gardening

There is considerable variation in the use of homestead gardens. In Narayanpur, Kalir Alga, and Daikhawar Char nearly all households have them; but in Parbatipur only 20 percent do, and in Nunkhawa and Jhaukuti only 5 percent do. In Kalir Alga the list of vegetables cultivated included: pumpkin, gourds (*kumra*), spinach (*jhinga*), okra (lady fingers), cucumber, beans, eggplant (*brinjal*), beans, bitter gourd (*karala*), and spices. In this mauza, 30 percent of garden produce was reportedly sold in the market.

There are several possible reasons for the low levels of homestead gardening. In Nunkhawa and Jhaukuti, large numbers of men work outside the mauza much of the year, so women shoulder extra burdens of responsibility and may have less time for homestead gardening than women in other mauzas. Moreover, the soil quality in Jhaukuti is considered inferior, and homestead gardening may be less productive than elsewhere. The Parbatipur settlement has been affected by erosion, and several houses had been moved in the past few years. About half of the land is owned by absentee owners. There are few

trees and little vegetation of any kind around homesteads, many of which have a temporary or newly built appearance.

### 5.4 Sharecropping

Parbatipur was the only mauza visited where there was a significant level of absentee land ownership. Much of the available land in that mauza was said to be owned by a person who lives on the mainland, who gives it to sharecroppers. At the time of the survey some 25 percent of farming households were said to be sharecropping arrangements, the terms of which were that the sharecropper provided all inputs and the crop was divided equally between owner and sharecropper.

Sharecropping is practiced in other mauzas as well. In Kalir Alga, for example, 10 percent of households were reportedly doing so. The terms were the same as in Parbatipur.

### 5.5 Effects of Severe Floods on Agricultural Production

Farmers of this region have experienced three severe floods in the past decade: 1983, 1987, and 1988. Where aman was grown, nearly 100 percent of the crop was damaged in those years. The Agricultural Extension Department helped by distributing vegetable seeds in some places, but the

**Table 5.5 Crop Damage Caused by the 1988 Flood**

Mauza	Affected Crop	Percent Damage
Jhaukuti	Aus, Aman, Jute, Millet	100
Parbatipur	Aman, Jute	100
Nunkhawa	Aus, Aman, Jute	100
Daikhawar Char	Aus, Aman, Jute, Millet	100
Kalir Alga	Aus	100
Narayanpur	Jute, Aus, Aman	90

Source: Charland RRA

Table 5.6 Study Mauza Land Prices (Tk.)

Mauza/village	Best Agric. Land (per ha)	Non-agric. Land (per ha)	Mortgage Rate (per ha)	Rental Rate, Annual Agric./ Homestead Land (per ha)
Jhaukuti	25,000-30,000	1,200-8,500	12,000-14,500	2,500-3,000
Parbatipur	15,000-20,000	3,700-7,000	not available	2,500-3,700
Nunkhawa	25,000-30,000	7,000-9,500	14,000-20,000	2,500-3,700
Daikhawar Char	25,000-30,000	7,000-9,500	14,000-20,000	3,700-5,000
Kalir Alga	15,000-20,000	3,700-5,000	14,000-20,000	3,700-5,000
Narayanpur	30,000-37,000	7,000-9,500	14,000-20,000	3,700-5,000

Source: Charland RRA

loss of the rice crop was not supplemented in any other way.

Table 5.5 describes crop damage caused by the 1988 flood. In addition to these severe floods, farmers expressed anxiety about annual risks to the aus crop posed by the early onset of normal flooding.

### 5.6 Land Prices, Mortgage and Rents

Table 5.6 shows the variation in land prices and mortgage or rental rates. As in other char areas, there is some trade in uncultivable land (some of it submerged), which sells for very low prices or one-quarter to one-third of cultivable land.

In Narayanpur, there were said to be fewer rental arrangements than in other survey mauzas.

### 5.7 Potential for Improvement

The main problems of farmers in this area are: weeds, sand carpeting, excessive rainfall in the monsoon season, hail storms, flood during kharif I (affecting aus crops), and erosion. Most farmers also have inadequate capital. Although the vicissitudes of rain, flood, or sand deposition are beyond

anyone's control, improved access to credit would help subsistence farmers, who depend on chemical fertilizers (urea and TSP) to produce their rice crops.

There is an undeveloped potential for expanding winter crops such as sugar cane, watermelon, and groundnut, but most farmers are not familiar with techniques for their cultivation. Extension services, seeds and fertilizer, and assistance with marketing arrangements would be needed to develop this potential.



## Chapter 6

### LIVESTOCK

People place a high value on livestock, as one char resident said, "Livestock is our bank". Due to poverty and lack of cattle, however, many are unable to pursue this investment to the extent they would like.

Table 6.1 shows local estimates of livestock (cattle, goats, and sheep) ownership. Some mauzas had a few buffalo as well. Cattle are raised both for draft power and for sale. Goats and a few sheep are kept for fattening; and poultry are kept for egg production.

Milk, sold by many households, is considered a by-product of having cows rather than a production goal in itself. Milk is sold to traders (*paikers*) who collect it from char people and sell it in the Jatrapur and Nageshwari markets. People in Jhaukuti said they sell milk for Tk.5 per kg., which is considered a rather low price. Eggs also are bought by local traders for sale at the Jatrapur bazaar.

**Table 6.1 Large Animal Population**

Mauza	Cattle	Goats	Sheep
Jhaukuti	1.58	11.9	0.12
Parbatipur	2.05	2.90	0.65
Nunkhawa	0.50	1.05	0.01
Daikhawar Char	1.47	3.57	0.04
Kalir Alga	7.27	2.72	1.09
Narayanpur	8.57	5.71	0.21

Source: Charland RRA

Men and women both are involved in animal care, women commonly having special responsibility for the care of goats and poultry. Men customarily handle grazing or fodder collection, and take animals to market. Some women milk cows in this region.<sup>1</sup> It is customary for a young woman to receive a gift of a cow from her parents at her wedding; and she retains proprietary rights over the cow in her marital home. In one study mauza, Daikhawar, RDRS has recently formed groups to rear livestock. Three 15-person groups have been formed, two female and one male. The groups fatten animals and take half of the profit, the other half goes to the NGO.

The purchase time for cattle is October and November, and cattle often are sold between March and June, when people need cash to buy inputs for crop cultivation. This seasonal trade reportedly reduced the local population of cattle by as much as 50 percent in the monsoon period in some places. Pre-monsoon sales of goats were also found to have been as high as 80 percent of the population in some mauzas. Prices quoted for some common animals were:

Medium-size cow:	Tk.2500-4500
Large bullock:	Tk.3500-6500
Small/Medium-size bullock:	Tk.1000-2700
Large female goat:	Tk.500-600
Large male goat:	Tk.1000-1200

Most mauzas have some people who care for livestock on a share basis. (The only place where this was not done was Nunkhawa, where there none had enough capital to purchase animals that

could be shared out.) There are two types of share arrangements. In one, an animal is kept for fattening and the owner and the keeper share equally in the profit. The other arrangement reserves all rights in the original animal for the owner but grants equal shares in profits from offspring to the owner and keeper.

Fodder, such as grass or catkin, is available in most places throughout the year. In the rainy season animals are fed straw, grass, catkin, or banana leaves. Fallow fields provide ample grazing land in most mauzas, although some are owned (or otherwise controlled) by individuals. Three of the study mauzas (Parbatipur, Kalir Alga, and Daikhawar) have commonly owned or government lands that are used for grazing. In the monsoon season inundation of such grazing lands somewhat restricts animal feeding, but catkin and other grasses are still available for cattle feed. The types of grasses fed to cows are called in Bangla: *dubla*, *bhadel*, *goisa*, *kaisha* (catkin). *Dubla* is considered the best grass, according to a group of Daikhawar Char women. Other feeds include: broken rice (*kura*) mixed with salt and water; wheat straw, and pulse husks.

Among the cattle diseases mentioned were: boils in legs or feet, boils on the tongue (*benga*), hook-

worm, a cause of sudden death called *shatailer batash*; swelling of the body and throat that interferes with eating (*badla*); and joint diseases. Treatment is available from a specialist in the Jatrapur bazaar. For those who are unwilling or unable to carry their animals to the bazaar, local healers (*kabiraj*) are used. Some people also mentioned administering herbal treatments themselves. *Samanizon* is a treatment involving sprinkling an animal with water while quoting sections of the Qu'ran.

It is difficult for people to care for their livestock during the monsoon season and even more so during floods. The problems mentioned were: inundation of cattle sheds, especially in low-lying or eroding villages where plinths of the sheds may not be raised; shortage of fodder (in Nunkhawa); and boils in animals' feet caused by standing in water. When it is necessary to evacuate a char, moving animals is an extra expense. The reported transportation cost in Parbatipur was Tk.10 per cow, but in Daikhawar Char it was Tk.100. The cost no doubt varies according to the distance travelled and by local demand for emergency transport.

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## NOTES

1. Women in the upper Ganges/Padma RRA region were said to never milk cows. This seemed to be almost a taboo.



## Chapter 7

### FISHING

As previously mentioned, few households in this region depend on commercial fishing for a livelihood; most households, however, fish for consumption. This kind of fishing is a responsibility commonly assigned to children. Some 10 to 15 percent of all households are part-time "subsistence" fishermen (most of whom also are agricultural day laborers), who reportedly sell some of their surplus catch either to middlemen or in the market when they need cash. Species caught by subsistence fishermen are: *puti* (*Puntius spp.*), *piali* (*Aspivopadia spp.*), *chingri* "shrimp" (*Palio- mon crobrachium sp.*), *hilsha* (*Hilsa ilisha*), *gaira/ghaura* (*Clupisoma ghaura*), *rui* (*Labeo rohita*), *aair* (*Mystus aor*), and a variety of small fishes.

In Parbatipur, there is a 10-member fishing cooperative, one member of which was interviewed. This cooperative was formed in 1989 to obtain a lease on a Brahmaputra River fishing ground in Kurigram Thana. The annual cost of this lease is between Tk.1,000 and Tk.2,000, and except for the months of June through August, cooperative members fish every day of the year. In the lean period they repair their nets and boats. These commercial fishermen earn approximately Tk.10,000 to Tk.12,000 per year at their work, a better income, they say, than they could get from agricultural day labor. They sell their catch either to middlemen at the Jatrapur market or directly in the Kurigram market. The cooperative member interviewed said he was a former farmer, but river erosion made him landless. He and other members financed purchases of their boats by selling cows.

Fishing gear used in this region includes some hooks, plus various kinds of traps and nets—specifically the *kaita* type of fish trap, *fashi* (gill net, or current net), and the *jali*, or push net. Fifty traps can catch a half kilogram of shrimp per day. Subsistence fishermen in Daikhawar Char may own as many as 60 or 70 such traps, which they use four months a year. Comparable reports were obtained from Jhaukti. Such traps cost Tk.7 to Tk.8 to purchase, and shrimp may be sold for Tk.40 per kilogram.

Low water levels in the dry season and very high levels in the monsoon season both were said to reduce fish catches. The peak fishing season according to reports from all mauzas is in the months of August-September and March-April (*Bhadra*, *Ashwin*, *Jaisthya*). The lean periods are January-March and July (*Sraban*, *Magh*, *Falgun*, *Chaitra*).

Commercial fishermen in Parbatipur said their catch is declining because the main channel of the Brahmaputra-Jamuna is shifting. They worry about increasing numbers of fishermen possibly competing with them for a limited fish supply. They also have difficulty finding sufficient marketing outlets for their catch, even though it is a generally good catch. They would like to have better credit facilities than they do, so that they could improve their gear and craft.



## Chapter 8

## MARKETS, TRANSPORT, AND COMMUNICATIONS

One major market, in Jatrapur, serves the area covered by this RRA. The agricultural produce of the area chars is sold in several ways. In some cases it is sold directly in regional markets, and in others it is sold to middlemen. These are of two types: small-scale traders, called *faria* or *dadal*, and large-scale traders, called *mahajan* or *paiker*. The latter, mostly dealers from Kurigram, buy large quantities of local goods in the Jatrapur market at fairly good prices. In the opinion of local people, the smaller traders pay poor prices for cattle and take advantage of char people.

The Jatrapur market includes a bazaar, which is open all week, and a weekly market (*hat*), which operates on Saturdays and Tuesdays. Daily necessities can be purchased at the bazaar. People in the survey mauzas travel from three to 20 km to this market. Jatrapur, a growth center, attracts people from all mauzas in Kurigram Sadar, half of those in Nageshwari Thana, and the char areas of Ulipur Thana. The Jatrapur market is situated near the main channel of the Brahmaputra-Jamuna, to which it is connected by a wide canal. This canal provides boat access most of the year; in two

Table 8.1 Markets Used by Residents of Study Mauzas

Mauza/village	Markets	Purposes	Distance (km)
Jhaukuti	Jatrapur (daily bazaar or weekly <i>hat</i> , Saturdays & Tuesdays)	All purposes	20
	Madarganj	Daily necessities	5.5
	Nageshwari	Cattle trading	16
Parbatipur	Jatrapur	All purposes	3
Nunkhawa	Jatrapur	All purposes	7
	Nunkhawa Bazar (Fridays, Mondays)	Daily necessities	4.5
Daikhawar Char	Jatrapur	All purposes	9.5
Kalir Alga	Jatrapur	All purposes	8
	Nunkhawa Bazar		
Narayanpur	Jatrapur	All purposes	16
	N. Dakdahar	Daily necessities	1.6
All Study Mauzas	Kurigram	Major purchases	

Source: Charland RRA





months of the dry season some must walk part of the way there. It also is accessible by a road through Pateshawri, which leads to Kurigram Sadar, Nageshwari, Ulipur, and other urban areas.

Although most people use Jatrapur Bazar for all purposes, including cattle trading and major purchases for weddings, richer char people go to Kurigram to make major purchases. Nageshwari, another urban center, is an important cattle trading center used by char people.

In addition to the large markets, people in the mauzas visited use some smaller weekly markets. These markets provide a narrower range of goods than Jatrapur, but they are more conveniently located, within one to three miles of each mauza. Distances travelled to local markets are indicated in Table 8.1.

Engine boats are the main form of transport in the area, but there are some local boats as well. During the dry season people get around either by walking or by ferry boats. When transporting heavy goods, boat is the main method used. Monsoon trading by boat is not as common in this char area as it is farther south on the Jamuna.

However, there is some such trading after the August-September (*Bhadra*) period.

On non-market days, few boats are seen in this area. There is a daily boat service (not on a regular schedule) that connects chars with each other and with Jatrapur and Kurigram. Cost of travel depends on the distance and the goods transported:

For distances of 4.5 to 6 km

Per person	Tk.2-2.5
Per cow	Tk.6-7
Per goat	Tk.1-2
Other goods	Tk.3-4 (e.g., a maund of paddy)

For distances of 12.5 to 16 km

Per person	Tk.5-6
Per cow	Tk.10-12
Per goat	Tk.2-3

In each season, people say they have some difficulty with local transportation. During the dry season, when it is necessary to walk, moving heavy goods is very difficult. During the rainy season high waters, strong currents, and waves also can make navigation difficult, sometimes even halting travel and causing economic losses.

## Chapter 9

### DIET, HEALTH, AND SANITATION

#### 9.1 Diet

Questions about diet were covered in group discussions in Nunkhawa, Parbatipur, and Jhaukuti. Staple foods (*pradhan*) are rice, sweet potato, millet, and bread (*ruti*) made with wheat flour. Rice is the most desirable of the group, and the others are considered substitutes. A group of Nunkhawa women whose husbands are day laborers said they consume a lot of sweet potato starting in the month of *Baishakh* (mid-April to mid-May). They also said that in flood time they increase consumption of bread if rice crops are damaged and prices increase; sweet potato also is consumed in large quantities during floods. In Parbatipur, millet was described as a less expensive staple used year-round by poorer people.

There was general agreement on what an adequate diet was, but several respondents said that few could afford such a diet. It would consist of three meals a day, although in Nunkhawa and Parbatipur it was said that no more than half of the residents of the mauza actually ate three meals; and in one (Jhaukuti) a group said only 5 percent did so. The ideal would be (1) a breakfast of banana, egg, and milk, and possibly some puffed rice (*muri*); (2) lunch of rice, lentils, and a vegetable, such as spinach (*shak*), possibly with some fish or meat; and (3) an evening meal of fish or meat along with lentils and rice.

The actual diet of no more than two meals per day is said to consist of a large quantity of a staples and some vegetables. In Nunkhawa, a group said

that people catch a lot of fish, which is their main source of protein. In Parbatipur, on the other hand, a group said that most fish caught are sold to obtain cash for other necessities. In Jhaukuti, someone said that during the monsoon season it is difficult to get even spinach.

Except for banana, fruits are available only in older chars, such as Narayanpur. As one person in Parbatipur explained, it takes a long time to grow fruit trees, so frequent river erosion in some places makes it impossible.

Perceived inadequacies in both the quality of the diet and quantities of food consumed were said to cause disease. One person in Jhaukuti said that eating vegetables so often was bad for their health. "Because we can't get good food, we can't digest properly, so we become weak." A Parbatipur man said, "If our diet could be improved, we would have fewer diseases" and a woman added, "Because of food many have died".

About children's diet, they said they do not give special foods to them unless they are sick, when they may withhold rice and fish (Parbatipur); or sweet potato, *moshur dal*, eggs, and duck meat (Nunkhawa).

#### 9.2 Health

Health services are more available than expected. In each place it was reported that all children and pregnant women had been immunized for some



Table 9.1 Common Health Problems

Common Dry Season Ailments	Common Monsoon Season Ailments
Measles ( <i>khesra</i> ), chicken pox, diarrhoea	Fever & sneezing, typhoid
Chicken pox, cholera, skin rashes, diarrhoea ( <i>notifer</i> )	Fever, diarrhoea
(Season not specified: Chicken pox, diarrhoea, fever, skin rashes, and <i>sutika</i> , a women's disease the symptoms of which are bleeding from rectum, anemia, and weakness)	Chicken pox ( <i>bhapi</i> ), fever & sneezing, dysentery

Source: Charland RRA

time by people who visit the chars every one to three months. Where there were no doctors available, a visit to a health practitioner was said to cost approximately Tk.100 for travel, fees, and medicines, an amount that may be too high for the budget of a poor char family. Indigenous practitio-

ners, or *kabiraj*, treat mental health problems and cases diagnosed as spirit/ghost possession.

Common health problems reported by the people interviewed are listed in Table 9.1.

## Chapter 10

### LOCAL PERCEPTIONS OF CHAR AND MAINLAND LIFE

Along with socioeconomic information the team gathered cultural materials that reflect local views of char and mainland life. These included proverbs or sayings and songs. The content of these materials is more useful for some purposes than individual opinions, because cultural materials are more standardized and reflect a degree of community consensus and conceptualization about a topic, whereas individual feelings and ideas, of course, can be idiosyncratic. The resulting information provides a sense of the humor, pride, shame, and stereotypes shared by large groups or subgroups of interviewees. This information is fundamental to understanding the complex attitudes that underlie relationships between char people and others.

A poem recited by an old woman of Parbatipur expressed poignant feelings about the peripatetic aspect of char life. Its lilting rhyme translates broadly as,

*From char to char, building houses  
and always parting from brotherly neighbors;  
Those brothers who have been with us,  
We'll see them no more.*<sup>1</sup>

When asked about how their way of life compared to that on the mainland, nearly all mentioned sadness, anxiety, and poverty. These kinds of comments do not mean that char people are actually sad or anxious all, or even most of the time, but when they stop to reflect on their overall situation, the general consensus is that it is a life of hardship and pervasive uncertainty.

Certain general points came up in the responses to questions about how char life compares to life on the mainland.<sup>2</sup> In addition to the insecurity of life in chars, one of the main points raised was the greater vulnerability of char people to floods. Another was that the mainland has better roads and educational facilities. Agricultural productivity was another point of contrast raised. The fluctuating nature of charland productivity compared to that of the mainland was described in various ways. One person said the mainland is productive and the people are rich, while the chars are unproductive and the people poor, but there also are happy memories of bygone days of charland prosperity. There were several references to chars as sandy places and problems caused by sand.

Some comments made on this point were:


"Whatever they plant, it grows. We have less hope in life because our crops often are taken by river erosion."

"They don't have floods, and they have better roads... Flood is a big problem here, but not there. They have less worries than we do."

"If I die today, they'll put me in a sack and send me off in the water. There isn't even a place to bury me." (Comment from an *uthuli* woman.)

"Getting from one place to another during flood is very difficult. We have to depend on





banana rafts. And there is no tubewell water during flood."

"Rich people, they don't look at us"... "Of course they're all rich." (Comment was qualified later.)

"We used to produce more than they did on the mainland, but now char people are in trouble because our agricultural land is going."

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## NOTES

1. *Chare chare korchl baari*  
*Para porosh bhai chhaaraa chhaari*  
*Kaaro shaathe bhai kaaro deha nai.*
2. The term most often used to refer to mainland is *kaimi*, which means "stable." Others are: *basti*, "settled/occupied", or *sabeki*, "old/original."

## Chapter 11

### CONCLUSIONS

#### 11.1 Summary of Findings

- In the northern portion of the Brahmaputra-Jamuna river (near the northern Bangladesh border) narrow river channels thread their way around frequently changing land masses.
- The area has been inhabited for a long time, people from Pabna, Bogra, and Mymensingh districts started to move into the these char areas in relatively large numbers during the later part of the 19th century.
- In spite of frequent erosion and accretion, most of the charlands in the study area have been in existence for more than couple of decades.
- Char areas of this region are dotted with markets of various sizes that meet the daily needs of char dwellers as well as serve as trading centers.
- Chars of this region are prone to flooding almost every year and may even flood two to three times in a single year due to heavy rainfall in the hills of India. This type of flash flood occurs so suddenly that in most cases it proves difficult to get assistance even from the neighbors.
- Agriculture is the mainstay of the people. Fishing is not a prominent activity here. Rabi crops such as sugarcane, watermelon, and groundnut have great potential in this region. To exploit this potential, it is necessary to undertake an elaborate extension program.
- Livestock rearing is a very important activity of the people of this region. This

activity has been encouraged by the availability of ample grazing lands. Thefts of livestock have been less common here partly due to the presence of government border security forces in this region.

- According to the villagers transportation is difficult throughout the year. During dry season, when walking is the main means of covering distances, it is obviously very difficult to transport heavy loads. During the rainy season, high water, strong currents, and waves can make small boat navigation hazardous. This partly explains why the figure for personal ownership of small boats is so low.
- Extension services in immunization, mainly for pregnant women and children, were found to have covered most of the chars.

#### 11.2 Suggested Priorities

The suggested priorities for action in the charlands can be divided into three categories: general development issues, erosion/accretion issues, and flooding issues. Since general development issues tend to have an impact on erosion and flooding issues, there is some overlap between the three areas.

##### 11.2.1 General Development

- The main problems faced by farmers in this area are: weeds, sand carpeting, excessive monsoon rainfall, hail storms, flood during kharif I (affecting aus and aman crops), and erosion. Most farmers



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have very little capital. Although the vicissitudes of rain, flood, and sand deposition are beyond anyone's control, improved access to credit would help subsistence farmers buy necessary inputs like chemical fertilizers to produce different crops.

- There is an as yet unexploited potential for expanding winter crops such as sugarcane, watermelon, and groundnuts. Extension services that provide easier access to seeds and fertilizers, and assistance with marketing arrangements would be needed to exploit this potential. Extension in irrigation facilities also would be very useful.
- During floods, moving cattle to safety places a high demand on emergency transport.
- Although commercial fishing is not prominent in this region, fishermen would like to have better credit facilities, so that they could procure improved gear and craft. Erosion events in the recent past added substantially to the number of subsistence fishermen who are, however, faced with limited fishing prospects due to depleted fish stocks and the poor quality of the fishing gear at their disposal. It is essential that extension services address these problems.

#### 11.2.2 Erosion and Accretion

- As a consequence of erosion and accretion, rights over government-owned lands, unlike privately owned lands, are the subject of local controversy and manipulation by locally influential people. Distribution of newly accreted government lands is usually skewed in favor of the elite. Land rights and the keeping of land ownership records need to be improved and streamlined.

#### 11.2.3 Flood and Rehabilitation

- A more effective flood warning system is needed. Union parishads could play an

important role in this regard.

- Few households have boats of their own. It would be extremely useful to make the services of mechanized boats available during flood emergencies so that char people could move themselves, their livestock, and other movable properties to safety.
- Many of the char dwellers have no relatives on the mainland with whom they could take shelter during floods. Thus, flood shelters are needed.
- Medical treatment for cattle was hardly available at the mauza level, and people had to travel long distances to find such facilities in urban areas. Costs involved in such transportation was prohibitive for most of people. Thus, there is a need to make such services more readily available to the char people.

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## APPENDIX

## Appendix A: Moving a Daikhawar Char Homestead

We had the opportunity to observe how one family in Airmarar Char in Daikhawar Char mauza of Shaheber Alga Union moved their house from one place to another due to river erosion.

### Moving Houses

According to Mosammat Tashlima Begum, wife of Md. Shamsul Master, three months ago they started thinking of moving, because the eroded riverbank was very near their house and within a short time their house was likely to go underwater.

The first thing they did was to plant some *jiga* trees on the edge of the new site, these would be used for housing construction.

They started constructing their house plinth a week before the move. To do the work, they employed five to seven female day laborers for seven days, paying them three meals and Tk.10 each per day. Cooking for these day laborers was the housewife's responsibility, and the food was taken to the laborers by the children of the house.

They started moving rice and earth pots full of seed grains a week before the day they would actually move to their new location. The women of the household sent five big pots of grain, each of which held one maund, to the house of the household head's uncle, which was adjacent to the new site. The wife of the household head also sent 15 kg. of cotton, which she had purchased to make a quilt for the coming winter. Wooden shelves were dismantled and also sent to the new location. Since it was impossible to move everything at once, the household head, after consulting his wife, decided which household goods should be sent before the move and which should be taken with them on the day of the move.

### People Who Come Forward to Help

On moving day relatives and friends assist the family with their move. Depending on the circum-

stances, the household may be joined by father's sister (*fupu*), mother's sister (*khala*), husband's sister, and wife's sister, among others. Neighbors, too, may provide help.

### Steps Followed to Dismantle the Homestead

The day of the move, the tubewell is installed.

This household first dismantled their main bedroom, where the household head and his wife sleep, and where they store food items. This room is normally located on the south side of the house. They then dismantled their second bedroom, where the children sleep. This room is located on the east side of the house. As they dismantle one room it is immediately taken to the new site by male day laborers, who get three meals a day and no cash payment. After they dismantled the two main rooms of the house they dismantled the room in the north portion of the house, which is where the children study. Then they dismantled the cowshed. Finally, just before leaving the old house, they dismantled the kitchen.

The men of the household shuttle back and forth between the old house and the new one all day, constantly supervising the day laborers.

Children also help by carrying small household items to the new house. Women (mother-in-law, son's wife, and daughters) are busy all day cooking huge amounts of food for the family as well as the day laborers who are moving the household and building the plinth (about 50 people altogether). After the day laborers' afternoon meal, the women move to the new house, carrying with them the food they will eat in the new settlement. They then must cut earth and make and plaster room plinths. In this situation, the housewife was observed supervising a crew of women who did this job.

Once the family has moved to new house, they gradually settle in. One by one, their belongings



are put in their proper places. The women do all of the light-weight tasks around the new house, and the men do the heavy tasks. Small children also help with small tasks.

Once all the household members move, the men take the responsibility of giving the final touch to reconstructing the house. They throw away worn out building materials and replace them with new materials. They collect new *jiga* tree stems to make the corner post of the house and put a new layer of dried catkin grass on the old roof to strengthen it and make it waterproof.

Men also transplant as many trees as possible from the old house to new one. Usually this is all of the trees.

In this case, because the land belonged to the uncle of the family head, the family had not fixed a price for the land their household now occupied. They either will have to pay Tk.2,000 for it or, since it was previously cultivated land, they may have to pay for the loss of crop production on that piece of land.



