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# **WORKING THE LAND**

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## **A CASE STUDY IN APPLIED ANTHROPOLOGY AND FARMING SYSTEMS RESEARCH IN BANGLADESH**

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**BEN J. WALLACE**

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Professor of Anthropology  
Southern Methodist University  
and  
Anthropological Consultant  
Bangladesh Agricultural Research Council  
International Agricultural Development Service

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**BANGLADESH AGRICULTURAL RESEARCH COUNCIL**

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B.J.W.  
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## MEASUREMENTS

Decimals: 100 decimals = 1 acre

Maund: 1 maund = 37.32 kilograms

Seer: 40 seer = 1 maund

Taka: Approximately 24 taka = 1 U.S. Dollar

## CHAPTER ONE

### SCOPE OF THE STUDY

#### INTRODUCTION

Despite technological advances in agriculture during the past twenty years, there are still many food deficit countries. In specific locales and regions, millions of people are undernourished and in particular situations, are starving or dying from the diseases conditioned by poverty. In some cases, new technologies have helped stem food shortages. But, unless continuous progress can be maintained, the prophecy of Vernon Ruttan (1982:18) -- "the simple mathematics of inelastic food demand, uncertain weather, and improvident food stock policies virtually assures that there will be at least one food crisis of global significance during the next decade"--may come to fruition.

A food crisis occurring in Bangladesh is likely unless there is a significant increase in agricultural productivity. Ninety-four million people (Islam 1983) are crammed into 55,598 square miles, an area roughly the size of the state of Wisconsin (Nyrop 1977). As of 1978, the annual population

growth rate was 2.7% and despite a conscientious effort on the part of the government to initiate programs in education, contraception, and sterilization, the growth rate has been reduced to only 2.6% (Islam 1983). With this high growth rate, by the year 2008, Bangladesh may have a population of around 180 million. The country already houses the eighth largest population in the world. Bangladesh is a predominantly rural country with 87% of its people living in the countryside. The agricultural land population density is 1756 persons per square mile (Islam 1983). Agricultural productivity is among the lowest in the world (World Bank 1979). And, although almost all the arable land is under cultivation, rice yields, for example, despite recent advances, are about half the average for the rest of Asia (World Bank 1979). Population growth, low agricultural productivity, land fragmentation, and diminishing land holding per household, when coupled with the country's vulnerability to natural disasters clearly dramatizes the potential severity of the situation in Bangladesh.

Importantly, however, although the situation remains critical, there is room for guarded optimism; outstanding effort on the part of numerous national and international economic development organizations suggest that Bangladesh is seriously trying to move in the direction of agricultural self sufficiency. It took the country several years to recover from the economic plunge it took after the war of

independence. Pre-independence levels of agricultural productivity were not reached until 1975. By 1978, the productivity of important crops such as rice, wheat, sugarcane, jute, pulses, edible oilseeds and tea were surpassing pre-independence levels (World Bank 1979). By 1983, further advances in the production of rice, wheat, oilseeds and summer pulses were attained (Gill 1983). But, agricultural productivity must continue to improve if it is to keep pace with the growth in population.

The Bangladeshi farmer has shown a willingness to accept more productive and profitable agricultural systems provided they are presented in such a manner that he believes them to be compatible with his overall perception of man-land relationships. This report is about the Bangladeshi farmer; his family, his land, his society and his aspiration. It is about the farmer's agricultural skills and accomplishments but it is also about the many agricultural problems he must solve if he is to be able to adequately feed his family. More specifically, I examine the sociocultural--the human--factors conditioning agricultural development in Bangladesh.

### THEORETICAL PERSPECTIVE

The research on which this report is based was conducted within the framework of the concepts of cultural ecology (Frake 1962, Geertz 1963, Wallace 1970) and farming systems

research (TAC 1978, IADS 1980, BARC 1981, Norman, Gilbert and Winch 1979). Because, however, there is no unified theory of cultural ecology nor of farming systems research, the brief discussion that follows is illustrative only of a cultural ecological and farming systems research "perspective".

### Cultural Ecology

In recent years, some of the social sciences have turned to biology for certain basic ecological concepts with the hope of developing a more comprehensive mode of analysis in which to examine man's interaction with nature. This approach represents an important advance in the social sciences, not because earlier researchers were necessarily wrong, but because their methods of research and analysis, especially when working in farming communities, were inadequate. Man was often considered a product of or a passive element within the natural environment. The research perspective followed here is one that considers culture, society and behavior, as but other variables, along with climate, soils, flora and fauna, in a complex system of nature.

Ecology--and by extension--cultural ecology--is the study of the network of relationships between the organisms of the biotic community and the components of the physical environment in which they live. Ecology does not study man, plants, or insects as independent units for analysis but rather, examines the relationships within the system. The biological ecologist Odum (1959:4) defines ecology..."as the

study of the structure and function of nature." Man and his behavior and his technology are all a part of nature. Another biological ecologist, Clark (1965:3) says: "Our goal in ecology is to understand the interrelations of organisms and their environment under natural conditions." Put more simply, the noted ecologist Sears (1939:127) said over forty years ago: "When the ecologist enters a forest or meadow, he sees not merely what is there, but what is happening there." This is the goal of the ecologically oriented social scientist when entering a society--to understand what is happening there. This study focuses on what is happening in a particular social and natural environment in rural Bangladesh.

#### Farming Systems Research

Farming systems research is not only compatible with but complimentary to the concept of cultural ecology (Grossman 1981).

Farming systems research may be summarized, as follows (TAC 1978:118):

A farming system ( or farm system or whole-farm system) is not simply a collection of crops and animals to which one can apply this input or that and expect immediate results. Rather, it is a complicated interwoven mesh of soils, plants, animals, implements, workers, other inputs, and environmental influences with the strands held and manipulated by a person called the farmer who, given his preference and aspirations, attempts to

produce output from the inputs and technology available to him. It is the farmer's unique understanding of his immediate environment, both natural and socio-economic, that results in his farming system.

When doing farming systems research, the researcher is concerned with the "whole" farm as it is related to the ecology of the region. A field worker may focus his activities on stock breeding or on irrigation but the research should be designed so that data are collected and analyzed relative to other components within the ecosystem. Cropping systems research, socio-economic research or irrigation research are components of farming systems research.

### **Cultural Ecology and Farming Systems Research**

Farming systems research and cultural ecological research, although difficult to operationalize, are both functional and "holistic" in orientation. Both research approaches examine mankind within an ecological framework. Both accept the principle that all the various components of nature--soils, climate, cropping patterns, cultural behavior--are interrelated. A change in one component of nature--for example, a climatic change or a new agricultural technology--will usually manifest itself by conditioning another component of nature.

The introduction of a high yielding variety of rice may bring about a change in the natural or social environment or

both. If the farmer is able to produce greater yields with the high yielding varieties, an improvement in the farmer's economic welfare may result. If, conversely, he is unable to produce higher yields because of water problems or the cost of labor, the overall economic welfare of his family may decline. In both cases, the farmer's welfare and quality of life has been affected.

But, just because farming systems research and cultural ecological research are multi-disciplinary in orientation does not mean that single discipline research cannot be carried to completion. It is a matter of doing single discipline research following the perspective of multi-disciplinary research. This research focuses on one component of farming systems research: the sociocultural and economic environment of the Bangladeshi farmer in a cultural ecological perspective. An attempt is made to place the farmer within the context of the "whole farm" and then place the "whole farm" within the context of the farming community.

#### **Applied Anthropology**

A final perspective germane to this study is applied anthropology. And, as in the case of cultural ecology and farming systems research, there does not appear to be a consensus on theory and method in applied anthropology (see Foster 1969). As used here, applied anthropology utilizes theories and methods developed in the discipline of

anthropology (and other social sciences). Applied anthropologists operationalize these theories in such a manner so that their research impacts on some aspects of directed cultural change. This means that an applied anthropologist, more often than not, will be conducting his research within the context of a multi-disciplinary team of professionals concerned with directed sociocultural and economic change. The research on which this report is based was conducted in association with a large agricultural development project in Bangladesh under the overall supervision of the Bangladesh Agricultural Research Council and International Agricultural Development Service.

The use of anthropological theory and method in conducting research on problems associated with directed culture change is no more difficult than conducting traditional academic research. So-called "pure" and "applied" research differs little in scientific rigor; the difference is mainly a matter of orientation. The difficult aspect of "doing" applied anthropology is making recommendations, at a significant level of confidence, that will have a positive impact on programs of directed social change. In my view, making useful recommendations in directed culture change is as much an art as it is a science. As noted by Erasmus (1961:313), "There is much to be said for the point of view that students of man's behavior are closer to being artists than scientists." Drawing from comparative cultural experiences, by following a "holistic" approach, and

from intuition, the applied anthropologist makes educated guesses on how best to implement directed culture change. Applied anthropologists do not have all the answers. What seems more important, however, is that applied anthropologists, along with other professionals in the applied social sciences, at least try to direct their knowledge and skills toward the amelioration of human suffering, especially when working in many of the developing nations. As further noted by Erasmus (1961:314):

The purist--who would treat culture impersonally without making judgments, in the belief that such a practice is more scientific (i.e., more like natural science)--take their subject matter out of context. Human behavior is cognitive and motivational and includes both choices and values. Students of society should be conscious of their values, know when these are intruding into their discussion, and realize that their professional role does not preclude valuation.

I make no claim to having the answers to successful economic development in rural Bangladesh. This report, however, hopefully provides some insight into processes of economic development, especially technology transfer, in Bangladesh. Recommendations are made which at least address problems associated with directed change in the arenas of technology, economy and society. My hope is that some of the recommendations will be useful to agricultural

development specialists. But more importantly, if some of the conclusions and recommendations of the study are implemented, my hope is for a positive impact on the lives of the Bangladeshi farmer.

## METHODOLOGICAL CONSIDERATIONS

### Objectives

Under the direction of the Agricultural Economics and Social Science Program of the Bangladesh Agricultural Research Council, considerable research has been devoted to a socioeconomic assessment of improved jute production technologies and general cropping systems in the village of Choto Kalampur (BJRI 1981, 1982, 1983). The benchmark work, done during 1980-1981 by the Bangladesh Jute Research Institute, is particularly useful in the areas of economy and demography. The benchmark research was followed by the dissemination of knowledge and aid in improved jute technology (and cropping systems, in general) to a sample of households in the village. Assessment of these improved technologies continues to be monitored by the Bangladesh Jute Research Institute (BJRI).

The research findings presented here build on the work done by the BJRI and their continuing efforts to improve the economic welfare of the villagers in Choto Kalampur. In general, the aims of this report are to examine man, land and economic relationships in Choto Kalampur, especially as they

relate to the development of appropriate and improved farming technologies.

More specifically, the primary goals of the research in Choto Kalampur were:

1. Ascertain the effects of improved cropping systems technologies on households receiving some form of aid from the BJRI.

2. Ascertain the effects of improved cropping systems technology on households receiving little or no aid from the BJRI.

3. Compare BJRI participate households with non-participant households and note any differences in economic welfare.

4. Ascertain the farmer's perception of improved cropping systems technologies.

5. Identify problems and make recommendation, based on cultural, social and cognitive data, that may help facilitate improved agricultural technology transfer.

#### **Site Selection and Sample**

The village of Choto Kalampur was selected for the study because 1.) previous research in the area suggested that it was representative of the region and 2.) an important government sponsored applied research project was ongoing in the village. It is coincidental that it was the BJRI working in the village. It could just as well have been a different government organization in the community. It was important that the village be representative of the region so that

generalizations could be drawn from the research with greater than local applicability. It was important that a government development project be operating in the village so that the benchmark data could be utilized, saving considerable time and effort, and so that farmers receiving aid from the government could be compared to farmers receiving little or no aid from the government.

After the BJRI completed the benchmark survey of Choto Kalampur, forty-five households were selected for further research and as farm sites on which to establish experimental cropping patterns. The BJRI sample of households is as follows:

Class	Area Farmed	No. Households
1. Landless Persons		5 Households
2. Landless Tenants		5 Households
3. Small Farmers	0.01-2.49 Acres	20 Households
4. Medium Farmers	2.50-5.00 Acres	8 Households
5. Large Farmers	5.00+ Acres	7 Households

In the study presented here, thirty-four households were selected from the BJRI sample of forty-five. These may be termed jute project households. In addition, thirty-four households were selected from Choto Kalampur that had received little or no aid from the BJRI field staff. These may be termed non-jute project households. The research described here is then, in part, based on a sample of sixty-eight households, thirty-four jute project households

and thirty-four non-jute project households.

Because of the confusion in the literature over classifying Bangladeshi farmers as tenant farmers and sharecroppers (see Jannuzi and Peach 1977) and because of the methodological problems these classes potentially create, tenants and sharecroppers as classes of farmers are not used in this report. A landless sharecropper is never a large land owner but a large land owner may be a sharecropper.

Stratified classes of farmer used in this study are, as follows:

**Landless Persons:** Households that own no land but may farm some land on a sharecropping or rental basis. The primary source of income is usually based on non-agricultural activity.

**Marginal Farmers:** Households that own and farm between 0.01 and 0.49 acres of land. They are marginal because they are effectively landless and have a dependency on non-agricultural income for subsistence.

**Small Farmers:** Households that own and farm between 0.50 and 2.49 acres of land.

**Medium Farmers:** Households that own and farm between 2.50 and 5.00 acres of land.

**Large Farmers:** Households that own and farm more than 5.00 acres of land.

Of the sixty-eight sample households in this study, thirty-four are located in North Choto Kalampur. All of the

BJRI jute project households are located in North Kalampur as are the thirty-four jute project households of this study. The other thirty-four households in this study are located in South Choto Kalampur and not from the BJRI jute project sample. In other words, all of the households in this study from North Choto Kalampur have received some aid or at least have immediate access to the field staff of the BJRI. None of the households in South Choto Kalampur has received aid from the field staff of the BJRI.

A specific designation of the sample households in this study is, as follows:

#### North Choto Kalampur

1. Landless Persons	4 Households
2. Marginal Farmers	6 Households
3. Small Farmers	16 Households
4. Medium Farmers	6 Households
5. Large Farmers	2 Households

#### South Choto Kalampur

1. Landless Persons	5 Households
2. Marginal Farmers	5 Households
3. Small Farmers	15 Households
4. Medium Farmers	6 Households
5. Large Farmers	3 Households

It is important to note, however, that the sixty-eight

households in this study, almost 20% of the total households in Choto Kalampur, served only as the basis of a socio-economic survey. Sample and non-sample households, depending upon the knowledge of the households members, were interviewed with regard to specific topics such as inheritance patterns, water use, credit opportunities, and general problems associated with their agricultural activities.

#### Field Work in Choto Kalampur

Phase I of the research involved administering prepared questionnaires to the sample of sixty-eight households in Choto Kalampur. The questionnaire was designed to obtain the following types of information: genealogical data, marriage patterns, general demographic data, land ownership and location, cropping patterns, crop yields, kitchen garden activities and yields, other forms of income, man and woman labor requirements, and animal ownership and use. In addition, the questionnaire was designed to obtain information dealing with the farmer's perception of his agricultural world, especially with regard to the different farm seasons, his irrigation, fertilizer, insecticide and seed needs, and his perception of modern agricultural technologies. The questionnaire was administered to all of the originally selected sixty-eight sample households.

The major problems encountered in administering the questionnaire revolved around language use and the memory of

the farmer. Because my Bangla was only adequate to ask simple questions and understand simple responses, it was necessary to use interpreters. With time and training, however, the interpreters, both holding advanced degrees, proved themselves not only to be good interpreters but able field assistants. After two months of daily research work with me in the village, I was able to assign them certain tasks that could be accomplished with minimal supervision. The problem of the farmer's memory was a more serious problem. Because the questionnaire required the farmer to recall cropping costs and crop yields for the year, there was occasionally a misunderstanding between the researcher and the informant. I found that data of this nature have to be checked and rechecked.

Phase II of the research involved mapping the community of Choto Kalampur. In cooperation with the Center for Urban Studies, Dhaka University, the following maps were completed: Household and Physical Infrastructure, Sample Households and Plots, Average Flooding Situation, Cropping Intensity, Irrigated area, and the market. Information from these maps is analyzed and presented in this report.

Phase III of the research involved the use of "key informants." Key informants are individuals living in the community who are thought to be representative of his or her socio-economic status or individuals who possess specific types of knowledge. In selecting key informants of the

former type, the researcher looks for the average or typical individual. A key informant of this type is never unique; he is common relative to the rest of the residents of the community. One day in the life of a "typical" Small Farmer, for example, is probably representative of most all Small Farmer. The research uses information from several key informants to build a composite of particular roles, topics or activities. The key informant of the latter type is more obvious. If the researcher wants to know something about fertilizer sales, for example, he talks with the local fertilizer salesman and to people who purchase fertilizer.

## CHAPTER TWO

### CHOTO KALAMPUR: MAN, LAND AND WATER

In this chapter, I describe the village of Choto Kalampur. From an examination of the environment of the area, it is possible to obtain an idea of the farmer's place in nature. By examining the distribution of land in the village, a picture of the farmer's interaction with nature begins to emerge. It is possible to understand how the farmer influences nature and how nature influences the farmer. An analysis of the demographic characteristics of the community reveals the social framework in which the farmer carries out his yearly activities. In brief, this chapter is devoted to an examination of the relationships between environment and society. The critical variable of technology is examined in Chapter Three.

## ADMINISTRATION AND POPULATION

### North and South Choto Kalampur

Choto Kalampur is located thirty-five miles west, northwest of Dhaka. It is easily accessible to Dhaka via the Aricha Highway but it is sufficiently distant from the capital city to be outside its immediate sphere of influence. Many of the residents of Choto Kalampur, especially women, children and old men, have never been to Dhaka.

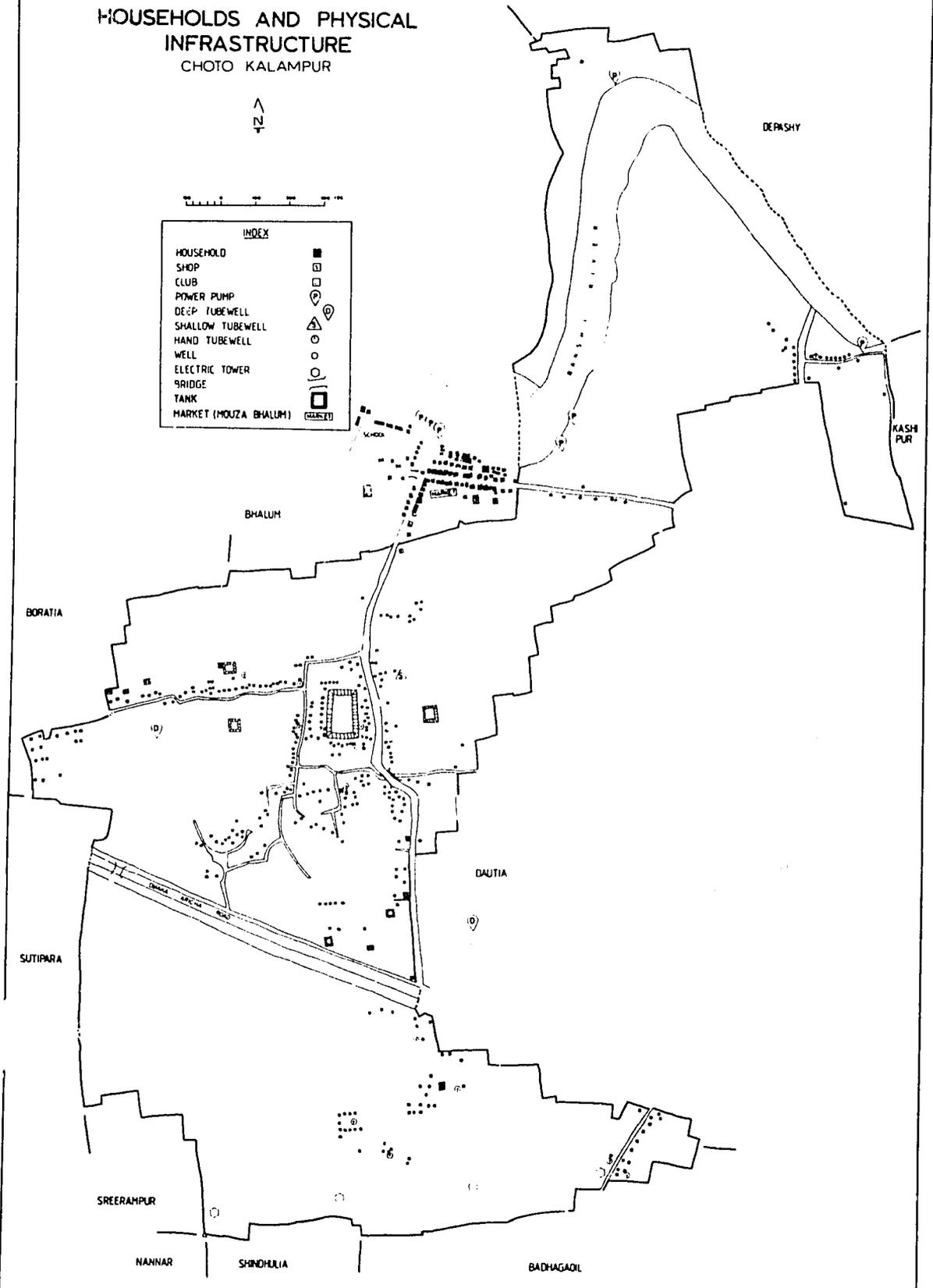
Administratively, Choto Kalampur is situated in Dhaka district, Dhaka Sadar North subdivision, Dhamrai thana, and Sutipara union. There were 15,895 people living in 2,562 households in Sutipara union in 1974 (BBS 1974). Choto Kalampur mouza (the smallest unit of revenue administration in Bangladesh), the same as the village in this case, is bordered on the north by Depashy and Bhalum mouza, on the east by Kashipur and Dautia mouza, on the west by Bordatia and Sutipara mouza, and on the south by Sreerampur, Nannar, Shidhulia and Badhagaoil mouza.

Choto Kalampur is divided by the Aricha Highway into North Choto Kalampur and South Choto Kalampur (see map, Household and Physical Infrastructure). According to informants, this division has always existed within the village and the construction of the Aricha Highway simply established a physical barrier dividing the village.

# HOUSEHOLDS AND PHYSICAL INFRASTRUCTURE CHOTO KALAMPUR



INDEX	
HOUSEHOLD	■
SHOP	□
CLUB	◻
POWER PUMP	⊙
DEEP TUBEWELL	⊕
SHALLOW TUBEWELL	△
HAND TUBEWELL	○
WELL	○
ELECTRIC TOWER	⊙
BRIDGE	— —
TANK	□
MARKET (MOUZA BHALUM)	⊠



It should be remembered that this north-south village division is critical in this study because half of the household sample comes from North Choto Kalampur and the other half of the household sample comes from South Choto Kalampur (see map, Sample Households and Plots).

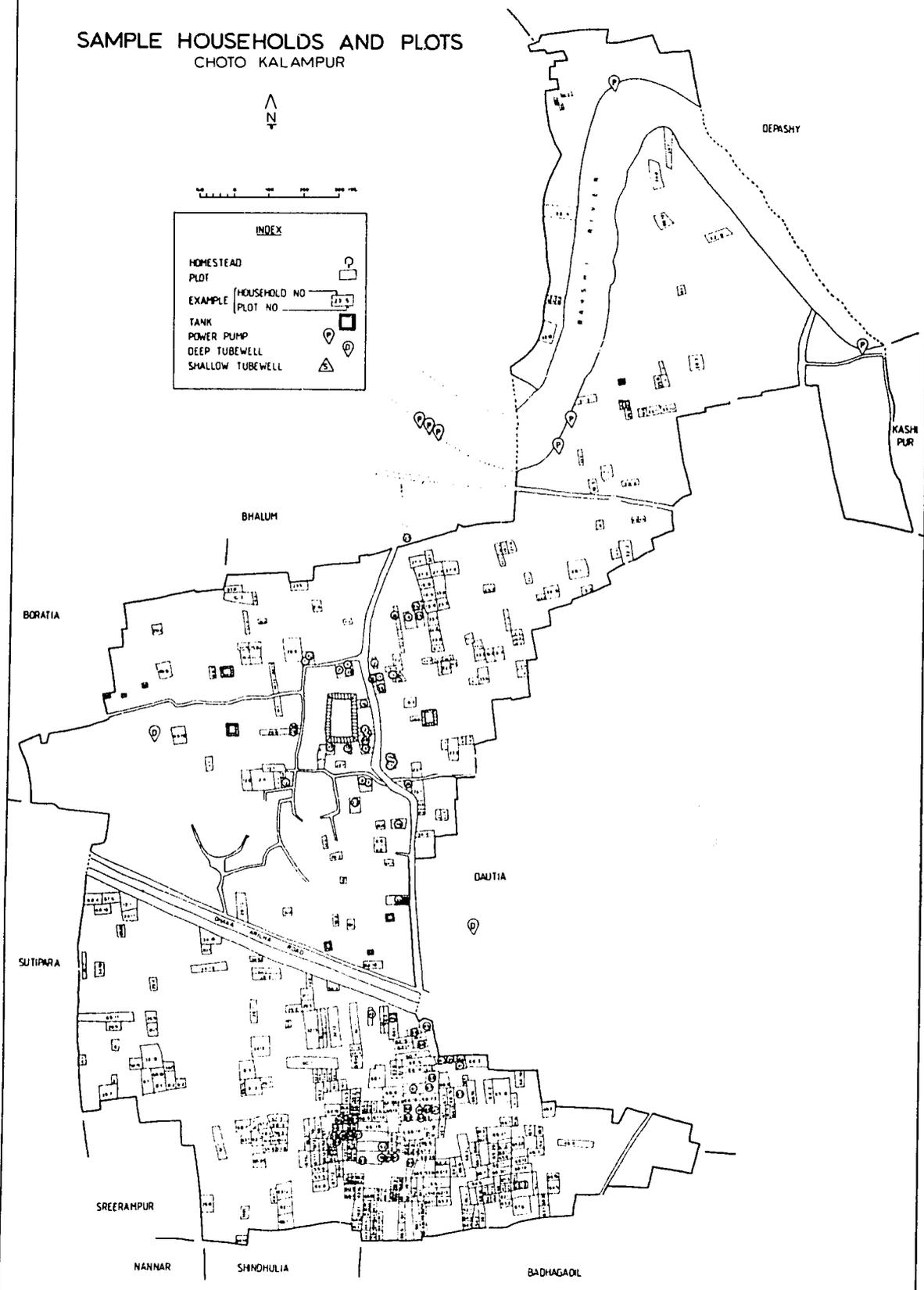
North Choto Kalampur is the economic and social center for Choto Kalampur as well as neighboring villages. There is a dirt and brick road, a little over a mile long, linking the bazar, located in North Kalampur, with the Aricha Highway. There is a steady flow of people and rickshaws on this road daily. There is no road into South Kalampur. The primary school and high school for the area is located near the North Kalampur bazar, although technically the schools are in Bhalum. There are also two mosques and two madrasah in North Kalampur. The local market, post office, and government offices are located in North Kalampur. South Kalampur has none of these. Electricity has reached North Kalampur but it has not reached South Kalampur. Government self-help programs are housed in North Kalampur and their influence seldom reaches into South Kalampur. Irrigation facilities are better developed in North Kalampur than in South Kalampur. The residents of South Kalampur are aware of and even speak of the "wealth" in North Kalampur. In many respects, they feel they are the poor cousins of their neighbors living in North Kalampur. But, they show no

# SAMPLE HOUSEHOLDS AND PLOTS CHOTO KALAMPUR



**INDEX**

- HOMESTEAD 
- PLOT 
- EXAMPLE HOUSEHOLD NO.  PLOT NO. 
- TANK 
- POWER PUMP 
- DEEP TUBEWELL 
- SHALLOW TUBEWELL 



bitterness towards the people of North Kalampur; they would just like to have the same facilities as their neighbors.

### Population

There are a little over 1800 individuals living in Choto Kalampur, 1589 in North Kalampur and 264 in South Kalampur. The village has 351 households, 301 located in the north and fifty located in the south. Based on the 1981 BJRI (1983) benchmark survey, the average number of males over twelve years of age in each household is 1.82, the average number of females over the age of twelve is 1.75, and the average number of children twelve and under is 1.71 (Table 2.1).

Household	Average
Adult Male	1.82
Adult Female	1.75
Children	1.71
All	5.28

Table 2.1  
Household Composition: Choto Kalampur

Based on a survey in this study of households in both North and South Kalampur, an average of 7.5 people reside in each household (including non-relatives), three of whom are children. Household composition by farmer class (Landless, Marginal, Small, Medium and Large) is illustrated in Table 2.2.

Class	Households	Av/Per/Hsld	Av/Fam/Hsld
Landless	9	6	6
Marginal	11	5	5
Small	31	5	4
Medium	12	9	8
Large	5	12	7

Table 2.2  
Household Composition: Choto Kalampur

Although there are schools in Choto Kalampur, 79% of the people in the village have had no education (BJRI 1983). Only 21% of the people in the village can be considered

minimally literate. In 1983, only about 13% of the children living in Choto Kalampur were in school.

There is a positive correlation between the size of land holdings and education in the village. Only 5% of the Landless Persons have even a primary education. Only 1% of the Landless have any secondary education. In fact, almost all of the functionally literate people in Choto Kalampur are from Medium and Large Farm families.

The primary occupation of 56% of the heads of household in Choto Kalampur is agriculture. Day laborers come from a little over 7% of the households. The primary economic activity of 8% of the heads of household is business and service. One percent of the household heads are teachers. Twelve percent of the heads of household are rickshaw pullers, fishermen, and holders of odd-jobs. Finally, around 13% of the men in the community are unemployed or have such temporary jobs that they did not appear in the survey.

### ENVIRONMENT

Bangladesh has a tropical monsoon climate, characterized by two distinct seasons, a cool season and a longer warm season (Islam et. al. 1981, Rashid 1977). In Choto Kalampur, the mean January temperature is 60 F. and mean July temperature is 82 F. Mean temperature, however, does not reflect what its like to live in the region. During the

winter months, the temperature in Choto Kalampur may drop as low as 49 F. A person can "feel" very cold during this time of the year. During the summer months, the temperature can reach 100 F., making work in the fields very fatiguing.

The monsoon climate, generally fertile soils, and man's activities conditions the type of vegetation that grown in Bangladesh. In Choto Kalampur, situated about twenty feet above sea level, almost all the vegetation exists because of man's activities. Except for some grasses and a few shrubs and small trees, all the vegetation growing in the area is useful to man. Land is simply too valuable for agricultural purposes for man to allow a significant amount of unusable vegetation to flourish. For all practical purposes, the flora dimension of the environment in Choto Kalampur is man "made". Man's control of his landscape has led the geographer Rashid (1977:29) to say: "the rows of graceful palms, the deep green masses of mango trees, the light green splashes of the clumps of bananas and the feathery bamboo, all arranged neatly around the huts and water tanks, makes the countryside look like a garden."

The soils of Choto Kalampur are in what is generally referred to as the Brahmaputra tract. Grey in color, without developed profiles, and light loam to clay loam in character, the soils are well suited for growing traditional rice and jute crops. They are not deficit in nutrients for traditional, local variety crops (Alim 1981), but to

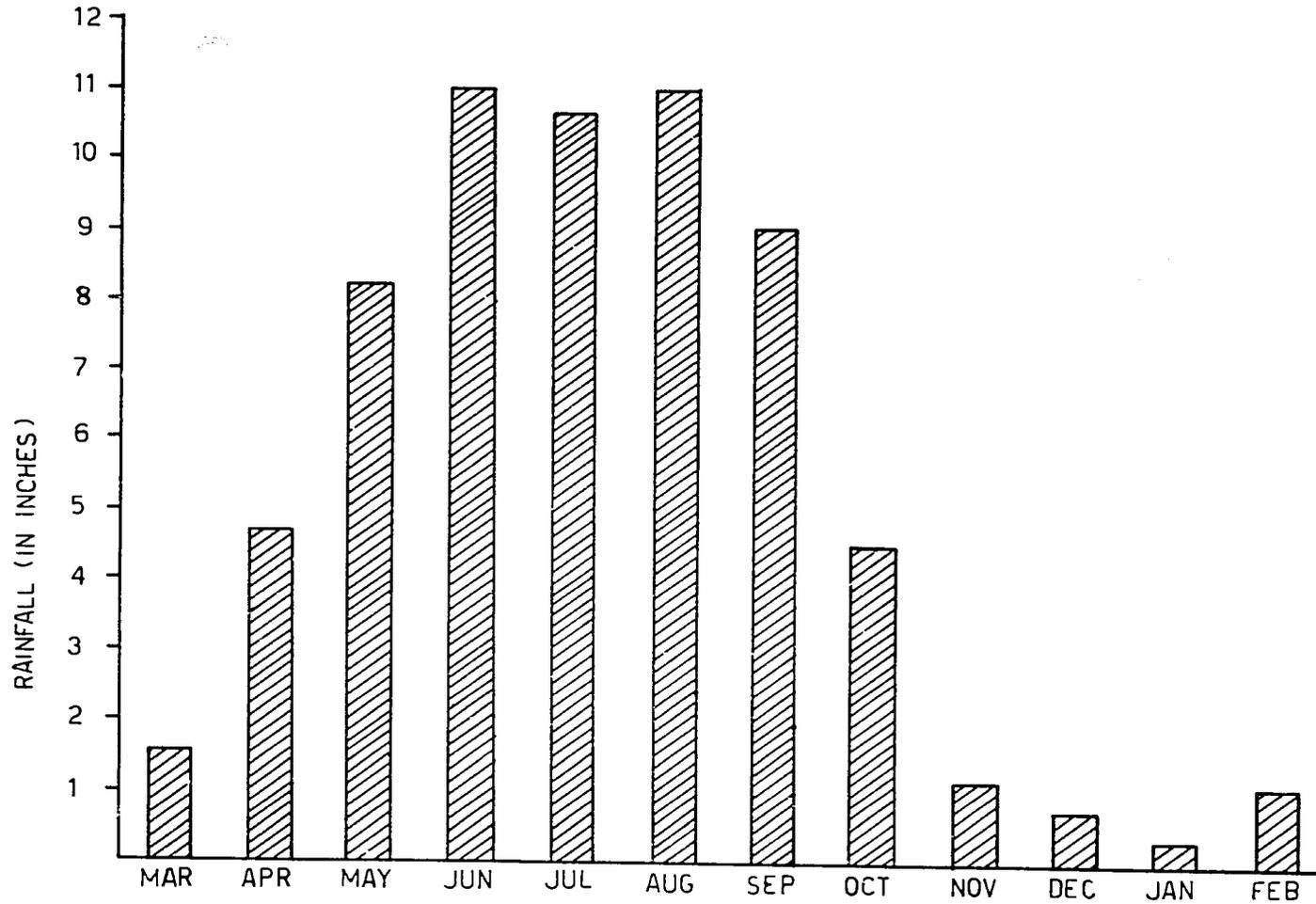
successfully grow the newer high yielding crops, it is necessary for the farmer to add nutrients to the soil. Often, the cost of the needed fertilizers to the farmer is prohibitively high.

The amount and timing of the yearly rainfall is critical to the well being of the farmer. If there is a drought during the dry season and the sparse rains do not come, the farmer can lose his whole crop. If the monsoon is early and heavy, there is too much water and a rice crop may be destroyed. If the monsoon is heavy and lasts into October, another rice crop and Jute crop may be destroyed. Rainfall by month in Choto Kalampur (BJRI field staff) is illustrated in Figure 2.1.

In general, the rainfall, temperature and soils of Choto Kalampur are adequate for the farmer to produce enough food to at least maintain a subsistence level of living for his family. If this was all that was needed to produce a successful crop, with a little fertilizer, Choto Kalampur could become a "bread basket." But unfortunately, rainfall, temperature and soils are only a few of the variables affecting agriculture. Land distribution, irrigation, technology, social organization, political factors, and even religion are but a few of the other factors affecting agriculture. The Bangladeshi farmer will need knowledge, help, and a little luck if he is to ever sort out the relationships between these variables.

Fig. 2.1

### RAINFALL DISTRIBUTION (CHOTO KALAMPUR)



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## LAND AND WATER

### Distribution of Land

One of the most striking characteristics of the landscape in Choto Kalampur, and generally throughout Bangladesh, is how fragmented it has become over the years (see map, Sample Households and Plots). In Choto Kalampur, for example, each household owns an average of ten plots of land. This average figure, however, is basically misleading as a guide to understanding farming systems in the village. Landless Farmers own no land although they may farm some land. Small Farmers own an average of nine plots of land per household. Large Farmers own an average of twenty-five plots of land per household but an individual Large Farmer may own thirty-seven plots of land.

Of equal importance, the plots of land owned by individual farmers are seldom contiguous. Rather, they are scattered throughout the countryside. Some of the land owned and farmed by the residents of Choto Kalampur is located in different villages. One plot of a farmer's land may be two minutes walking from his homestead, another may be thirty minutes from his house, and still another, one hour and ten minutes from the house. On average, it takes a farmer ten minutes to walk to one of his plots of land. Importantly, however, if a farmer has six plots of land, two of which are three minutes from his house, two of which are seven minutes from his house, and two of which are one hour from his house, the latter two plots are potential time and energy

liabilities to the farmer (Figures 2.2, 2.3).

Each household in Choto Kalampur farms an average of 206 decimals (2.06 acres or 0.85 hectares) of land. Again, it is not only the amount of land farmed that conditions a farmer's agricultural activities, but also the location of the land. A farmer can own 206 decimals of land but it may be fragmented into eleven non-contiguous plots ranging in size from ten decimals to twenty-five decimals. One of the keys to understanding the Bangladeshi farmer and his farming system is to appreciate how he must adjust his cropping activities to fit the specific characteristics of his fragmented plots of land. (The significance of land fragmentation for the future of Bangladesh is discussed in Chapters Five and Seven.)

Another important feature of the land that must be considered by the farmer when planning his agricultural activities for the year is the relative elevation of his plots. Most of the land in Choto Kalampur is "high," meaning that it never floods as a result of heavy rain storms or the monsoon. Part of the land is "medium high," meaning that it will occasionally flood to thirty-five inches. Other plots are "medium low," often flooding to a depth of seventy inches (see map, Average Flooding Situation of Selected Farms). Because the farmer's land is scattered throughout the community, he may have some plots that never flood and others that frequently flood. Plot susceptibility to flooding is then but one more variable that the farmer has to deal with when making a cropping decision.

Fig. 2.2

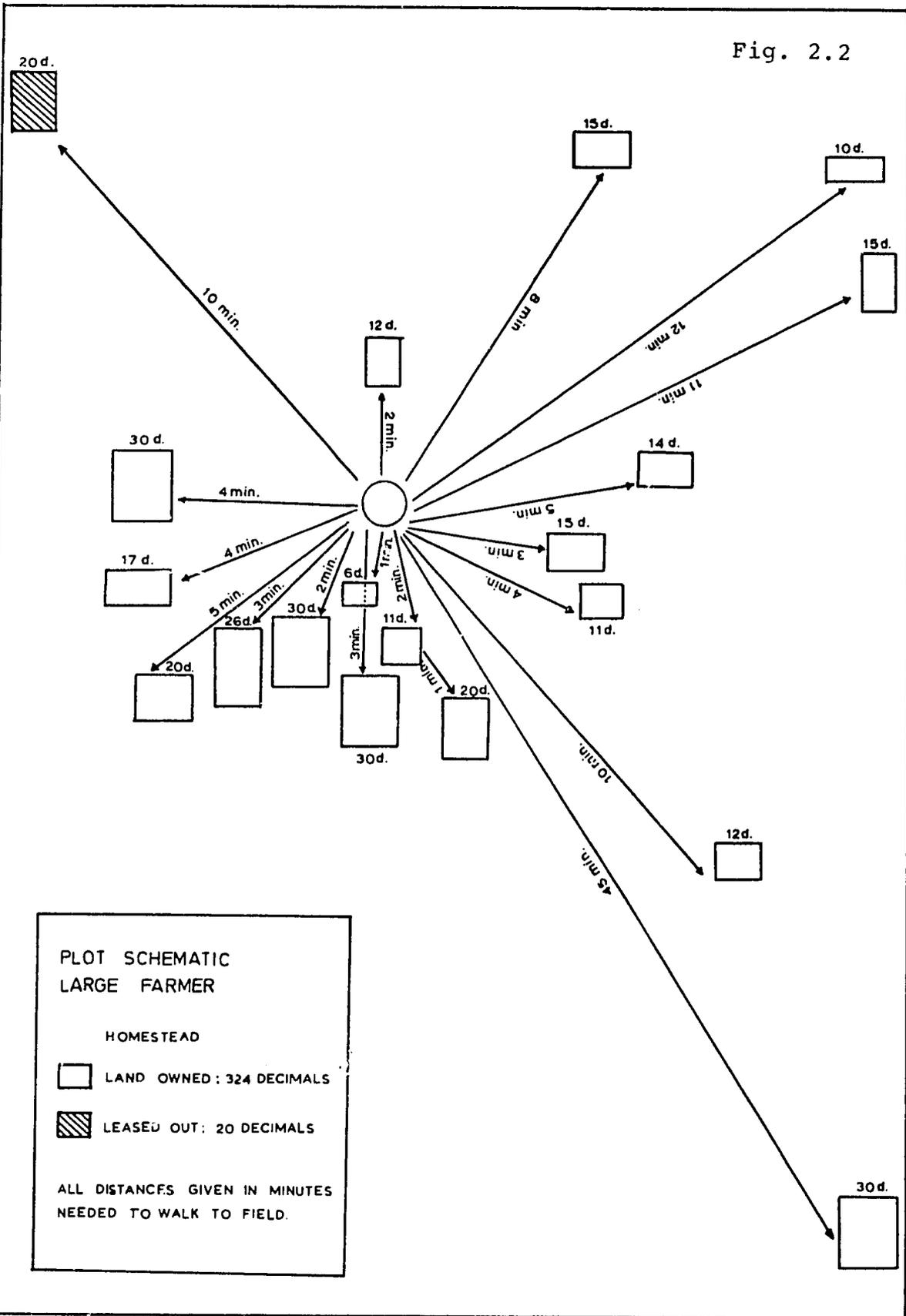
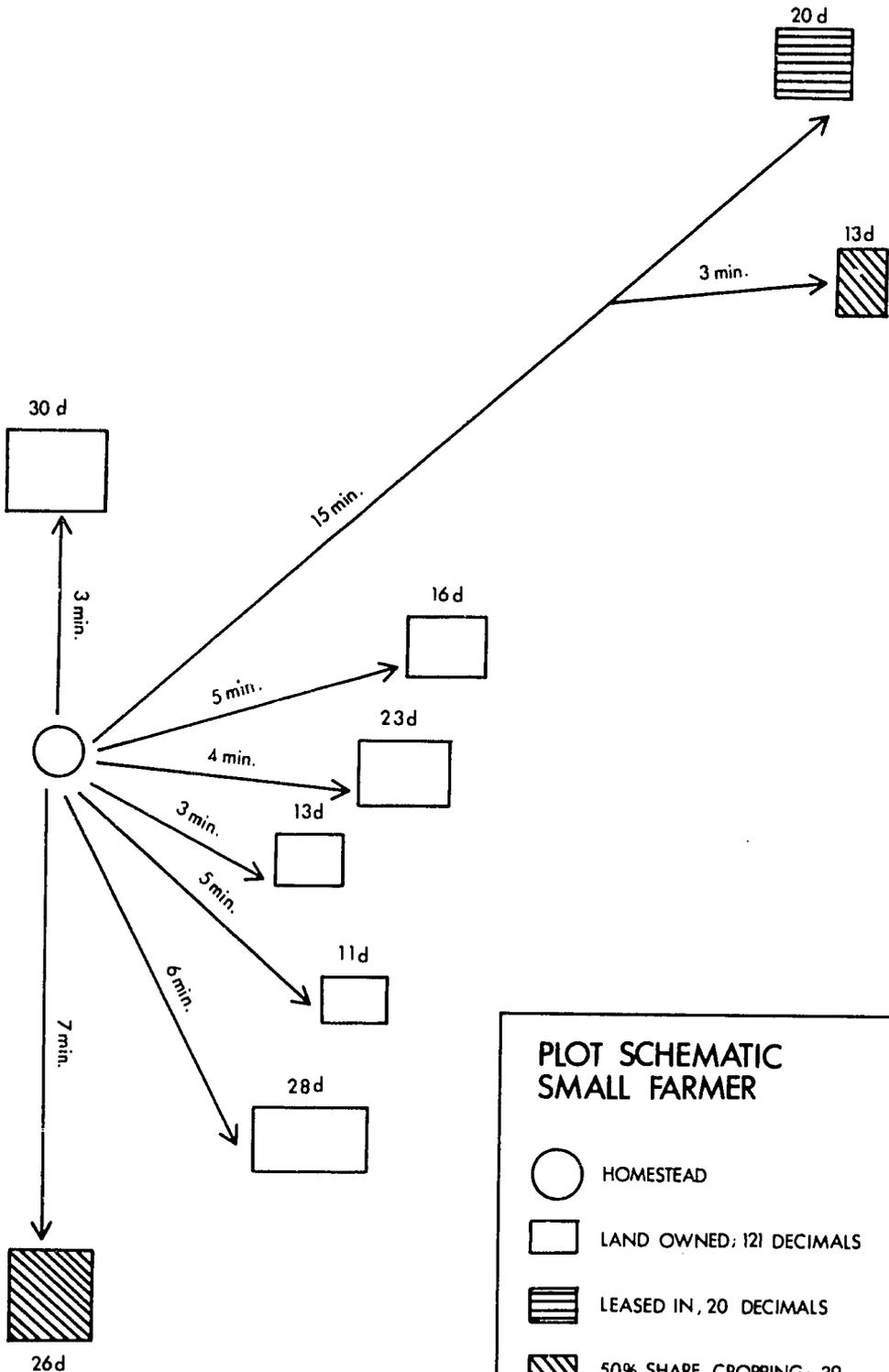


Fig. 2.3



**PLOT SCHEMATIC  
SMALL FARMER**

-  HOMESTEAD
-  LAND OWNED; 121 DECIMALS
-  LEASED IN, 20 DECIMALS
-  50% SHARE CROPPING; 39 DECIMALS

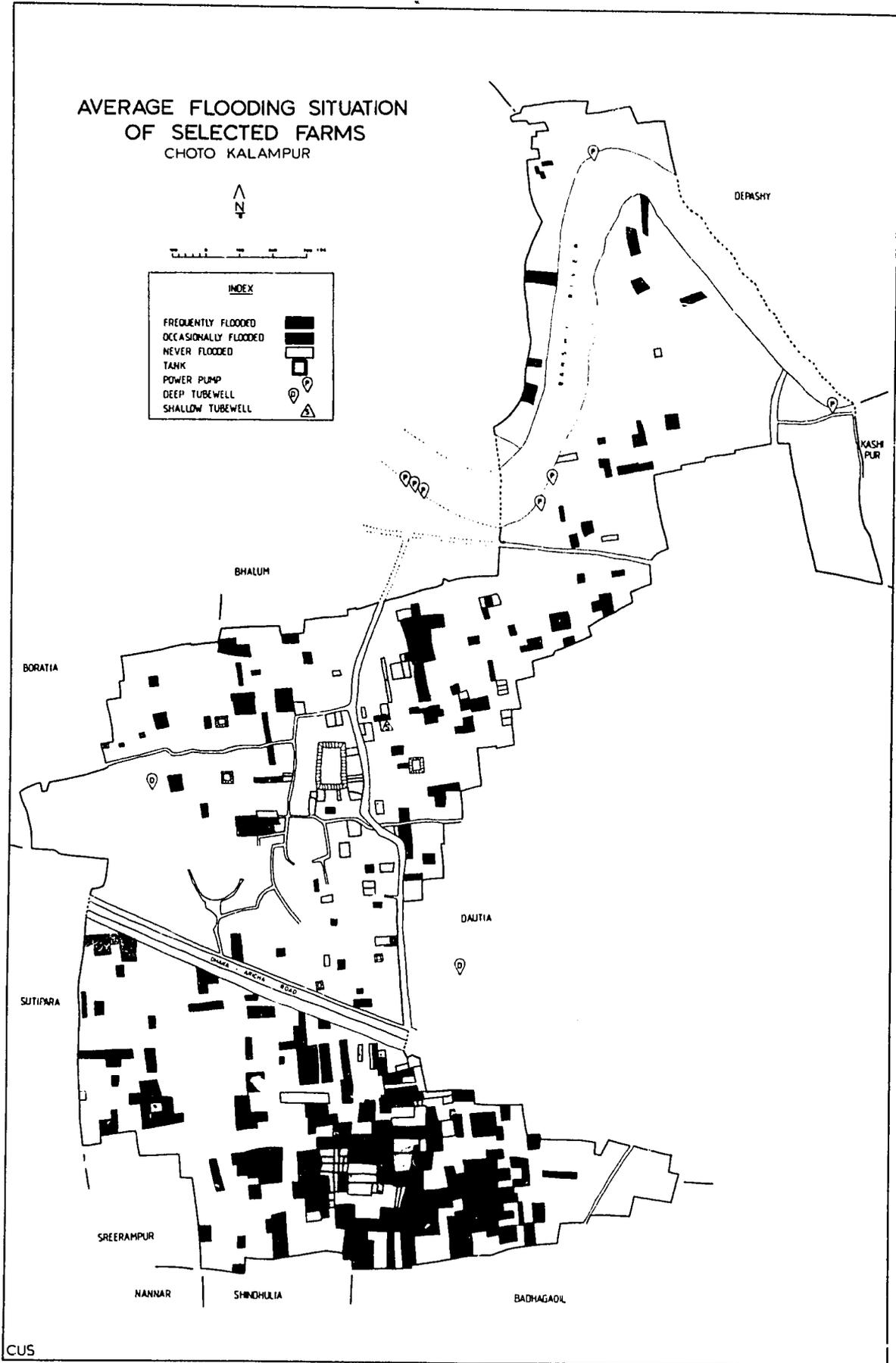
ALL DISTANCES GIVEN IN MINUTES  
NEEDED TO WALK TO FIELD

# AVERAGE FLOODING SITUATION OF SELECTED FARMS

## CHOTO KALAMPUR



INDEX	
FREQUENTLY FLOODED	
OCCASIONALLY FLOODED	
NEVER FLOODED	
TANK	
POWER PUMP	
DEEP TUBEWELL	
SHALLOW TUBEWELL	



Partially because of land fragmentation and partially because of unequal distribution of wealth in Choto Kalampur, land is frequently sharecropped, leased-in, leased-out or mortgaged.

A Landless Farmer or a Small Farmer will often work another man's land on a sharecropping basis (borga). This is theoretically of mutual benefit to both parties; each receives 50% of the yield at harvest. The sharecropper provides all labor and capital inputs and the land owner provides the land. This type of arrangement is common throughout the world and usually the relationship is between a relatively large land owner and a landless person. But in Choto Kalampur, there are examples of large land owners sharecropping on the land of another large land holder. The primary reason for this is that the sharecropper farmer's land may not be irrigated. It is economically wiser for him to sharecrop on another man's land, receiving only 50% of the yield, than to farm part of his own land for a smaller yield. Again, the point is clear, the size of land holding is only one of the land variables critical to an understanding of farming systems in Bangladesh.

Leasing-in and leasing-out land are both common practices in Choto Kalampur. If a man needs more land, he may lease-in from another farmer for a specified yearly amount in cash or kind. A man may lease-out land when he needs more money or hasn't the labor or capital resources to farm the land. Mortgaging land--usually called

bondhak--follows the process in which the owner of the land allows another person to farm the land indefinitely for a fee which must eventually be repaid, sometimes with interest. There is some evidence to suggest that occasionally, a wealthy person may give a poor farmer more value for his land than it is actually worth. The net outcome of this transaction is that the poor farmer, who has mortgaged his land and its use, will never have enough cash to repay the rich farmer. Consequently, the rich farmer uses the poor farmer's land indefinitely.

Class	Plots	Farmed		Leased-out		Leased-in	
		Acres	Plots	Acres	Plots	Acres	
Landless	2	0.42	0	0.00	2	0.42	
Marginal	3	0.52	1	0.04	1	0.30	
Small	9	1.67	1	0.15	2	0.46	
Medium	16	3.52	1	0.22	2	0.46	
Large	25	7.38	2	0.45	1	0.31	
Averages							

Table 2.3

Land Farmed: Choto Kalampur

## Irrigation

Without irrigation, drainage control and protection from flooding, the Bangladeshi farmer is limited to one or two crops a year (Hossain et. al. 1982). With irrigation, the farmer may be able to get two or three crops a year. Some of the residents of Choto Kalampur are fortunate; they have access to irrigation water from two deep tube wells, three shallow tube wells, and four low lift surface water pumps. All of these low lift pumps are not technically located in Choto Kalampur but the villagers, nonetheless, are able to utilize the water. With these irrigation resources, approximately one-third of the land in North Kalampur is irrigated and approximately one-eighth of the land in South Kalampur is irrigated (see map, Irrigated Area).

Unfortunately for the people living in South Kalampur, the irrigation water they receive arrives in a very inefficient manner. The water comes from a low lift pump that draws water from the Banshi River in North Kalampur. After it is pumped from the river, it must flow along a canal for over a mile to the Aricha Highway where it must pass under the highway through a culvert before reaching the fields. It takes twelve hours of continual pumping before the water reaches the fields of South Choto Kalampur.

The deep tube wells in North Choto Kalampur were installed by the Bangladesh Agricultural Development Corporation. Each deep tube well is operated and maintained by a local managing committee, consisting of the president of

the deep tube well cooperative, an irrigation manager, and a seven member board. The deep tube well located in the western part of North Kalampur was installed several years ago and was designed to serve North Choto Kalampur and three neighboring villages. Originally, the tube well cooperative had a membership of sixty-five persons and today it has a membership of 145 persons.

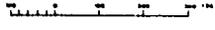
This deep tube well operates during the dry months of January to July when water is needed for certain types of rice and for potatoes, mustard, and wheat. The system is designed to irrigate sixty-five acres in the four villages although presently it is serving an area of only forty-eight acres. The cost to the farmer, the cooperative member, during 1983 was taka 15/= per decimal of land.

The cost of operating and maintaining a deep tube well is not an insignificant amount of money. First, there is a yearly rent that must be paid to the Bangladesh Agricultural Development Corporation. Secondly, the manager receives a salary as does a guard and a pump operator. Then there are maintenance costs. Finally, the electric bill has to be paid. It is the responsibility of the manager of the deep tube well cooperative to see that each cooperative farmer pays his service fee. If the farmer cannot pay for his part of the operation, he receives no water.

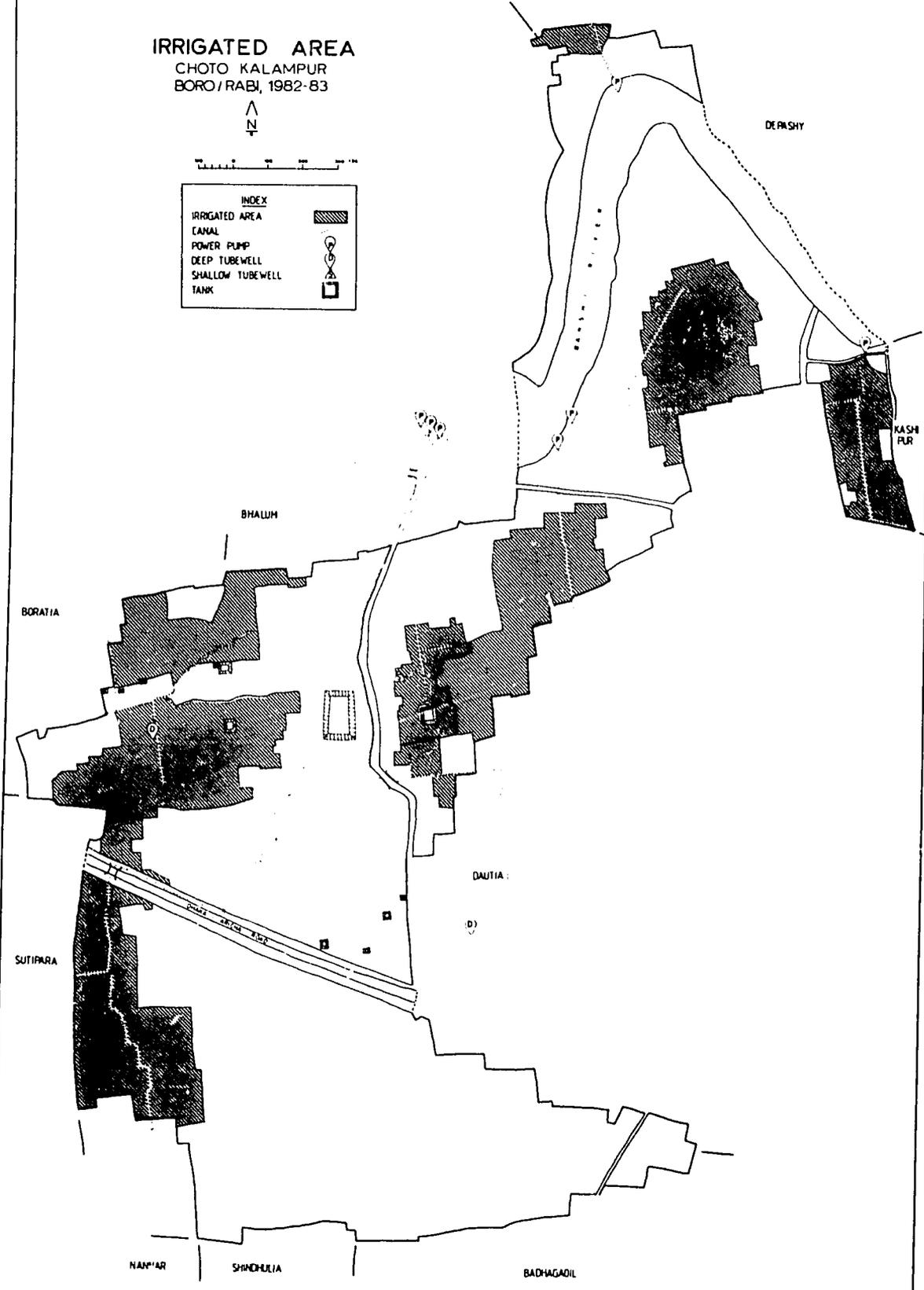
Shallow tube wells in North Kalampur are owned by individuals. To illustrate, Mohammed Sarker purchased a shallow tube well in 1982. He secured a loan from the bank

# IRRIGATED AREA

CHOTO KALAMPUR  
BORO/RABI, 1982-83



INDEX	
IRRIGATED AREA	
CANAL	
POWER PUMP	
DEEP TUBEWELL	
SHALLOW TUBEWELL	
TANK	



for taka 30,000/=, the cost of the shallow tube well. He pays 13% interest. He will pay off his loan in six equal installments over a period of six years. To obtain the loan he had to have taka 2060/= in cash which he paid as a down payment on the tube well. In addition, Sarker also had to pay a taka 5000/= installment fee and a taka 2000/= "incentive" fee to a local bureaucrat to insure that his application for the tube well would be processed. Under these conditions, a poor farmer would not have even the "incentive" money needed to secure a shallow tube well.

Twelve farmers signed up to get irrigation water from Mohammed Sarker's shallow tube well. The well presently serves six acres although the system will handle up to twelve acres. Each farmer-subscriber pays Sarker taka 15/= per decimal of land for the irrigation service. Md. Sarker says that he made no profit on his tube well in 1982 but he is hopeful that he will make a profit in future years.

Low lift pumps are operated on the same basis as deep tube wells in North Kalampur, i.e., they are rented from the Bangladesh Agricultural Development Corporation. Presently, each pump covers about thirty acres of land and the cost of the water to the farmer is taka 10/= per decimal of land. Low lift pump water is less expensive than tube well water because the overhead cost is less. As in the case of deep tube wells, the low lift pumps are supervised by a manager and are in operation only during the dry season. The pumps are in fact removed from the river at the end of the season

and serviced by the BADC.

Irrigation then is another of the factors that the farmer must consider when making cropping decisions. Water, climate, the many land variables, and the socio-political infrastructure are but a few of the factors conditioning the economic welfare of the farmer and his family. The farming systems research specialist must understand how these factors are interrelated if he or she is to make even a small contribution toward the improvement of the farmer's welfare.

#### THE BAZAR

A general discussion of Choto Kalampur would be incomplete without at least a brief examination of the market. The village has a daily market, and in addition, a weekly haat or market on Thursday. As already noted, the bazar in North Choto Kalampur serves as the economic and social center for the surrounding villages.

There are fifty-six different types of shops, stalls, sheds, offices and activity centers in the Choto Kalampur bazar. These shops are itemized in Figure 2.4 and should be examined in association with the map, Sketch of the Market Place. Shops with "0" designation are empty.

It is not necessary to list all the items for sale in the shops to gain an appreciation for the type of permanent market that exists in Choto Kalampur. A listing of some of the items in some of the shops will suffice (May, 1983).

- |                               |                              |
|-------------------------------|------------------------------|
| 1. Grocery Store (14)         | 29. Laundry (1)              |
| 2. Goldsmith Repair Shop (4)  | 30. Crockery Store (1)       |
| 3. Radio Repair Shop (2)      | 31. Tin Shop (2)             |
| 4. Barbershop (3)             | 32. Timber Shop (3)          |
| 5. Cycle Repair Shop (1)      | 33. Mosque (1)               |
| 6. Fertilizer shop (5)        | 34. Milk Selling Corner (1)  |
| 7. Drug Store (6)             | 35. Kerosene Shop (1)        |
| 8. BJRI Office (1)            | 36. Blacksmith (1)           |
| 9. Sweet Shop (3)             | 37. Post Office (1)          |
| 10. Stationary Shop (2)       | 38. Wholesale Dealer (1)     |
| 11. Tailoring Shop (4)        | 39. Daily Market Shed (3)    |
| 12. Book Store (2)            | 40. Homeo-Aleopathic Of. (1) |
| 13. Rural Electrification (1) | 41. Kerosene Office (1)      |
| 14. Food Stall (4)            | 42. <u>Haat</u> Day Shed (8) |
| 15. Cloth Store (2)           | 43. Basket Making Shop (1)   |
| 16. Watch Repair Shop (1)     | 44. Ice Cream Shop (1)       |
| 17. Homeopathic Med. Of. (2)  | 45. Handloom Shop (1)        |
| 18. Bakery (1)                | 46. Oil/Flour Mill (1)       |
| 19. Rice/Flour Mill (8)       | 47. Fire Wood Shop (1)       |
| 20. Cow Breeding Corner (1)   | 48. Furniture Store (1)      |
| 21. House (1)                 | 49. Closed Cinema (1)        |
| 22. District Office (1)       | 50. High School (1)          |
| 23. Boys' Club (not open) (1) | 51. Madrasah                 |
| 24. Tea Stall (2)             | 52. Watermelon Market (1)    |
| 25. Rickshaw Corner (2)       | 53. Wood Post Shop (1)       |
| 26. Rickshaw Garage (1)       | 54. Bank (1)                 |
| 27. Document Paralegals (21)  | 55. Tobacco Office (1)       |
| 28. Warehouse (2)             | 56. Primary School (1)       |

Figure 2.4  
Bazar, May, 1983: Choto Kalampur



There are fourteen grocery shops in the bazar, the largest of which sell the following goods: onions, pulses, peppers, salt, spices, different varieties of rice, mustard and coconut oil, soybeans, eggs, sugar cane syrup, sugar, soft drinks, kerosene, crackers, cookies, soap, light bulbs, wire, drinking glasses, lamp chimneys, mirrors, tooth paste, pencils, batteries, ink, decorative paper, thread, shoe laces, shaving brushes, electric wire, rope, baby bottles, cigarettes, condensed milk, baby food, plates, candy, nail polish, perfume, flour, combs, chalk, envelopes, rose water, tea, mosquito coils, buttons, matches, potatoes, flashlights, pens, playing cards and razor blades. The store has only a very small stock of these items but they are all available.

One of stationary shops sells the following items: pens, money bags, flashlights, razor blades, writing paper, playing cards, cigarettes, matches, buttons, batteries, soda drinks, cookies, soap, water glasses, tooth paste, baby powder, condensed milk, baby food, shaving brushes, candy, ink, nail polish, thread, decorative paper, combs, chalk, envelopes and shoe brushes

Gold cannot be purchased in the market but it is possible to get jewelry repaired. The jewelry repair shops specialize in repairing gold nose and ear rings as well as silver nose and ear rings, chains, bangles and bracelets.

Various types of patent medicine, especially those recommended for respiratory and diarrhea problems, can be purchased in the local drug stores.

The local book stores sell text books for the primary and high school curricula, novels, exercise books, religious books, some foreign magazines, pens and calendars.

The post office, in addition to handling the mail, sells envelopes, paper, revenue stamps and money orders.

At a daily market during May, 1983, vendors without permanent shops, were selling the following items: several varieties of rice, wheat flour, lentils, onions, garlic, splices, peppers, chilies, potatoes, salt, mustard oil, betel leaf, betel nut, tobacco, eggplant, bitter gourd, fish, mango, lemon, watermelon, sweet potatoes, sugar cane syrup, bananas and cucumbers.

Haat day in Choto Kalampur takes on many of the characteristics of a rural carnival. There is a steady flow of people and rickshaws moving up and down the road between the bazar and the Aricha Highway. Other roads to the market are just as busy. It is difficult to move about the bazar on haat day. Men, women and children--more men and children than women--are busy buying and selling goods. People are laughing, joking, gossiping, eating and generally enjoying interacting with their friends. The haggling and bartering over prices between buyer and seller reaches a seemingly fever pitch. Male transvestites, in their colorful clothing and makeup, are busy promoting cigarettes and other items. Cows and goats are paraded about the market. Haat day is as much a social occasion as an economic occasion.

On a haat day in May, eighty-one vendors were identified. Some of the items they had for sale were ducks,

chickens, eggs, ice cream, lemons, yoghurt, sweets, pottery, watermelons, bananas, used clothing, new clothing, rice, milk, fish nets, brass work, seeds, flour, drugs, ear rings, umbrellas, books, flashlights, salt, coconuts, tobacco, thread, betel nut and betel leaves, onions, beef, mutton, underwear, pigeons, paddy, cows, goats, baskets, fertilizers and brooms.

It is worth noting that the residents of Choto Kalampur, because of the importance of their bazar, have many of the amenities that are usually associated with an urban center. The shops, of course, have a much smaller inventory than usually found in the city and the buildings are in need of serious repair--the atmosphere of the bazar is clearly rural. And, of course, Choto Kalampur is a rural community, a farming community, and its residents have a rural world view. The self identity of the villagers is determined by the land, by agriculture, by the seasons of the year, and the hardships of rural life.

### CHAPTER THREE

#### CHOTO KALAMPUR: THE ECONOMY

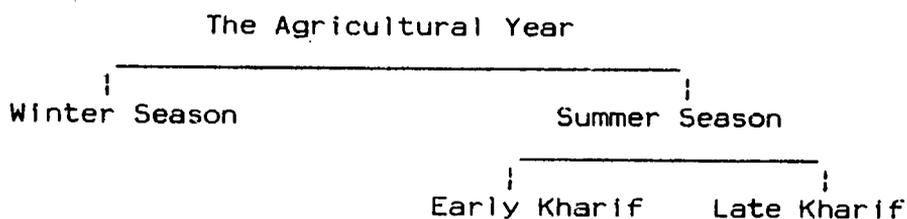
This chapter is devoted to an examination of the economy of Choto Kalampur. Specifically, the important farming systems research variables of technology and economy are analyzed. In Chapter Two, the general relationships between land, environment and society were examined. In this chapter, I examine the primary point of articulation between land, environment and society--man's technological and economic system. It is through man's technological system--tools, animals, cropping patterns and economic decision making processes--that he most directly interacts with nature. His farming system (and associated economy) influences nature and in turn, nature influences man's technology. This is not a techno-environmental determinist position; rather, simply an orientation that recognizes the

interaction between man and nature. The Bangladeshi farmer molds and shapes parts of his environment but at the same time, he reacts to his environment by adjusting his technology, economy and social structure.

## CROPS AND CROPPING PATTERNS

### Seasons and Major Crops

The agricultural year in Choto Kalampur may be divided, as follows:



The major Rabi (or winter) crops in Choto Kalampur are Boro paddy (high yielding variety), Boro paddy (local variety), mustard, potato and wheat. Early Kharif are Aus paddy (local variety) and jute. The major crops of Late Kharif are mixed Aus and Broadcast Aman paddy (local variety) and Transplant Aman (local variety) paddy. Major crops and seasons are summarized in Table 3.1.

The Choto Kalampur farmer is busy throughout the year preparing the land, planting or harvesting. Ideally, the farmer harvests three major crops a year. And, in fact, he

may harvest three crops a year but unfortunately, the crops are usually not grown on the same plot of land (see map, Cropping Intensity). Instead, part of the land may be triple

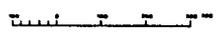
Crops	Sowing/Transplanting	Harvest
Boro (LV)	Mid-January	Mid-June
Boro (HYV)	Mid-January	Mid-June
Mustard	Mid-November	Mid-February
Potato	Mid-November	March
Wheat	Mid-December	Mid-April
Jute	Early March	Mid-August
Aus	Mid-March	Late July
Mixed Aus/B.Aman	March	Early October
T. Aman	Mid-August	Mid-December

Table 3.1

Major Crops: Choto Kalampur

cropped, part of the land may be double cropped, and part of the land may be single cropped. Some of the land may be under fallow for part of the year. It is important to remember that even though a farmer may own two acres of land, he does not necessarily get two acres of triple cropping out of them each year. As is so often the case, the problem of plot size and land fragmentation becomes an all important decision making variable.

# CROPPING INTENSITY (1982-83) SELECTED HOUSEHOLDS CHOTO KALAMPUR



**INDEX**

TRIPLE CROPPED	
DOUBLE CROPPED	
SINGLE CROPPED	
FALLOW LAND	
SETTLEMENT	
TANK	
POWER PUMP	
DEEP TUBEWELL	
SHALLOW TUBEWELL	

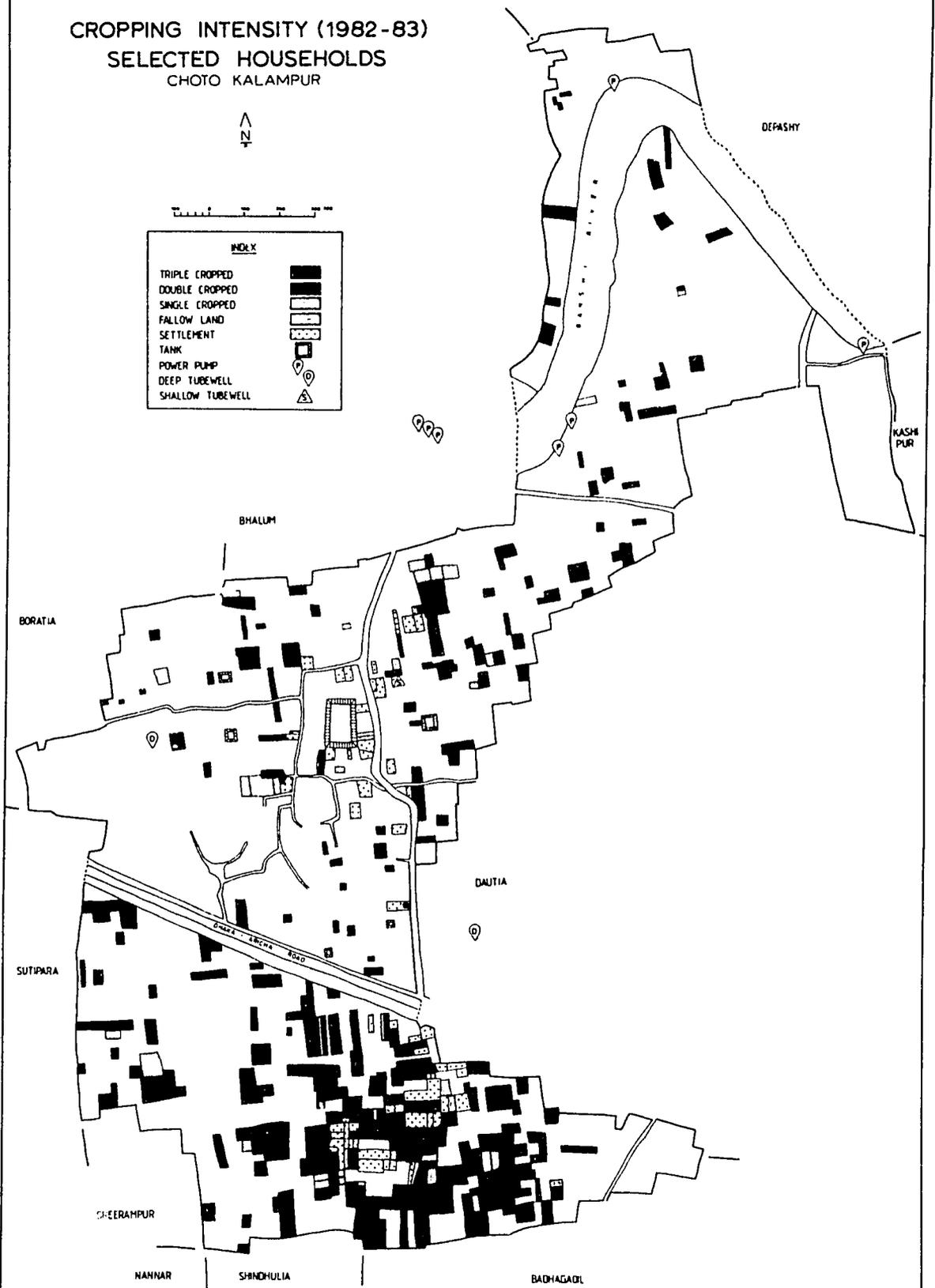
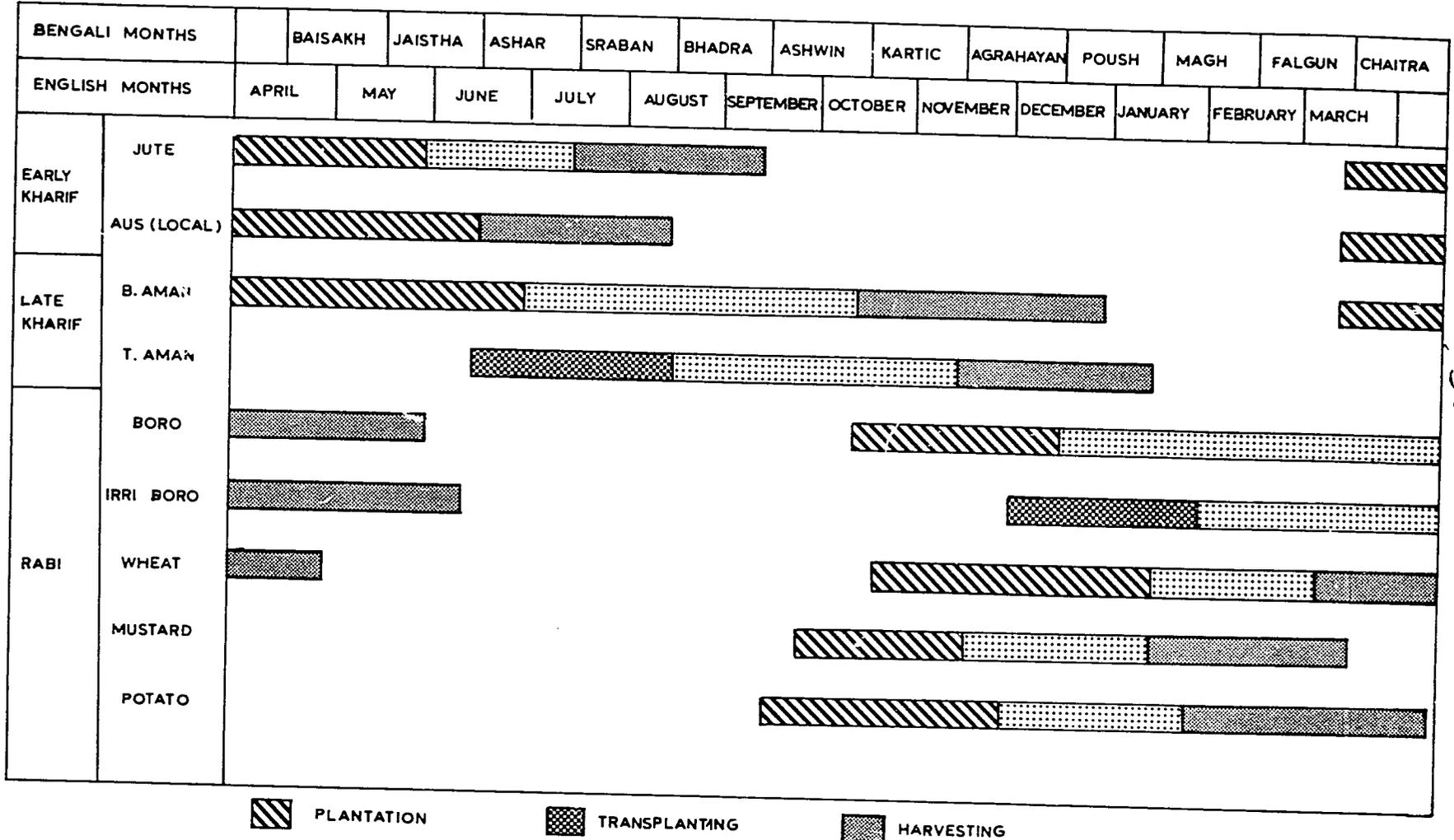


Fig. 3.1

## CROPPING SEASON CHOTO KALAMPUR



50

Choto Kalampur farmers rank their field crops in order of importance, as follows: 1. Boro, 2. Jute, 3. Wheat, 4. Potato, 5. T. Aman, 6. Mustard, 7. Aus, 8. Tobacco, 9. Onion, and 10. Sweet Potato.

### The Economy of Farming

Latif Rahman is a Small Farmer, possessing only one acre of land. During the 1982-83, year on a plot near his homestead measuring sixteen decimals in size, he planted Jute during the Early Kharif and mixed Aus and B. Aman during Late Kharif. For both crops, the work pattern was as follows: plowing, harrowing, plowing, harrowing, plowing, harrowing, weeding, weeding, weeding, and harvesting. This work pattern is illustrative of most farmers living in Choto Kalampur.

Utilizing only his labor and two rented oxen, it took Rahman one day to plow his sixteen decimal plot twice. He harrowed the plot a day later. The second plowing, done five days later, also took one day. Harrowing again took a day. Because he had to rent the oxen, the cost of plowing and harrowing (excluding his labor) was taka 40/= per day. So, plowing and harrowing cost Latif Rahman taka 240/= for each crop.

The jute seeds were obtained by Rahman from the BJRI field station free of charge and the seeds for the mixed paddy came from his harvest the previous year. Rahman then had no cash expenses for the seeds for the two crops.

Rahman hired one day laborer to help him with planting the jute and the rice. Planting each crop was accomplished in one day. He paid the laborer taka 15/= a day plus food.

The crops were weeded three times each during the growing season. Weeding, of course, is labor intensive work so it took six hired laborers (plus Rahman) one day to weed the sixteen decimal plot. They weeded each crop three times and were paid taka 15/= per day each and food. For weeding one crop then, Rahman had a cash outlay of taka 270/= plus food costs.

Harvesting the jute required two hired laborers for one day at taka 15/= per day plus food. The total cost for harvesting the jute was taka 30/= and food. Harvesting the mixed paddy required six laborers for one day at a cost of taka 15/= each plus food. Total cash cost to Rahman for harvesting the mixed paddy was taka 90/=.

The total cash cost to Latif Rahman for plowing, harrowing, weeding and harvesting the jute crop was taka 555/=. The cash cost for the mixed paddy was taka 615/=.

Processing the jute and rice harvest was done by Rahman and his family. Processing steps for jute in Choto Kalampur are: harvesting, soaking the harvest in water for twenty days, separating the fiber from the cane, cleaning the fiber, tying the cane into bundles, drying the fiber, storing and selling the jute. The mixed paddy is processed, as follows: harvesting, husking, drying, wetting the paddy, parboiling, drying, milling and storing.

It is worth noting that the cash cost per decimal of land in Choto Kalampur is probably going to be higher for a Small Farmer than for a Large Farmer. Firstly, most Large Farmers own their own oxen so they have only a feed cost for animal power. Secondly, labor intensive work such as weeding is more cost efficient on larger plots of land. Because labor is hired by the day, workers tend to work at a speed that requires a full day to complete the job. Even if the laborers only work three-quarters of a day, they are still paid for the whole day. Six workers may take one day to weed sixteen decimals or the same six workers may take one day to weed twenty-five decimals of land.

In the case of Latif Rahman, it cost him taka 555/= to produce a jute crop on sixteen decimals of land. Rahman's neighbor planted thirty-two decimals of jute at a cash cost of taka 585/=. The neighbor, who owned his own oxen, used about the same number of man hours in producing his crop of jute as did Rahman. But, Rahman's neighbor will get twice the jute yield as Rahman at about the same cost. This type of evidence suggests that there is a plot size in Choto Kalampur, below which, it becomes economically inefficient to plant certain crops. For grain crops and jute, I would estimate this point to be somewhere around .25 acres of land.

### **Yields**

There is considerable variation in crop yields in Choto Kalampur. Some farmers obtain yields for certain crops above

the national average while other farmers harvest yields below the national averages. A farmer may get yields above the national average for one crop and yields below the national average for another crop. It is difficult to identify specific stimuli for high or low yields. Yields are dependent on many environmental, technological and social factors. Yields for the major crops in Choto Kalampur are summarized in Table 3.2.

In general, the yields of the major crops in Choto Kalampur are not spectacular (cf. BBS 1982). And, there is no hard evidence to suggest that Large Farmers are necessarily "better" farmers than Small Farmers. Except for Boro paddy, both local and high yielding varieties, and Jute, crop yields in Choto Kalampur are below the national average. For example, local variety Aus in Choto Kalampur yields an average of 6.51 maunds per acre while the national average for the same crop is 11.46 maunds per acre. The yields of local variety Aman are even more depressed when compared to the national average; 5.0 maunds per acre in Choto Kalampur and 13.56 maunds per acre for the nation. In Choto Kalampur, tobacco yields are 5.123 maunds per acre whereas nationally, tobacco yields average 10.00 maunds per acre.

The people of Choto Kalampur on average get 15.33 maunds of Jute per acre. The national average for Jute is 15.75 maunds per acre.

Crop	Landless	Marginal	Small	Medium	Large
Aus LV	8.67	6.27	9.20	8.41	5.73
Aman LV	8.05	2.52	3.50	4.56	3.13
Boro LV	13.33	-	30.77	31.25	-
Boro HVY	62.50	58.33	51.45	59.63	50.88
Wheat	11.67	10.22	10.21	13.05	9.13
Jute	16.25	17.54	15.79	13.66	13.43
Potato	-	-	73.58	57.38	76.32
S.Potato	37.50	-	52.46	38.71	29.41
Tobacco	-	-	4.82	5.92	4.63
Pulses	3.50	5.71	4.39	4.45	3.63

Avg.Md/Acre  
by Farm Class

Table 3.2

Crop Yields: Choto Kalampur

Yields from Boro paddy, both local and high yielding varieties, surpass the national average. For local variety Boro paddy, the average yield in Choto Kalampur is 25.11 maunds per acre while the national average is only 16.17 maunds per acre. High yielding varieties of Boro paddy are even more spectacular--56.55 maunds per acre as compared to a national average of 29.36 maunds per acre. An explanation of these high yields may be tied directly to the attitude of the farmer. In Choto Kalampur, the Boro paddy season is perceived of by the farmer as the most important crop of the year. He is highly motivated to insure that his crop is successful. Consequently, the farmer tries to use modern agricultural techniques with this crop (cf. Khan, Islam and Huq 1981). For example, almost all of the high yielding Boro paddy in Choto Kalampur is grown in irrigated plots and fertilizer use is carefully controlled. A farmer may not use fertilizer on another crop but he will, if at all possible, use it on his Boro paddy. Clearly, one of the keys to successful modern agricultural technology transfer is the farmer's attitude. If the farmer "knows" that he can obtain higher yields at minimum risk and he has the necessary resources, he will generally opt for the new technology.

#### OTHER INCOME

To more fully understand the economy of Choto Kalampur, the household should be viewed as a complete, self sustaining, socio-economic unit. That the primary economic

activity of most households is farming, is true, but few households in the community can survive over the year with income solely derived from the yields of their fields. Most farmers' income, measured in terms of foodstuffs for home consumption and cash derived from crop sales, is supplemented from other sources. Landless, Marginal, and Small Farmers are likely to supplement their incomes by working as day laborers, doing odd jobs in the village, or by having one or more sons work as day laborers or in the market. Medium and Large Farmers usually own sufficient land to lease some of it out or have it sharecropped. Almost all households will occasionally sell vegetables, milk or eggs in the market. Even among the relatively affluent Medium and Large Farmers, every member of the household works at some food or cash generating activity (see Chapter Four).

Non-Agricultural income for Large and Medium Farmers is not significantly different than the non-agricultural income for Landless, Marginal and Small Farmers (Table 3.3). But, especially for the Landless and Marginal Farmers and to a lesser extent the Small Farmers, non-agricultural income constitutes the bulk of the household income. Non-agricultural income represents only a small part of the total income for Large and Medium Farmers.

Class	Income
Landless	6116.67
Marginal	4133.18
Small	4372.10
Medium	4275.42
Large	5661.60

Taka/Year

Table 3.3

## Non-Agricultural Income: Choto Kalampur

One of the more creative sources of non-agricultural income in Choto Kalampur is what may be called animal sharecaring. Animal sharecaring is similar to sharecropping land except that the economic unit of interaction involves animals rather than land and crops. A Large Farmer, for example, may own one to five young cows or oxen that may, for proper care, demand too much of his time and labor. Or, he simply does not want to "bother" with them. Yet, he does not want to sell these young animals because they will bring a higher price after they have matured and been trained. As a

means of maximizing his capital holdings, the Large Farmer may decide to enter into a contract with a Landless, Marginal or Small Farmer, who agrees to care for, feed and bear all expenses for the animals until they reach maturity and can be sold at a high price. When the cows or oxen are sold, the proceeds from the sale are equally divided between the owner of the animals and the "keeper" of the animals. This animal sharecaring system appears to be of economic benefit and non-exploitative for both the owner and the keeper.

From the sample of households in Choto Kalampur, there are five cases of draft animal sharecaring. There is one known example of this sharecaring system where chickens are the unit of economic interaction.

### ECONOMIC SUMMARY

Large and Medium Farmers in Choto Kalampur have a significantly higher income than Small, Marginal and Landless Farmers (Table 3.4). On average, Large Farmers have a yearly income, from all sources, of taka 25,280/= while Landless Farmers have a yearly income of only 7,991/=. Interesting, Landless Farmers have a higher income than Marginal Farmers. This is primarily due to the fact that the bulk of the income for the landless comes from wage labor. Because they are without land, they must place a higher priority on cash than land. The Marginal Farmer, because he owns a little land, may

Class	Non-Agricultural	Agricultural	Total
Landless	6116.67	1874.44	7991.11
Marginal	4133.18	1777.91	5911.09
Small	4372.11	5071.35	9443.45
Medium	4275.42	14717.91	18993.33
Large	5661.60	19619.00	25280.60
Average Taka/Year			

Table 3.4

Income: Choto Kalampur

may be lulled into a sense of false security. He does not place as high a priority on cash income as a landless person, often expecting more income from his meager land holdings than is possible. The most significant gap between classes of farmers occurs between Small and Medium Farmers. Average yearly income for Small Farmers is taka 9,433/=. Average yearly income for Medium Farmers is double that of the Small Farmer. This would suggest that the critical point of needed land for relative farming success in Choto Kalampur is over 2.50 acres of land. This assertion is further supported by

the fact that differences in non-agricultural income between Small Farmers and Medium Farmers is insignificant.

Operating a farm, of course, involves more than just generating yields and other sources of income. It also involves costs. For purposes here, household costs are divided into three general categories: 1) farm purchases (including labor), 2) food purchases, and 3) other purchases. Household costs for the year are summarized in Tables 3.5, 3.6, and 3.8.

It should be noted that because the data on which Tables 3.5, 3.6 and 3.7 are based were often determined by informant's recall, the actual numbers are probably less significant than the economic behavioral trends suggested by the numbers. In my view, the numbers may be eschewed as much as 10%, mainly because informants are often reluctant to discuss their personal economic situation in terms of cash, and if they are willing, they tend to over estimate expenses and under estimate income. There is no data to suggest that this assertion is correct; it is just a field worker's "feeling" but it will be tested in future research conducted in Choto Kalampur.

As was the case with income, the most dramatic gap in expenses between classes of farmers occurs between Small and Medium Farmers. Large and Medium Farmers spend much more for labor, irrigation and fertilizer than Small, Marginal and Landless Farmers. The larger land owners have greater farm

expenses because they own more land, but they also have greater resources to purchase fertilizers and irrigation. It is a simple case of economic resources stimulating other economic resources.

Purchases	Landless	Marginal	Small	Medium	Large
Plow	20.00	21.36	59.19	89.17	352.00
Ladder	4.66	0.91	4.79	12.92	26.40
Gen. Tools	8.89	17.55	19.00	21.17	41.60
Fertilizer	102.78	185.91	452.22	1310.83	3060.00
Insecticide	10.56	18.27	32.59	138.00	414.00
Irrigation	60.89	136.73	264.26	753.33	1440.00
Labor	122.22	67.45	366.13	1345.83	4140.00
<hr/>					
Avg. Taka/Year					

Table 3.5

Farm Purchases: Choto Kalampur

As should be expected, Medium and Large Farmers have less cash outlay for basic food items such as rice and flour than Landless, Marginal and Small Farmers. For example, Landless and Marginal Farmers spend one-half of their yearly income just for rice and flour. Large Farmers spend nothing on rice, as they have a surplus from their farms, and only a small part of their income on flour. But, a Large Farmer may spend five times as much as a Landless Farmer on such goods as sugar and fish.

Purchases	Landless	Marginal	Small	Medium	Large
Rice	3933.33	4418.18	4055.48	919.66	-
Flour	1440.00	2225.45	1505.16	875.00	758.40
Oil	194.67	198.55	268.26	132.00	734.40
Sugar	205.56	288.00	437.61	581.42	1463.60
Salt	136.00	133.09	131.35	188.00	345.60
Vegetables	253.33	180.00	256.26	316.00	660.00
Fish	180.00	201.82	236.13	405.00	1296.00
Meat	153.33	141.82	230.32	340.00	816.00
Milk	116.00	100.36	67.74	200.00	360.00

Avg. Taka/Year

Table 3.6

Major Food Purchases: Choto Kalampur

Purchases	Landless	Marginal	Small	Medium	Large
Clothes	544.44	631.82	946.13	2279.17	3500.00
Medicine	395.56	197.73	324.68	879.17	1800.00
House Repair	222.22	276.82	424.19	550.00	1060.00
Schooling	13.33	-	66.45	455.00	1782.00
Animal Care	37.78	583.64	736.06	1340.00	3168.00
Relig/Cerml	261.11	454.54	499.96	1483.16	2600.00
Incidentals	351.89	400.18	491.71	1153.00	1600.00

Avg. Taka/Year

Table 3.7

Other Expenses: Choto Kalampur

Large and Medium Farmers spend considerably more on clothing, schooling, entertaining and on religious/ceremonial activities than farmers with less land holdings. A Large Farmer may spend almost as much on clothing each year as a Landless Farmer spends on rice. When presented with this information, Large and Medium Farmers are apt to simply reply, "Allah has been kind to me."

Without doubt, Large and Medium Farmers in Choto Kalampur are economically more secure than Landless, Marginal and Small Farmers. The Large and Medium Farmers can afford some of the luxuries (or necessities) of life such as meat and fish and schooling for their children. In fact, in Choto Kalampur, the economic line dividing the "have" from the "have nots" is between Small and Medium Farmers. Landless, Marginal and Small Farmers can barely maintain a subsistence standard of living. It is important to note, however, that the poverty of the Landless and Marginal Farmers tends to create the illusion of wealth for Large and Medium Farmers; by world standards, even the "wealthy" in Choto Kalampur are relatively poor.

#### EXPERIMENTAL CROPPING PATTERNS

The Bangladesh Jute Research Institute has been conducting cropping systems research (BARC 1981) in Choto Kalampur since 1980 (BJRI 1981, 1982, 1983). This work involved a benchmark survey and the establishment of on-farm experimental crop trials. It is true that the basis of the

research by the BJRI in Choto Kalampur is jute, but the field staff is equally concerned with total cropping patterns. All of the on-farm experimental plots, as well as the farmers with whom the BJRI field staff work, are in North Choto Kalampur. There are no BJRI experimental plots in South Choto Kalampur.

According to the BJRI field staff, the criteria for selecting a farmer to participate in the on-farm trials are:

1. the farmer must be "hard working,"
2. the farmer must agree there is "value" in experimental cropping trials, and
3. the farmer must own the right type of land for the trial.

In reality, the field staff has had considerable difficulty in persuading farmers to participate in the new cropping trials. By April of 1983, the BJRI had eighteen households participating in the experimental field trials but were hopeful to have established experimental on-farm trials on the land of forty different households by the end of the year. In April, 1983, all of the farmers participating in the on-farm field trials were Medium and Large Farmers. Marginal and Small Farmers simply do not have plots of land that are sufficiently large to participate in the research project.

Although the BJRI on-farm research project involves eight different experimental cropping patterns, it is sufficient here, for illustrative purposes, to examine only

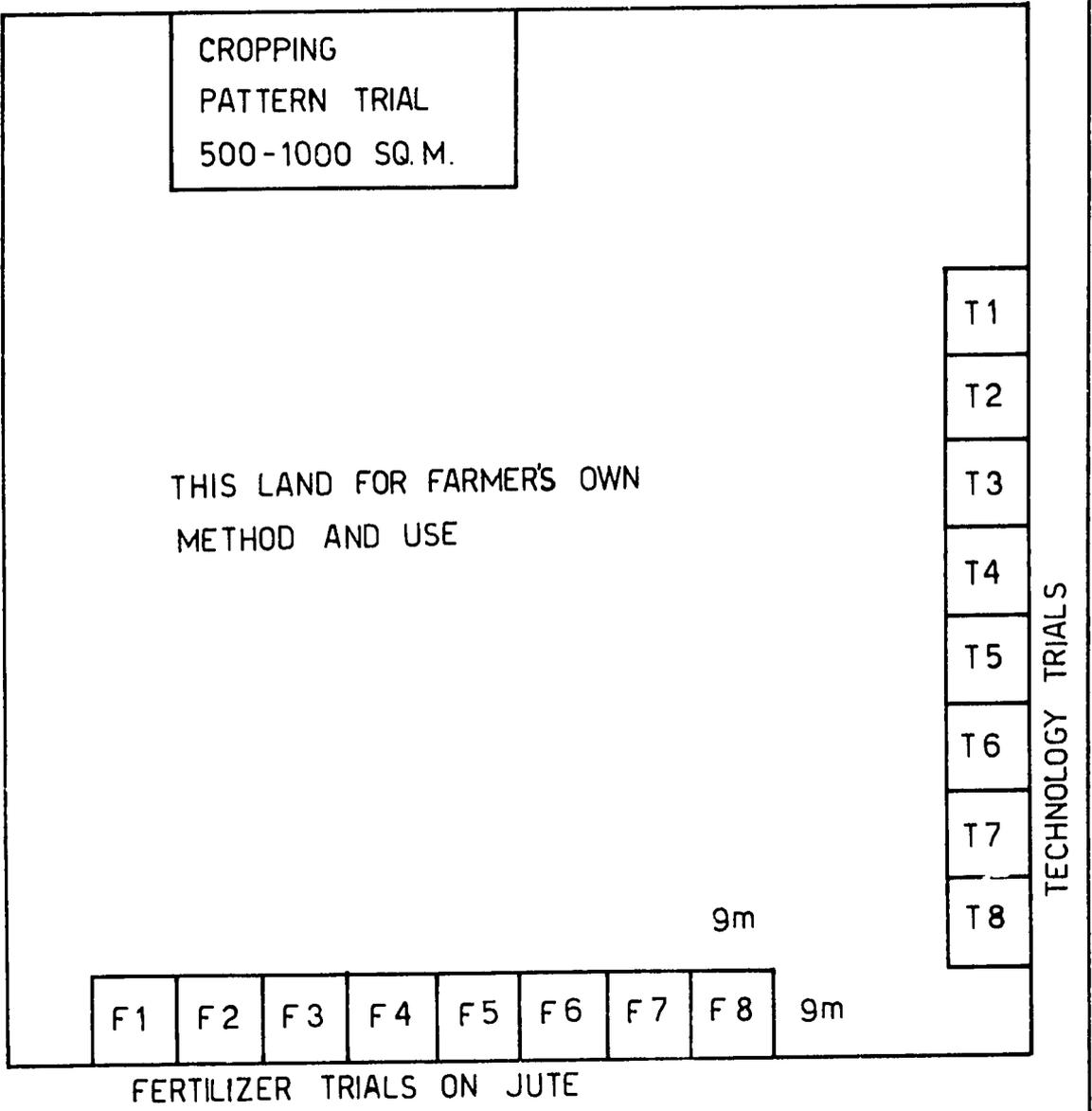
one of the experimental cropping patterns (BJRI Work Plan, 1983-84).

Figure 3.2 represents a jute-fallow-sweet potato cropping pattern established by the BJRI field staff for the year 1983. The experiment involves four different experiments: 1) Fertilizer Trials on Jute (plots at bottom of layout, Figure 3.2), 2) component Technology Trials (plots on right side of layout, Figure 3.2), Cropping Patterns Trials (Single plot in upper part of layout, Figure 3.2), and 4) Farmer's Choice and Methods (remainder of layout, Figure 3.2). Fertilizer Trials on Jute are, as follows:

	Nitrogen	Phosphorus	Potassium	
F1	0	0	0	kg/ha
F2	45	0	0	
F3	0	10	0	
F4	0	0	20	
F5	45	10	0	
F6	0	10	20	
F7	45	0	20	
F8	45	10	20	

Fig 3.2

# IDEALIZED EXPERIMENTAL PLOT ON HIGH RAINFED LAND USING JUTE



The Component Technology Trials are, follows:

- T1 Farmer's Method + Improved Seeds
- T2 Farmer's Method + Timely Weeding
- T3 Farmer's Method + Line Sowing
- T4 Farmer's Method + Balanced Fertilizer
- T5 Farmer's Method + Insect/Disease Control
- T6 Farmer's Method + Improved Retting
- T7 Farmer's Technology
- T8 Improved Technology

The cropping Pattern Trial is one variety of Jute with a standard application of fertilizer: 45N + 10P + 10K.

Ideally, each Fertilizer Trial on Jute and Cropping Technology Trial is conducted in a nine by nine meter plot, with thirty lines of Jute seed planted thirty centimeters apart (BJRI Work Plan 1983-84). The Cropping Pattern Trial should be an area of twenty by twenty-five meters (BJRI Work Plan 1983-84). Certainly there is a great deal of experimental logic associated with the Jute-fallow-Sweet Potato cropping pattern. And, obviously, considerable conscious thought went into designing the layout. On the other hand, there is not a single plot of land, owned by a single farmer in Choto Kalampur, that is large enough to accommodate the different experiments. To conduct the experiments as suggested by the BJRI layout requires a minimum plot of land 6,193 square yards in size.

Consequently, the Technology Trials, Fertilizer Trials and Cropping Pattern Trials must be conducted on several plots of land that are owned by different farmers. This type of modification from the design makes scientific control more difficult and reduces the overall value of the experiment. Farmers often do not respond positively to participating in the experiments because they believe that the experiments are too complicated. The significance of these "complicated" on-farm trials is discussed further in Chapter Seven.

## CHAPTER FOUR

### WORKING FOR A LIVING

The rural Bangladeshi works long and hard hours. Yet, most Bangladeshi farmers are poor. In rural Bangladesh, usually all members of a household must work if even the opportunity for economic stability is to be realized. If one member of the household is lazy or becomes ill and his chores are not completed, a burden is placed on other household members to keep the work system in balance. In some cases, division of labor is based on age and sex, while in others, responsibilities are overlapping. In this chapter, I examine the work of the Bangladeshi farmer--his work, his wife's work and his children's work. I try to show how the farmer and his family probably can't work any harder or longer than they do. The future welfare of the household is dependent upon new economic opportunities, not on more work.

### MAN'S WORK

The work activities of men in Choto Kalampur may be divided into three categories; 1) agricultural work, 2) work generating supplementary income, and 3) work around the house. As will be seen, some of a man's work activities may overlap with those of his wife and children.

The male head of the household is responsible for insuring that all agricultural activities are completed. The man assume responsibility for the preparation of the field, and for plowing, planting, harrowing, weeding, irrigation, harvesting and threshing the crops. He is assisted by his wife and/or his children on occasion in some of these activities. Perhaps more critical, as perceived by the farmer, all decisions pertaining to the domain of field agriculture belong to him. It is unlikely that his wife will be consulted on agricultural matters.

Men also take care of all business matters, agricultural and non-agricultural. For example, rice, wheat and oilseeds are taken to the mill in the market by men to be processed. Men do the buying and selling of animals. Men assume responsibility for feeding their animals as well as bathing and milking their cows and goats. When land is to be bought, sold, leased-in or leased-out or sharecropped, men take care of the arrangements. Fishing also is done by men. In general, all business matters, whether involving cash or trade, are the overall responsibility of the male head of the

household. Informants say that a man may consult with his wife on business matters but there is little evidence to support this assertion. A man's word is basically household law.

Men's house work activities are minimal. He plays with his children but seldom assumes the responsibility of actually watching over them. He does take care of all house repairs. His most time demanding house work responsibility is doing the daily marketing. It is questionable, however, whether this activity is in reality work or pleasure. It is a little of both. Men do not necessarily articulate marketing activities as work. Men appear to enjoy going to market and often go even if market goods are not needed. Men's marketing activities are institutionalized in the sense that it provides them a formalized mechanism in which to interact socially and gossip with their neighbors and friends.

#### WOMAN'S WORK

As is the case throughout the rural world, woman's work in Choto Kalampur revolves around the house and serving the needs of her family. She is first responsible for preparing three meals a day for her family and if her husband has hired laborers to work in the fields, she may also have to prepare food for them. A typical breakfast, subject to seasonal availability of foods, consists of boiled rice, onions,

peppers and curried vegetables. For lunch, she might prepare boiled rice, curried potatoes and fried gourd leaves. For dinner, she might cook boiled rice, dried fish and curried eggplant. Women are also responsible for cleaning the pots, pans and dishes she uses during each meal.

The woman is also responsible for bathing and taking care of small children, washing clothes, cleaning and sweeping the house and yard, sewing and mending her family's clothing and blankets and picking up cow dung for drying or use in preparing her courtyard. She either assists her husband or assumes primary responsibility for the feeding and care of cows, goats, chickens and ducks. All women in the household are involved in this activity although they are not always totally responsible for it.

A woman's contributions to the household agricultural activities are many. She will occasionally help her husband with the harvesting of the crops. She may assume major responsibility for threshing and drying grain crops and parboiling rice. The vegetable crops grown around the house are usually planted, worked and harvested by women.

Clearly, the rural Bangladeshi female is as hard a worker and works as long hours as her husband. Her contributions to the economic welfare of the household is no less significant than that of her husband (cf. McCarthy 1978, S. Alamgir 1977, Kabir, Abed and Chen 1976, Islam 1982).

### CHILDREN'S WORK

Children, beginning at about the age of eight or nine, also make a contribution to the economic welfare of the household in Choto Kalampur. For the most part, girls use their mother as role models and boys learn their economic responsibilities from their father.

Young girls assist their mother in cleaning the house and yard, preparing food, caring for the kitchen garden and caring for domestic animals. They also learn early in life how to thresh, dry and store grain crops. Young boys, of course, learn by helping their father. They plow, plant and harvest field crops, and often go to the market to sell milk, vegetables, eggs or chickens, or to have rice or wheat milled.

### DAILY LIFE

Perhaps there is no such thing as a typical day in the life of a person. On the other hand, there is a certain sameness, at least during each season, of the days for farmers. This is especially the case in relatively unstratified and culturally homogeneous societies. Every day is the same in so far as it is a general indicator of a person's life style. The following cases are illustrative of the general activities of some of the people in Choto Kalampur.

### Case 1: Landless Rickshaw Puller

Badsha Ali is thirty years old, married and has one daughter ten years of age. Except for his homestead, he is landless. He and his family live in a modest, thatch covered, one room house. They have a small outside kitchen and a small shed in which to keep their cow.

Ali makes his living as a rickshaw puller. He is more fortunate than many of his working peers because he owns his own rickshaw which he purchased over a year ago for taka 1200/=. He has almost repaid the loan.

Time	Activity	Description
06:00	Starting the Day	As soon as Ali arose, he immediately went to the latrine and then washed his face and hands. He took a basket and sickle and went to a nearby field to cut grass for his cows.
06:30	Cutting Grass	He cut grass until 06:15 and then returned to his house and again washed his face and hands. His wife was busy preparing breakfast.
07:00	Breakfast	He ate his breakfast of boiled rice and curried vegetables alone because his wife was busy doing her chores. At 07:15 he checked his rickshaw to see that it was in good working order and then started toward the Kalampur bazar.
07:30	Rickshaw Pulling	After arriving at the bazar, he waited until 07:45 when he got his first passenger. He started for the Aricha road bus stop.

- 08:00 Rickshaw pulling He reached the bus stop a little after 08:00 and his passenger paid him taka 2/=. He parked his rickshaw on the side of the road and sat in it hoping that he would soon get another passenger.
- 08:30 Rickshaw Pulling He was fortunate because by now he was competing with ten other rickshaw pullers for passengers and he got one. He reached the bazar at 08:45 and waited for another passenger.
- 09:00 Visiting He parked his rickshaw and walked over to another rickshaw puller and visited for a while. He soon returned to his rickshaw and at 09:25 he tried to move his rickshaw toward a person he assumed would be a passenger. To his disappointment, the man chose another rickshaw.
- 09:30 Rickshaw Pulling At 09:30 he got two passengers and started toward the bus stop, arriving there at 09:45. He received taka 2/= for the trip and then he parked his rickshaw under a tree. At 09:50 a rickshaw bumped into All's rickshaw. A loud and verbally abusive argument followed but it was soon over and All returned to his rickshaw. A friend stopped by and they visited for a while. He tried to persuade a potential passenger to ride with him but failed. At the same time two pullers got into a verbal fight and then a fist fight over

- "stealing" passengers. At 09:55 Ali got two passengers for the bazar.
- 10:00 Rickshaw Pulling One of the passengers was carrying several bundles of paddy. Ali dropped one of the passengers at the bazar rickshaw stand and he was paid taka 1/=. He took the other passenger and his paddy to the rice mill.
- 10:30 Milling Paddy/  
Rickshaw Milling Ali helped his passenger mill and bag the rice. He then brought the passenger and the bagged rice back to the bazar rickshaw stand where the passenger offered Ali taka 2/=. Ali refused the taka saying that it was not enough because he had helped the man mill the rice. A verbal exchange took place but by 10:45 Ali was taking the man, his rice, and another passenger toward the Aricha road bus stop. They arrived at about 11:00 and the passenger paid Ali taka 4/= and the other passenger paid him taka 1/=.
- 11:00 Rickshaw Pulling Ali visited for a while with the other rickshaw pullers but about 11:10 he got a two passenger fare and started for the bazar, arriving there at 11:25. After his passengers paid him taka 2/=. , he went into the market cafe for a glass of water.
- 11:30 Waiting Passengers Ali felt business was slow so after visiting and sitting for fifteen minutes, he decided to go to the bus stop without a fare in hope of getting a

- fare from the bus stop to the bazar.
- 12:00 Rickshaw Pulling He parked his rickshaw under a tree and as it was a very hot day, he took off his shirt. The non-fare trip to the bus stop had been a good decision because at 12:20, he go a two passenger fare to the bazar.
- 12:30 Marketing Ali sat in his rickshaw and rested for a few minutes and then he took his fare bag from under the rickshaw and counted the money he had earned during the morning. He decided it was time for him to do his daily marketing. He bought some rice and beans and returned to the rickshaw stand at 12:55. He spent taka 16/=, taka 2/= less than he had earned during the morning.
- 13:00 Washing Cows By 13:30 Ali was on his way home for lunch. On the way, he was stopped by his daughter who had brought him two cows to be washed. He gave the market bag to his daughter and took the cows to a nearby river for washing. While at the river, he also took a bath. He arrived home at 13:25, changed into some dry clothes and waited for lunch.
- 13:30 Lunch Lunch consisted of boiled rice, curried beans and milk which he ate with his wife and daughter. After lunch, he took a mat from inside the house and spread it out in a shady spot in

		the small courtyard. He was joined by two male neighbors and they entered into a general conversation on farming and family.
14:00	Relaxation	Ali and his neighbors continued their conversation.
14:30	Feeding Cows	At about 14:30, he went into the house and talked to his wife for a while. They both came out of the house, picked up some dried grass, and went to the nearby shed to feed the cows. They returned to the mat and once again started gossiping with their neighbors.
15:00	Relaxation	Ali stretched out on the mat and rested a few minutes. At 15:15, his wife brought him a mango. Soon, he got up, put on his shirt, and started for the rickshaw stand in the bazar.
15:30	Repair Rickshaw	At 15:35 he took his rickshaw to the repair shop in the market. He started to work on aligning the wheels of the rickshaw and tightening loose screws and bolts.
16:00	Repair Rickshaw	He continued working on his rickshaw, often stopping work to visit with passersby.
16:30	Waiting Passengers	By 16:30, Ali had returned to the bazar where he sat in his rickshaw waiting for a passenger.
17:00	Waiting Passengers	He continued sitting in the rickshaw waiting for a

		passenger. At 17:20 he got into a conversation with another rickshaw puller about politics and the cost of living.
17:30	Waiting Passengers	Still no business. After a few more minutes, Ali helped another puller repair his rickshaw. They then went to a nearby shop and bought some betel nut.
18:00	Waiting Passengers	All of the rickshaw pullers were without business so they stood around chatting. At 18:20, Ali decided that there was to be no more business for the day so he left his rickshaw at the stand and went to watch the only television in bazar.
18:30	Watching Television	Ali continued to watch T.V. He said he planned to return home for dinner at about 20:00.

### Case 2: Small Farmer

Abdul Alam is fifty years old. He is married and has two children at home, one son, age thirteen and another son, age six. The thirteen year old son dropped out of school and is an active participant in household farming activities. The younger son goes to the local primary school. Alam is a small farmer and he and his family live in a small, thatch covered, one room house. They have a small kitchen shed in which to keep the cows.

Time	Activity	Description
05:30	Starts Day	As soon as Alam got up from bed, he walked to a nearby pond and washed his face and hands. He immediately returned to his house, led two cows out of the cow shed, and fed them.
06:00	Harvesting Paddy	Alam was joined by his older son and they went to a nearby field--fifteen decimals--and started to harvest a high yielding variety of paddy. They worked for about thirty minutes and then returned home.
06:30	Breakfast	Alam and his son had breakfast of boiled rice and onions. He had not finished his breakfast when eight hired laborers arrived at his house. He finished breakfast and he and the laborers started walking toward a paddy field located about one mile from his house. After a brief rest, they started harvesting the paddy. The paddy field was eight decimals in size.
07:00	Harvesting Paddy	Alam and the workers harvested paddy for about thirty minutes and then they took a short five minute break.
07:30	Harvesting Paddy	They continued harvesting the paddy.
08:00	Harvesting Paddy	Alam and the workers stopped harvesting soon after 08:00. They each picked up bundles of paddy and started walking toward Alam's house.

08:30	Breakfast Again	As soon as they arrived at the house, the laborers sat down to rest and Alam immediately went to the pond to wash his face and hands. When he returned, he had a second breakfast consisting of boiled rice, fried squash, onions and peppers. Alam then walked to the nearby field where his son was harvesting paddy.
09:00	Harvesting Paddy	Alam worked with his son for fifteen minutes and then he was joined by his eight laborers. They went to another field, fifteen decimals in size, located only five minutes away.
09:30	Harvesting Paddy	Alam and the laborers started to harvest the paddy. They worked for about thirty minutes and then took a five minute rest.
10:00	Harvesting Paddy	They continued harvesting the paddy.
10:30	Harvesting Paddy	They continued harvesting the paddy, taking a short break every twenty or so minutes.
11:00	Harvesting Paddy	At 11:15, Alam stopped harvesting, picked some bundles of paddy and walked toward his house. The laborers remained behind and continued to work.
11:30	Bath and Rest	As soon as Alam arrived home, he went to the nearby pond and took a bath. He then returned to his house and put on clean <u>gangee</u>

(T-shirt) and longee (skirt).

12:00      Relaxation      Alam sat around the house relaxing for awhile, chewing betel nut and smoking.

12:30      Relaxation      Alam and his wife visited for a few minutes and then he asked her what she needed from the market. After getting her response, he oiled his hair and started for the bazar.

13:00      Marketing      He visited a neighbor on the way to the market. Once at the bazar, he visited the fertilizer dealer to discuss the price of fertilizer and then he went into a store and bought some food items.

13:30      Carrying Paddy      By 13:35, he had returned home. He quickly changed into an old longee and walked to the field where his laborers were working. He tied some paddy into bundles and carried them to his house.

14:00      Carrying Paddy      He reached his house at 14:08, placed the paddy bundles in his courtyard and returned to the field to tie some more paddy.

15:00      Carrying Paddy      He visited with the workers for a little while, picked up more paddy bundles, and started home. He had been at his house only a few minutes when his laborers arrived. They talked for a few minutes and then he sent them to an unharvested paddy field located about a quarter of a mile away.

15:30	Bath	Alam went to the pond where he took a bath, then returned home and oiled his hair and body. He waited for lunch.
16:00	Lunch	Lunch consisted of boiled rice and fried jute leaves. After lunch he chewed some betel and then lay down on his small front porch.
16:30	Sleep	Alam slept from 16:21 until 16:59.
17:00	Harvesting Paddy	By 17:20, he had joined his laborers in the field and was busy harvesting paddy.
17:30	Harvesting Paddy	Alam continued to harvest the paddy, occasionally stopping to rest and smoke a cigarette.
18:00	Harvesting Paddy	Alam and the workers stopped harvesting and started to tie the paddy into bundles. Each person picked up some paddy bundles and proceeded to the house of Alam.
18:30	Carrying Paddy	They soon arrived at the house and they placed the bundles of paddy in the courtyard. Alam dismissed the workers for the day and he went to the pond to wash his face and hands.
19:00	Securing Cows	At 19:10, Alam led his two cows into the cow shed. He tightly secured the door, walked over to his house, and started talking with his wife and younger son.
19:30	Visiting	He continued talking with his wife.



06:30	Weeding	They continued weeding the Jute field.
07:00	Weeding	After a brief tobacco break, the weeding started again.
07:30	Weeding	They continued their work, carefully putting the weeds into a pile. The men worked until 07:45 when they stopped and returned to Mia's house where they washed their hands.
08:00	Weeding	Breakfast consisted of boiled rice, curried onions and potatoes. Mia ate with his children and then chewed a betel leaf. The laborers ate after Mia.
08:30	Weeding	After breakfast, Mia returned to the jute field alone and started to weed. His oldest son, the permanent laborer and the two day laborers arrived in the field at 08:55.
09:00	Weeding	Instead of randomly pulling weeds as they had done earlier, the field was divided into two sections and each person was assigned a single row to weed. A worker was to weed only his row until half of the field was weeded.
09:30	Weeding	The men continued pulling and digging weeds and putting them into a pile. Every twenty or so minutes a worker would take a five minute break.
10:00	Weeding	Mia and his son and the three laborers continued their work.

10:30	Weeding	Weeding continued.
11:00	Weeding	Weeding continued.
11:30	Weeding	The same pattern of weeding for about twenty minutes and then a five minute break continued.
12:00	Weeding	Weeding continued.
12:30	Milking Cows	Mia returned to his house, washed his face and hands, and talked to his wife for a few minutes. He then took a brass jug, crossed the courtyard, and released a calf that was tied nearby. The calf started sucking one of the cows. Mia moved the calf away and then milked the cow for five minutes, getting one and one-half seer for his labor. He then milked a second cow, obtaining one-half seer of milk.
13:00	Selling Milk	As soon as he finished milking, he poured the milk into a bucket and went to the market. The milk was immediately sold to a regular customer.
13:30	Marketing	While at the bazar, Mia visited with friends and purchased some fish. On his way home, he stopped off at the river and took a bath.
14:00	Lunch/Prayer	Mia's wife had his lunch of boiled rice, curried fish and potatoes ready for him when he returned home. After lunch he chewed some betel and said his noon prayers.

14:30	Rest	Mia was resting when his laborers arrived at his house. They discussed the work for the afternoon and then went back to the jute field.
15:00	Weeding	Once again they started weeding the jute field.
15:30	Weeding	They continued to weed.
16:00	Weeding	They continued the same activity, occasionally taking a short break.
16:30	Weeding	Weeding continued.
17:00	Weeding	Weeding continued.
17:30	Weeding	Weeding continued.
18:00	Weeding	Weeding continued.
18:30	Tying Weeds	At about 18:30, Mia told his son and the laborers the work he planned for them the next day. He tied the weeds they had pulled into bundles, picked them up and started walking toward his house.
19:00	Prayers/Feed Cows	Once at home, Mia washed his face and hands and then offered his <u>Magrel</u> prayers. He then fed the weeds from the jute field to his cows.
19:30	Food To Son	Mia's wife prepared some food and placed it in two small cans. Mia took the food to the bazar and gave it to one of his sons who was working in a small grocery shop. He stayed around the market visiting for a while. Mia said he would return home for dinner in about an hour.

### HOW MANY HOURS CAN A PERSON WORK?

It should be clear from the material presented in this chapter that the rural Bangladeshi works long hours and his work is not easy. For example, in the cases of Bashi Ali, Abdul Alam and Jinnat Mia, all three men worked more than eight hours during the day. Ali, the rickshaw puller, worked the least number of hours, only nine and one-half. He would have worked more hours if there had been more customers. The Small Farmer, Alam, worked eleven hours and the Large Farmer, Mia, worked twelve and one-half hours. Assuming that these individuals did not work for one day of each week during the year, they would, on average, work 3487 hours a year. In a study on productive work hours in six Bangladesh communities (Farouk and Ali 1977), male heads of household averaged between 3700 and 3138 work hours a year, slightly more hours than the conservative figure for Choto Kalampur. In the United States, a male worker averages only 2046 hours a year (Farouk and Ali 1977). The workers of Choto Kalampur work significantly more hours than men in the United States and receive much less for their efforts.

Data are unfortunately not available on the number of productive hours worked by women in Choto Kalampur. In the community of Fatehpur, near Chittagong, however, it is estimated that women devote 2048 hours a year to paddy, work, poultry and livestock, and kitchen gardening (Tahera 1978). This figure is probably similar to the hours devoted to the

same work areas in Choto Kalampur. If another 1500 hours a year are added for cooking, washing, caring for children, etc., to the figure for paddy and gardening work, the women of Choto Kalampur work 3548 hours a year. In other words, the women work approximately the same number of hours a year as men.

The men and women of Choto Kalampur could, of course, probably find a few more hours in each day to work. It is unlikely, however, that they would possess either the physical or mental strength to do this. Consequently, programs aimed at improving the economic welfare of the rural Bangladeshi should focus on more productive ways to use time or new technologies that will provide a person more leisure and/or new work time. A new technology that requires the farmer and his wife to work harder or longer hours is unrealistic. Today, in Choto Kalampur, for example, child labor supplements adult male and female labor. Without child labor, in some cases, a farmer and his wife could not complete all the tasks they have to complete and still maintain their standard of living, regardless of how meager that standard might be. Consequently, many children do not attend school, thus insuring that the future of the community remains static. If new programs and technology did nothing more than release children from work, the economic welfare of the next generation of rural Bangladesh might be improved.

## CHAPTER FIVE

### FAMILY AND SOCIAL LIFE

The family, in nuclear and extended form, is the structural foundation on which society is based. This social structural unit assumes primary responsibility for the needs of its members--socialization, education, and economic and psychological security. A child is most significantly influenced by his membership and position in his nuclear and extended family. Secondly, the child is influenced by the position of his family within the social matrix of the village, district and nation.

In Choto Kalampur, the nuclear family is the primary social structural unit, followed closely by the importance of the extended family. A person's kinsmen constitute his primary reference group and it is with these kin with whom a person will most closely interact throughout his life. In this chapter, the position of the individual is examined within the context of the family and household, especially as conditioned by such cultural factors as marriage and religion. Rural Bangladesh is best understood by placing emphasis on that which Bangladeshi farmers perceive as important-- the family and household.

## THE FAMILY

As noted earlier, there are 351 households in Choto Kalampur, 301 in North Kalampur and 50 in South Kalampur. Of these households, approximately 13% are Landless, 16% are Marginal Farmers, 46% are Small Farmers, 18% are Medium Farmers, and 7% are Large Farmers. New households are formed when a male gets married.

### Marriage

There is impressive evidence to suggest that in rural Bangladesh, marriage patterns are changing from a traditional pattern based on bride-price to a new pattern based on a dowery system (Lindenbaum 1981). This shift from bride-price to dowery suggests that unmarried women are becoming less valuable as potential wives. In Choto Kalampur, both bride-price and dowery or a combination of the two are in operation.

The average age at marriage in Choto Kalampur for males is twenty years and the average age for females is fifteen years. Whether or not the bride and groom are from a Landless or a Large Farmer household is an insignificant variable on age at marriage. Because the girls marry soon after puberty, by tradition they become valuable reproductive assets to the groom and his parents, thus assuring the biological perpetuation of the groom's family. By age fifteen, the girl

has become a potential economic liability to her family as her younger siblings are slowly assuming her economic responsibilities. Given the patrilocal residence rule of rural Bangladesh, the girl's economic value increases as an unpaid laborer in a family other than her own.

With few exceptions, marriages in Choto Kalampur are arranged. Often, the potential bride and groom will have never seen one another because the bride usually lives with her family in a village other than that of her future husband. According to informants, when selecting a bride for their son, parents consider the following: the beauty of the girl, her religion (Moslem), her obedience and the social status of her family. Ideally, the girls should be in good health, of high moral character, skilled in the chores expected of a wife, and her family should be of equal social status to that of the groom. The girl's family is concerned about the boy's appearance, education, economic potential and the social status of his family. Girls, moreso than boys, appear to be taught early in life the responsibilities they will someday have to shoulder as a housewife and mother.

Proposal of marriage is usually initiated by the parents of the boy through a go-between, a ghatak. Once a boy and girl have been paired as potential marriage partners, considerable negotiation takes place between the two families. In some cases, the family of the groom has to pay a bride-price of goods, money, land or a combination of these.

In other cases, the girl must bring a dowery of goods, money and/or land to the marriage. Occasionally, negotiations end with both the groom's parents providing a bride-price and the bride's parents providing a dowery. The lack of stability in the bride-price or dowery system is a reflection of changes in the reproductive and economic value of females (Lindenbaum 1981, Harbison and Robinson 1983).

As soon as the marriage ceremony is completed, the bride moves to the house of her husband as patrilocal residence is the pattern in the village. As first, she and her husband will probably live in the house of her husband's father. Even when they build their own house, it is apt to be next to or in the immediate vicinity of the groom's parents house. This is the bari (homestead), a cluster of houses on raised land. The group living in the bari usually consists of a patrilineal extended family. The nuclear family is submerged within this kin group.

With marriage, the bride not only acquires a husband that she didn't know but also in-laws and their kin that she didn't know. These circumstances often places the wife in a very difficult situation (S. Alamgir 1977). The wife not only has to be a wife and laborer, with qualities of piety, patience and obedience, she must work to keep her in-laws happy, especially her mother-in-law. She must, in effect, be

obedient to all the adults in the bari until which time she has sons who bring wives to her husband's house.

### Inheritance

For purposes here, one of the most important cultural traditions and features of Bangladeshi social organization is the system of inheritance; it has direct impact on the future of Bangladesh (see Chapter VII).

In Choto Kalampur, the inheritance of land is basically straightforward. Many of the subtleties associated with inheritance and Islamic law (S. Alamgir 1977) do not appear to be present in Choto Kalampur. In fact, several informants, when asked about Islamic inheritance laws freely admitted ignorance on the matter.

When a man dies, his wife inherits none of his land although his sons have a moral responsibility to see to the security of their mother. All sons are to share equally in the land and a daughter is to receive no more than one-half the amount a son receives. In reality, daughters usually leave their share of the land in the "care" of their brothers. The rationale behind this practice is that the girls usually move to a different village when they get married. Men say that they look after (and farm) their sister's land only until she needs it. A consequence of this practice is to effectively insure that almost all land remains under the control of the males in the patrilineage. Three examples will serve to illustrate typical inheritance patterns in Choto Kalampur.

Aled Farhad is twenty-two years old, married, and has two children, a boy and a girl. He presently owns no land but his father, who is still living, owns 312 decimals of land. Farhad has three brothers and one sister. Farhad's father's father owned 1252 decimals of land.

When Farhad's father dies or becomes too old to farm, his land will be divided equally among his five children; each child ideally receiving sixty-two decimals of land. In reality, Farhad and his brothers will probably each inherit seventy-eight decimals of land because their sister will likely not claim her share. After marriage, she will reside in the village of her husband. Her brothers will "look after the land until she needs it."

Farhad's grandfather was a Large Farmer with 12.52 acres of land. Farhad's father was a Medium Farmer, holding 3.12 acres of land. Farhad, with his inheritance, will be a Small Farmer owning only .78 acres of land. If Farhad has only two sons, each will inherit .39 acres of land, thus becoming effectively landless.

Md. Munshi is fifty-five years old, married, and has eight children, four sons and four daughters. Munshi's paternal grandfather owned 1456 decimals of land. The grandfather had three sons, each of whom inherited 485 decimals of land from their father. But, Munshi's father

sold 159 decimals of his inheritance, leaving him with only 335 decimals of land. Munshi has three brothers and one sister, each of whom inherited sixty-seven decimals of land along with Munshi. Md. Munshi says that his children will inherit his sixty-seven decimals of land but according to his interpretation of Islamic law, a girl should inherit only half of what a male child inherits. So, Munshi expects to divide his land, as follows: each male child will receive .12 acres of land and each girl child will receive .4 acres of land.

Ali Islam is twenty years old, married, and has no children. He has a brother and a sister. Islam's father inherited thirteen decimals of land from his father. Because of illness, however, he sold ten decimals, leaving only three decimals. When Islam's father died, Islam and his brother and sister inherited the three decimals of land. The sister did not take her share thus leaving the three decimals of land for Islam and his brother. The two brothers jointly farm their .3 acres of land.

The significance of all male children receiving an equal share of their father's land is clear; the amount of land owned per individual dramatically decreases and becomes more fragmented with each generation. For example, if a man owns one acre of land and he has only two sons, each son will inherit one-half acre, hardly enough land to support a family

of five. When the land is divided again, each son will receive only one-quarter of an acre, thus effectively becoming landless. At least 75% of the families in rural Bangladesh own less than three acres of land (Alim 1977). With inheritance patterns as they exist today in Bangladesh, in twenty-five to thirty years, almost all farmers, for all practical purposes, will be landless.

### HOUSEHOLDS

Although there is probably no typical household in Choto Kalampur, there are, nonetheless, households which appear to be representative of various farm classes in the village. The following five cases are illustrative of households in Choto Kalampur.

#### Landless Households

Zinat Afazuddin is thirty-six years old, married, and has four sons and one daughter ranging in age from four years to sixteen years. His household consists of himself, his wife and two sons and a daughter. His oldest two sons, ages twelve and sixteen, live in the house of his brother.

According to Afazuddin, his two older sons live with his brother because he cannot afford to feed and cloth them. His brother owns a little land and Afazuddin's sons work for him as laborers and receive room and board for their labors.

Afazuddin and his father, now deceased, were born in Choto Kalampur. At age twenty, Afazuddin took a wife from a nearby village. His wife, age fifteen at marriage, brought with her a small dowery. As Afazuddin's father was landless, he inherited no land when his father died, but because his wife brought a dowery, he was able to purchase a small homestead plot of land. He and his wife constructed a small, one room, jute cane and thatched roof house on this plot of land. Today, his house has two rooms but cooking is still done outside the house and he has no electricity or household water pump. He has not been able to buy additional land since his marriage.

Although Afazuddin owns no farm land, he cultivates two plots, each .22 acres in size, during the Boro season and farms these two plots on a 50% share basis with the owner of the land. All of the farm work is done by Afazuddin and his wife. The bulk of his income, however, comes from working as a day and seasonal laborer in the community.

Afazuddin is a poor man. He is landless and has more children than he can adequately feed. The future for himself, his wife, and his children does not appear

promising. There is little chance that he will be able to acquire more land. His children, two of whom are already living with their uncle, do not attend school, and will have little choice but to follow in the path of their father. They were born landless and they will probably die landless.

#### Marginal Farmer Households

Jaru Mia is thirty-five years old, married, and has one son and one daughter, ages five and three respectively. His father is deceased and his mother lives in the household along with his wife and children. He married late for a person living in Choto Kalampur. He was twenty-five and his wife was twenty. When asked why he waited until he was twenty-five to get married, he said that it was because he had no land until his father died. His share of the inheritance was .21 acres of land. His small house is located on the homestead plot that belonged to his father. He shares this plot of homestead land with two brothers who also have a house on the plot.

Mia's .21 acres are divided into three plots, one of which is three decimals in size and the other two, each nine decimals in size. He farms the three decimal plot himself and shares-out the remaining land on a 50% share basis. He says that because he has so little land, it is economically better for him to share-out the eighteen decimals of land to a Landless Farmer who grows high yielding boro rice. He says

he gets a good return without having to work the land and he has released time so that he can earn a cash income. In fact, most of his income comes from selling his labor on a day and seasonal basis.

If Mia were to try and support his family off of the produce of his twenty-one decimals of land, he would probably be unsuccessful; his yearly expenses, although his family is relatively small, would exceed his income. For example, he needs to purchase flour, sugar, rice and a little fish on a weekly basis. Yearly, he has to purchase medicines and clothing for his family. In addition, he says he has expenses associated with Moslem religious holidays. He simply could not meet his family's basic food needs if he depended solely on the food he could produce on his twenty-one decimals of land.

Like the Landless Households in Choto Kalampur, Marginal Farmer households are poor. There is no evidence to suggest that a Marginal Farmer family is economically more secure than a Landless family. The most significant difference between the two has nothing to do with economics but with psychology; for a Choto Kalampur villager to own a little land gives him a psychological boost over villagers who are landless. In addition, it slightly raises the family's overall social status. Importantly, however, there is little difference in the economy or standard of living between

Landless households and Marginal Farmer households.

#### Small Farmer Households

Hazrat Ali was twenty-two when he married his wife and she was sixteen. At first they lived with Ali's father and later they built their own small house on the homestead of the bari. During the early years of their marriage, Ali worked the land of his father along with his brothers. Life was difficult for his wife, Rupbana, because of Ali's mother. According to Rupbana, she was treated like a slave by her mother-in-law. It was not until Ali's father and mother died that Rupbana became comfortable with her role as wife and mother. Her unhappiness, of course, was primarily a function of the demands placed on her as a new female in the bari and the relatively low status that goes with the position.

Today, Hazrat Ali and Rupbana are still married and have three children, one boy and two girls, ages six, nine and one. They have a one room house of jute cane but unlike most of the families in Choto Kalampur, they have a galvanized roof on the house. On their homestead plot, they also have a kitchen and a barn, the latter housing their two goats and one cow.

Ali is a Small Farmer, owning a total of .83 acres of farm land. His land is divided into nine plots, the largest of which is sixteen decimals in size and the smallest, two decimals. He farms the land throughout the year, growing mixed Aus Aman rice, Boro rice, wheat, sweet potatoes, and

mustard. On the homestead plot, he grows eggplant, various types of gourds, betel nut and mango. Ali works the land by himself although he finds it necessary to hire day laborers to help in planting, weeding and harvesting the crops. The expense of hiring day laborers reduces his profit from the land but he needs the help during the labor intensive periods of planting, weeding and harvesting. He does not sell any of the harvest so in order to obtain cash, he works as a day laborer on highway construction and in other people's fields. Rupbana does not work in the fields with her husband but she assumes major responsibility for preparing the harvested foods for storage and consumption.

Ali is certainly not rich. In his own words, he said, "I am a very poor man but if Allah wishes, then one day i would be a rich man." Relative to Landless and Marginal Farmer households, however, Ali and his family have , at least some, economic security. But, when Ali dies and the land passes to his two sons, they will receive less than one-half acre each, hardly enough land to support a family. They will not be as economically secure as their father. Instead of surpassing their father in economic accomplishments, they will probably regress economically.

#### **Medium Farmer Households**

Jaku Azimuddin is fifty years old, married, and has seven children, one son and six daughters. His household

consists of himself, his wife, four daughters, one son, and two permanent laborers. His two oldest daughters, ages eighteen and sixteen, are married and live in a nearby village. There are five houses (i.e., small one room buildings) situated on his homestead plot; a main living and sleeping room, a kitchen, another sleeping room, a barn, and a small room where his permanent laborers live. Except for the barn and the room for the laborers, all the structures have a galvanized roof. Azimuddin has electricity in his house and he owns a household water pump. Azimuddin owns 3.36 acres of land and rents-in .32 acres of land, bringing the total amount of land he farms to 368 decimals. His own 336 decimals of land is divided into eleven plots, the largest forty-four decimals in size and the smallest twelve decimals in size. The thirty-two decimals he rents-in is in two plots. Azimuddin is busy as a farmer throughout the year, planting and harvesting Aus and Aman rice, Boro rice, wheat, sweet potato, jute, mustard, onions and pepper. Around his house, his wife and children grow garlic, eggplant, gourds, papaya and jackfruit. He is only able to maintain this level of farming activity because he can afford to hire two permanent laborers. And, of course, he can afford to hire the two laborers because he has sufficient land to support his family and the two laborers. Clearly, this is a situation where relative wealth begets more wealth.

In addition to the income generated by his farm, in the form of food for his family and cash derived from selling a part of the harvest, Azimuddin is also involved in buying and selling jute. He buys recently harvested jute cane, processes it, extracts the fibers, and then sells it in the market. Again, his ability to hire two full-time laborers is a major factor allowing him to assume this middle-man activity. He pays his laborers taka 2,500/= each per year plus room and two meals a day. From his middle-man jute activities, he earns approximately taka 5000/= each year. The jute activities alone pay for the laborers. In reality, most of the labor they perform in planting, weeding, and harvesting is farming profit for Azimuddin.

Relative to Landless, Marginal, and Small Farmer households, Azimuddin and his family have a higher standard of living. They have a larger homestead, electricity, and a household water pump. But, according to Azimuddin, his expenses each year match his yearly income. An analysis of the income and expense figures he provided, suggests his assertion is true. When asked why he didn't use modern fertilizers, insecticides and seeds in his farming activities, he responded by saying he could not afford them.

#### Large Farmer Households

Shahabuddin Munshi was married when he was fourteen years old; his wife was only ten years old. Today he is

forty-eight years old and he and his wife have had eight children, three males and five females. His oldest three daughters are married, two of whom live in neighboring villages and one of whom lives in Choto Kalampur. The daughter living in Choto Kalampur married a landless man. As a consequence, the patrilocal residence was not followed; there were greater economic opportunities for a landless man in the village of a father-in-law with the influence that goes with being a large land owner. Munshi's household consists of himself, his wife, three sons, two daughters, one grandson, and two permanent laborers.

All of Munshi's children, including his daughters, either attend or have attended school. His twenty-two year old son attends college in Dhaka. His eighteen year old son graduated from high school in Choto Kalampur and presently owns a rice mill in the village. His other son, age six years, currently attends grade school in Choto Kalampur. He presently has two daughters in school in the village and all of his daughters attended school, although they all did not graduate from high school.

As should be expected, Munshi has a large homestead with three living rooms or houses, one kitchen, and two barns. The house has electricity and a water pump. Except for the barns, the houses all have galvanized roofs and walls of jute

cane and/or bamboo.

Munshi owns 5.52 acres of land. His land is divided into thirty plots, the largest of which is thirty-four decimals in size and the smallest is six decimals in size. Munshi and his permanent laborers farm 467 decimals of the land. He allows twenty-eight decimals of the land to be sharecropped and he leases-out fifty-seven decimals of the land. On the land he farms, he grows what most of the other farmers in the community farm: Aus and Aman rice, Boro rice, wheat, mustard, potatoes, and jute. Because he is a large land owner, he is able to produce more food than his family consumes so part of the harvest of each crop is sold, thus bringing cash income into the household.

From the twenty-eight decimals of land he allows a Landless Farmer to sharecrop, he receives 50% of the harvest, no small share considering the sharecropper plants high yielding varieties of rice in it. From the fifty-seven decimals of land Munshi leases-out, he receives a cash payment of taka 6000/= per year. In addition to this income, he receives small monthly payments of cash from his son who owns the rice mill. The son is repaying his father for a loan which originally allowed him to purchase the rice mill. Munshi also owns four cows, their milk netting him a further source of cash income each week.

By Choto Kalampur and rural Bangladesh standards, Shahabuddin Munshi is rich and he and his family are able to

maintain a standard of living commensurate with their wealth. His children are educated and appear to have a good future. Even when Munshi dies and his lands are divided, his children will probably not join the ranks of the poor and landless in rural Bangladesh; their education will allow them to pursue employment outside the farm. Importantly, however, the key to their potential success rests with land--not their land, but their father's land. If Munshi had been a Small Farmer or perhaps even a Medium Farmer, his children might well have been forced to join the rank of the growing landless in rural Bangladesh.

#### RELIGIOUS LIFE

Although it is not the purpose of this report to present an ethnography of Choto Kalampur, it is worthwhile to briefly examine the role of religion in the community. Religion in any society is important, but possibly even more so in a village such as Choto Kalampur because Islam is more than the sum of its part, it is a way of life.

Islam in Choto Kalampur does not take the form of what may be considered orthodox Sunni Islam. Instead, religion as practiced by the villagers might better be termed popular Islam. This does not mean that the villagers are not good Moslems, but rather, that their religious system is infused with folk traditions. And, of course, the people of Choto

Kalampur subscribe to the central creed of Islam: "There is no god but Allah, and Muhammad is his Prophet." As Islam means submission to God, the people of Choto Kalampur are Moslem.

There are two mosques and madrasah in Choto Kalampur; their influence is felt throughout the village. The main mosque and associated madrasah are located near the center of the village and the call to prayers can be heard throughout the countryside. The mosque is run by the imam and a committee made up of Choto Kalampur villagers. It is supported by gifts of money and grain from the villagers. According to informants, a person is expected to give what he can afford. Because the gifts are presented in the name of Allah, villagers probably tend to give a little more than they can afford. The other mosque in Choto Kalampur is located in the bazar and is primarily supported by a tax levied on the vendors who sell their goods on haat day.

The people of Choto Kalampur subscribe to the five pillars of Islamic faith-- recitation of the creed, daily prayer, almsgiving, fasting, and haj--even though they are not always able to fulfill them. In addition, they celebrate all of the major events of the Moslem calendar and pray in the prescribed manner at dawn, midday, mid-afternoon, sunset, and nightfall.

In Choto Kalampur, women do not offer their prayers in

the mosque. They offer them in their homes.

The people of Choto Kalampur feel that they are religious people, that they actively practice their religion, and that they are good Moslems. They are good examples of how life and religion become one. Events of good fortune and bad fortune that influence a person's life are explained in terms of Allah's will. In the words of an old villager, "Allah does not keep everybody equal but Allah has given food to everybody."

## CHAPTER SIX

### NORTH AND SOUTH KALAMPUR COMPARED

One of the aims of the study on which this report is based was to determine the economic success in North Choto Kalampur as compared to economic success in South Choto Kalampur. The underlying hypothesis to be tested was that the people living in North Kalampur would be economically more secure than those living in South Kalampur because of their exposure to the agricultural activities of the BJRI. Another concern of the study was to obtain the "folk view" of new agricultural technologies in the community and ascertain the impact of these views on the acceptance of the new technologies. In Chapter Three, emphasis was placed on the economic differences between Landless, Marginal, Small, Medium and Large Farmer households. In this chapter, I

emphasize the differences in the economies of North Choto Kalampur and South Choto Kalampur. In addition, the people's perceptions of new agricultural technologies are explored.

### ECONOMY

To more clearly set the parameters for an examination of the economies of North and South Kalampur, it is worthwhile to briefly review some of the material presented in earlier chapters. It should be remembered that there are 301 households in North Kalampur and fifty households in South Kalampur. The study household sample consists of sixty-eight households, almost 20% of the total number of households in Choto Kalampur. In North Kalampur the sample consists of four Landless, six Marginal, sixteen Small, six Medium and two Large Farmer households. In South Kalampur the sample consists of five Landless, five Marginal, fifteen Small, six Medium and three Large Farmer households. The overall economic attributes characterizing economic differences between North and South Kalampur are presented in Tables 6.1 through 6.8.

Clearly the amount of land farmed and/or owned is an overall marker of relative wealth in rural Bangladesh. In fact, it is the foundation on which wealth is built and maintained throughout the countryside. Tables 6.1 and 6.2

reveal only a few significant differences between North and South Kalampur. Large Farmers in the north own about two more acres of land per household than their counterparts in

Farm Class	Plots	Farmed	Rent-out	Rent-in
Landless	4	0.76	-	0.76
Marginal	4	0.47	0.04	0.31
Small	9	1.71	0.12	0.32
Medium	17	3.55	0.14	0.41
Large	28	8.68	0.93	-
Average in Acres				

Table 6.1  
Land Use: North Choto Kalampur

the south. Large Farmers in North Kalampur lease-out more land than Large Farmers in South Kalampur. The primary reason for this difference is the availability of irrigation facilities in North Kalampur. People in South Kalampur, even Large Farmers, lease-in land located in North Kalampur in

order to grow high yielding varieties of rice. Even paying 50% of their yield to the owner of the land, they are able to obtain more for their labor than if they had planted on their own unirrigated land located in South Kalampur. In general, the most obvious land differences, either in North or South Kalampur, are those differences associated with being a Landless to Large Farmer.

Farm Class	Plots	Farmed	Rent-out	Rent-in
Landless	1	0.15	-	-
Marginal	3	0.57	0.03	0.28
Small	9	1.63	0.18	0.62
Medium	16	3.49	0.30	0.51
Large	23	6.51	0.13	0.51
Average in Acres				

Table 6.2  
Land Use: South Choto Kalampur

As illustrated in Tables 6.3 and 6.4, agricultural income, measured in terms of food and cash, is significantly higher for Large, Medium and Small Farmers in North Kalampur than for their counterparts in South Kalampur. The primary reason for this difference rests in the availability of irrigation, more land, and exposure to modern agricultural technologies in the north. Agricultural income for Marginal Farmers in South Kalampur is higher than the same form of income for Marginal Farmers in North Kalampur. The reasons for this discrepancy are unclear; it would appear that the Marginal Farmers in the south place more emphasis on the land than the Marginal Farmers in the north. Landless Farmers in North and South Kalampur have about the same agricultural income.

Landless Farmer households in both North Kalampur and South Kalampur derive the bulk of their income from non-agricultural economic activities. By pulling rickshaws, working as day laborers, and as minor market vendors, men earn the money with which they support their families. Non-agricultural income for Marginal Farmers is about the same in the north and the south. But, Medium Farmers in South Kalampur have almost twice as much non-agricultural income as Medium Farmers in North Kalampur. A major reason for this is that their land is less productive than that of their counterparts in North Kalampur and as a consequence,

they seek more non-agricultural income. If they were Large Farmers, they would have enough land to support their families without a significant outside income. Large Farmers in the north have a much larger non-agricultural income than the Large Farmers in South Kalampur; primarily a function of the opportunities associated with wealth and status in the politically dominant part of the village, North Kalampur.

Farm Class	Agricultural	Non-Agricultural	Total
Landless	532.25	8,589.75	9,122.00
Marginal	542.95	3,927.50	5,468.83
Small	6,633.44	4,621.69	11,255.13
Medium	20,293.17	2,890.83	23,184.00
Large	27,227.50	10,577.50	37,805.00
Average Taka/Year			

Table 6.3

Household Income: North Choto Kalampur

Farm Class	Agricultural	Non-Agricultural	Total
Landless	334.40	6,752.00	7,086.40
Marginal	2,061.80	4,380.00	6,441.80
Small	3,405.13	4,105.87	7,511.00
Medium	9,142.67	5,660.00	14,802.67
Large	14,547.69	2,384.33	16,932.02
Average Taka/Year			

Table 6.4

Household Income: South Choto Kalampur

Total income for Small, Medium and Large Farmer households in North Kalampur is considerably higher than total income for similar farmer in South Kalampur. Because of the advantages of irrigation and better economic opportunities, land owners in North Kalampur are better able to utilize their land and wealth than the land owners in South Kalampur.

Another means of denoting economic success, especially in a Bangladesh farming community, is to examine the yields from major crops relative to the cost of producing the crops and the income from the crops. In Tables 6.5 and 6.6, yields are expressed in terms of maunds per acre, cost is measured in terms of renting oxen, paying laborers, buying seeds, fertilizers, water, etc. and income is measured in terms of yield value on the open market. It should be remembered that few farmers in Choto Kalampur actually devote as much as an acre to a single crop.

Except for high yielding Boro rice, the farmers in North Kalampur, consistently obtain higher yields per acre. The difference, however, is hardly significant and probably can be accounted for by the fact that almost all of the high yielding Boro grown in Choto Kalampur is grown in North Kalampur. It should be remembered that farmers from the south often lease-in land in the north. Farmers in North Kalampur tend to spend more money growing their crops. The farmers in South Kalampur, however, spend slightly more, but not significantly more, than their neighbors to the north grow high yielding Boro, jute and tobacco. In the very important area of the quality of the harvest produced, North Kalampur farmers obtain a higher income. The variables of irrigation, better access to fertilizers and insecticides, and perhaps a more "modern" orientation to farming, appear to be significant here.

Crop	Yield (md/acre)	Cost (tk/acre)	Income (tk/acre)
Aus LV	12.25	524.88	1653.98
Amam LV	9.52	545.15	1327.86
Boro LV	22.22	888.89	3000.00
Boro HYV	56.31	2236.20	7860.32
Wheat	13.33	744.46	2126.19
Jute	17.20	878.08	2127.13
Tobacco	8.46	1538.46	3076.92
Pulses	5.46	355.71	916.67
Oilseed	6.93	616.04	2107.97
S.Potato	71.15	730.77	2846.15
Potato	67.37	1576.30	2694.81
Spices	28.10	1407.69	4098.97
Household Averages			

Table 6.5

Yields, Cost, Income: North Choto Kalampur

Crop	Yield (md/acre)	Cost (tk/acre)	Income (tk/acre)
Aus Lv	6.00	312.37	759.88
Aman LV	1.18	275.32	157.00
Boro LV	19.85	408.09	2680.15
Boro HYV	51.45	2827.59	6945.52
Wheat	7.69	548.08	1191.99
Jute	11.34	984.13	1620.04
Tobacco	4.89	1696.20	2436.71
Pulses	3.79	249.70	615.81
Oilseeds	4.10	446.29	1114.85
S.Potato	23.08	584.62	923.08
Potato	5.00	250.00	2000.00
Spices	17.78	666.67	1777.78
Household Averages			

Table 6.6

Yields, Cost, Income: South Choto Kalampur

Tables 6.7 and 6.8 summarize the overall economic situation in Landless, Marginal, Small, Medium and Large Farmer households in Choto Kalampur. In terms of net income, the people of North Choto Kalampur are clearly more economically secure than the people living in South Choto Kalampur. With the exception of Marginal Farmers in North Kalampur, all farmer classes realize a yearly net profit income. Marginal Farmers in the north, however, have a negative net income for the year. There are at least two possible explanations for this situation. Firstly, the data could be skewed in favor of high cost or low income. The possibility of this happening, especially when gathering economic data based on the farmer's recall, has already been noted. An equally plausible explanation rests in the possibility that economically, Marginal Farmers live a marginal existence; they own a little land, creating a feeling of false security, but not enough land to adequately support themselves. They have to borrow money, usually from Large Farmers, at exorbitant interest rates, and never get out of debt. Thus, they operate from year to year with a negative net income.

The economic situation for the farmers in South Choto Kalampur, at least relative to North Choto Kalampur, is seriously depressed. All farm classes--Landless, Marginal, Small, Medium and Large--have a negative yearly net income.

Class	Income	Expenses	Net Income
Landless	9122.00	8072.00	1049.00
Marginal	5486.00	8576.00	-3107.00
Small	11255.00	10955.00	299.00
Medium	23184.00	9044.00	14139.00
Large	37805.00	22158.00	15647.00

Taka/Year Averages

Table 6.7  
Household Expenses and Income: North Choto Kalampur

Class	Income	Expenses	Net Income
Landless	7086.00	8731.00	-1645.00
Marginal	6441.00	12658.00	-6216.00
Small	7511.00	10457.00	-2946.00
Medium	14802.00	15148.00	-345.00
Large	16931.00	20768.00	-3837.00

Taka/Year Averages

Table 6.8  
Household Expenses and Income: South Choto Kalampur

Fig. 6.1

NORTH CHOTO KALAMPUR  
HOUSEHOLD INCOME AND EXPENSES

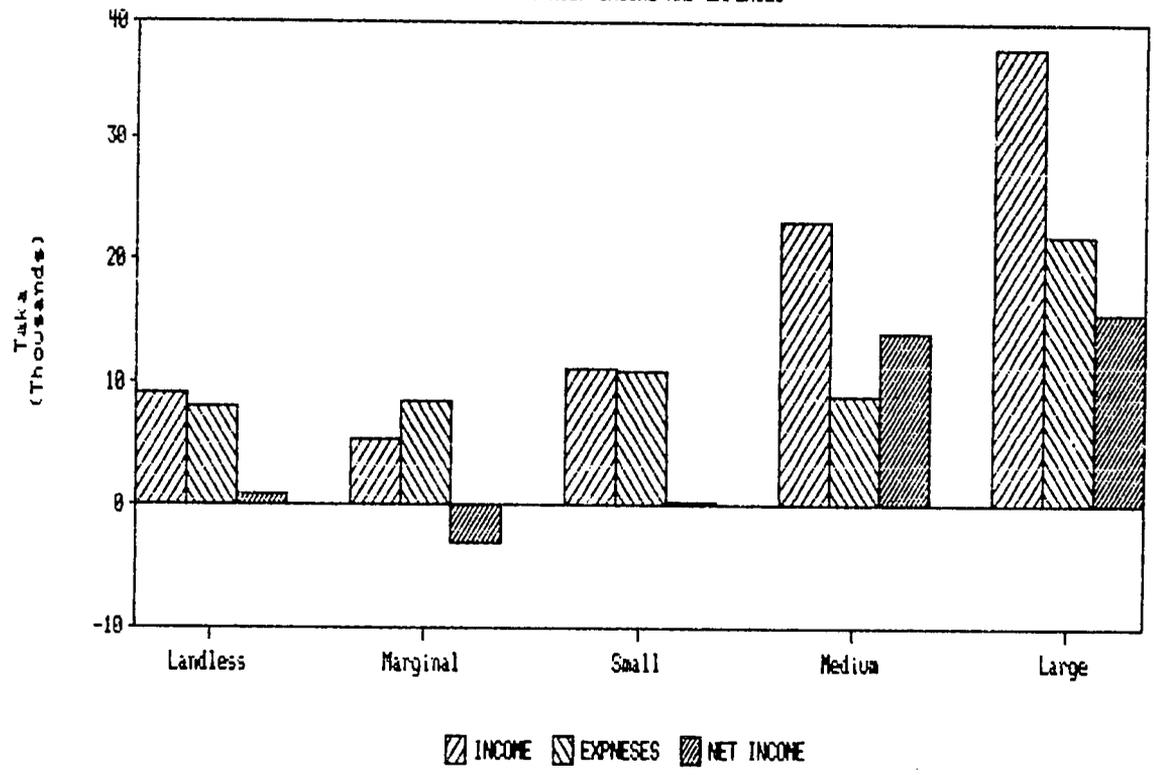
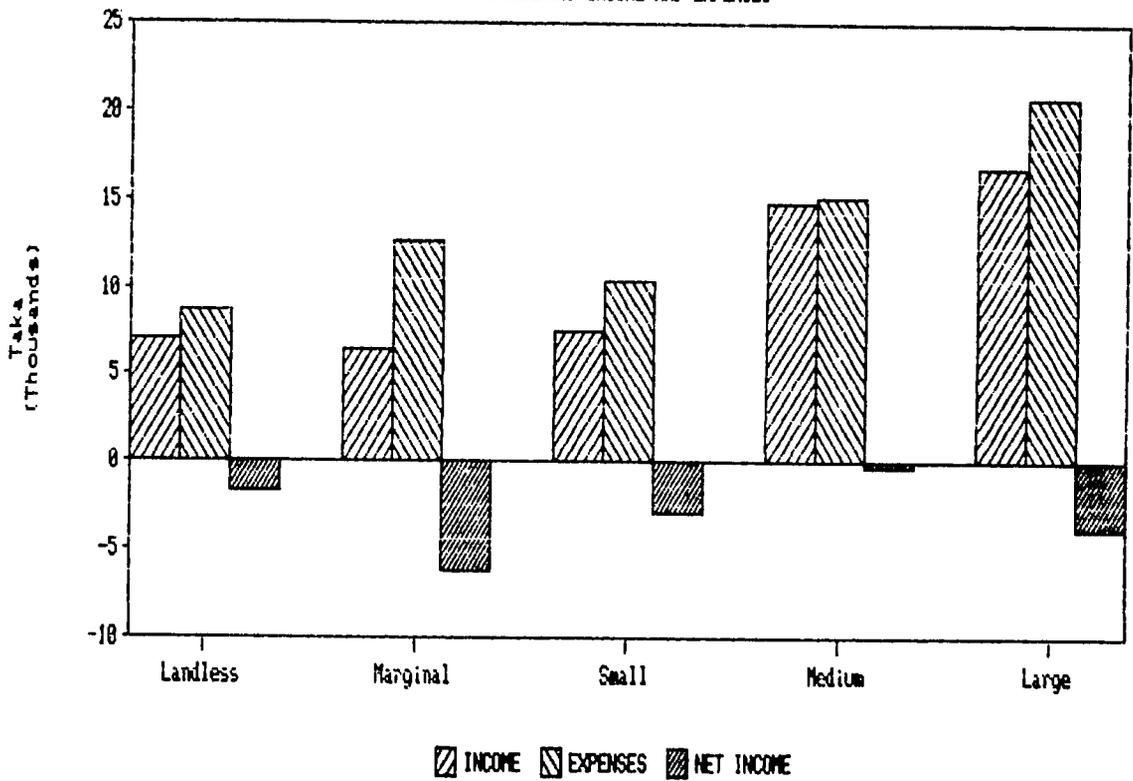


Fig. 6.2

SOUTH CHOTO KALAMPUR  
HOUSEHOLD INCOME AND EXPENSES

This situation, at least in part, could be due to the data but it is more likely due to the overall economy in South Kalampur. The economic situation in South Kalampur is simply not as viable as the economic situation in North Kalampur. This is due to many factors; there is little or no irrigation system in South Kalampur; there is no road or electricity in South Kalampur; South Kalampur is an "isolated" community; there is no bazar, school or mosque in South Kalampur; and finally, the people of South Kalampur receive almost no aid from government programs. Effectively, the people of South Choto Kalampur live on the wrong side of the road. They are physically, but to a greater extent, psychologically isolated from the political and economic mainstream of the area. Consequently, even Large Farmers, find themselves in debt from year to year.

In summary, the people of North Choto Kalampur are economically more secure and have a higher standard of living than the people of South Choto Kalampur. Important, however, only the Large and Medium Farmers living in North Kalampur, relative to all other farmers in the community, have a reasonable income and standard of living; they can afford to invest in land, send their children to school, actively participate in the religious and political activities of the community, and they don't have to worry about their families having enough food. This situation suggests that about 75%

of the farmers in Choto Kalampur are living an economically marginal existence.

#### THE FARMER'S VIEW

One of the aims of this research was to obtain the farmer's view of his farming system; his perspective on new seeds, insecticides and fertilizers; the seasonal farming problems he faces; and his opinion on the value of government extension workers, especially the BJRI field staff, in the village. The heads of all sixty-eight households in the sample provided open-ended responses to the following questions:

1. What major farming problems do you have during the Rabi/Boro season?
2. What major farming problems do you have during the Aus season?
3. What major farming problems do you have during the Aman season?
4. Do you have problems getting the irrigation water you need? If so, explain.
5. Do you use fertilizers? Problems? Explain.
6. Do you use insecticides? Problems? Explain.
7. What type of seeds do you use? Problems? Explain.
8. What are the advantages and disadvantages of new improved technologies (seeds, fertilizers, insecticides, etc.)?

9. Has the new technologies and knowledge given to you by government agricultural extension workers and scientific officers, especially the BJRI, been of help to you? Explain.

10. Are some farmers more "lucky" than others? Explain.

When these questions were asked of farmers, no attempt was made to bring the response to closure. The overall intent of the questions was to give the farmer an opportunity to freely express himself on matters pertaining to his farming system. In presenting the responses of the farmers, percentages do not equal 100 because farmers often made several responses to a single question.

#### Question 1 (on the Rabi/Boro season)

##### North Kalampur: Landless Farmers

50% did not cultivate during Rabi/Boro

50% noted high price of fertilizers

25% complained about a lack of irrigation

##### South Kalampur: Landless Farmers

80% did not cultivate during Rabi/Boro

20% said they cannot afford to farm

##### North Kalampur: Marginal Farmers

83% did not plant

16% complained about lack of irrigation

16% said they cannot buy a plow and oxen

16% said they had no problems in this season

**South Kalampur: Marginal Farmers**

80% did not plant

60% said they cannot afford a plow and oxen

40% complained about a lack of irrigation

**North Kalampur: Small Farmers**

75% said fertilizers/insecticides too expensive

56% noted they lack adequate irrigation

18% said they cannot afford a plow and oxen

18% said fertilizers not available

18% said seeds and insecticides not available

6% said they worried about storms

6% said they had no problems

**South Kalampur: Small Farmers**

13% did not plant during this season

73% said they cannot afford fertilizers

46% noted a lack of irrigation

20% said they cannot afford oxen

**North Kalampur: Medium Farmers**

83% note the high cost of fertilizers

83% note problems with insects

33% said insecticides too expensive

50% complained they had no insect sprayer

33% noted irrigation problems

**South Kalampur: Medium Farmers**

83% noted a lack of irrigation facilities

66% said fertilizers/insecticides too expensive

**North Kalampur: Large Farmers**

- 100% said fertilizers too scarce
- 100% said irrigation too limited
- 50% noted the high cost of fertilizers
- 50% said they needed insect sprayer

**South Kalampur: Large Farmers**

- 100% commented on lack of irrigation facilities
- 100% complained about high cost of fertilizers
- 100% noted high cost of insecticides
- 33% said improved seeds unavailable

**Question 2 (on the Aus season)****North Kalampur: Landless Farmers**

- 50% did not cultivate during this season
- 50% said they cannot afford seeds and fertilizers
- 25% commented on a lack of rain

**South Kalampur: Landless Farmers**

- 100% did not cultivate during this season

**North Kalampur: Marginal Farmers**

- 16% did not cultivate during this season
- 50% said fertilizers too expensive
- 16% noted their meager land holdings
- 16% said they had no problems during this season

**South Kalampur: Marginal Farmers**

- 80% claimed a lack of money as major problem
- 60% commented on a lack of water
- 20% said they cannot afford plow and oxen
- 50% did not cultivate during this season

**North Kalampur: Small Farmers**

43% strongly noted poor irrigation system

37% noted that fertilizers unavailable

31% said hired labor scarce and expensive

12% complained about weeds in fields

37% said they had no insect sprayer

6% said they had no problems

**South Kalampur: Small Farmers**

100% report scarcity and expense of fertilizers

100% report scarcity and expense of insecticides

20% said that fertilizer decreases soil fertility

20% commented on storage problems

20% reported no seasonal problems

**North Kalampur: Medium Farmers**

83% expressed strong concern over irrigation

50% complained of insects and no insecticide

33% said fertilizer was too scarce

16% said laborers were scarce

**South Kalampur: Medium Farmers**

66% expressed strong concern on lack of irrigation

16% said insects were a problem

16% noted high expense of insecticides

16% said they cannot afford insect sprayer

**North Kalampur: Large Farmers**

100% said they needed laborers

100% complained of high cost of farming

50% said they needed an insect sprayer

**South Kalampur: Large Farmers**

100% said they needed irrigation

33% had problems with insects

33% said the cost of farming was too expensive

**Question 3 (on the Aman season)****North Kalampur: Landless Farmers**

25% did not plant during this season

50% noted problems associated with irrigation

25% said they cannot afford fertilizers

25% said they cannot afford insecticides

**South Kalampur: Landless Farmers**

100% did not plant during this season

**North Kalampur: Marginal Farmers**

33% said irrigation was not available

33% said fertilizer and insecticides too expensive

33% said seeds unavailable

16% said laborers were scarce

16% said they had no major farming this season

**South Kalampur: Marginal Farmers**

80% report a lack of irrigation

30% said they were too poor to buy oxen and plow

**North Kalampur: Small Farmers**

93% noted a lack of irrigation

16% said Fertilizers unavailable

16% said insecticides unavailable

**South Kalampur: Small Farmers**

46% did not plant during this season

80% noted the lack of irrigation facilities

20% said they had no money to buy fertilizer

**North Kalampur: Medium Farmers**

66% noted the lack of irrigation facilities

33% said laborers unavailable

33% noted the high cost of farming

**South Kalampur: Medium Farmers**

100% commented on the lack of irrigation

50% said village needed more tube wells

20% said they needed more low lift pumps

**North Kalampur: Large Farmers**

100% said irrigation facilities very poor

60% noted the high cost of fertilizers

**South Kalampur: Large Farmers**

100% noted the lack of irrigation

33% noted the high cost of farming

**Question 4 (on irrigation)****North Kalampur: Landless Farmers**

50% said they had no land to irrigate

25% said irrigation service too expensive

25% said their land inaccessible to irrigation

25% said irrigation service too expensive

25% said their land inaccessible to irrigation

**South Kalampur: Landless**

100% have no form of irrigation

**North Kalampur: Marginal Farmers**

33% noted their land inaccessible to irrigation

33% said irrigation too expensive

33% complained about irrigation management

16% said pumps were too often broken

**South Kalampur: Marginal Farmers**

60% said their land inaccessible to irrigation

40% said water rates too expensive

40% have minimal access to irrigation water

**North Kalampur: Small Farmers**

56% have no access to irrigation

56% noted irrigation facilities inadequate

18% said that river pumps often inoperative

18% said irrigation water too expensive

18% complained of irrigation management

6% said they had few problems in this season

**South Kalampur: Small Farmers**

59% have no access to irrigation

20% said do not get irrigation water on schedule

13% said they were unable to pay irrigation bill

13% said irrigation too expensive

**North Kalampur: Medium Farmers**

83% have access to irrigation

83% noted the importance of paying bill on time

16% noted the high frequency of pump failure

**South Kalampur: Medium Farmers**

86% have no access to irrigations

50% said irrigation too expensive

50% said they were unable to get water when needed

16% noted high frequency of power failure

**North Kalampur: Large Farmers**

100% have access to irrigation

50% complained of pump failure

50% complained of irrigation management

50% complained about the quality of canals

50% said irrigation too expensive

**South Kalampur: Large Farmers**

100% have no access to irrigation

**Question 5 (on fertilizers)****North Kalampur: Landless Farmers**

50% use no fertilizers

75% complain about high cost of fertilizers

50% said fertilizers not always available

**South Kalampur: Landless Farmers**

80% said they do not use fertilizers

20% said they use inadequate amounts of fertilizer

20% noted the high cost of fertilizers

**North Kalampur: Marginal Farmers**

16% said they cannot afford to use fertilizers

100% said fertilizers too expensive

**South Kalampur: Marginal Farmers**

20% said they do not use fertilizers

60% said they use inadequate amounts of fertilizer

80% noted the high cost of fertilizers

**North Kalampur: Small Farmers**

18% said that local fertilizers are impure

75% said they use inadequate amounts of fertilizer

100% complained about the high cost of fertilizers

6% said they had no problems with fertilizers

**South Kalampur: Small Farmers**

13% said they do not use fertilizers

86% commented on the high cost of fertilizers

6% said fertilizers not always available

6% said they had to buy illegal fertilizers

**North Kalampur: Medium Farmers**

100% said they use some fertilizers

100% said fertilizers too expensive

50% noted that fertilizers are often unavailable

**South Kalampur: Medium Farmers**

50% regularly use some types of fertilizers

100% said fertilizers too expensive

16% said fertilizers often unavailable

**North Kalampur: Large Farmers**

100% regularly use some types of fertilizers

50% said fertilizers too expensive

50% said fertilizers often unavailable

**South Kalampur: Large Farmers**

100% regularly use some types of fertilizers

66% said fertilizers too expensive

33% said fertilizers often ineffective

**Question 6 (on insecticides)****North Kalampur: Landless Farmers**

25% said they never use insecticides

50% said insecticides not effective

75% said insecticides too expensive

**South Kalampur: Landless Farmers**

100% said they never use insecticides

**North Kalampur: Marginal Farmers**

83% said they cannot afford to use correct amount

83% report insecticides are ineffective

83% said insecticides too expensive

16% report no problems with insecticides

**South Kalampur: Marginal Farmers**

83% do not use insecticides

100% comment on the high cost of insecticides

**North Kalampur: Small Farmers**

18% do not use insecticides

50% said insecticides useful

50% said insecticides too expensive

50% said insecticides often ineffective

6% note insecticides often unavailable

**South Kalampur: Small Farmers**

60% said they do not use insecticides

60% said insecticides too expensive

6% said insecticides often ineffective

5% said they were pleased with insecticides

**North Kalampur: Medium Farmers**

100% said they occasionally use insecticides

66% noted the high cost of insecticides

50% said insecticides often ineffective

33% noted that insecticides often unavailable

16% said they were pleased with insecticides

**South Kalampur: Medium Farmers**

33% said insecticides are ineffective

66% said insecticides are effective

100% said they occasionally use insecticides

100% noted the high cost of insecticides

**North Kalampur: Large Farmers**

100% use some insecticides

50% said the insecticides are ineffective

**South Kalampur: Large Farmers**

100% said they occasionally use insecticides

100% said insecticides too expensive

**Question 7 (on seeds)****North Kalampur: Landless Farmers**

50% said they have use improved seeds

25% said they use only local variety seeds

50% said improved seeds are good

25% said that improved seeds are too expensive

**South Kalampur: Landless Farmers**

80% said they have never used improved seeds

20% said they hope to use improved seeds

20% said they did not know much about new seeds

**North Kalampur: Marginal Farmers**

83% said they use some improved seeds

66% said improved seeds are good

16% said they did not know much about new seeds

16% said BJRI seeds are poor quality

**South Kalampur: Marginal Farmers**

60% said they use only local variety seeds

40% said they had used some improved seeds

16% said they did not know about new seeds

80% said improved seeds too expensive

**North Kalampur: Small Farmers**

56% said they use some improved seeds

68% said that improved seeds were good

44% said they used only local variety seeds

6% said BJRI provided poor quality seeds

**South Kalampur: Small Farmers**

53% said they used only local variety seeds

46% said they had used some improved seeds

20% said they knew little about improved seeds

20% said they had no access to improved seeds

**North Kalampur: Medium Farmers**

100% said they used improved seeds

33% commented on the high cost of improved seeds

50% said improved seeds are good

**South Kalampur: Medium Farmers**

83% said they used some improved seeds

50% said they knew only about improved IRRI seeds

33% said improved seeds of no value without water

**North Kalampur: Large Farmers**

100% said they use improved seeds

100% said they received seeds from BJRI

100% said they believe improved seeds are good

**South Kalampur: Large Farmers**

66% said they use some improved seeds

33% said improved seeds of not value without water

66% said they depend on local variety seeds

Question 8 (on Improved technologies)

North Kalampur: Landless Farmers

50% said that improved technologies are good

50% said they knew little about new technologies

South Kalampur: Landless Farmers

80% said they knew little about new technologies

North Kalampur: Marginal Farmers

66% said new technologies are good

16% said new technologies are of no value

16% said they knew little about new technologies

16% said that new technologies are too costly

South Kalampur: Marginal Farmers

80% believe new technologies are good

80% said unable to afford new technologies

20% said they knew little about new technologies

North Kalampur: Small Farmers

100% said improved technologies are good

18% noted the high cost of improved technologies

South Kalampur: Small Farmers

66% said new technologies are useful

20% report little knowledge of new technologies

13% said only fertilizers are valuable

13% noted the high cost of improved technologies

North Kalampur: Medium Farmers

100% said improved technologies are good

33% said improved technologies too expensive

**South Kalampur: Medium Farmers**

83% said improved technologies are good

16% report little knowledge of new technologies

16% noted the high cost of improved technologies

16% said new technologies can harm the soil

**North Kalampur: Large Farmers**

100% said that new technologies bring higher yields

**South Kalampur: Large Farmers**

33% said new technologies are valuable

33% said new technologies of little value

66% believe new technologies are too expensive

33% said are useful only with irrigation

**Question 9 (on extension workers)****North Kalampur: Landless Farmers**

75% report that extension workers are helpful

25% report no contact with extension workers

25% said extension advise mainly for rich people

**South Kalampur: Landless Farmers**

100% report no contact with extension workers

**North Kalampur: Marginal Farmers**

50% said extension workers helpful

16% said they cannot afford to follow advise

33% report little contact with extension workers

**South Kalampur: Marginal Farmers**

80% report no contact with extension workers

20% said they cannot afford to follow advise

20% said extension do not help poor people

**North Kalampur: Small Farmers**

75% report extension workers are very helpful

18% said they had little contact with the workers

17% report they need more advise

**South Kalampur: Small Farmers**

100% report no contact with extension workers

20% said they need help from extension workers

13% said they wanted no extension help

**North Kalampur: Medium Farmers**

83% report extension workers are helpful

16% report extension advise too expensive

16% said they were given bad advise

**South Kalampur: Medium Farmers**

100% report no contact with extension workers

**North Kalampur: Large Farmers**

100% report that extension workers very helpful

**South Kalampur: Large Farmers**

100% report no contact with extension workers

Question 10 (on "luck")

North Kalampur: Landless Farmers

75% said their poverty is caused by luck

75% noted their fate lies with Allah

25% consider themselves to be lucky

South Kalampur: Landless Farmers

80% state that Allah will bring them luck

20% believe they are unlucky

North Kalampur: Marginal Farmers

83% said their fate depends on Allah

66% consider themselves to be unlucky

33% said they are lucky and satisfied

33% said they were unhealthy

50% acknowledged the value of hard work

South Kalampur: Marginal Farmers

100% said their fate lies with Allah

60% said they were unlucky

40% said they needed more luck

North Kalampur: Small Farmers

75% said their fate depends on Allah

31% consider themselves to be lucky

31% consider themselves to be unlucky

6% said they were somewhat lucky

**South Kalampur: Small Farmers**

80% made reference to fate and Allah

46% stated that they were unlucky

26% said that they were lucky

20% spoke of the value of hard work

**North Kalampur: Medium Farmers**

100% said that Allah determined their fate

50% said that they were lucky

16% said that they were satisfied with life

16% commented on their lack of luck

**South Kalampur: Medium Farmers**

100% said that their fate was with Allah

83% consider themselves lucky

66% are satisfied with their life

16% said that they were unlucky

33% equate hard work with wealth

**North Kalampur: Large Farmers**

100% said that Allah has been good to them

100% said that they were lucky

**South Kalampur: Large Farmers**

66% made reference to Allah and their fate

66% consider themselves to be lucky

33% said that they were unlucky

33% spoke of the value of hard work

A careful reading of the responses to the preceding questions suggests that there are several important patterns distinguishing North Kalampur from South Kalampur. Fewer numbers of farmers in South Kalampur are able to farm as many seasons as their neighbors in the north. The primary reason for this is the lack of irrigation in South Kalampur. North Kalampur farmers clearly utilize fertilizers, insecticides and improved seeds more than the people in South Kalampur. The farmers in South Kalampur are hardly aware of any improved seeds other than IRRI. The farmers in South Kalampur acknowledge the importance of improved agricultural technologies but feel that they are unable to adequately take advantage of the technologies. They believe that their inadequate irrigation system and their poverty prohibits them from utilizing the new technologies. Unlike the farmers in North Kalampur, the farmers in South Kalampur have almost no access to extension workers in the village. In fact, some of them feel that the extension workers are in the village only to help the people of North Kalampur. Even the larger land holders in South Kalampur perceive themselves to be poorer than their counterparts to the north. While the larger land holders in North Kalampur are concerned with the availability of laborers and fertilizers, the farmers in South Kalampur are concerned about the cost of farming. Clearly, the farmers of South Kalampur perceive themselves to be less economically

secure than the farmers in the north. And, of course, the economic data supports this perception. Finally, although almost all of the farmers in Choto Kalampur equate their fate with the will of Allah, those in South Kalampur are likely to consider themselves more unlucky than those in North Kalampur.

All of the questions provide insight into the many ways the farmer perceives his farming universe. Of particular importance to this study are the responses of the farmers to questions 8 (on improved technologies) and 9 (on government programs).

Farmers living in North Kalampur, especially Small, Medium and Large Farmers, believe that improved agricultural technologies are useful while the farmers living in South Kalampur are less enthusiastic about the new technologies (see Figure 6.3). Some of the farmers in South Kalampur, especially Marginal and Large Farmers, believe improved technologies to be of little value. Many of the farmers say that improved technologies are simply too expensive for them to adopt. Farmer's views on the significance of government sponsored agricultural development programs in Choto Kalampur are even more pronounced (see Figure 6.4). In North Kalampur, most farmers feel that government agricultural programs are useful and of help to the farmer. The farmers in South Kalampur, however, say that they have little or no

contact with the representatives of government sponsored agricultural projects. They are not necessarily opposed to government programs, they simply have little exposure to the programs.

Fig. 6.3

THE FARMER'S VIEW  
ON THE VALUE OF IMPROVED TECHNOLOGIES

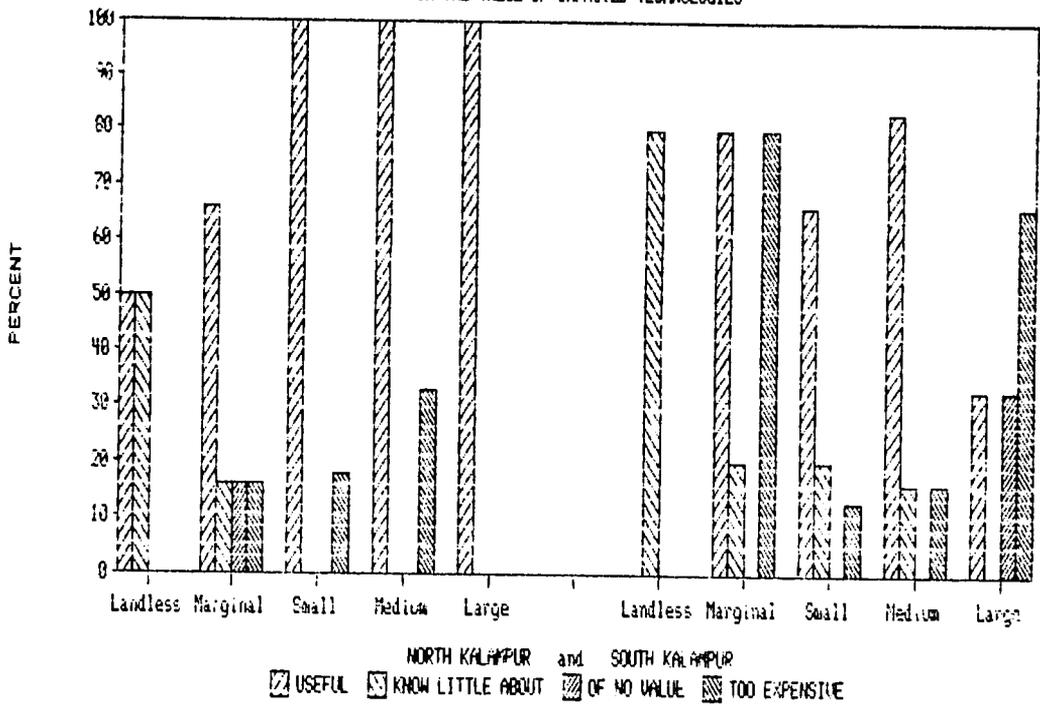
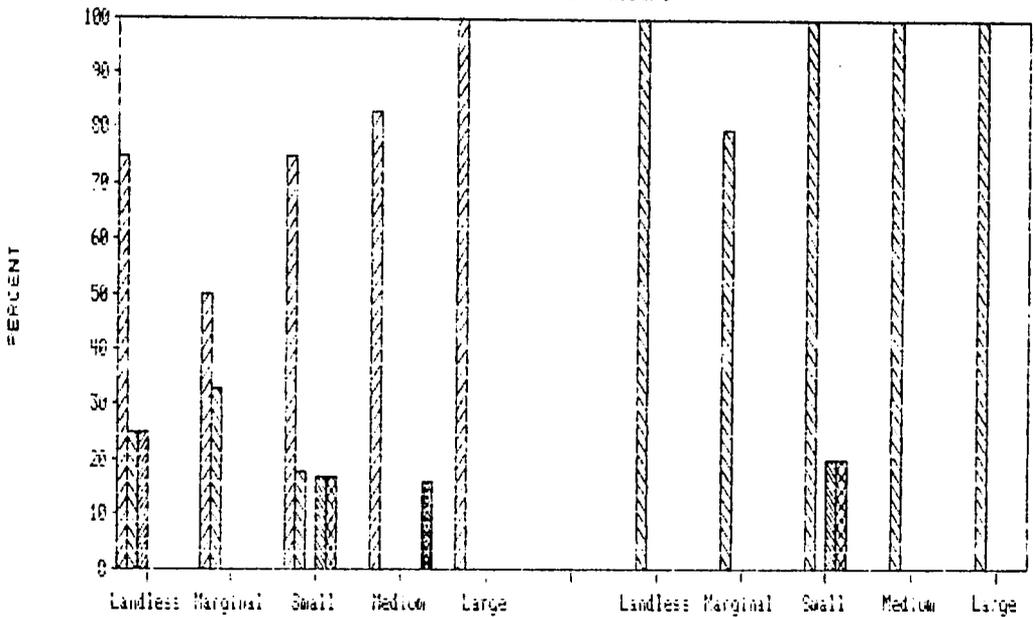


Fig. 6.4

THE FARMER'S VIEW ON GOVERNMENT PROGRAMS



NORTH KALAMPUR and SOUTH KALAMPUR

HELPFUL
  LITTLE CONTACT
  FOR THE RICH
  NOT FOR THE POOR
  NEED MORE HELP
  GIVEN BAD ADVICE

## CHAPTER SEVEN

### CONCLUSIONS AND RECOMMENDATIONS

As noted in Chapter One, the purpose of this research was to attain one generalized and five specific goals. The generalized aim of the research was to examine, in ecological perspective, the relationships between man, land and economy in Choto Kalampur. The specific goals were: 1) to determine the effects improved agricultural technologies have had on BJRI households, 2) to ascertain the extent to which the new technologies have had an impact on non-BJRI households, 3) to compare the economies of BJRI households with those of non-BJRI households, 4) to examine the farmer's perception of improved agricultural technologies, and 5) to identify problems associated with the transfer of improved agricultural technologies and to offer recommendations that might help to facilitate the transfer of these technologies.

In this concluding chapter, I review some of the findings already presented in this report and examine each of the goals of the research. My conclusions and recommendations are, of course, subject to modification and reinterpretation as further research is conducted in Choto Kalampur. The findings, nonetheless, should provide at least some insight into how to develop and transfer appropriate and improved agricultural technologies in Bangladesh.

## SUMMARY AND CONCLUSIONS

### The Economy

Landless, Marginal and Small farmers in Choto Kalampur have a significantly lower yearly income than Medium and Large Farmers. Landless Farmers have an average yearly income of taka 7,991/= while Large Farmers have an average yearly income of taka 25,280/=. It is worth noting that Landless Farmers have a higher average income than Marginal Farmers. The primary reason for this is that the bulk of the income for the landless comes from wage labor. Because the landless have no land, they must place a higher priority on wage income than on farm income. Conversely, the Marginal Farmer, because he owns a small amount of land, is apt to be lulled into a sense of false economic security. He does not place as high priority on cash income as a landless person, and as a consequence, often expects more from his small land holdings than is realistic. The most significant economic

gap between classes of farmers occurs between Small and Medium Farmers. The average yearly income for a Small Farmers is taka 9,433/=. The average yearly income for Medium Farmers is double that of the Small Farmer--taka 18,993/=. This suggests that the critical amount of land a households needs to own to attain relative agricultural success is over 2.50 acres. This assertion is supported by the fact that differences in non-agricultural income between Small Farmers and Medium Farmers is insignificant.

Differences in households expenses--farm purchases and labor, food purchases, and other purchases--in Choto Kalampur are also significant. As was the case with income, the most dramatic gap in expenses between classes of farmers occurs between Small and Medium Farmers. Large and Medium Farmers spend much more on labor, irrigation and fertilizers than Small, Marginal and Landless Farmers. The larger land owners have more farm expenses because they own more land. But, they also have many more resources to make these purchases. There is little doubt that those farmers with adequate economic resources--primarily land--are able to generate more economic resources.

Basic food items such as rice and flour cost Large and Medium Farmers considerably less cash than the same foodstuffs cost Landless, Marginal and Small Farmers. It is important that Landless and Marginal Farmers spend half of their yearly income on rice and flour. And, because their

income is very low, they have little left to purchase other items or invest in education or land. Large Farmers, on the other hand, spend nothing on rice, as they have a surplus from their farms, and only a small part of their income on flour. A Large Farmer, however, may spend as much as five times the amount a Landless Farmers spends on sugar and fish.

Large and Medium Farmers spend considerably more on clothing, schooling, entertaining and on religious/ceremonial activities than farmers with less land holdings. It is not unusual for a Large Farmer to spend as much on clothing each year as a Landless Farmer spends on rice. There are clearly "haves" and "have nots" in Choto Kalampur. The dividing line can be drawn between those households owning more than 2.50 acres and those owning less than 2.50 acres. Or, the dividing line between the "haves" and "have nots" can be drawn between Small Farmers and Medium Farmers.

There is no doubt that Large and Medium Farmers in Choto Kalampur are economically more secure than Landless, Marginal and Small Farmers. Even though Large and Medium Farmers may be occasionally in debt or even spend more than their income, they can still afford a relatively decent standard of living. They can buy meat and fish, send their children to school, generously give to the mosque, and invest in land or small businesses. Landless, Marginal and Small Farmers hardly have an income sufficient to maintain a subsistence standard of

living. It should be noted, however, that the poverty of the Landless and Marginal Farmers tends to create an illusion of wealth for Medium and Large Farmers; even the wealthy in Choto Kalampur are relatively poor.

#### North and South Choto Kalampur

Clearly the amount of land farmed and/or owned is an overall marker of wealth in Choto Kalampur. But, there are only a few significant differences in the amount of land owned between North and South Kalampur. Large Farmers in the south own about two acres less land than their counterparts in the north. Large Farmers in the north lease-out more land than the Large Farmers in the south. Large Farmers in the south lease-in more land than Large Farmers in the north. The primary reason for this difference rests in the availability of irrigation in the north. Households in South Kalampur, including Large Farmers, lease-in land located in North Kalampur in order to grow high yielding varieties of rice. Even paying 50% of their yield to the owner of the land, they are able to obtain more for their labor than if they had planted on their own unirrigated land located in South Kalampur. In general, the only important differences in the amount of land owned in Choto Kalampur is between the various classes of farmers.

Agricultural income is much higher for Small, Medium and Large Farmers in North Kalampur than for their counterparts

in South Kalampur. But, agricultural income for Marginal Farmers is higher in South Kalampur than North Kalampur. The reasons for this are unclear considering that all other classes of farmers in North Kalampur have a higher agricultural income than their counterparts in South Kalampur. Landless Farmers in North and South Kalampur have about the same agricultural income.

Landless Farmers in both North Kalampur and South Kalampur derive the bulk of their yearly income from non-agricultural economic activities. Non-agricultural income for Marginal Farmers is about the same in the north and the south. Medium Farmers in South Kalampur, however, have almost twice as much non-agricultural income as Medium Farmers in North Kalampur. The explanation for this rests in the fact that land in the south is less productive than land in the north; the Marginal Farmers there must seek more non-agricultural income. If they had more land, like the Large Farmers, they would have enough land to support their families without significant non-agricultural income. Large Farmers in North Kalampur have a much larger non-agricultural income than Large Farmers in South Kalampur. This is due primarily to the opportunities associated with wealth and status in the politically dominant part of the village.

If there is an upper and affluent class in Choto Kalampur, it is the Large Farmers living in North Kalampur. Total yearly income for Large Farmers in North Kalampur is

twice the yearly income for Large Farmers in South Kalampur. Total yearly income for Medium Farmers in North Kalampur is higher than the yearly income for Large Farmers living in South Kalampur. Small Farmers in the north have almost as much yearly income as Medium Farmers in the south. Except for Marginal Farmers in the south who have a slightly higher yearly income than their counterparts in the north, all classes of farmers in North Kalampur have a significantly higher yearly income than those in South Kalampur.

Even when farming, labor and other expenses are considered, the households of North Kalampur are more economically secure than the households of South Kalampur. With the exception of Marginal Farmers in North Kalampur, all farm classes in the north realize a yearly profit in net income. Why Marginal Farmers in North Kalampur have a negative net income for the year may be due to the fact that they own a little land but not enough land to support themselves. But, the little amount of land, which gives them some status in the community, also creates a sense of false security. They expect too much from the land. They have to borrow money, usually from Large Farmers in North Kalampur, often at exorbitant interest rates, and never get out of debt.

The economic situation for the farmers in South Kalampur, compared to North Kalampur, is seriously depressed. All farm classes--Landless, Marginal, Small, Medium and

Large--in the south have a negative yearly net income. Expenses for farmers in the south are just as high as for farmers in the north yet they have less yearly income. In general, the economic situation in South Kalampur is simply not as viable as the economic situation in North Kalampur. This is due to many factors; there is no road or electricity in South Kalampur; South Kalampur is an "isolated" community; there is no bazar, school or mosque in South Kalampur; and finally, the people of South Kalampur receive almost no aid from government programs. Effectively, the people of South Kalampur live on the wrong side of the road. They are generally isolated from the political and economic mainstream of the area. As a consequence, even Large Farmers in South Kalampur find themselves in debt from year to year.

The question now becomes--is the relative economic success of the farmers in North Kalampur due to their association with the field staff of the BJRI? At a general level of analysis, the answer to this question is at least, in part, in the affirmative. Most of the farmers in North Kalampur speak well of the BJRI project and credit some their agricultural success to improved technologies, even if the success is not directly credited to the BJRI. But, this is only part of the answer to their relative success. There are also the factors of irrigation and the overall economic opportunities afforded the people of North Kalampur as a result of living in the economic and political center of the

community. There is no doubt that irrigation is a major factor contributing to economic security for the households in North Kalampur. Many people perceive that there is a direct correlation between irrigation and improved agricultural technologies. The farmers of North Kalampur are at least open to the possibility of technology transfer because of their general belief that new technologies might have the same impact on yields as irrigation. Whether or not the farmer, especially Landless, Marginal and Small, can afford in cash and perceived risk the new technologies is another matter. The exposure of the North Kalampur farmer to the many government projects and farm business representatives that visit the bazar are also potential factors contributing to their overall economic success.

The farmers of South Kalampur have almost no relationship with the staff of the BJRI. And, there does not appear to be any form of a technology transfer "trickle down" effect on South Kalampur. The farmers are basically unaware of the improved technologies that are potentially available to them. The BJRI has had little or no influence in South Kalampur. But, just as the BJRI cannot be given full credit for the economic success in North Kalampur, neither must they carry the liability for the lack of economic success in South Kalampur. Again, irrigation and exposure to programs in economic development are important contributing factors. The farmers of South Kalampur, like their neighbors to the north,

perceive that there is a positive correlation between irrigation and improved agricultural technologies. If they had irrigation, they would probably be more willing to at least entertain accepting improved agricultural technologies, provided the cash and perceived risk cost were not too great.

### Some Farming System Problems

The problems associated with agricultural development in Bangladesh are many and complex. They range from a seemingly simple problem such as improved seeds being unavailable to the farmers to more complex problems associated with getting farmers to accept new technologies. In Choto Kalampur there are four fundamental agricultural problems that merit immediate consideration--irrigation, experimental cropping patterns, land fragmentation and the image of governmental agricultural development programs.

Irrigation. Much has already been said about the importance of irrigation to the people of Choto Kalampur so it will suffice to simply reiterate a few of the points that have already been made. Approximately one-third of the land in North Kalampur is irrigated and approximately one-eighth of the land in South Kalampur is irrigated. Because of irrigation, many of the farmers in North Kalampur are able to farm two or three seasons each year. Unfortunately for the people living in South Kalampur, the little irrigation water they receive arrives in a very inefficient manner. The water

comes from a low lift pump that draws water from the Banshi River in North Kalampur. After it is pumped from the river, it must flow along a canal for over a mile to the Aricha Highway where it must then pass under the highway through a culvert before reaching the fields. It takes twelve hours of continual pumping before the water reaches the fields in South Kalampur. Effectively, there is no irrigation system in South Kalampur.

The differences in crop yields between North and South Kalampur is in large part a reflection of the lack of irrigation in the south. Except for Boro high yielding varieties of rice, most of which is grown in irrigated fields in North Kalampur, crop yields are much lower in the south than in the north. For example, yields for Aus LV, Aman LV and potatoes, are more than twice as high in North Kalampur as in South Kalampur.

Perhaps an even more important farming systems problem is the farmer's perception of the significance of irrigation, in both North and South Kalampur. In the farmer's model of agriculture, irrigation is classed as an improved and modern technology. In fact, it would appear that farmers perceive of irrigation as the foundation on which other improved technologies should be built. The data suggest that a successful program in agricultural technology transfer--improved seeds, fertilizers, insecticides, plowing techniques--may require irrigation as a prerequisite. Modern

fertilizers and insecticides may be transferred without irrigation. But, modern agricultural technologies may be more easily transferred--ie., readily accepted--if an adequate irrigation system is already in existence.

**Experimental Cropping Patterns.** All of the BJRI on-farm experimental plots, as well as the farmers with whom the BJRI field staff work, are located in North Kalampur. There are no experimental plots in South Kalampur. In fact, all of the BJRI experimental plots are located within 100 yards of the road that runs between the Aricha Highway and the bazar. All are easily accessible to the BJRI field station located in the bazar. When asked about the rationale for the location of the experimental plots, the field staff responded by saying that the plots should be near the road so all the farmer could see them. The theory may be good but it does not seem to work in Choto Kalampur. There is no evidence of a "trickle down" effect; non-BJRI project households are not readily volunteering to participate in the project.

The field staff of the BJRI has had considerable difficulty getting people to participate in the new cropping trials. By April of 1983, the BJRI had eighteen households participating in the experimental field trials but were hopeful to have established experimental on-farm trials on the land of forty different households by the end of the year. All of the farmers participating in on-farm trials were Medium and Large Farmers. The field staff worked with

Landless, Marginal and Small Farmers but the actual land on which the experimental trials were placed was owned by Large and Medium Farmers.

The BJRI field staff should not be criticized for any lack of success. The field workers are poorly paid and they work long and hard hours. In fact, at one level of specification, their project is thus far a success. The BJRI project households are more economically secure and produce higher yields than non-project households. The BJRI staff should be given at least some of the credit for the general economic success of their project households. The project would be more successful, however, if there were fewer problems associated with the on-farm experimental cropping patterns they are trying to introduce to the farmer.

The opinion here is that the experimental cropping patterns that the farmers of Choto Kalampur are asked to provide the land and labor for are simply not designed to meet the needs of the Bangladeshi farmer. The first and most serious problem with the experimental cropping patterns is directly tied to the farmer's land holdings. The cropping patterns are designed for farmers with land holdings of one-half acre to one acre. Granted, many farmers own as much as an acre of land but few of them have a plot of land larger than twenty to thirty decimals. The farmer perceives of his land holdings as consisting of different plots. If a farmer is asked how much land he owns, he will inevitably say that

he has twenty decimals in one area and twelve decimals in another area. Or, he may say something like he has two plots equaling one bigha. It is plot and plot size that is of primary importance to the farmer. An acre is a higher taxonomic order for the farmer than a plot. If the experimental cropping patterns were designed to accommodate the farmer's perception of land, they would be more compatible with the farmer's world view and as a consequence, the farmer would be more likely to try them.

The second fundamental problem associated with on-farm experimental cropping patterns is directly related to the farmer's perception of cost and risk. With the possible exception of the Large and Medium Farmers in North Kalampur, the farmers of Choto Kalampur live very close to economic disaster. A flood, a drought, or the loss of just one major crop can put a household into debt for many years. This fate, of course, is not new to the Bangladeshi farmer; it goes with being a farmer. But, new seeds, plowing techniques, seed drills, fertilizers and insecticides are new to the farmer. Just because a Large or Medium Farmer can use these new technologies does not mean that a Small Farmer can do the same thing. The larger farmer can afford to experiment. If he has a crop failure, his family will not starve nor will he have to go into debt to buy food. So, the poor farmer holds a "what if" attitude with regard to new technologies. "What if" the insecticides kill the crops?

"What if" the new seeds won't germinate properly? The poor farmers know the risks involved with traditional farming methods. New methods suggest new risks to the poor farmer.

In addition to the risk problems, most farmers in Choto Kalampur have to consider the cost of improved technologies. If they don't believe that the cost is worth the risk even for a potentially higher yield, they are apt to stay with traditional, but proven, methods. It is not that the farmers in Choto Kalampur are against new technologies and experimental cropping patterns, they are, for the most part, reluctant to venture into an unknown agricultural arena of which they know very little.

**Land Fragmentation.** The immediate significance of land fragmentation on cropping decisions a farmer has to make and its influence on the acceptance of experimental cropping trials has already been noted. Of equal importance is the question of the impact of land fragmentation on Choto Kalampur and Bangladesh in the years to come. It should be remembered that Marginal Farmers in Choto Kalampur own an average of .22 acres of land divided into two plots. Small Farmers own seven plots totaling an average of 1.21 acres. Medium Farmers own an average of 3.06 acres of land distributed into fourteen plots. Large Farmers own an average of 7.07 acres of land divided into twenty-four plots. This means that in 1983, each farming household in Choto Kalampur owned an average of 2.89 acres of land divided into

eleven plots with each plot averaging .24 acres in size.

If each farming household in Choto Kalampur has only two sons, by 1995, without considering the 2.6% population growth rate in Bangladesh, land holdings per household will be reduced by half. The importance of inheritance patterns cannot be over emphasized. There is no way to accurately forecast the actual number of plots that will be owned by each household in 1995. For purposes here, it may be assumed that when the land holdings are reduced by half, the number of plots potentially may be increased twofold. Marginal Farmer households will own an average of .11 acres of land each and a single holding may be divided into four plots. Small Farmers will own an average of .60 acres of land, potentially divided into fourteen plots. Medium Farmer household land holdings will average 1.53 acres in up to twenty-eight plots and Large Farmers will average owning 3.53 acres of land scattered into as many as forty-eight plots. If this situation manifests itself, and there is no hard data suggesting otherwise, there probably will be no Large Farmer households in Choto Kalampur by the year 1995.

By 1995, because of the inheritance practices, Large Farmers in Choto Kalampur will have become Medium Farmers and Medium Farmers will have become Small Farmers. Small Farmers will own about the same amount of land as Marginal Farmers hold today. On average, each farming household in the village will own 1.44 acres of land by 1995. The land of

each household will have been divided into as many as thirty-three plots and each plot will be only about .6 acres in size.

Theoretically, the land in Choto Kalampur may be further divided around the year 2008. Again, if each farming household has only two sons, the land holding situation may be, as follows: Marginal Farmers, .5 acres of land; Small Farmers, .30 acres of land; Medium Farmers, .76 acres of land; and Large Farmers, 1.76 acres of land. The average amount of land owned by each farming household will be about .72 acres divided into a possible forty-seven plots with each plot being .1 acre in size. In approximately two generations, 1983 to 2008, all of the Large and Medium Farmers in Choto Kalampur will have become Small Farmers. All of the Small Farmers in the village will have become landless, owning only an average of .3 acres of land.

The reduction and fragmentation of land holdings for the farming households in Choto Kalampur is typical of Bangladesh. As of 1977 (BBS 1978), 75% of the rural households in Bangladesh owned less than three acres of land, suggesting that most rural households are subsistence farmers (Alim 1979). Three percent of the households own eight or more acres of land and 22% of the households own three to eight acres of land (BBS 1978). The average amount of land owned by each farming household in Bangladesh in 1977 was 1.65 acres (BBS 1978). If the average household land holding is reduced because of inheritance by half around 1995 and

then again around 2008, each farming household in Bangladesh will own only .41 acres of land. This is obviously an impossible situation; such an event would render Bangladesh one of the most economically impotent countries in history.

**Program Image.** Government sponsored agricultural development programs are not uniformly endorsed by all of the farmers in Choto Kalampur. In general, many of the farmers in Choto Kalampur are concerned about the overall intent or efficiency of most government sponsored development programs. Although most farmers are supportive of government programs, some of them believe that the programs are designed to help only the rich. Their argument is that the rich don't need government aid. Even those farmers who voice strong support for government development programs often complain about the inefficiency of the programs. They argue that when they seek government aid, they are inevitably stopped because of government bureaucracy or because of bribes that occasionally have to be paid. The farmers living in South Kalampur, of course, have little to say about government programs. The primary reason is they don't know much about government sponsored programs. It's not that they are unsupportive of the programs, they have little on which to base an opinion since they are seldom contacted by representatives of the government sponsored development programs.

The intent here is not to evaluate all of the government development programs in Choto Kalampur. Rather, it is to

simply point out that these programs do not have the type of image that necessarily elicits a supportive response on the part of the farmer. This is obviously not the image needed by government sponsored development programs. This type of image serves to negate all of the positive contributions made to the Bangladeshi farmer by the representatives of the government sponsored programs.

#### RECOMMENDATIONS

There are several hundred national and international economic development programs (Gross and Selim 1983) scattered throughout Bangladesh. Although their methods and techniques may differ, they share a common goal--to improve the overall welfare of Bangladeshis. Those programs promoting agricultural development are committed to enhancing the welfare of the Bangladeshi farmer. For the most part, these programs attempt to influence the farmer through some form of technology transfer. The recommendations presented here are primarily directed to these national and international programs. Importantly, however, the thesis here is that the agricultural problem in Bangladesh is not with technology--it is with people. There is often a breakdown of communication or some form of misunderstanding between the farmer and the people in agricultural development who most want to help him. The recommendations here do not focus on technology but on the socio-cultural factors, perceptions and methods of communication that so directly

influence the success or failure of planned programs in agricultural development. The recommendations are broadly based and have policy implications. Recommendations of a detailed nature and on some of the research priorities for Bangladesh involving socio-cultural factors in agriculture have been outlined elsewhere (Wallace 1983).

It is clear from the findings in this report and from the literature that the Bangladeshi farmer and his family work long and hard hours. Any program in agricultural development must take this factor into consideration. It is also clear that most Bangladeshi farmers cannot afford a capital investment much beyond that which they already make. To expect poor farmers to invest capital that they don't have on the "promise" they will get higher crop yields is unrealistic. The farmer must "know" that he will get a higher yield.

The rural Bangladeshi's farming system stands constantly in precarious balance. A natural disaster or an investment in poor quality seeds, for example, can tip the system into such serious imbalance that an individual farmer may not be able to economically recover. He may have to sell some of his land or go into debt in order to feed his family. Conversely, the successful adoption of improved technologies can strengthen the system and the farmer will be able to improve the welfare of his family. The recommendations that follow, if implemented, hopefully will aid agricultural

development in Bangladesh and improve the welfare of the Bangladeshi farmer and his family.

**Recommendation 1:** Where possible, the development of a countrywide, village to village, irrigation system should be given the highest priority in the overall scheme of agricultural development.

Giving irrigation such a high priority is based on practical and psychological factors. The practical factor is obvious; the farmer can produce higher crop yields with improved seeds if he has greater control of his farming system. Irrigation will give him greater control over his environment and hence, greater control of his fate. The psychological reason is a reflection of the farmer's perception of improved agricultural technologies. Because the farmer perceives irrigation to be the foundation on which other improved technologies are built, he will be more receptive to improved agricultural technologies in general if he has irrigation. When informants in Choto Kalampur were asked what single improved technology they would like to have, almost to the person they responded by pointing out their need for irrigation.

If Choto Kalampur is representative of most rural communities in Bangladesh, then the presently implemented system of irrigation in the country is not working, except for relatively affluent farmers. The "pay as you use water" cooperative approach, although sound in theory, discriminates against poor farmers. And, of course, most farmers are poor.

The breakdown in the system has little to do with technology. It is related more to such social factors as wealth, status and economic power. A new countrywide irrigation system needs to be developed which makes people as high a priority as technology.

**Recommendation 2:** On-farm experimental cropping trials should be simplified and redesigned to accommodate the limited and fragmented land holdings of most farmers.

In return for the promise of a potentially higher crop yield, some of the farmers in Choto Kalampur contribute their land and their labor as participants in on-farm experimental cropping trials. The larger land owners are usually rewarded for their efforts with higher yields. Importantly, however, the majority of the farmers in the village do not choose to participate in the experimental trials. The primary reason for this is that most farmers in the village are relatively small land owners. They do not feel that they can risk money and land on the promise that they will get higher yields. These farmers fully recognize that they do not have the same resources as the larger land owners.

The on-farm experimental trials, as followed in Choto Kalampur, are best suited to the resources of the larger land owners. They are not designed to accommodate the needs of a farmer owning only one-half acre of land divided into four plots. The experiments can be carried out among smaller land owners by getting two or three farmers to contribute a part of their land to the experiment. This type of

approach, however, raised some important methodological and scientific questions.

Getting more small land owners to participate in the on-farm trials is dependent on redesigning the experiments. The smaller land owner in Choto Kalampur, for example, owns around 1.50 acres of land divided into nine plots. It is unrealistic to ask a farmer of this type to devote a third of his land to an experiment because in his view, it may or may not be a good investment. He cannot afford to risk a third of his on an experiment. Even if some of the other farmers in the community are already getting higher yields from the experiment, he is apt to be hesitant. In his view, a guaranteed poor but predictable yield is better than an unpredictable high yield. On the other hand, the small land owner might be willing to risk one plot of his land, ten decimals in size, on an experiment and the hope of a higher yield. This type of risk is not beyond his resources. If the experiment fails, he can still support his family from his other land and sources of income. If the experiment is successful, he will probably devote a little more of his land to the same cropping pattern the following year.

Redesigning on-farm cropping pattern trials, of course, will require considerable work and research. Such factors as the relationship between the number or rows planted in a given plot of land, the effect of weed encroachment, fertilizer distribution, etc. will have to be reexamined.

These activities, however, are mechanical and scientific. They can be done. If one of the aims of agricultural development is to introduce as many farmers as possible to improved technologies, not just the larger land owners, then redesigning the experiments will be a good investment. The vast majority of the farmers in Bangladesh own relatively small amounts of land.

**Recommendation 3:** A government agency or program should formulate a policy of land redistribution that considers the impact of the interdependency of population growth and inheritance patterns on land fragmentation and diminishing land resources.

The evidence is clear that culture, expressed in inheritance patterns, is a major factor contributing to the diminishing agricultural land resources in Bangladesh. If the situation is not corrected in the near future, and the population continues to dramatically increase, Bangladesh will never attain agricultural sufficiency; the country will continue to be dependent upon massive aid from other countries.

Logically, it would appear that the answer to the diminishing land situation in Bangladesh is land reform. But this is only a part of the answer, mainly because land reform is a politically volatile concept with numerous interpretations, e.g., taking from the rich and giving to the poor, at one extreme, to simply putting the land to more

efficient use, at the other extreme (see Alim 1978). Regardless of a person's position on land reform, the real problem confronting Bangladesh, simply stated, is: how to grow enough food on too little land to feed too many people.

A straightforward redistribution of the land, regardless of the method followed, will not obviate the land problem in Bangladesh. Granted, rural credit, better extension services and a greater push in general agricultural development will be of help, but these activities alone are not sufficient. The most obvious solution to the problem of diminishing agricultural land per household is to change the inheritance patterns. This, however, is not likely to happen because of the prevailing strength of this cultural tradition in Bangladesh, especially among the rural population. It would appear that the solution to land problems in Bangladesh rests in a multifaceted approach; first, continued efforts must be made in general agricultural development with the primary aim of producing greater yields per unit of land farmed; secondly, opportunities in service and industry occupations must be increased, if only to absorb the potential population overflow that will migrate to the cities as the farms become smaller and smaller; and finally, attempts should be made to make the strong cultural traditions of the farmers--the solidarity and independence of the family--work for the country by encouraging, with backup economic incentives, the formation of family farming cooperatives.

Bangladeshi farmers may be poor but they are hard working and have demonstrated an ability to rebound from both natural and political catastrophies. But, the future of the country's rural poor is only as good as the actions of the people responsible for planning, directing and implementing programs in directed social and economic change. Changing a people's culture and economy, however, is fraught with difficulties, and the consequences of a change in economy or society cannot always be predicted. Success is usually dependent upon a well reasoned and goal oriented national strategy. Bangladesh has prevailed in the face of disaster before--time will be the measure of how well this new challenge is met.

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