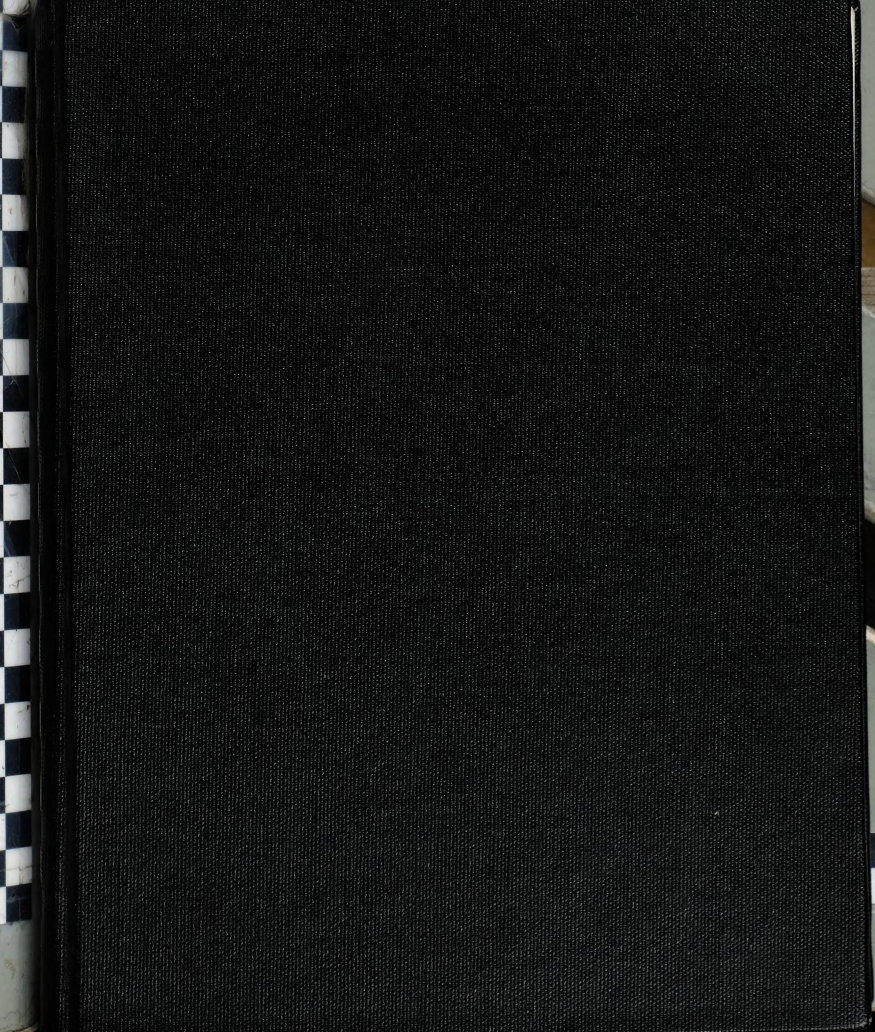






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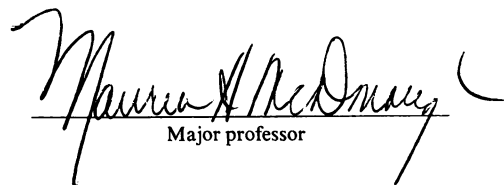
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**PEOPLE, FORESTS AND TENURE:
THE PROCESS OF LAND AND TREE TENURE CHANGE
AMONG THE GARO OF MADHUPUR GARH FOREST, BANGLADESH**

By

T. M. Kibriaul Khaleque

A DISSERTATION

**Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of**

DOCTOR OF PHILOSOPHY

Department of Forestry

1992

ABSTRACT

PEOPLE, FORESTS AND TENURE: THE PROCESS OF LAND AND TREE TENURE CHANGE AMONG THE GARO OF MADHUPUR GARH FOREST, BANGLADESH

By

T. M. Kibriaul Khaleque

Land and tree tenure issues and problems are recognized as very important in natural resource management and development in general, and as being especially crucial in the case of the forest resources. Based on a specific case of conflict between the government forest department and the Garo community of Madhupur Garh forest in Bangladesh, this study sought to understand the process of land and tree tenure change.

The social, economic, political, technological, demographic and environmental factors involved in the process of land and tree tenure change among the Garo of Madhupur Garh were analyzed from a human ecological perspective. A model, Nature-Human-Ideology Interface, has been developed by modifying Duncan's Ecological Complex model. The Ecological Complex model sees the process of change as a complex interplay of four key factors -- Population, Organization, Environment, and Technology (POET). The POET schema has been modified to PETIO by adding "Ideology" to include the ideational aspect of culture. In addition, the modified model

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considers the relative importance of one or more factors at different times and the role of external factors from various sources (social, political, economic and religious) and at various levels (local, national, regional and global).

A multi-method approach was adopted. To collect different types of data, different methods were used: survey, historical records, oral histories and retrospective interviewing, and an ethnographic study.

This study showed that the interacting effects of different variables under each of the five dimensions of the PETIO schema played a role in the process of land and tree tenure change among the Garo of Madhupur Garh. The role of Christian missionaries as external change agents hastened the process of change in all the internal factors. The research findings indicate that the tendency towards achieving secure tenure has increased among the Garo with: (1) an increase in social and economic differentiation; and (2) an increase in external control by the forest department over the use of forest land.

This study also revealed that the ongoing conflict between the Garo and the forest department resulted from a gap between the statutory land and tree tenure system and the Garo's indigenous tenure system.

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1992

Dedicated to
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ACKNOWLEDGEMENT

I began my research on the Garo community of Madhupur Garh in 1979. The idea of this study occurred to me in 1982. Since then I received valuable suggestions from many people with whom I shared my ideas. I wish to take this opportunity to thank all of them.

Among those who helped me most recently, I would like to thank my advisor, Dr. Maureen McDonough (Department of Forestry, Michigan State University), for her suggestions, help and encouragement from the stage of writing the research proposal to the production of this dissertation. I am also grateful to Dr. McDonough for helping me pursue my research interests in social forestry.

I owe a great deal to the other members of my graduate committee: Dr. Michael Gold (Department of Forestry, Michigan State University), Dr. Craig Harris (Department of Sociology, Michigan State University) and Dr. Rita Gallen (Women in International Development, Michigan State University). The multidisciplinary nature of this dissertation is the result of the valuable suggestions I received from these committee members. I thank Dr. Gold for his suggestions on forestry issues, Dr. Harris for giving me an orientation to human

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CHAPTER 1

INTRODUCTION

This study aims to understand the process of land and tree tenure change among the Garo people living in the Madhupur Garh forest of Bangladesh. Understanding the land and tree tenure system is one of the most important prerequisites for sustainable management and development of natural resources in general and forestry resources in particular. Systematic studies are now needed to see how land and tree tenure changes are accompanied by social, economic, demographic, technological and environmental changes. In the context of Madhupur Garh forest, this study examines how these factors are involved in the process of land and tree tenure change. It also shows how a conflict between local people and the state results in the process of this change.

This chapter includes an overview of how the state-controlled forest management practices have failed in the developing world with particular reference to Bangladesh and the Indian Subcontinent, and background on participatory forest management and development programs called social forestry. It also discusses why land and tree tenure systems are an important topic for research and describes the background, rationale, scope, and purpose of this study.

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1.1 A General Overview

Rousseau's famous dictum -- "man is born free but everywhere he is in chains" -- can perhaps be rewritten in the forestry context as: forest-dwellers are born with the natural right to use forest resources, but history shows that their rights are curtailed or denied by government regulations. Saussay (1983:16) rightly observes,

In the history of all peoples, forests have provided their residents and those living nearby with the means of subsistence, governed by customary rights that legislators have endeavoured to limit.

Under the forestry administration of British colonial rule, particularly in South Asia and Africa, forests were taken from community control and were placed under the protection of the state (Fortmann and Bruce 1988:273). In the Indian Subcontinent, for example, "forest reserves," forest department, and forestry legislation were established to restrict the "untrammelled" use of the forest resources by forest dwellers (Guha 1983). The colonial rulers justified state control in the name of systematic management and exploitation of forests. Such a justification was common at that time and even thereafter (Guha 1983; Tucker 1984). Troup (1938:16) argues that allowing private individuals a freedom of resource use leads to depletion and destruction of the forests. Hence, the state must exercise control over forests.

Obviously, the British rulers adopted a similar argument, but they apparently failed to consider the negative aspect of

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excessive state control. The following words of caution have been offered by Troup (1938:16) himself:

... excessive State interference may destroy initiative and sense of responsibility, cause a reaction, and produce results the opposite of what was intended.

In fact, this is what happened in the Indian Subcontinent. According to Fortmann and Bruce (1988:273), the process of forest reservation in this Subcontinent has generated "insecurity on the part of traditional users" and led to "increasingly abusive exploitation" by them, as they no longer see themselves as having a long-term interest in the resource. The forest-dwellers in the Indian Subcontinent strongly reacted against the diminution of their traditional rights. There were agitations, protests and even organized movements in some areas (Guha 1983).

Even after the end of colonial rule, the aim of forest management in the Indian Subcontinent has been to protect, conserve, and manage the government's "reserved forests." Forests are still considered government property. According to Act 3 of the Indian Forest Act of 1927, which is still in force in Bangladesh, the government

... may constitute any forest-land or waste-land which is the property of Government, or over which the Government has proprietary rights, or to the whole or any part of the forest-produce of which the Government is entitled, a reserved forest....

Under this Act, local people are not allowed to enjoy any rights to the forest land or to the trees. Thus the conflict

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between the local people and the state remains, and the situation has worsened in some areas over time.

Such conflict is not unique to the Indian Subcontinent. In fact, it is common in many forest areas (for example, Santa Fe, New Mexico [Knowlton 1976], the Philippines Uplands [Oxby 1987, Payuan 1981, Aquino 1981, Aguilar 1986]). Foresters and policy planners generally belong to a social world completely different from that of the forest dwellers. Hence, there is a lack of understanding of indigenous tenure systems.

The alarming rate of depletion of the tropical forests and the need to preserve and sustain the use of forest resources perhaps provoked Fortmann and Bruce (1988:277) to ask the following question:

Which is the more promising tool for preservation of forests: forestry laws which state prohibitions whose enforcement depends on weak state machinery, or property rights for users which creates incentives to conserve the resource?

These alternatives for preserving forest resources do not, however, exhaust possibilities. Forestry laws enforced by a strong state may be another possibility.

But state forestry devoid of local people's participation is no longer considered a viable mechanism for protecting forests in less developed countries (LDCs) that are highly populated and resource-limited. According to Douglas (1983:139), the persistence of a management ethos in the LDCs that excludes or minimizes the application of human capital to

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the mobilization of the resources can only be "counterproductive."

Douglas (1983:134) argues that the forestry sector in the LDCs is generally short of personnel and equipment. Also, the dependence on hired staff places great pressure on the administration. The task of keeping out the surrounding population adds further to administrative burdens. Consequently, the standard of management, particularly the ability to experiment and innovate, drops even further. Douglas (1983:134), therefore, thinks that "the national forest lands end up simply not pulling their economic weight." The output from such forests, in his view, is of "little or no relevance" to the local people. As a result, they have no interest in cooperating with the government forest department in managing the resource to maximize production.

Shepherd (1986:10) argues that the state tends to be an inefficient custodian of forest resources in a situation where forest dwellers, contractors, forest department employees and virtually everyone is competing for such resources. According to Shepherd (1986:10), the state

... depends upon poorly paid forest guards who are often tempted to live off the resource they are supposed to be guarding, either by the collection of bribes, permit fees, and fines or by theft.

The justification for a centralized forest service that concentrates on protecting and managing government-owned forests for industrial and commercial purposes has been

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questioned by development specialists since the early 1970s (Noronha and Spears 1985:227). The common problems of these countries identified by the development specialists include: a continuous addition of millions of hungry mouths to an already overcrowded area, scarce and inequitably distributed land and other natural resources, low agricultural productivity, and a less developed economy.

Since the middle part of the 1970s the importance of forest and trees to meet the basic needs of rural people in the LDCs was recognized by both the international aid agencies and the development practitioners. A number of events in the middle and latter part of 1970s were responsible for the emergence of such development thinking (see also Arnold 1989).

First, in the 1970s the follies of the development strategies in the 1950s and 1960s became clear to the development communities. It was clear that the industrialization-oriented development strategies of the past decades had failed to achieve a sustained economic growth in the highly populated, resource-short, and technologically less advanced countries (Westoby 1987, Douglas 1983). According to the development thinking in 1950s and 1960s, the expansion of forest industries was an important strategy for the economic development of the LDCs (Westoby 1987, McGreggor 1976, Maydell 1976, Douglas 1983). It was assumed that frozen capital from the forestry sector could be transformed into liquid capital which would feed the development process of the LDCs. The

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forestry sector was thought to be something like that "goose that laid the golden eggs" for the different classes of the society, i.e. the benefits of economic development would "trickle down" even to the poorer people. But even though in some cases the goose laid golden eggs, these were shared by those who were already well-off and not by the poorer and disadvantaged section of the society. Westoby (1987:246-7), one of the main proponents of the idea of forestry sector expansion for economic development, writes,

In 1962 I was convinced that the forestry and forest industries sector was capable of making a significant contribution to the attack on economic underdevelopment. My paper was seminal, but only in the sense that it has turned out to be a wet dream.

According to Westoby, forest industries failed to achieve the goal of development, i.e. a social and economic welfare for all classes of people. The profits earned from these industries went to the capitalists, both local and foreign, and forestry benefits hardly ever reached the poor and disadvantaged group. People's basic needs for fuel, fodder and low-cost housing materials pushed farther from their reach. The concern of the industries over making profit from the forestry sector also neglected the important role this sector played in supporting agriculture.

Second, by the mid-1970s there was an increasing concern over the critical fuelwood situation in LDCs which drew the attention of the development communities. LDCs encountered serious energy crisis (Eckholm 1975) and a fuelwood famine had

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already hit many of these countries. Demand for fuelwood was identified as one of the main causes of deforestation in the LDCs (Arnold 1989).

Third, the environmental damage (see Barnes et al. 1982:6-7, for a list of actual or potential impacts of deforestation on the LDCs) due to deforestation are increasingly considered to contribute to a decline in food production and deterioration of productive land use (Cernea 1985b, Fortmann 1987, Arnold 1989). Excessive removal of trees from forest and agricultural landscapes, tree cutting for fuelwood requirements, and inequitable land distribution and high population pressures are seen as the main reasons for deforestation in the LDCs.

An increasing concern over all these interrelated and overlapping problems led development practitioners to consider using forest resources in a sustainable manner. Beginning in the mid-1970s, emphasis was put on sustainable small-scale subsistence forestry as opposed to the conventional large-scale production-oriented commercial forestry. There are five main thrusts of this small-scale subsistence forestry, variously known as "community forestry" or "social forestry":

1. to meet local people's survival needs like food, fuel, fodder and shelter;
2. to decentralize forestry benefits to meet local needs;
3. to distribute forest resources equitably;

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4. to improve local people's levels of life; and
5. to protect the environment in which people live.

Since the 1978 World Forestry Congress in Jakarta, with the theme -- "Forestry for People" -- this approach has been receiving much attention. Social forestry, as defined by the FAO, is forestry for local community development which "should encompass any situation that ultimately involves local people in a forestry activity for the direct benefit of those people" (FAO 1978, cited in Noronha and Spears 1985:228).

Social forestry requires a change in the attitude of the foresters; changing their role from protecting the forest "against people" to working "with people" for growing more trees (Noronha and Spears 1985:229) or changing from "policeman to extension agents" (Barnes et al. 1982:9). Thus the role of social foresters is to intervene in ecosystem processes "to encourage gains in socially desired outputs," while they must "break from fascination with trees to considering how to fulfill functional needs" (Burch 1988:77). According to Burch (1988:81), an intervention will also be required in social systems, as the social foresters will need to introduce "new values such as planning for a long-term future or developing a work ethic." Social forestry, however, is not a replacement of the forestry department. Barnes et al. (1982:9) observe,

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Social forestry does not in any way threaten or replace existing functions of the forestry department, but rather adds a new component which involves a sensitivity to rural development issues.

According to Noronha and Spears (1985:229), "the novel essence" of social forestry lies in the word "social." The social aspects of this approach have been described by them as its function in

...serving local needs through the active involvement of the beneficiaries in the design and implementation of the reforestation efforts and the sharing of forest produce.

Unfortunately, these important elements of social forestry have so far been the most difficult things to achieve in many social forestry projects (Barnes et al. 1982; Burch 1988). Arnold (1989:5) remarks that although the identification of local needs, aspirations and possibilities has been sought in many projects, these were, in practice, based more on a top-down approach. According to Arnold (1989:5), the concept of local participation "has been, and still is, more frequently preached than practised."

Fresh institutional changes are still considered essential for the success of social forestry. Among the institutional changes, land tenure arrangements have been identified by Fortmann and Riddell (1985:VII-VIII) as the most important. Foresters, policy planners and development specialists increasingly realize that without security of tenure, it is difficult, if not impossible, to expect local people to make the long-term investments and commitments

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required for growing trees. Granting security of tenure to the people growing the trees is considered vital in those cases where farmers occupy government forest land and are regarded by the forest department as encroachers (Rambo 1984:42). In such cases, people fear that they will not benefit from their tree planting efforts because they assume somebody else will expropriate those trees.

Fortmann and Riddell (1985:XII) think that the very basis of government's exclusive rights in areas of Reserved forests should perhaps be reconsidered. They observe:

Though the state may "own" the land, tenure change has to be renegotiated with the local community, the kinship groups and the individual farmers.

The case of conflict between the local people and the state, on which this study is based, exemplifies how the elements of statutory land and tree tenure can go against the traditional rights of forest-dwellers and why it is essential to understand tenure change.

1.2 Background, Rationale and Problem Statement

Bangladesh has a total land area of 35.6 million acres, out of which the forested area comprises six million acres (17%) [Bangladesh Forest Department Statistics]. The Reserved forests managed by the Forest Department make up about 3.5 million acres (10% of total land area and 58% of all forested area) [Bangladesh Forest Department Statistics]. Reserved forests in Bangladesh occur mainly in the eastern hill region

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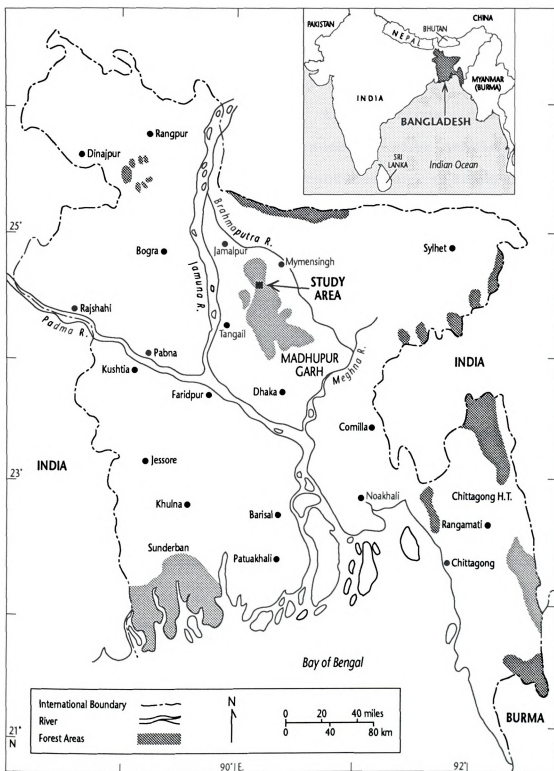
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(Tectona grandis forests) and the delta region (mangrove forests); other smaller forested areas are composed of patches of sal (Shorea robusta) forests in the central and northern regions (Figure 1).

Although deforestation has been a common phenomenon in all accessible forests throughout Bangladesh, the process has been and continues to be most rapid in the case of the plains sal forests in the central and northern regions. This is primarily because these forests are surrounded on all sides by heavily populated and rapidly urbanizing areas. The transportation network of the plains area also is relatively more developed than in the area of hill and mangrove forest. The developed transportation network contributes to the depletion of both subsistence and industrial forests. The depletion of forest resources in the central region poses serious problems for the country because it creates a shortage of forest resources which are essential for the people who live in the central region.

Tree cover in the Madhupur Garh forest is still relatively more dense than in the other parts of the central region's sal forests. Indeed the natural beauty of the Madhupur Garh forests attracted the government to select it as one of the country's national parks. Even so, deforestation continues. Unless depletion of forest resources in Madhupur Garh is averted, the national park will become a treeless landscape and the ecological balance of the whole central



Source: UNDP/FAO Project /BGD/79/017

Figure 1

Reserved Forest Areas of Bangladesh

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region will be disrupted. Against the backdrop in the central region in general, and Madhupur Garh in particular, this study was conducted in Madhupur Garh forest.

Khaleque (1984) mentions the various causes of deforestation in Madhupur Garh, such as wide settlement of human population, agricultural practices and grazing within the forest area, and illegal logging for commercial and industrial purposes. But he concludes that an alienation of the forest dwellers from the forest is the fundamental source of the problem. The local people's discontent is, according to Khaleque (1984, 1985), manifested in their unwillingness to cooperate with the forest department in its tasks to improve and protect forests. He shows that after the forest department takeover in 1951 a conflict arose between an ethnic minority community, the Garo (who call themselves by the name "Mandi" -- see Chapter 2, for details), and the government forest department since the former's traditional rights have been ignored by the latter. When part of Madhupur Garh forest was declared a national park in the early 1960s, this conflict intensified. The forest department proposed a program to resettle the people living in the national park area, but the Garo people opposed this program and they did not move. The conflict continues (see Chapter 6, for details).

The situation in Madhupur Garh is now becoming increasingly critical. Policymakers and forest managers are puzzled about what to do. On the one hand, if the "no action"

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state is allowed to continue, the whole forest will soon be denuded. On the other hand, it is impossible to compel the local people to move. If the tribal people are evicted without measures of mitigation, they will face a total disaster -- their means of livelihood will be destroyed and a total culture will disintegrate. Such a situation might lead these people to migrate to urban areas for jobs (as some of the landless Garos are now doing). In that case, the result may be worse than the status quo. They will create a pressure on the already existing problem of unemployment in the urban areas. In addition to the Garo, the Bengalis who have also settled in the forest are mostly landless people from other areas and they have no place to go back to if they are ejected. Hence, attention must be given to their concerns as well.

This forest is essential not only for maintaining a national park but also for meeting the needs for fuelwood and other forest products for the local people. This is the only forested area in the whole north-central region of Bangladesh. Hence, it is strategically important for maintaining the ecological balance as well as to meet the increasing demands for timber, fuelwood and other forest products for the people of this region. This critical situation demands immediate attention.

Khaleque's (1985) exploratory research on this area has uncovered the problem while opening questions to be answered

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by in-depth research. There is a dearth of research in Bangladesh on tribal land and tree tenure systems. The studies that are available on land tenure systems in Bangladesh (for example, Ascoli 1917, Islam 1978) focus on the mainstream population and not on the tribal communities. At present, researchers writing about land reform in Bangladesh (for example, various articles in Alamgir 1981) are concerned mainly with the problems of mainstream Bengali population.

Systematic research is essential to find the roots of the conflict between the tribal concept of property ownership and the statutory land tenure system. There is no alternative to an in-depth understanding of the process of land and tree tenure change because the ongoing conflicts arose in the process of these changes.

.3 Scope, Purpose and Research Questions

As stated, this study aims to understand the process of land and tree tenure changes among the Garo people living in Dhupur Garh forest of Bangladesh in the context of social, economic, and demographic changes among these people as well as the environmental changes in this forest. Another objective of this study is to find the roots of the conflict between the Garo and the state.

This study specifically relates to the Garo people who were the original settlers of this forest. They also

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constitute the majority of residents in the national park area and are directly involved in the conflict.

The few Koch people who live in the Garo villages and who are also regarded as an ethnic minority group, compared to the mainstream Bengali population, are also involved in the conflict. Their situation is thus the same as that of the Garo.

The Bengali people, relatively recent settlers, do not have the same strength of land claims in the forest as the Garo and Koch, the earlier settlers. The Bengali people are, however, increasingly joining the Garo and Koch in claiming the forest land they occupy. Although land and tree tenure among the Bengali people have undergone certain changes, the nature and trend of changes in their case is different from those in the case of the tribals. The Bengali people's concern, which demands separate research, is beyond the scope of this study.

The Garo live in the national park area as well as the forested area outside of the park and conflict exists in both areas. However, the conflict has reached its climax in the case of the national park area. This study is, therefore, concerned mainly with the national park area. Garo villages located in close proximity to the national park area have been included in the study, because some people of those villages have lands within the national park area and their concern is similar to those living in the park area.

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There are two key research questions that led the present researcher to investigate the process of land and tree tenure changes:

1. Why and how do changes in land and tree tenure take place and what factors are involved in the process of change?
2. Why and how does a conflict between the local people and the state result in the process of land and tree tenure change?

To answer these questions, the case of conflict described in Section 1.2 has been examined with reference to land and tree tenure changes, which in turn, have been viewed in relation to social, cultural, economic, political, demographic, and ecological changes. No attempt has been made, however, to deal with conflict resolution, although recommendations are provided.

1.4 Contribution of This Study to Sociological Knowledge

This study contributes to an understanding of the process of social and ecological change in general, and land and tree tenure change in particular. In addition, it broadens the understanding of the indigenous property concepts among the Garo and contributes to the store of ethnographic knowledge on these people. This understanding will help determine the rights of Garo to their ancestral land under changing conditions. An understanding of property rights will also contribute helpful information to three areas of concern:

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1. ways and means to protect rights of forest dwellers;
2. methods for linking statutory land and tree tenure system and indigenous land and tree tenure system in a mutually satisfactory manner; and
3. strategies for resolving conflicts and reaching a consensus between the state and the local people for sustained forest management and development.

1.5 Outline of the Dissertation

Chapter 2 describes the research site, its physical environment, and population characteristics. A review of available literature on land and tree tenure is presented in Chapter 3. The theoretical framework, research questions, key propositions, operational model and operational definition of concepts are the contents of Chapter 4. The research strategy, methodology, a specified model and propositions are given in Chapter 5. Chapters 6 and 7 contain the research findings: historical and ethnographic information has been given in the former, while the findings from survey and intensive village study in the latter. Research findings are analyzed in Chapter 8 and the last chapter contains summary, conclusions and recommendations.

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CHAPTER 2

THE STUDY AREA: LAND, FOREST AND PEOPLE

This chapter introduces the study area. It contains a description of the location, physical environment, land use pattern and the population characteristics of Madhupur Garh.

2.1 Location of Madhupur Garh Forest

Madhupur Garh forest is located on the border of the Mymensingh and Tangail districts and covers areas of both districts (Figure 1). This forest was known as the southern belt of the forested areas in Mymensingh forest division. Now it constitutes the northern part of the forests under Tangail forest division. The forested part covers 60 miles from north to south and between five to 15 miles east to west. The entire area has been designated a reserved forest by the forest department, and a 30 square-mile area (originally 40 square miles) has been set aside as the Madhupur National Park (Figure 2).

Madhupur Garh forest is part of the Madhupur Tract, which extends from the southwestern part of Mymensingh district in the north to the northern border of Dhaka district in the south (Ahmad 1938:1). The whole Madhupur Tract is about 1,600 square miles (Mia and Bazlee 1968:39) and the area under Madhupur Garh is 300 square miles (Census Report of Pakistan 1961:12).

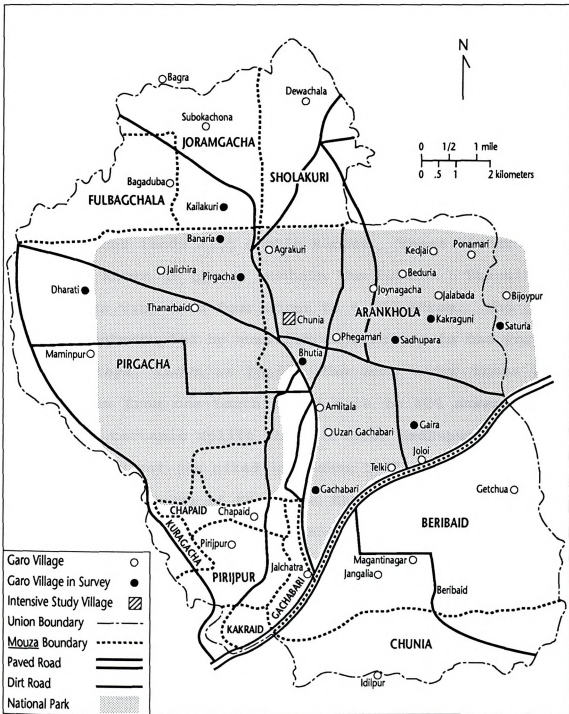


Figure 2

Location of Study Villages in Madhupur Garh National Park (Arankhola Union Parishad)

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2.2 Physical Environment

Geomorphologically, the Madhupur Tract belongs to the Pleistocene Terrace area of Bangladesh and topographically it is more elevated than the surrounding floodplain (Mia and Bazlee 1968, Haq 1986). The elevation above the floodplain varies from place to place and ranges between 60 and 100 feet (GOB-RD 1935, Ahmad 1938, Haq, 1986). In general, the terrace surface is flat. The flat ridges have formed an irregular mass of higher lands with gentle slopes. These higher lands or knolls, known as chala, contain the forest. The size of chala blocks vary from four acres to 6,000 acres. The chala lands are interrupted by numerous depressions in the form of narrow valleys, known as baid. The area under these baid lands varies from one-tenth of an acre to 100 acres (Ahmad 1938). The tectonic uplift which created Madhupur Tract is, according to Hirst (as cited in Sachse 1917:3), the result of changes in the course of the River Brahmaputra and shifts in the River Ganges from its old channel, the Dhaleswari. Other authors also consider the Madhupur Tract to be a delta of the Brahmaputra River which was subsequently uplifted (see for example, Mia and Bazlee 1968, Haq 1986).

In general, Madhupur Tract has red clay soil, but due to the varying degree of oxidation the soil color varies from yellowish brown to reddish brown. The soil is compact and hard when dry, but softens with rain. In the dry season (March to May), the water table is at 50 to 60 feet. The

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temperature during the summer months (May to July) goes up to 100°F and it never goes below 45°F in winter months (November to January). The average rainfall is about 100 inches with most precipitation falling between mid-June and mid-September.

2.3 The Forest

Like most of Madhupur Tract, Madhupur Garh is sal (Shorea robusta) forest. Its principal tree species (75-80%) is the commercially-valuable sal (Shorea robusta). There are also patches of mixed forests scattered throughout this belt that have a few sal, but some have none at all. Besides sal (Shorea robusta), the other commercially valuable trees of this forest are: koroi (Albizzia procera), jogini chakra (Gmelina arborea), kaika (Adina cordifolia), sidah (Lagerstroemia parviflora), bazna (Zathoxylum budrunga), sonalu (Cassia fistula), ajuli (Dillenia pentagyna), and gadila (Careya arborea). The common undergrowth is swati (Pennisetum setosum), while common climbers are mongolia lata (Spatholobus roxburghii) and kumaria lata (Smilax macrophylla). Sungrasses (Imperata arundinaea), and thatch grasses (Arundineacea cylindrica) grow throughout this forest (see also Chowdhury, M. R. 1957:12).

The various products of this forest are in enormous demand by forest-dwellers and city-dwellers alike. Sal (Shorea robusta) is the most important commercial product. Sal poles and sawn timbers are used in home building, and they

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have an unlimited demand across the country. This species is a very heavy hardwood, so it is not generally used for furniture manufacturing. Like sal, all the other species mentioned above are used in home building, but most are used for furniture manufacturing as well. The local people also use all these species for making the wooden parts of agricultural implements and bullock-cart wheels and axles. Some species, like the jogini chakra (Gmelina arborea), are preferred for planking.

Small twigs, chips of bark, branches, brush and decayed branches are used as firewood both by the forest dwellers and neighboring people. Fuelwood from this forest is in great demand in the cities. The dried climbers and leaves are also used as fuel.

Roots of a number of herbs and creepers, and wild fruits and berries are edible and provide sustenance for the local people. Sungrasses and thatching grasses are one of the important products of this forest. These grasses are used for constructing roofs and walls of thatched houses in the villages both within and outside of forest areas. These are regarded as "poor people's bricks." Nevertheless, richer people also use these grasses for constructing their kitchens, cowshed and other outbuildings. Grasses other than thatching and sungrasses are an important source of fodder for the local people's livestock.

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Some forest plants are medicinal, like basak (Adhatoda vasiu), kalamegh (Audrographis paniculata), satamul (Asparagus racemosus), swarnalata (Cuscuta reflexa), and sarpagandha (Ranwolfia serpentina).

2.4 Land Use

The chala (higher lands) was used by the original residents to build their homesteads and for swidden until this cultivation was banned in the early 1950s. These lands are still used by the original residents and the new settlers for homesteads, vegetable gardens, fruit trees and pineapple plantations. The baid lands were converted by the original residents to wet rice fields after clearing the bushes and these lands are still used for growing wet rice. Parts of deforested slopes between chala and baid lands have also been converted to wet rice fields by some people, particularly by those who occupy the baid lands adjacent to these slopes. The interior of chala lands are used by the forest department to grow forest trees.

2.5 The Villages

Homesteads include houses, cowshed, and other structures. Generally, several households are clustered together in one homestead, and several homesteads are found in one area. These clusters of homesteads are called villages. Every village has a name. The area of the villages within the

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forest ranges from one to two square miles and it includes homesteads, wet rice fields and forest. The distance from one village to the next generally ranges between one and three miles, but does not exceed five miles. Village boundary lines are defined naturally by forest, forest trails and baid lands. The people of one village usually have wet rice fields or pineapple gardens within the area of another village.

2.6 Transportation System

The main transportation route to Madhupur Garh is the Mymensingh-Tangail pucca (paved) road, which passes through the forest (Map 2). About five miles of this road runs along the eastern boundary of the national park. The interior of the national park is connected with Mymensingh-Tangail road by one herringbone-brick road and four kutchas (dirt) roads, which lead to different directions within and beyond the forest (Figure 2). There are also many paths and trails within the forest.

Mymensingh-Tangail road was built during World War II by the British colonial rulers. The herringbone-brick road that connects the important picnic areas and forest department offices within the national park with the Mymensingh-Tangail road was built by the forest department in the mid-1950s (Chowdhury, M. R. 1957). The forest department considers it their private road, but local people use it. The other kutchas roads inside the forest were built at different times, mostly

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after the mid-1950s, by the local administrative unit of the government. These roads were built for the people living in this area, but they are also used by the forest department.

Mymensingh-Tangail road and the herringbone-brick road inside the forest are motorable. Four-wheel drive vehicles can be driven on the other kutcha roads during the dry season. In the rainy season, the kutcha roads become muddy, particularly after loaded bullock/buffalo carts are driven on these roads. The roads and trails are used by the local people for going places within and outside the forest, and to transport their agricultural products to market. Most large markets are located outside the forest along the Mymensingh-Tangail road.

People of this area generally walk or bicycle (for those who can afford one). Hooded rickshaws and open rickshaw vans (three-wheel vehicles paddled by one person) are available on some routes within the forest, for those who can afford them. Bullock/buffalo carts are generally used to transport goods. Rickshaw or rickshaw vans are also used for this purpose. Trucks are used on the Mymensingh-Tangail road and sometimes on the herringbone-brick road inside the forest with the permission of the forest department.

2.7 The People

The people of Madhupur Garh belong to three different ethnic groups: Bengali, Garo and Koch. The Bengali people are

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the mainstream population of Bangladesh, and in relation to them, the Garo and Koch are ethnic minority communities. Although the Garo and Koch are two different ethnic groups, the Bengali generally regard both people as "Garo." But the Garo people distinguish themselves from the Koch, who are ethnically different. The Garo call themselves "Mandi" and use the name "Mandai" for the Koch. The Koch people, however, do not use either "Mandai" or "Koch," preferring to identify themselves as Hindus, since they follow Hindu religion.

The Garo people prefer the name "Mandi," although they do not object to outsiders using "Garo." They do object to the Bengali people using "Garo" in a derogatory sense (see also Khaleque 1982:7). Except for one article (Burling 1985), the name "Garo" has been used for these people in all written materials. Since these people are known as "Garo" and this name is found in the written materials, the name "Garo" instead of "Mandi" has been used in the present study.

The three ethnic groups of people in Madhupur Garh differ from each other in language, religion and social organization. The Bengali language, which is the mother tongue of the Bengali people and the national language of Bangladesh, is spoken by the people in all three groups. The original languages of the Garo and Koch belong to two different branches of the Tibeto-Burman language family, but are unintelligible to each other.

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Most of the Bengali people of Madhupur Garh are Muslim while the Koch are Hindu. The Bengali Hindus, however, do not recognize the Koch as Hindus. The traditional religion of the Garo is a form of animism, although most Garos are now converted Christians.

People of all three groups are agriculturists and all of them now practice wet rice cultivation. But the Garo and Koch have a tradition of swidden cultivation, which they practiced until it was banned by the government in the early 1950s. The social organization, system of reckoning descent, and the system of property ownership and inheritance among the Bengali and the Koch are patrilineal, while the Garo's are matrilineal.

Despite these differences, the three groups live together in the same area, and in many cases even in the same village. The Garo and Koch live predominantly in the interior of the forest, while the Bengali live in the deforested areas along the forest's periphery. However, some Bengali families live in the interior Garo villages and a few Garo families reside in the Bengali villages at the forest's edge. Most of people living in the national park area are Garo. The next largest group is the Bengali. No village is populated exclusively by the Koch, who usually live in the Garo villages.

The Garo claim, and the other people believe, that they were the first people to inhabit the Madhupur Garh forest. The Koch people settled either at the same time as the Garo or

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immediately after them. But nobody knows whether the Garo and Koch people are the indigenous peoples of the area or if they came from somewhere else. Likewise, the local people do not know when they settled in this area or where they came from. In the absence of any reliable written historical evidence, it is impossible to reach any conclusion on the settlement of human population in this forest (see Chapter 6, for details).

Besides the Madhupur Garh area, the Garo also live in the northern part of Mymensingh district of Bangladesh and in the Garo Hills of Assam (now Meghalaya) in India. The bulk of the Garo population -- some 240,000 -- is in India (Jaswall 1984:107). The estimated Garo population of Bangladesh, including those living in Madhupur Garh, is about 100,000. About one-fourth of this population live in Madhupur Garh forest.

The total Garo and Koch population figures are only estimates, since they were lumped together in the census reports under "tribals." There is no way to know how many people are in which group. In addition, the Koch people are often enumerated in the census under Hindus, since they identify themselves as Hindus. Since the Bengalis are also Hindus, it is difficult to define the Koch population of Bangladesh. Based on a discussion with local people and the local administrative circle, the principal researcher has estimated that the Koch population in the entire Madhupur Garh forest may be two to three thousand and the number of those

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living within the national park area may be 400 to 500. The Koch population was much larger in the past, but the bulk of these people migrated at different times to India (see Chapter 6, for details). Like the Garo, the Koch people also live in the northern part of the Mymensingh district of Bangladesh and in Assam (now Meghalaya). But no population data for those areas was available.

Bengali immigration has been a relatively recent phenomenon, occurring since the turn of the present century, and largely during the middle of the this century. Most Bengali settlers have migrated from the villages surrounding the forest (see also Chapter 6).

2.8 Summary

Madhupur Garh forest is located in the central region of Bangladesh and covers a total area of 300 square miles. It is a reserved forest and part of it is a national park. The forest is important for its timber, used mainly for home building, and for fuelwood.

The forest lands with trees are higher than the surrounding floodplain. The tree-covered higher lands are used by the forest residents for building their homesteads and growing pineapple and other crops (previously for shifting cultivation by the Garo). Low-lying lands are used for wet rice cultivation.

People of three different ethnic groups live in this forest. Two of these groups -- the Garo and Koch -- are the original residents. The other group -- the Bengali -- settled more recently. The Bengali people represent the mainstream population of Bangladesh and live mainly in the deforested areas along the forest's periphery. The Garo and Koch live predominantly in the interior parts of national park area.

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CHAPTER 3

A REVIEW OF LITERATURE ON LAND AND TREE TENURE

The purpose of this chapter is to review the literature on land and tree tenure issues and problems related to natural resource management and development in general, and forestry in particular. Available literature on the above topics may be grouped into the following three categories:

1. General:- those which deal with the whys of the problem and issue of land and tree tenure. That means, why the tenurial issue is important in forest and other natural resource management and development.

2. Case Studies:- those which deal with the hows of the problem, i.e. how insecurity of land and tree tenure poses serious problem in forest resource management. Specific cases of conflict between government forest departments and forest dwellers over the issue of use rights on forest land and trees provide evidences of this problem.

3. Analytical:- those that deal with what to do for a systematic study of this problem, i.e. suggested approach and guidelines for the study of land and tree tenure.

Considering various regions in the developing world, another category, "regional" could be added. In fact, Fortmann and Riddell (1985) have used only two categories -- general and regional -- in their annotated bibliography on tenure. For the purpose of the present study the categories outlined above has been used and literature was taken for review from across the regions, with particular reference to the Indian Subcontinent.

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3.1 General Literature

The most common point in the general literature is that the tenurial issues are very important in natural resource management and development in general, and they are especially crucial in the case of forest resources (Raintree 1987, Fortmann and Riddell 1985). Cernea (1985a:16) writes,

Experience indicates that many of the problems of land degradation, soil erosion, overgrazing, and deforestation are traceable to forms of land tenure, ownership, and use which require drastic changes, despite political and other difficulties.

Alienation of forest dwellers from forests due largely to insecurity of land tenure is now widely recognized (Guha 1983, Cardozo 1983, Kulkarni 1983, Commander 1986) as the most important underlying cause of the rapid depletion of forest resources in the Indian Subcontinent. The same is perhaps true everywhere in the developing world.

Providing secure tenure for forest communities, who are often regarded by the state as "encroachers," is now recognized as the most important prerequisite for the protection, management and development of forests (Rambo 1984). Security of tenure is also viewed as a necessary precondition for the success of social forestry programs (Barnes et al. 1982) and of agroforestry projects (Fortmann 1985, Bruce and Fortmann 1987, Riddell 1987). In addition, the importance of secure land and tree tenure has been highlighted in the writings on common property resources. A general conclusion is that the protection, management and

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development of common property resources are viable under certain institutional arrangements, and secure land and tree tenure is one of those institutional arrangements.

The importance of secure land and tree tenure for women has also been emphasized in the literature on gender relations. The need for ensuring women's access to land and tree resources has been considered vital to the success of forest management and development (FAO-SIDA 1987, Agarwal and Anand 1982, Hoskins 1980). It has been argued that "trees are important in rural economies largely as a result of the uses to which they are put by women" (FAO-SIDA:2). Generally, it is women, not men, who collect, transport and use fuelwood, who gather fruits and nuts, and who make medicines and other products from woody materials. Furthermore, it is the women who have accumulated the traditional knowledge about the foods and other household products that trees can supply (FAO-SIDA 1987:5). A discrimination between genders in many societies with respect to rights to land and trees has been considered one of the major constraints to women's participation in forestry. Providing women with secure land and tree tenure on an equal basis with men has, therefore, been recommended for ensuring their participation in tree growing and tending activities (FAO-SIDA 1987, Hoskins 1980).

The publication of two books -- Fortmann and Riddell (1985) and Raintree (1987) -- unveiled two important tenurial issues: (a) land and tree tenure are often inseparable but

they may be distinct from each other; and (b) customary and statutory tenure may exist simultaneously but there is an almost universal conflict between them. The issues and problems concerning land and tree tenure, along with case studies, are the salient themes of Land, Tree and Tenure (Raintree 1987). In his review of this book, Atherton (1988:299) writes, "of the land and tree tenure relationship, it may be said that readers of this volume will gain a new appreciation of the complexity of the topic." More documentations of actual cases on the issues and problems raised in Fortmann and Riddell (1985) and Raintree (1987) are, however, still needed to understand these subtle factors in land and tree tenure.

The research needs and priorities have been summarized by Bruce and Fortmann (1987:387-400). They emphasize the need for both "documentary" and "explanatory" research. Bruce and Fortmann (1987:387) maintain that documentary research is necessary "because we know so little about existing systems of land tenure and more particularly tree tenure." And explanatory research is required, because, in their view, "we know even less about the dynamics of the interrelationships among land tenure, tree tenure, agroforestry and other technologies, ecology and other variables."

The materials listed by Fortmann and Riddell (1985) as "general" and those of similar nature which came later and referred to in this section, played a significant role in

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generating an awareness among scientists, forest managers and policy planners. The role of these writings may be compared with that of an alarm clock which, by making the same sound repeatedly, wakes us up. Their writings also played a vital role in providing new directions for sustained forest management.

3.2 Case Studies

If the role of the general writings are an alarm clock, then cases of conflict are the alarm bell ringing virtually in every part of the developing world. In fact, these case studies have created a real awareness -- the alarm must be switched off if forest resources are to be protected for the people who are living today as well as for those of tomorrow.

A survey of literature on conflict between the state and local people over the rights to land and trees suggests that the story begins the same way everywhere. Conflict between the state and local people becomes inevitable in situations where resources are scarce, both parties are interested in them, and the rights to these resources are claimed by both parties. As the supreme authority, the state generally tends to control these resources and ignores the local people's traditional rights. When the local people find that their claims to the resources they used previously is ignored by the state and also that their survival is threatened, they are compelled to protest against the state's control. The state,

on the other hand, tends to strengthen its control. The local people, then, fight back, sometimes with violence, when they fail to keep their rights.

The most widely known contemporary movement, called the Chipko movement in the Kumaun Division of the central Himalayan forests in Uttar Pradesh of India, is a classic example of a conflict between the state and the local people (Guha 1983, 1988; Tucker 1984). The Chipko movement is, according to both Guha and Tucker, the second phase of the original movements that began with the reservation of forests in 1911-1917 in this division by the British colonial rulers. The reservation process met with protest and social movements in 1916 and 1921. Both years witnessed a number of forest fires set by local people as a protest to the new restrictions on their traditional rights.

But in the face of the people's movement to establish their traditional panchayat (village council) control over the forests, the forest department had to de-reserve certain forests in 1922, and had to reclassify them as "civil forests" and return them to the village panchayat. Since the 1970s local control of forest dwellers has again been threatened (Tucker 1984) so the panchayat again organized a social movement, which is known as the Chipko movement. The women of the local community resorted to the Chipko movement in 1978 when the forest dwellers realized that the exploitation of the forests by the forest department was causing hardship to the

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local people. These women succeeded in stopping tree felling in the remaining forests by hugging the trees whenever attempts were made to cut them. The forests managed by the villagers are now, according to Guha (1983), more productive than the reserved forests of this area.

Cases of forest fires as a show of protest by the forest dwellers against the restrictions imposed upon their traditional use rights, can also be discovered in other parts of the world. A well-documented case study of the Spanish Americans of Santa Fe, New Mexico, presented by Knowlton (1976) is a good example. In this case, as in the Kumaun case of India, the Mexican Americans perceived that their long-existing rights were not recognized when national forests were set up in 1900 by the United States Forest Service. Although the local people were able to use the national forest resources for livestock grazing until World War II, restrictions were imposed in the late 1950s. When all the attempts by the Mexican Americans to persuade the Forest Service to revise its new regulations failed, they began protesting against the restrictions by setting fires to the national forests.

A conflict does not always manifest itself in forest fires or in revolt and organized movements; it manifests itself in other forms as well. People may destroy forests to clear land to be claimed for agricultural use. This happened in the taungya plantation (the system that combines

agriculture with tree plantation) in various places of the world (Riddell 1987, Fortmann and Bruce 1988), and in Nepal when the forest was nationalized and a forest department was set up in the late 1950s. The people of Nepal "felt that the government was taking the forest" from them and they, therefore, cleared forest land and cultivated it to claim tenure (Stewart 1986:16).

Even when people are unable to do anything to restore their rights, they may at least show silent protest by their unwillingness to cooperate with the forest department in its tasks of forest protection and development. In fact, this is happening in most forest communities -- many such cases are perhaps still unreported. Khaleque's (1985a) exploratory research on the impact of insecurity of land tenure on forest management in the Madhupur Garh forest of Bangladesh shows that as long as the local people were given tenurial security, they happily participated in forestry activities. But a conflict arose with forest reservation, which created a feeling of insecurity among the people. Being a very small ethnic minority group, these people were unable to protest against the loss of their rights with violence or forest fires. Circumstances thus led them to be alienated from the forests and made them unwilling to cooperate with the forest department.

It thus appears that negative reaction to the process of reservation is common, no matter whether the policy is

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implemented by colonial rulers or by the national government. The reason for resentment among local people is the same in both situations. Resentment and negative reaction result not only from the process of reservation, but also from other kinds of government policies which produce a loss of local people's right.

A good example of a conflict due to government policy on the settlement of low-land people into the Chittagong Hill Tracts of Bangladesh has been documented by Bertocci (1984), Jahangir (1979), Khaleque (1987), Mey (1978), Montu (1980), and Zaman (1982). A similar case of conflict arising out of government policy on forest resettlement occurred in the Philippines (Lynch, 1983; Oxby, 1987; Eder, 1988). In both cases, the customary rights of the forest communities to their ancestral land were not recognized according to the national land tenure system. Consequently, land actually occupied by the forest communities was officially interpreted as unoccupied. A conflict arose between the government and the local people as well as between the indigenous people and the new settlers when lowlanders were resettled by the government on those lands, and the rights of the indigenous forest people to the land where they lived for many generations were ignored by the government (see the references on these cases cited above, and also Sajise 1987).

The cases of conflict reviewed in this section reveal that none are unique, rather they may be regarded as different

versions of the same story. These case studies do not explain the process of land and tree tenure change. But still they are valuable, since historical events that led to the conflict have been recorded in each case. Additionally, lessons can be learned from those instances where government and the local people have arrived at a consensus for sustained forest management.

Most of the authors who describe cases of conflict also provide either (i) facts showing that when local people were granted tenurial security, they participated in forestry; or (ii) recommendations for conflict resolution. Thus for example, Guha (1983) mentions that panchayat forests in the Kumaun Division had always been well-maintained. According to Guha, this was possible because of community control over the forests.

Similarly, Aquino (1982) notes that case studies of social forestry programs in the Philippines indicate that in areas where the security of tenure is disrupted, e.g., the Abra region, the incidence of forest fires increased greatly. In contrast, forest fires were reduced and tree plantings grew rapidly in areas where land tenure rights were secure, e.g., in Kalahan and Malutok. Under the Forest Occupancy Management (FOM) program implemented by Bureau of Forest Development (BFD) of the Philippines, forest dwellers were either allowed to remain on the forest land occupied by them or resettled in other parts of the forest (Payuan, 1981). Each family was

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granted land on a 25-year lease basis (Alvarez, 1982; Lynch, 1983). These projects claim success in curbing the previous forest destruction rates (Payuan, 1981).

Faced with an unworkable conservation program in Nepal after the nationalization of forests, the government revived the traditional communal systems of forest protection (Stewart, 1986). Forest lands were handed over to the village panchayat (the local administrative unit) to create community forests. At present, there are several forestry projects working in Nepal within the framework of new legislation.

Granting tenurial security has been recommended in most cases where conflict continues. For example, Knowlton (1976:141) concludes that a "secure access to the natural resources of the land" can resolve the crisis in the Mexican American case. Likewise, in the Madhupur Garh case of Bangladesh, security of tenure has been recommended by Khaleque (1985a) as the most fundamental change to be made for sustained forest management and development.

However, many factors, besides land and tree tenure might have been involved in the process that resulted in the conflicts. Policy change based only on a consideration of the legal aspects of tenure is not enough. It is beyond doubt that granting people tenurial security is important for forest management and development, but the resolutions of the questions -- "which people?" and "how?" -- are even more important. Hence, there is no alternative to an understanding

of the social structure along with an understanding of land and tree tenure system.

3.3 Analytical Literature

To understand the land and tree tenure system of any society, Cernea (1985b) has emphasized the need to consider interacting social variables. According to Cernea (1985b:278), three sets of social variables are very important for an analysis:

1. the complex land tenure system and the processes affecting it at deep structural levels;
2. the community unit with its internal interactions, nonhomogeneous groups, and inability to act consensually; and
3. the behavioral patterns of individual farmers.

Cernea (1985b) shows how the lack of a sociological analysis "paved the way for false assumptions about land tenure" in the case of the pilot forestry program undertaken in Azad Kashmir, Pakistan, between 1978 and 1983. Without making any sociological assessment of the existing land tenure system in this area during the projects preparation stage, shamilat or community land was taken for fuelwood plantations. A social analysis undertaken by Cernea himself in 1979 and 1980 revealed significant differences between "the legal or formal status of the land and the de facto situation." The supposedly community land, shamilat, "appeared to be, for the

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most part, not truly community land", rather it was "operated and used as private land."

Fortmann and Riddell (1985) presented a "number of conceptual tools" for analyzing land tenure in planning agroforestry projects. Land tenure rights have been considered by these authors as a "bundle" which, they maintain, "can be broken up, redivided, passed on to others and so forth." According to them, each of the rights in the "bundle" has at least three dimensions: people, time, and space. They think that an analysis of the people dimension requires one to see the rights to land as "the result of human interaction" and an "expression of social relationships."

Under time dimension, one should consider the "mechanism" which exists in the social system for the transfer of rights as well as for the determination of the length of time these rights last. The authors hold that since trees mature slowly, planting them involves an "intention of possessing land," particularly when planted purposefully. With regard to space, they maintain that "each right in the bundle defines just what are the spatial dimensions of use." In their view, the rights to space can be "complicated," because the same space may be used by different people at different times for different purposes. They note, "as a general rule, the greater the alteration of the use of the land, the more people will have to be involved in acceptance of the idea."

Aside from the above three important dimensions, the other factors considered by these authors are: transfer, tenure change and tree tenure. According to them, each tenure right, with the above three dimensions, has "an exchange value in society," and therefore, it is important to know "what is transferred" and between "which kind of people." Regarding tenure changes, they hold that tenure rules are "dynamic" and they change with the changes in social realities. A distinction between land tenure and tree tenure has been made by these authors, because in their view, the simple rule that "a tree belongs to the owner of the land on which it stands" may not always be true.

An analytical framework for the study of tree tenure has been separately developed by Fortmann (1985). The author demonstrates that tree tenure consists of a "bundle of rights" and four major categories of rights make up this bundle: the right to own or inherit, the right to plant, the right to use, and the right of disposal.

According to Fortmann, the other important issues to be considered in the analysis of tree tenure are: "who has what rights" and the "factors affecting who has what rights." Four classes of right holders have been identified for the purpose of analysis: the state, public groups, households, and individuals within households.

Three general sets of factors were mentioned to be important, as they affect who may exercise what rights, when,

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and over which trees. These are: the nature of the tree, the nature of the use, and the nature of the land tenure system. The most important point made by Fortmann is that agroforestry should not be considered only in terms of "the biological meanings of trees" and in terms of land tenure, rather "it is necessary to consider the social meanings of trees, including the norms of tree use and the long-standing body of customary law dealing with tree tenure."

The dimensions and the fundamental questions outlined by Fortmann and Riddell (1985) are undoubtedly very useful. But they are still insufficient for obtaining a clear picture of the tenure change which generally takes place in response to a host of other factors. Fortmann and Riddell (1985) are aware of this fact and therefore stressed the importance of analyzing tenure change. They also recognized that changes in land and tree tenure take place "in response to changes in population pressure, economics and land use among others." However, no model has been provided by Fortmann and Riddell (1985) for the analysis of the process of land and tree tenure change in relation to changes in other factors.

Dove (1985) presents an analysis of historical developments in the land tenure system in an excellent case study of the longhouse dwelling Melaban Kantu, swidden cultivators of dryland rice, in West Kalimantan, Indonesia. In this case, Dove shows how the evolution of tenure systems had been influenced by an interaction of socio-cultural change

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with the ecology of the rain forests. Historical reconstruction of land tenure systems has been considered by Dove as "fruitful." He is quite justified to think so, because in order to understand how an existing land tenure system has evolved, it is really important to study land tenure in its historical context. An ecological perspective is equally important, since land tenure systems everywhere have been associated with a process of change in the ecological conditions.

The basic guidelines for an analysis and understanding of land and tree tenure have been provided in the literature reviewed in this section. The various important dimensions and factors to be considered in any analysis have also been identified. A comprehensive model is still required for the systematic analysis and in-depth understanding of the process of land and tree tenure change.

3.4 Summary

A review of general literature revealed that an understanding of tenurial issues and problems is considered essential for natural resources management and development in general, and forest resources in particular. Insecurity of tenure has been considered to be the cause of forest dwellers' alienation from forest resources. The importance of secure tenure has been emphasized for the protection, management and development of government forests, common property resource

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management and development, and to ensure women's participation in forestry activities.

The case studies revealed that a conflict between the local people and the state begins when the local people's traditional rights to land and tree resources are ignored by the state. The local people respond in different ways: setting fires to the forest, violence, protest, revolt and organized movement, and an alienation from the forest resources. Some of these case studies also revealed that a conflict can be resolved by providing secure tenure to the forest residents.

Various dimensions of land and tree tenure and necessary conceptual tools have been provided in the analytical literature. An emphasis has been given on the understanding of tenure change and the need to consider the interactive social, cultural and ecological variables. A historical reconstruction of tenure system and an ecological perspective have been considered to be very useful for the understanding of land and tree tenure systems. A comprehensive model is still required for the systematic analysis and in-depth understanding of the process of land and tree tenure change.

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CHAPTER 4

NATURE-HUMAN-IDEOLOGY INTERFACE: A THEORETICAL FRAMEWORK

This chapter contains a theoretical framework for understanding the process of land and tree tenure. This theoretical framework has been developed by the present researcher by modifying Duncan's Ecological Complex model. The key propositions of this study and the operational model with operational definition of concepts have also been presented in this chapter.

4.1 Model for Understanding Land and Tree Tenure Change

The underlying theme of this study is based on the emerging paradigm in which "the world is seen as composed of a highly interactive set of variables, rapidly changing and subject to a high degree of uncertainty" (Grandstaff et al. 1987:7, see also Jamieson 1987:94-99). This new paradigm is emerging as a reaction to the old paradigm that assumes "the world to be an orderly place subject to a great deal of control and manipulation" (Grandstaff et al. 1987:7, see also Jamieson 1987:91-94).

In this study, the process of land and tree tenure change is explained in relation to the changes in the interactive social, economic, political, technological, demographic and environmental factors. A human ecological perspective is very useful to address the interaction of the above factors. Human

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ecology, according to Adams (1951:39, cited in Duncan 1959:675), is

...that general subject which deals with the relations and inter-relations between nature in general and human nature in particular... from the broadest possible point of view, and with all its ramifications.

The importance of human ecological perspective has been rightly observed by Duncan (1961:140),

... real problems confronting man in the contemporary world can best be illuminated -- insofar as social science can illuminate them -- by stating them and attacking them as ecological problems.

A human ecological model developed by Duncan (1959) to conceptualize human-environmental interactions was chosen for this study. This framework, known as the Ecological Complex, considers four key factors involved in human-environmental interactions: Population, Organization, Environment and Technology. This framework is easy to comprehend, and it has the analytical power to explain the process of social and ecological change. This model was developed more than thirty years ago, but still is used as an analytical framework in human ecology (Albrecht and Murdock 1984). Since this study is concerned with an analysis of different interactive factors, the Ecological Complex model is a good conceptual framework to comprehend the land and tree tenure change in the context of social and environmental change.

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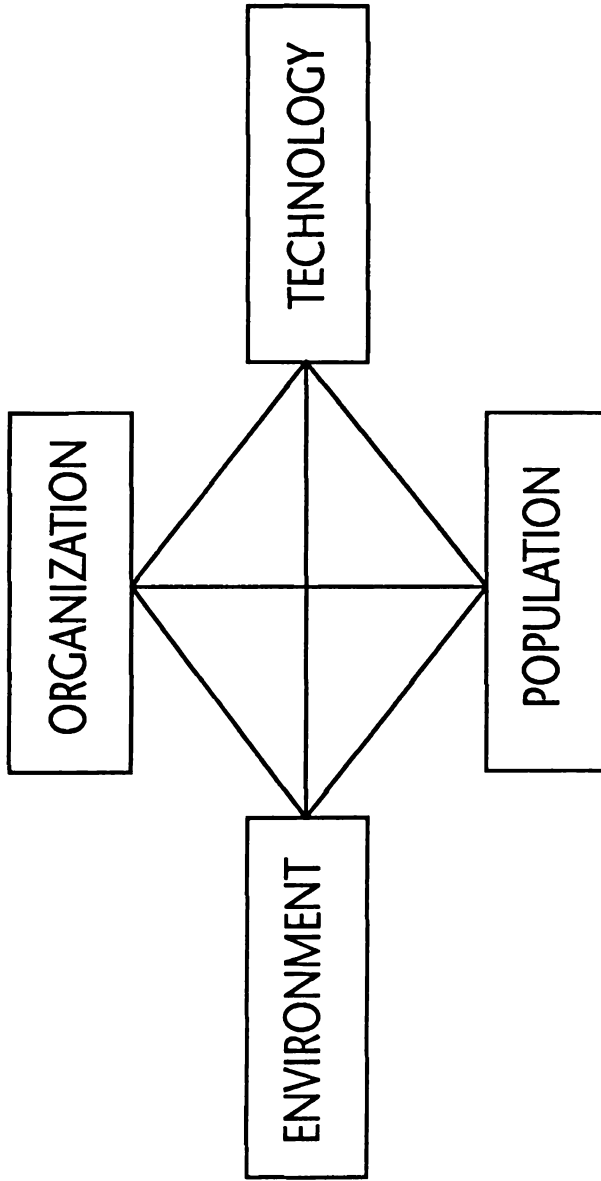
4.1.1 Duncan's Ecological Complex model

According to Duncan, the main human ecological problems can be comprehended in terms of four "referential concepts": Population, Organization, Environment, and Technology (P-O-E-T). The complex interplay or "functional interdependence" of the elements under these four dimensions forms his Ecological Complex (Figure 3). He claims that the social processes which produce cultural diversity and the process of social change, can be understood by analyzing the interdependence of:

- (a) changes in size and composition of population (P);
- (b) shifts in the spatial disposition or organization of competing populations (O);
- (c) environmental change, caused by humans or other agencies (E); and
- (d) introduction of new techniques (T).

Duncan (1959:683) holds that "the interdependence of factors in the adaptation of a population implies that change in any of them will set up ramifying changes in the others."

A Population (P) is the unit of analysis in human ecology. Duncan (1959:681) defines Population (P) as a unit of observation and analysis which is "more or less circumscribed territorially." According to Duncan, Organization (O) is "indispensable for the maintenance of collective life," since an individual human is unable to secure sustenance from the environment, or as Duncan (1959:683) puts it, "unequipped to survive in isolation." In his view, a social organization is also essential for coping



From: Duncan, Otis D. 1959. "Human Ecology and Population Studies" in Phillip Hauser and Otis D. Duncan (eds.) *The Study of Populations*. Chicago: University of Chicago Press.

Figure 3

Duncan's Ecological Complex Model

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with "competition and resistance afforded by other collectivities" which exist in the social environment (Duncan 1959:683).

Environment (E) is considered in the Ecological Complex model because a human population exists in it. Duncan points out that to continue to exist, a human population must cope with the problems posed by an environment. By their occupancy of environment, and by their exploitation of its resources, humans introduce environmental changes. These changes are, according to Duncan (1959:681), "additional to those [changes] produced by other organisms, geological processes, and the like." Duncan (1959:682) defines Technology (T) as "a set of techniques employed by a population to gain sustenance from its environment." He includes the techniques adopted by a population to "facilitate the organization of sustenance-producing activity" under Technology.

Duncan's (1961) illustration of the case of smog in the community of Los Angeles is a good example of how this model helps conceptualize interdependence of these four dimensions. This framework also helps define how changes in each of these interacting factors have ramifications on the others in the overall process of change. In this case, Duncan (1961:146) describes the air pollution problem as an "instance of the principle of circular causation" and he is right to claim that any attempt to resolve this problem must consider the net

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results of an intricate interaction of factors in the ecological complex.

4.1.2 Limitations to Duncan's Ecological Complex model

Duncan is correct to think that the net results of an intricate interaction of the four dimensions of the Ecological Complex must be considered in any attempt to analyze the process of change. But in the process of "circular causation," any individual factor (or more than one) of the four factors may play a relatively more important role than the others. In Duncan's model, there is no indication of the relative importance of any individual factor.

Certain aspects of culture like technology and social organization were considered by Duncan, but his model does not incorporate other important aspects of culture like beliefs, values, morals, religion, rituals and worldviews. Duncan (1959:682) holds that human ecology is concerned with the aspects of culture that play a role in the process of adaptation, and not with culture as "undifferentiated totality." To focus mainly on the "functional" aspect of organization, Duncan set aside the ideational aspect of culture.

Duncan (1959:682) considered the ideational aspect of culture as "the psychological mechanism of learning stressed by culturological interpretations of organization as an aspect of social heritage." In fact, the problem which prevented

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Duncan from employing the concept "culture" in his model, and which the ecologists in general confront, is clear in the following quotation from Duncan (1959:682):

... the human ecologist finds that the global or synthetic concept of culture developed in anthropology is ill-suited to an analysis of the system of interdependent factors with which ecology must deal.

The inadequacy of the global concept of culture is also common in anthropology, where "culture" is the central concept. Sider (1986:5) remarks that "although culture is central, anthropology has tended to set it aside when dealing with questions of change." In Sider's view, the problem arises from the nature of the concept "culture", which according to him, is "amorphous, vague, and totalizing."

To Sider (1986:6), the concept of culture is "totalizing," because "everything in the society is considered culture," and also because "everyone in the society is supposed to have the same culture." Sider (1986:7) thinks that this problem may be overcome if the notion of culture can be reformulated

... to see culture not only with its own dynamic and volatile paradoxes, disjunctions, and contradictions, but also in the specific ways culture both takes from and gives to social relations shape, form and meaning (and meaninglessness, etc.) -- to see it as an active force in history.

The aspect of culture disregarded by Duncan also plays a vital role in cultural diversity and social change which are

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Duncan's concern in human ecology. The elements of culture referred to by Duncan as an "aspect of social heritage" which is achieved by the individuals through "psychological mechanism of learning," may also be regarded as social, since these are learned by people as members of society and expressed in their social behavior. According to Sider (1986), the "knowledge" constructed and invoked by the conduct of the day to day life of people living in society is "situated within the concrete and specific material and social realities."

The cultural interpretations of natural resources may be influenced by all four dimensions mentioned by Duncan. Spoehr (1956) observes that in small-scale preliterate societies which are technologically less complex than modern societies, the concern with natural resources tends to be local, while in technologically advanced western societies this concern is global. State of technology thus causes a marked difference in the interpretation of natural resources between these two types of cultures. Spoehr (1956:97) argues further that "any group 'interprets' its natural resources within the framework of its own social structure." He shows that in the kin-based society of the atoll dwellers of the Marshall Islands, the concept of land ownership in the western sense is absent. Land is not sold among these people; the control and use of land resources are, according to Spoehr (1956:96), "mediated through the particular characteristics of their social

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structure." Conversely, the ownership concept in western societies has developed "as the conjunction of our own particular social system and limited resources" (Spoehr 1959:97).

A similar example was given by Ellis and Ellis (1989) of the difference in the conception of land resources between the Tahitians, who once had abundant resources, and the westerners, "whose cultural paradigms were," Ellis and Ellis (1989:25) observe, based on "scarcity" rather than "enoughness." The condition of the environment, i.e., abundance or scarcity, together with the state of technology and nature of social organization, may thus influence the meanings attached to resources. Such meanings are, therefore, not merely individual "psychological learning" but they are social and ecological as well.

The abstract meanings attached to resources are based on social, ecological and technological factors, and they have implications for the natural environment. In other words, attitudes, beliefs, value orientations, worldviews and perceptions concerning nature may affect the way people use, exploit, conserve and develop their natural resources. Spoehr (1956:98) observes that in many small-scale preliterate societies a human being "is not set apart from nature but is part of a single order, combining man, nature, and the gods." Humans and nature are, says Spoehr (1956:98), "not conceptually opposed but are considered as parts of the same

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Duncan recognizes the need for an analysis at intercommunity or supralocal level, but he emphasizes analysis at the community level. Duncan (1959:684) justifies such a community level analysis in ecology and perhaps for his own model on the grounds that,

... territorially more inclusive forms of organization function primarily through the community nexus and that community is the most accessible and manageable unit of observation and analysis among those units exhibiting the full range of relationships postulated for the "ecological complex."

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He, however, has not shown how the "unit of observation and analysis" is related to the outside world. But the dimension of Environment undoubtedly includes the relationship between the unit of observation and the outside world. The definition of Environment in human ecology includes an analysis of the relation between the unit of observation and the outside world. According to Hawley (1981:9), environment

... includes not only the physical and biotic elements of an occupied area but also the influences that emanate from other organized populations in the same and in other areas.

Both physical and social environment have been considered by Hawley. Under "environment," Micklin and Choldin (1984:99) have included "populations and organization which have an influence on the populations being investigated."

But it is important to note that the unit of observation is influenced not only by "physical and biotic elements," and by "other populations" and "organization" but also by external technology and ideology. In certain circumstances, the external factors may play a relatively more important role than the internal factors. The influences of different external factors from various sources (social, political and religious) and at various level (local, national, regional and global) should be considered in any analysis of the unit of observation. The importance of recognizing the various levels of influences by external factors has been emphasized in the Kite model developed by Campbell and Olson (1991) for an

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analysis of the complex interactions between society and environment.

4.2 Nature-Human-Ideology Interface: Modified Ecological Complex Model

To broaden Duncan's framework and strengthen its analytical power, the Ecological Complex model has been modified by this researcher. The modified model has been designated "Nature-Human-Ideology Interface" and the modified schema (Figure 4) is: Population-Environment-Technology-Ideology-Organization (PETIO).

A fifth dimension, Ideology, has been added to Duncan's POET schema. This new dimension includes the ideational aspect of culture, which has been disregarded by Duncan in his model. To avoid possible confusion with the concept of "culture," the concept of "Ideology" has been used in this study. Ideology includes the abstract elements of culture such as beliefs, values, morals, religion and worldview. If the concept of culture is used to mean a collection of these elements, then one may easily argue that "culture" is not "analytically distinguishable" from Organization and Technology. It is important to note that each dimension of Duncan's model, as he claims, is "a collection of analytically distinguishable elements." Even an attempt to define "culture" operationally to include only the ideational aspect and to exclude Technology and Organization may not be

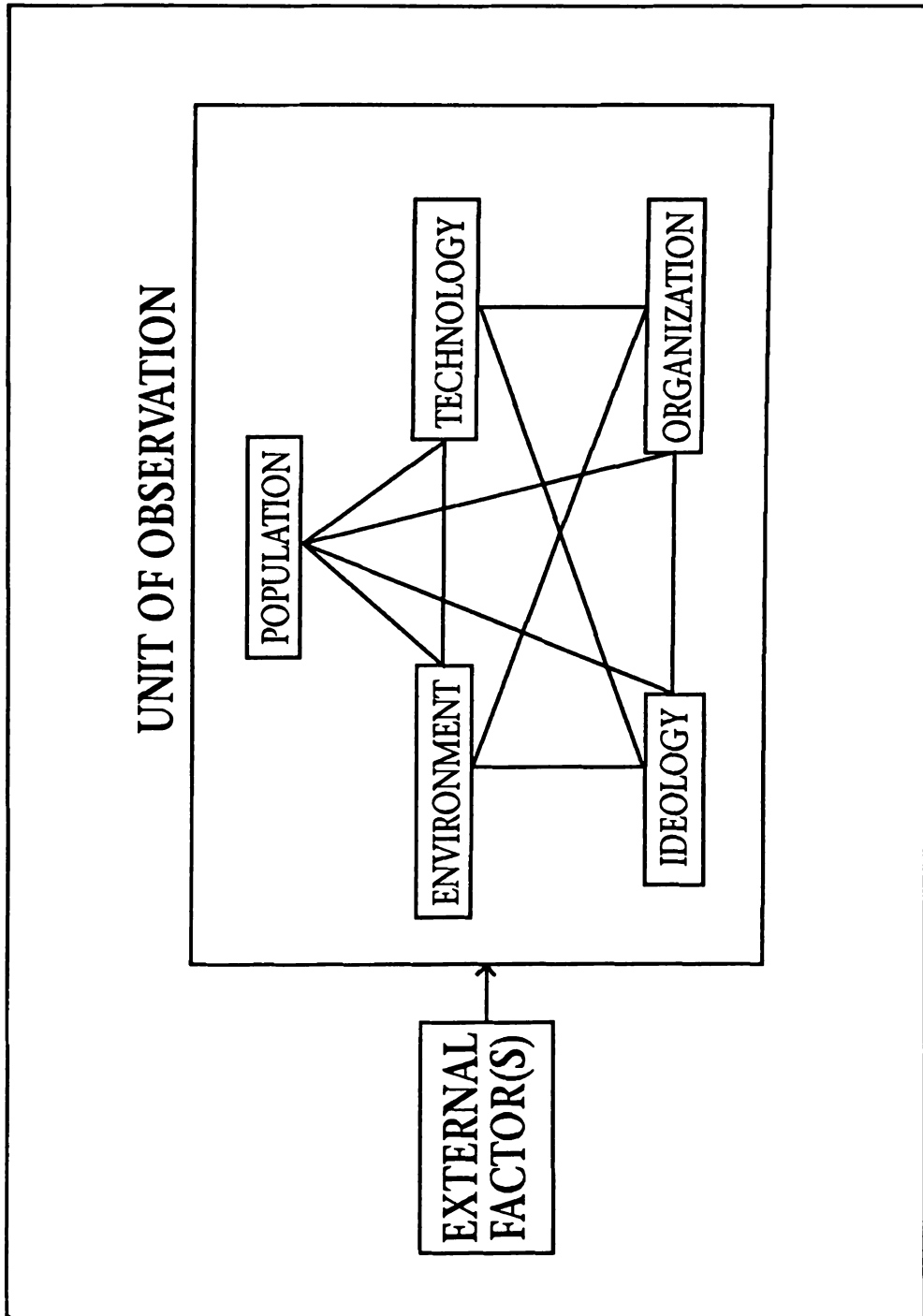


Figure 4

Nature-Human-Ideology Interface: Revised Ecological Complex Model

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satisfactory. Such a restricted definition of this concept will only create confusion with the established and all-inclusive anthropological concept of culture.

Ideologies, as defined above, are learned by human beings through the "psychological mechanism of learning," and also that they are passed from one generation to another through the vehicle of culture. But they are not learned by individuals in isolation, rather from society as members of society. The concern for sociological human ecology is the ideology shared by all the members of society. It should be pointed out that ideologies by themselves do not directly influence society and environment, but when shared ideologies are expressed in behavior or put into action they do. The implementation of ideologies shapes the Organization (O) in the PETIO schema. When implemented, ideologies take the shape of customs, traditions, norms, rules and patterns of behavior. These expressed forms of ideologies are, in fact, the guiding principles of organization, the technologies, or mode of natural resource exploitation and use.

The concept of "ideology" can be seen as "analytically distinguishable" from other dimensions if this concept is restricted to denote the elements of culture that are concerned with attaching an abstract meaning to things, life, society and nature; and if another notion, "shared knowledge, skill, or techniques of doing things," is employed to mean the abstract aspects of culture subsumed under Technology and to

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some extent under Organization. If this distinction can be consistently kept in mind, the concept of Ideology can be comfortably used as another dimension in the Ecological Complex model.

In the modified version of the Ecological Complex model, an emphasis is given to the factor (or factors) which is (are) relatively more influential than the others in the process of circular causation. The relative importance of one or more factors is dependent on the nature of the problem and the time period. Some factors may be more important in certain cases and at a certain point of time in that particular case. But that factor may not be more influential than the other factors in other cases or even in the same case at a different time.

The influence of the external factors from various sources (social, political and religious) and at various level (local, national, regional and global) has been considered in the Nature-Human-Ideology Interface framework.

4.3 Research Questions and Key Propositions

The Nature-Human-Ideology Interface framework may be useful to deal with the following research questions which the present study seeks to answer:

1. Why and how do changes in land and tree tenure take place and what factors are involved in the process of change?
2. Why and how does a conflict between people and the state result in the process of land and tree tenure change?

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Based on the above research questions, the key propositions of this study are:

1. Changes in important factors such as Population, Environment, Technology, Ideology and Organization (PETIO) are involved in the process of change in land and tree tenure. In a situation of rapidly increasing population and limited land and other natural resources, the Population factor (P) is relatively more influential than all other factors.

2. A tendency among people towards claiming permanent and secure tenure to land and trees may be less when these resources are abundant compared to population size and when people can use them without restriction. But this tendency may increase when there is a decrease in the resource base or when these resources become scarce with population increase.

3. Forest reservation creates among the forest dwellers an awareness of, and the needs and desires for, claiming secure tenure to land and trees, which were previously used by these people without any "paper right." Although the internal factors contribute to the process of land and tree tenure change, the external factor of forest reservation may play a relatively more important role.

4. A conflict between the state and the forest dwelling communities arises in the process of land and tree tenure change, since there is a gap between indigenous land and tree tenure system of the forest dwelling communities and the elements of statutory land and tree tenure. This conflict is inevitable when people's claims, based on their own conception of property rights, are ignored by the elements of statutory tenure, which is based on a different concept of property rights.

4.4 Operational Model for an Understanding of the Process of Land and Tree Tenure Change

The Land and tree tenure system may have components in each of the five dimensions of the PETIO schema. For the purpose of the present study, however, land and tree tenure has been considered an element of Organization (O), and defined operationally as the institutional aspect of social

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organization of people. These institutional arrangements both constrain and facilitate the sustenance activities of people. The tenurial arrangements are created and nurtured by social organization.

The process of change in land and tree tenure evolves with changes in social, economic, political, technological, demographic and environmental factors. For example, an increase in the tendency among people towards achieving a permanent and secure tenure to land and tree resources is indicative of changes in tenure. This tendency towards permanent and secure tenure increases with the changes in other factors/variables under each of the five dimensions of the PETIO schema. For this study, land and tree tenure change is regarded as the dependent variable and an interaction of other factors/variables, including the structural aspect of social organization, are independent variables.

Land and tree tenure may be compared with a piece of multicolor fabric. The weaving of many threads of different colors in the fabric is comparable to the interplay of the various factors involved in the evolution of land and tree tenure. Threads of particular color are woven together to highlight certain designs in the fabric. However, both these closely-woven threads and the other threads woven in other parts of the fabric are necessary for the overall pattern.

To examine the color-combination and the ways in which a piece of multicolor fabric is woven, one has to identify the

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closely-related threads and their relationship with other threads woven in the same piece of fabric. Similarly, an identification of the closely-related factors/variables which are relevant to land and tree tenure and the manner in which they are related with other factors, is necessary to examine the process of land and tree tenure change.

Based on the following considerations, an operational model (Figure 5) for understanding the process of land and tree tenure change has been developed for this study:

1. the PETIO schema of the Nature-Human-Ideology Interface model;
2. the key propositions of this study given in Section 4.3; and
3. the operational definition of land and tree tenure and the process of change in land and tree tenure given above.

Only the closely-related factors/variables relating to land and tree tenure change are identified in the operational model. Although the various factors/variables under each of the five dimensions in the PETIO schema are interrelated, the relationships among the various factors/variables included in the operational model have been considered only in one direction. The direction shown in the model has been assumed by considering the plausible ways to explain the process of land and tree tenure change. The relationship between one variable/factor to another is shown by drawing lines between them. Which variable/factor is influenced by which is shown

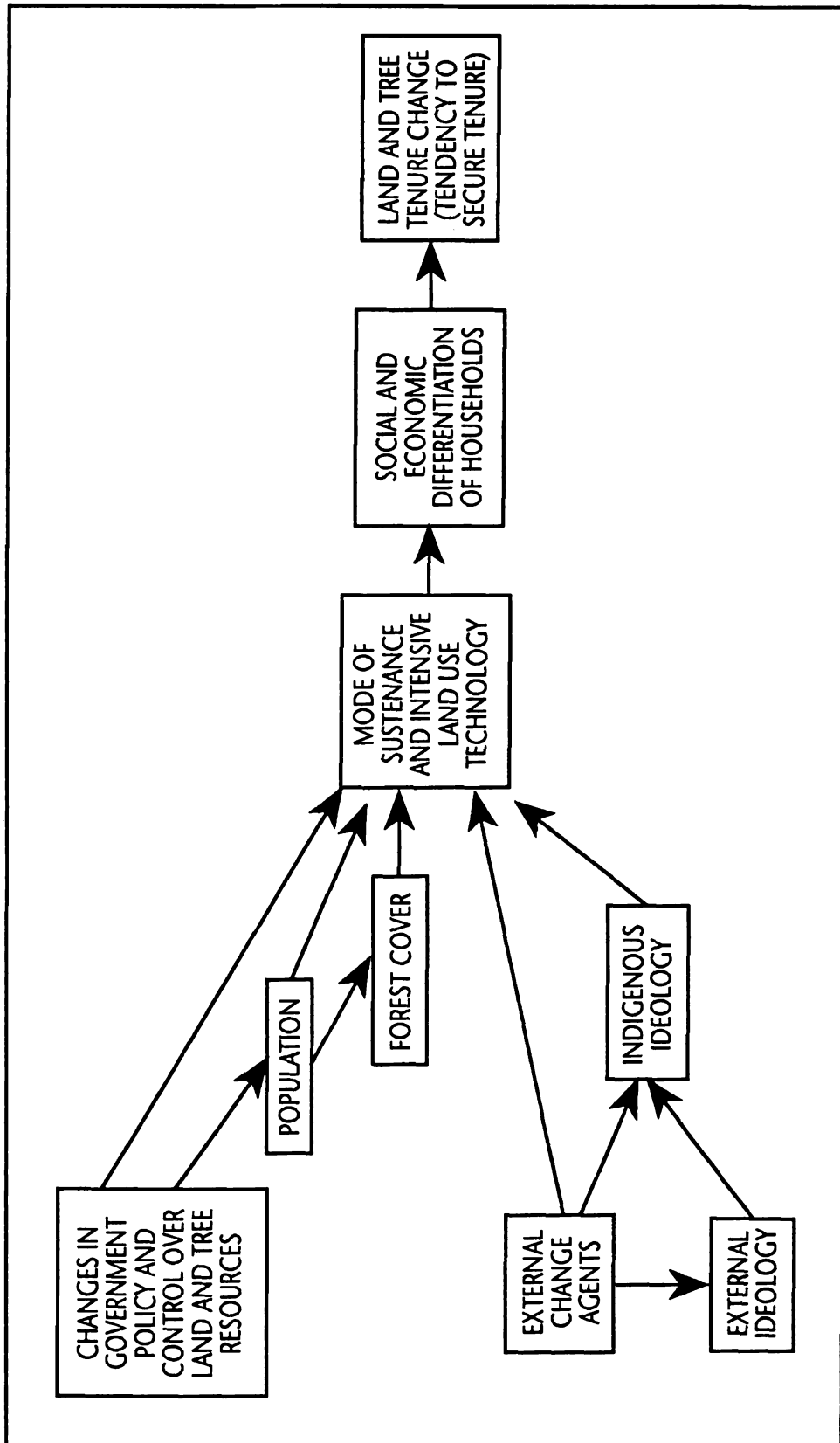


Figure 5
The Process of Land and Tree Tenure Change Among Indigenous Forest Communities

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with an arrow at the end of each line. The nature and trend of change are stated in the research propositions and a specified model given in Chapter 5. The key concepts under different dimensions of the PETIO schema have been defined operationally as follows.

4.4.1 Population (P)

Since the Garo, and especially those living in the national park area and its close proximity, are involved in the land and tree tenure conflict examined in this study, the populations of various Garo villages within this area form the universe of study. As almost all the Garo villages contain some Bengali and/or Koch households, the people belonging to the other ethnic groups were also included in this study.

The population characteristics include demographic characteristics based on both ascriptive attributes (such as ethnicity, age and gender) and achieved attributes (such as educational attainment and landholding groups).

4.4.2 Environment (E)

Both the physical and social environments in which the populations live and perform their sustenance activities were considered. The main source of sustenance (e.g. land), as well as the transportation network which enhances production of goods and services, were included in the physical environment. The geomorphological features of the land

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available for cultivation and the type and amount of forest land, which were assumed to have facilitated the sustenance activities, were also considered. The biotic and chemical features which influence the environment were excluded from this study. The social and economic environments that both constrain and facilitate sustenance activities were considered.

4.4.3 Technology (T)

Technology was defined as any knowledge, information, skills, techniques and tools used by the population to accomplish their sustenance activities. The adoption of wet rice cultivation as a new mode of sustenance and growing pineapple as a cash crop were taken as indicative of changes in technology and sustenance activities.

4.4.4 Ideology (I)

Ideology includes all beliefs, values, norms and worldviews. All aspects of social life are influenced by ideology. However, the ideologies included in this study are only those which may influence the sustenance activities and the patterns of resource use. Both indigenous and external ideologies which influence the organization of sustenance were considered.

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1.4.5 Organization (O)

Organization has been defined as sustenance organization which arises out of the collective life and sustenance activities of the population. A distinction was made between two different aspects of sustenance organization: (a) structural and (b) institutional. Thus, both the organizational structure that defines who will perform what activities and the nature of social and economic differentiation, as well the institutional arrangements which influence sustenance activities, are included in explaining the relationship of organization with other variables/factors.

1.5 Summary

A human ecological perspective has been adopted in this study and Duncan's Ecological Complex model has been used to conceptualize human-environmental interactions involved in the process of land and tree tenure change. Duncan's model sees the social process and the process of change as a complex interplay of four key factors: Population, Organization, Environment and Technology (POET). To broaden this framework, the ideational aspect of culture, which Duncan disregarded, has been incorporated into the POET schema. The modified schema is Population-Environment-Technology-Ideology-Organization (PETIO) and the modified model has been named "Nature-Human-Ideology Interface."

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Duncan's model treats all the factors as equally important at all times. But the modified model emphasizes the relative importance of one or more factors in different situations and at different times. The role of different external factors from various sources and at various levels have also been considered in the modified model.

In the operational model, land and tree tenure has been considered an element of the Organization (O) factor in the PETIO schema. An increase in the tendency among people to secure their land and tree tenure has been considered an indicator of tenure change. This tendency has been seen as evolving with changes in all the interactive factors in the model. The relationship between the closely-related factors/variables has been considered in one direction, which is based on the plausible ways that explain the process of land and tree tenure change.

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CHAPTER 5

RESEARCH STRATEGIES AND METHODOLOGIES

This chapter deals with the research strategies adopted in this study and the different methods employed for collecting different types of information. The research design, research hypotheses, factors/variables studied, and a specified model showing the relationships between different factors/variables are also included.

5.1 Research Strategies

Considering the nature and type of data required and the situation encountered in the field, two research strategies were adopted: (1) a multi-method approach; and (2) a flexibility for modifications in the field.

5.1.1 A multi-method approach

Instead of depending on any single method, a combination of methods was employed for collecting different types of data. The various methods used are survey, historical, oral history and retrospective interviewing, and ethnographic study (see Section 5.4 for details). A survey was conducted for collecting quantitative data on the social, economic and demographic characteristics of the population under study. Historical method was used for past events. Oral history and retrospective interviewing were used when no written

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historical document was available. An ethnographic study was made to gather information on the present situation. In addition, secondary sources were used for certain data. The nature and types of data collected and the methods used are listed below:

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| Survey | <ul style="list-style-type: none"> - household size. - household type (joint/single). - demographic characteristics of household members (age and gender). - social characteristics of household members (educational status, occupation, religious denomination). - landholding size (with land types -- lower and higher, pineapple gardens, homesteads). - ownership and inheritance pattern. - trees grown in the homestead and pineapple gardens. - gender specialization (who does what work). - gender relations to the resources (male/female access to and distribution of resources). - opinion on who (male/female) should own land and other household property. |
| Historical records | <ul style="list-style-type: none"> - settlement of human population in Madhupur Garh forest. - history of forest management in Madhupur Garh. - land and tree tenure of the state with reference to Madhupur Garh. - history of agricultural practices in Madhupur Garh forest. - relations between government (forest department) and the local people. - present situation (political, economic and social). |
| Oral history and retrospective interviewing | <p>Information was gathered from retrospective interviewing and oral history when no information was found in the historical documents. A particular emphasis has been given to the following topics:</p> <ul style="list-style-type: none"> - human settlement in Madhupur Garh forest. - immigration and emigration. - Garo-Koch-Bengali relations. - Nature and extent of involvement of local |

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- past land and tree tenure in Madhupur Garh.
- past land and tree tenure among the Garo.
- the relation between the zamindar (land revenue collector and absentee landlord) and the local people.
- past forest management.
- relations between the local people and the forest department.
- past social, economic, political and cultural life of the Garo.
- other important events (such as the advent of Christianity, declaration of Reserved Forest and National Park).

Ethnographic study

- present land and tree tenure of the state in the context of Madhupur Garh.
- present land and tree tenure among the Garo.
- relations between the forest department and the local people.
- productivity of land and land prices.
- present situation (political, economic and social).

Intensive study of a village, case studies and in-depth interviewing

- gender specialization (case studies).
- gender relation to the resources (based on case studies).
- land and tree and tenure (based on in-depth interviewing and case studies).
- property ownership and inheritance pattern gathered from each individual household (based on a plat map of all the land in the intensive study village).
- production of different crops (based on case studies).
- changes in land prices.
- changes in wage rate.
- changes in the price of crops.

Secondary sources

- data on forest area, number of encroachers on forest land, (from forest department).
- data on different types of land (from local agriculture department documents).
- area and population data (from local administrative circles).
- population data (from Government Census reports and local Catholic mission).
- data on forest cover and settlement area (from aerial photographs).

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5.1.2 Flexibility for modifications in the field

Before beginning the fieldwork, the key concepts in the Nature-Human-Ideology model (see Figure 4) and those in the key propositions (see Section 4.3 in Chapter 4) were operationalized, the variables/factors under each of the five dimensions of the model with their respective indicators/elements were designated, and several propositions were formulated. However, these were modified during the process of fieldwork. Such modifications and refinements evolved with clarification and further understanding of the concepts gained during the fieldwork. This kind of flexibility was necessary for the nature of this study. A rigid approach would have made it very difficult to capture subtle points that were not contemplated before beginning the fieldwork. Flexibility was also essential for eliminating the variables which appeared unimportant and for adding others that seemed important. Thus this research process evolved during the course of fieldwork and adapted to the demand of the field situation.

5.2 Research Propositions and Specified Model

For an analysis of the process of land and tree tenure change, the relationships between a few pairs of variables/factors have been taken into account. In addition, several research propositions have been formulated to state the nature of the relationship between different pairs of

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variables/factors. These research propositions, and the justification for each of them, follow.

The relationships between the variables/factors mentioned in the research propositions and the direction of change have been shown in a specified model (Figure 6). These factors/variables are, in fact, interrelated and interactive. For the purpose of this study, however, only the relationships between the closely-related factors/variables have been considered.

Proposition 1: As population in the forest increases, forest decreases.

Justification:- Existing literature on Madhupur Garh forest suggest that an increase in population has been responsible for a rapid depletion of this forest (Khaleque 1984a). The increase in population is, in part, due to the natural increase among the original settlers but is largely due to the influx of lowland Bengali immigrants. Although an intensive mode of sustenance (wet rice cultivation) was adopted by the Garo in response to increased population (Khaleque 1982, 1983), the increased number of people among them required more forest land for homestead. In addition, the new settlers also required homestead land. Because homesteads are built on the higher land within the forest (see Chapter 2), people must clear forest for this purpose

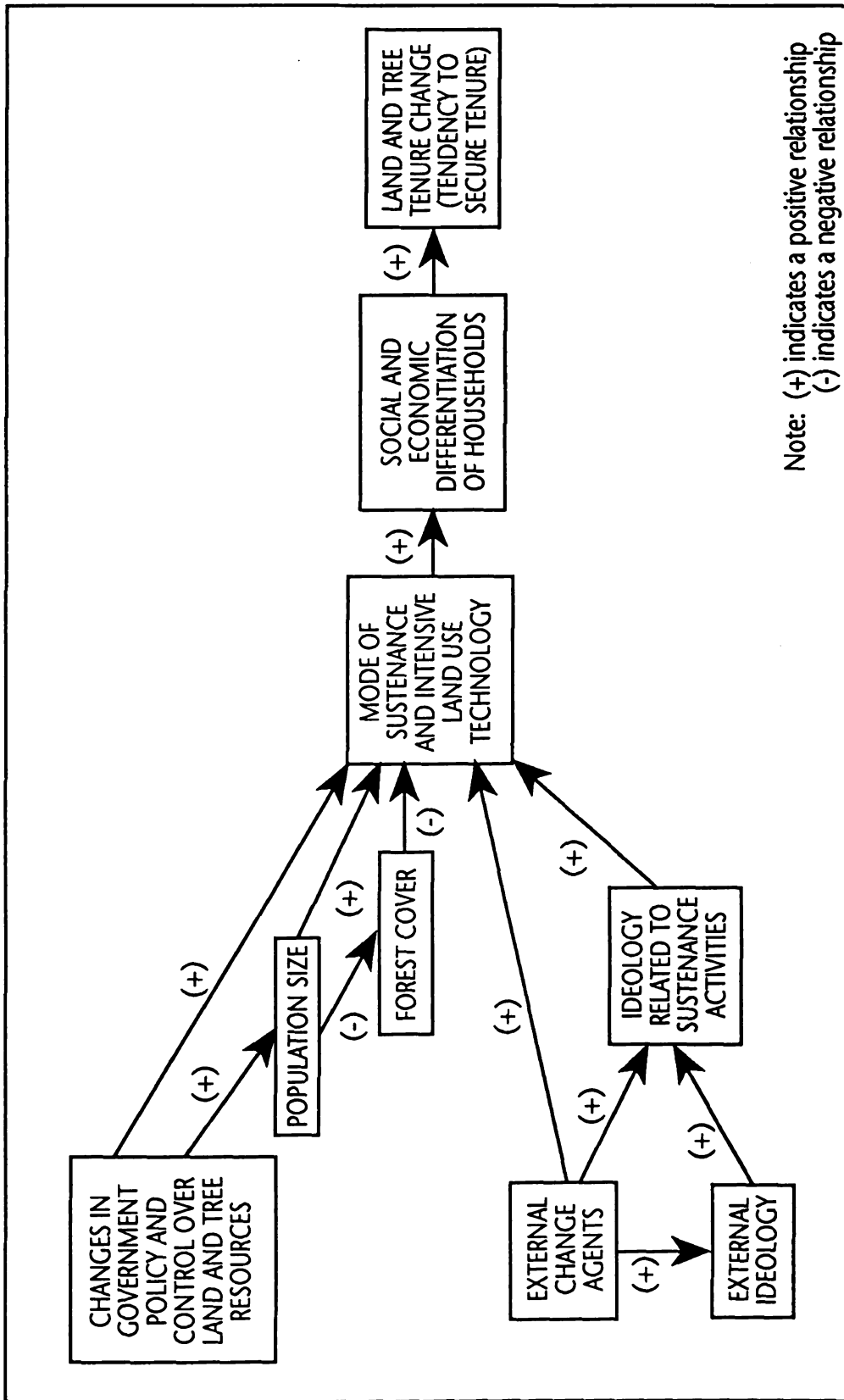


Figure 6

Specified Model on the Process of Land and Tree Tenure Change Among the Garo of Madhupur Garh

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(Khaleque 1984a). Increased population also increases the demand for tree and tree products, and these needs have been met from the resources of this forest (Khaleque 1984a).

Proposition 2: An increase in population is related to an increase in the adoption rate of intensive mode of sustenance.

Justification:- General literature unveiled that people are compelled to use land more intensively when population steadily increases in a limited land area (see Geertz 1963, Boserup 1965). Literature on the Garo of Madhupur Garh revealed that this was true in their case as well, and this was the main reason that they adopted wet rice cultivation (Khaleque 1982, 1983).

Proposition 3: An increase in the restrictions on the use of forest land, particularly after forest reservation, is related to an increase in the more intensive use of land.

Justification:- The literature on the Garo of Madhupur Garh suggest that a scarcity of land appeared to the Garo after the Madhupur Garh area was declared a reserved forest and a ban was placed on the use of forest land for swidden cultivation (Khaleque 1982.1983). The Garo, therefore, had to start using the limited forest land occupied by them more intensively than ever before. Thus an increase in the intensive use of forest land may be related to an increase in government restrictions on the use of such land.

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Proposition 4: With an increase in changes in sustenance-related ideologies and economic orientation after the advent of Christianity, there has been an increase in the rate of adopting intensive land use technologies.

Justification:- Khaleque (1982, 1985) reported that the people who converted to Christianity attained a western education provided by the Christian mission, as well as the idea of investment for profit making and the value of labor. By virtue of their new knowledge and skills, the Christian Garos were in a position to capture the advantages of market economy and became wealthier than those, particularly the non-Christians, who failed to attain this new knowledge and these skills (Khaleque 1982, 1985). Therefore, there may be a relationship between changes in sustenance-related ideologies and economic orientation after the advent of Christianity and adoption of intensive land use technologies.

Proposition 5: An increase in the practice of intensive land use technologies leads to an increase in social and economic differentiation.

Justification:- Literature on the Garo of Madhupur Garh showed that wealth became concentrated into the hands of a few with the development of wet rice cultivation. The capital accumulated by these wealthy people was later invested in growing pineapple for market. These people eventually became wealthier than those who had failed to invest capital and other resources for cash crop production (Khaleque 1984a). Thus, social and economic differentiation among Garo

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households may be considered as the outcome of the development of intensive land use technologies (wet rice cultivation and pineapple plantation).

Proposition 6: As the social and economic differentiation among households increases, the tendency towards achieving secure land and tree tenure increases.

Justification:- Existing literature on the Garo of Madhupur Garh suggest that a permanent distinction between rich and poor developed in this society with the development of wet rice cultivation and cash crop production (Khaleque 1982, 1984a). The wealthy people may, therefore, be expected to maintain their social and economic status by achieving secure tenure to land and trees.

Proposition 7: With an increase in the state's control after forest reservation, there is an increase in the tendency for claiming permanent and secure tenure to land and trees previously used by the forest-dwellers without a "paper right."

Justification:- Literature discussing conflict between the Garo and the forest department revealed that the forest department, in the process of forest reservation and strengthening control over forest land, required the forest-dwellers to establish their claim on the basis of valid documents (Khaleque 1985). Presumably, the Garo were less concerned about claiming their right before forest reservation, but a tendency towards claiming secure tenure to land and trees increased among them after forest reservation.

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5.3 Variables/Factors and the Unit of Analysis and Observation

Since this research is a case study of the Garo people of Madhupur Garh forest, the Garo community is considered the unit of analysis. The national park area was regarded as the unit of observation. For certain information related to the present situation, however, Garo households were taken as the unit of observation.

The variables/factors under each of the five dimensions of the model and the indicators/elements of each variable/factor refined in the process of fieldwork are given below. The level at which data were collected for different variables has been indicated with HL and RL in parentheses at the end of each variable/factor, where HL and RL stand for "household Level" and "regional Level," respectively.

POPULATION

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|-------------------------|---|
| Population size (RL) | - total population in the area. |
| Ethnic composition (RL) | - % of population in different ethnic groups. |
| Household size (HL) | - Number of persons living in the same production and consumption unit. |
| Gender composition (HL) | - % of male and female member in each household. |
| Dependency ratio (HL) | |
| - Age composition | - % of people in different age group. |
| - Labor force | - % of people above 15 and below 60 years old, which was defined as active labor force. |

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- Landholding groups (HL) - % of households in different landholding size categories, including owned, occupied and rented land under different type -- low-lying and higher land.
- Income groups (HL) - % of household in different income groups.
- Educational status (HL) - % of people having formal schooling of one year or more.

ENVIRONMENT

Changes in forest cover (RL)

- increase in forest cover
- increase in afforestation.
- decrease in forest cover
- increase in arable land, pineapple gardens, homestead in the forest.

Agricultural land (RL)

- converted from forest land
- increase/decrease in agricultural land.

Settlement area (RL)

- increase/decrease in settlement area.

Land market (RL)

- increase/decrease in land prices.

TECHNOLOGY

Mode of sustenance (RL)

- past involvement in swidden cultivation, wet rice cultivation, and pineapple plantation
- % of households involved in swidden cultivation, wet rice cultivation and pineapple plantation before 1950.
- present involvement in wet rice cultivation and pineapple plantation
- % of household involved in wet rice cultivation and pineapple plantation.

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Productivity in
swidden cultivation,
wet rice cultivation,
and pineapple planta-
tion (RL)

- yield per acre from swidden culti-
vation, wet rice cultivation and
pineapple plantation.

Technical knowledge (HL)

- related to different
agricultural crops
- related to tree
growing and tending
- what knowledge and skills people
have about growing different crops.
- what knowledge and skills people
have about tree growing and
tending.

IDEOLOGY

Beliefs and values
related to sustenance (HL)

- ideal rules, values
and norms related to
work
- who (male member/female member)
should do household work, agricul-
tural work, tree planting and
tending.

Beliefs and values
related to resource
use (HL)

- resources to be exploited as much
as possible, to be protected and
preserved for future generation;
and how to preserve (rules, values
and norms of society).

Religious affiliation

- % of households in different
religious denomination.

ORGANIZATION

Occupational specia-
lization based on
age and gender (HL)

- who (male member/female member)
does household work, agricultural
work, tree planting and tending.

Gender relations to
the resources (HL)

- male-female access to and distri-
bution of resources.

Social and economic
differentiation of
household (HL))

- % of households in different
landholding categories and income
groups.

Power relations at
the village level (RL)

- who dominates, who exercises power
to make decision at the village

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level; and access to and distribution of resources between power holders and powerless people.

Land and Tree Tenure (HL and RL) - who has what right on what land and tree, for how long.

5.4 Methodologies and Research Design

This Section details the multi-method approach used in this study.

5.4.1 Survey Design

5.4.1.1 Sampling frame

Since this study was concerned specifically with the national park area and its close proximity to Madhupur Garh forest and the Garo community living there, all the Garo villages (30) within this area were considered in the selection of sample. A list of these villages (defined below) was treated as the sampling frame.

There is a difference between the definition of "village" in the official land records and the area recognized by local people as their villages which they use for their mailing addresses. Generally, a village in Bangladesh is defined as the smallest unit within the local administrative unit, the Union Parishad (which consists of several villages). This official definition is usually followed by the villagers in most areas. However, an unofficial boundary line between two villages is often drawn by the people by using such natural boundaries as rivers, canals, forests and agricultural lands.

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In the case of the national park area of Madhupur Garh forest, the revenue units, called mouza, are considered villages in the official records. These revenue units were demarcated during the Mughal rule (1576-1757), in the region that is now Bangladesh, for the purpose of collecting revenue. The same revenue units also continued to be recognized during the British period (1757-1947) and are still followed for the same purpose. Thus, according to the official records, there are only three villages in the whole national park area (Figure 2).

In practice, however, there are several villages within each of these mouzas, and the people living in those villages identify the area of their respective villages more or less in the same manner as the people living outside the forest area. That is, the forest dwellers also use certain natural boundaries like patches of forest, trails and low-lying land within the forest as the boundaries between villages. Although the people's own definition of village and the official definition are generally the same in the case of villages outside the forest area, the people's own definition in the case of national park area is not endorsed in the official records. The reason for such anomalies in the definition of village in the official record of the national park area and other areas of Bangladesh was not known to any official in the local administrative unit. It seems that

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changes after the end of British rule were not officially recognized by the local officials.

Since the official village list was not useful for selecting sample villages, the social and spatial units defined as villages by the villagers themselves were considered instead. Fortunately, a list of villages was found at the local Catholic mission which corresponds to the villages defined by the villagers themselves. The Catholic mission maintains this list to carry out their missionary activities. This list was used for sample selection. With the help of a local surveyor, all the Garo villages within the national park area and its close proximity were located on a map of the area found at the Catholic mission. A sample was drawn from this list.

5.4.1.2 Sample size and design

A sample size of 200 households (defined below) from 10 villages (20 households from each) was determined. The available funds for hiring interviewers and covering other costs for the survey, as well as the time period before the rainy season, were considered in determining the sample size. Because roads and forest trails are in poor condition during the rainy season, it is very difficult to conduct any fieldwork at that time. To avoid this situation the survey was started in February and had to be completed before May, when the rainy season begins.

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Considering the cost and convenience of data collection, an area probability sampling method was followed. To ensure representativeness and an equal probability of all the elements to be included in the sample, the design involved multistage cluster sampling, stratification and systematic selection with probabilities proportionate to size.

In the first stage, primary sampling units were formed by selecting 10 clusters, i.e. villages, from the list of all villages. To ensure the representativeness of the whole area, the sample villages were selected at random. A sampling interval was set by dividing the total number of villages (30) by the number of villages decided to be sampled (10). A random start between one and three (i.e., the sampling interval) was selected from the Random Number Table and 10 villages were selected systematically.

In the second stage, 20 households from each of the ten selected villages were selected at random from a list of all the households in those villages. A household is defined as the group of individuals, generally related to each other by kinship ties, who live together and partake meals from the same kitchen. This unit is also the production unit. In general, a similar definition is followed all over Bangladesh.

Due to the differences in the definition between the official and the people's definition of the area of a village, as mentioned above, the list of households available at the local administrative unit was not useful. A complete list of

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households in the study villages was also unavailable at the local Catholic mission. At the Catholic mission, a list is maintained only for the Catholic households. However, the cards maintained by the Catholic mission for each Catholic household were very useful. Since the Catholics are in the majority, these cards covered most households in the selected villages, and a list of Catholic households was prepared from these cards. But because there are people in these villages who belong to other denominations of Christianity or other religious and ethnic groups, such as the Koch and Bengali, a list of those households had to be prepared by the interviewers before selecting households.

Before drawing the sample, all the households in each village were stratified according to ethnicity, i.e., Garo, Koch and Bengali. Twenty households, proportionate to the size of each stratum, were then drawn at random. To select a sample proportionate to the stratum size, the proportion of each stratum in the total number of households was calculated and the number of households to be sampled was determined. A sampling interval was then calculated by dividing the total number of households in a given stratum by the number of households to be sampled from that stratum. A random start between one and the figure obtained for sampling interval was then determined by using the Random Number Table, and the required number of households to be sampled was drawn from the

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household list systematically. Table 1 shows the number of households in different ethnic groups in the sampled villages.

5.4.1.3 Respondents, interviewers, and interviewing technique

The head of household and his/her spouse in each of the sample households were selected as the respondents. Thus, one male and one female respondent from the same household, for a total of 200 males and 200 females, were interviewed.

Two interviewers -- one male and one female -- were hired from among the educated Garo. They were given an orientation to the objectives of this survey and the questionnaire and were trained to perform the interviews. The principal researcher was present in the field during the period of fieldwork to supervise data collection by interviewers and to provide them necessary guidance and help.

A face-to-face interviewing technique was adopted. Male respondents were interviewed by a male interviewer, and female respondents were interviewed by a female interviewer. The interview instrument is given in Appendix A. To examine the variations in response between the male and female respondents in the same household, the same questionnaire was used for interviewing both male and female respondents. The first draft of the questionnaire was revised after pretesting with 10 households. The instrument was then finalized after conducting a pilot survey on another 10 households.

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Table 1

Distribution of Sampled Households by Ethnic Group

Name of Village	Number of Households in Different Ethnic Groups			
	Garó	Koch	Bengali	Total
Beduria	70 (.95)	4 (.05)	0	74
Gaira	67	0	0	67
Sadhupara	46	0	0	46
Saturia (*)	50 (.76)	0	16 (.24)	66
Bhutia	54 (.93)	4 (.07)	0	58
Kailakuri (*)	48 (.74)	0	17 (.26)	65
Kakraguni	58 (.94)	0	4 (.06)	62
Pirgacha	77 (.94)	5 (.06)	0	82
Gachabari (*)	45 (.51)	9 (.10)	34 (.39)	88
Dharati (*)	64 (.85)	0 (.14)	11	75
Total	579 (.85)	22 (.03)	82 (.12)	683

Notes:

1. Figures in parentheses indicate proportions of households in each individual village.
2. Villages marked with an asterisk in parenthesis are located at the edge of the national park.

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5.4.2 Historical documents

Historical documents from sources such as published books, journals, newspapers, periodicals, and government records (Appendix B), were used to gather information about the social, political and economic history of the area. After identifying the type of documents available from these sources, a list of documents was prepared and scrutinized, and contents of the selected documents were analyzed.

5.4.3 Oral history and retrospective interviewing

Oral history was gathered by interviewing the key informants. Two informants from each of the 10 selected villages were interviewed by the principal researcher to collect information on the past social, economic and cultural life of their respective villages. In addition, 10 key informants were selected from the whole area and were interviewed by the principal researcher for area-level information on the above points. No formal questionnaire was used during these interviews.

To select the area-level key informants and the village-level informants, a list of 16 key informants from the whole area (including the 10 selected villages) and three informants from each of the 10 selected villages was prepared by the interviewers. Then discussions were held with the American priest at the local Catholic mission who has been living in this area since 1959 and is quite knowledgeable about the

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whole area, and with two Garo leaders who know the whole area very well. They were requested to scrutinize the list and identify only those people whom they thought to be the most knowledgeable. They selected 12 out of the 16 area-level key informants and all the village-level informants. Out of the 12 key informants, 10 were interviewed. Due to time constraints, only two informants from each of the 10 selected villages were interviewed.

To test the consistency of the information provided by these informants and key informants, they were asked to give the approximate dates of certain common incidents and events. Once they were found to be generally consistent, the interviewing was continued. Two of the 12 key informants were discarded, as they were found inconsistent in recalling events.

5.4.4 Ethnographic study

To gather data on the day-to-day life of the people, an observation study was made by the principal researcher in the selected villages. The village-level informants and area-level key informants, mentioned in Section 5.4.3 were interviewed by the principal researcher for information on the present social, economic and political conditions.

In addition, an intensive study was made of one particular village to collect ethnographic information. The village selected was also studied by the principal researcher

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in 1979-80. There are three justifications for selecting this village. First, since finding accommodations for the principal researcher during the fieldwork was difficult in other villages, he had to live with the same family with whom he lived in 1979-80 in this village. By staying in this village, the principal researcher required less time to contact people than would have been required if other villages were selected. Second, the principal researcher had better access to this village than any other village. Everyone in the village knew him well. As a result, participation and observation was easier in this village than in others. Third, a re-study of this village after a decade would allow him to examine changes in the aspects of social life that were covered in the earlier study.

5.5 Strategies for Data Analysis

For a systematic analysis, the research findings from different methods have been classified into two groups: (1) information related to the past social, economic and political situation, as well as past land and tree tenure; and (2) information related to present social, economic and political situation, as well as present land and tree tenure.

To analyze the changes from past to present, all information under Group 1 collected from historical documents, oral history and retrospective interviewing and the ethnographic data on the present situation under Group 2, are

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presented together in Chapter 6. The findings from surveys, intensive study of a particular village and case studies are presented in Chapter 7, which describes the present situation. In Chapter 8, an analysis of research findings is presented.

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CHAPTER 6

RESEARCH FINDINGS: HISTORICAL AND ETHNOGRAPHIC INFORMATION

This chapter describes the research findings from historical (both published and unpublished) sources as well as those collected from oral histories and retrospective interviewing. Certain aspects of data collected by interviewing key informants and observation study are also included. Information, mainly qualitative, related to all the five dimensions of the Nature-Human-Ideology Interface model (see Chapter 4) is given here.

6.1 Human Settlement and Population Change in Madhupur Garh Forest

Judging by the old ruins, mainly an old pond, and the legends about King Bhaga Datta, Sachse (1921) thinks that Madhupur Garh forest was inhabited by humans as far back as the eighth century. According to Sachse (1921:89),

There are ruins in parts of the jungle [Madhupur Garh forest] associated with the name of King Bhaga Dutt [English spelling of 'Datta'], which possibly date from the 8th century, when the rest of the district [undivided Mymensingh district] was under jungle or water, and the Madhupur villages are believed to have been thickly populated.

Except for the old pond mentioned by Sachse, no other old ruins were found by the principal researcher. The legend of King Bhaga Datta has also been mentioned by Majumder (1906:9), but there is no definite opinion among these authors about who was King Bhaga Datta. Sachse (1917:23) has pointed out that

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King Bhaga Datta has sometimes been confused with the famous Kamrup King of that same name, but according to Majumder (1906:9) he was a Pala King (Majumder 1906:9). Majumder's conjecture is based on the fact that the whole of Bengal was ruled by the Pala Kings for about 120 years in the tenth and eleventh centuries, and Bhaga Datta was perhaps the Pala King of Mymensingh District, which includes Madhupur Garh forest.

It was however noted by Majumder that instead of being a Pala King, Bhaga Datta could be a Koch or Hajang King. The Koch and Hajangs are two ethnic groups of Mymensingh district. It is difficult to determine whether these people lived in this forest in the eighth century or in the tenth century. According to Sachse (1921:8), the aboriginal tribes like the Garo, Koch and Hajang are "the pioneers of cultivation" in Madhupur Garh forests. This implies that they were the first settlers. These written documents, however, are not reliable, since they are based either on legend or conjecture.

According to the speculation made by Khaleque (1982), the Garo people might have settled in Madhupur Garh sometimes during the middle of the last century. Khaleque's view is based on the speculation made by another anthropologist (Nakane 1967), who wrote about the Garo living in the Garo Hills of Assam in India. Nakane thinks that the Garo living in the northern part of Mymensingh district of Bangladesh, i.e., on the border of India and Bangladesh, may have migrated from the interior Garo Hills of India during the middle of the

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last century. In her view, when the available land in the interior Garo Hills had been exploited for swidden cultivation, and the increasing population in the Hills had been faced with a serious shortage of land, some Garos had to move into the southern slopes of the Garo Hills, i.e., on the border of India and Bangladesh. Nakane, however, makes no mention about the settlement of the Garo in the Madhupur Garh forests. But Khaleque (1982) speculated that some Garo may have settled in Madhupur Garh about the same time as the establishment of Garo villages in the northern part of Mymensingh district. He also thinks that the Garo perhaps moved either from the Garo Hills or from the northern part of Mymensingh district to the Madhupur Garh forests for reasons similar to those mentioned by Nakane.

If Burling's (1985) argument based on the distribution of languages is taken into account, it may be said that the Garo settled in Madhupur Garh much earlier than the period mentioned by Khaleque (1982). Burling thinks that speakers of the Bodo sub-group of Tibeto-Burman languages now found in certain pockets up and down the Brahmaputra valley are the remnants of languages that once covered a much wider territory. According to him, the Bodo language group, which includes the Garo language, could have been spoken not only in what is now the Garo Hills District of India, but also in the Brahmaputra valley to the north and even to the lowlands to the west and south. Then the Indo-Aryan ancestor of Bengali

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and Assamese began to move in, and separated different groups of Bodo speakers from each other. According to Burling (1985:25),

... the present distribution of the Bodo languages suggests that Mandi [Garo], or at least an earlier form of the Mandi language, has been spoken in much the same territory as it occupies today, and for at least as long as Indo-Aryan has been known in this part of the world. This is well over a thousand years.

Madhupur Garh forest may be considered as one of those pockets of Tibeto-Burman speakers mentioned by Burling. If this pocket is taken as the remnant of a language area that once covered the wider territory mentioned by Burling, then it may be said that the Garo have been living in Madhupur Garh for more than a thousand years. Since Burling's (1985) argument is based on the distribution of languages, it is much more plausible than either Khaleque's (1982) speculation or the unreliable written historical documents.

Oral histories related to human settlement in Madhupur Garh are confusing. The Garo claim that they were the first people to inhabit Madhupur Garh, and the Koch people came into this area after them, while the Bengali people's immigration is very recent. Except for one, all other key informants think that this is true. According to the key informant who disagreed, the Koch people were the first settlers and the Garo came later. The Bengalis, even according to this key informant, have settled very recently.

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The dates of human settlement given by the key informants are vague -- some of them said that people have been living in this forest for "many, many" years, but could not give any idea about how many years they meant by "many, many." Others said people have been living in the area for several generations, which is still vague. It was reported by almost every key informant that the Garo have migrated from the Garo Hills of India, but nobody had any idea about when they immigrated to this area or how many people came.

Written documents on the settlement of the Bengali people in the forest were unavailable to the present researcher. Case studies of a few Bengali families revealed that Bengali settlement began from the turn of this century when settlement was encouraged by the landlords who were entrusted by the government to collect revenue. A large-scale Bengali immigration took place in the periods when most Koch and many Garo households emigrated to India. There were three periods in which many of the Koch and Garo people emigrated to India: (a) the late 1940s after the partition of India and Pakistan in 1947; (2) during the India-Pakistan war in 1965; and (3) during the liberation movement of Bangladesh in 1971. Most Bengali settlers came due to a shortage of land in their natal villages, which are located in the plains area surrounding the forest. The Bengali immigrants either purchased the right of possession from the Garo or Koch families that migrated to

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India, occupied the land abandoned by some of the emigrated families, or took possession of unoccupied forest land.

It is difficult to ascertain the trends of population increase in the whole Madhupur Garh forests because in the Census Reports before 1951, the population of this forest has been included in the population data of the wider area, such as the district or sub-district (Thana, now Upazilla) which includes other non-forested areas. The Union (local administrative unit) level population data given in the Census Reports from 1951 to 1981 may, however, provide an idea of population changes in Arankhola Union Council/Parishad which constitutes the largest block of tree-covered area in Madhupur Garh forests. The villages in the present study are located in this area. The population of this Union Parishad increased by 60% between 1951 and 1961, and by 142% between 1961 and 1974. The rate of increase dropped to 20% between 1974 and 1981 (Table 2).

6.2 Changes in Forest Cover, Settlement Area and Agricultural Land

Both local people and forest department officials are aware of the rapid depletion of the Madhupur Garh forests, but reliable data on deforestation is unavailable. No systematic forest inventory has ever been made for this area. This makes it difficult to know anything about the changes in forest

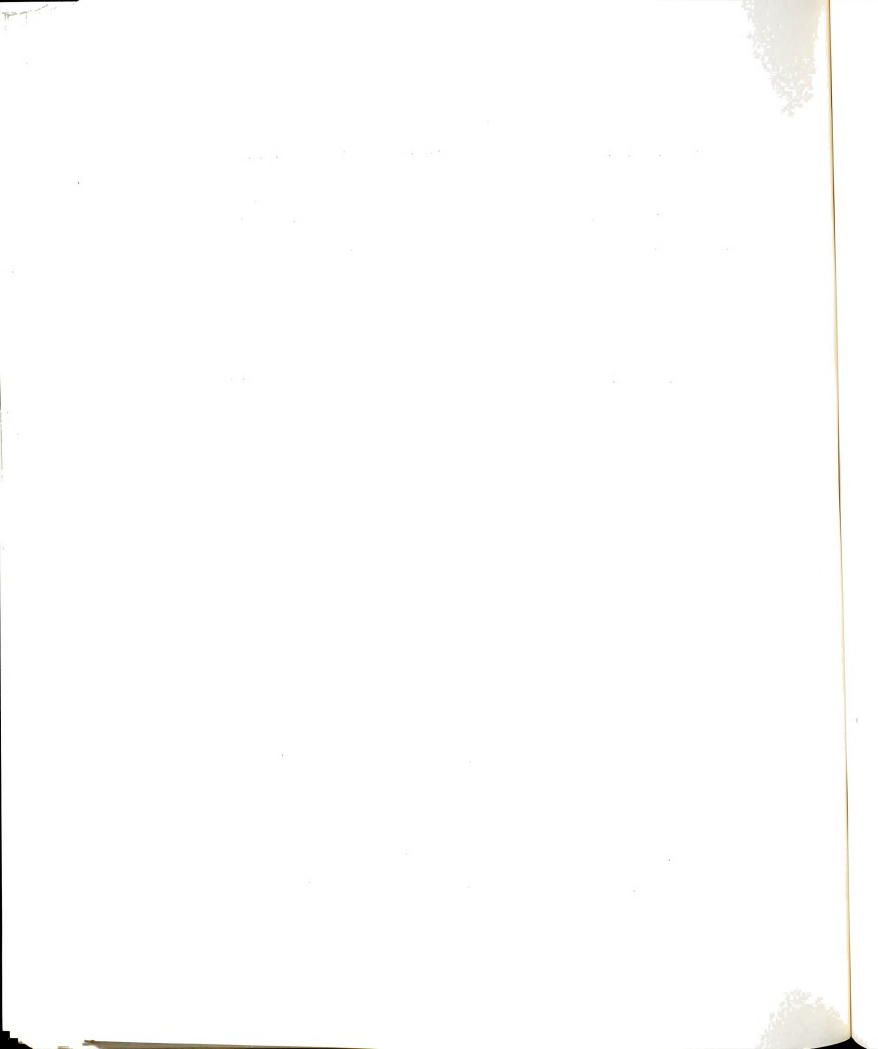


Table 2

Population Changes in Arankhola Union: 1951-1981

Census Year	Population	Rate of Increase Between Two Census Years (%)
1951	9,800	-
1961	15,633	60
1974	37,837	142
1981	45,297	20

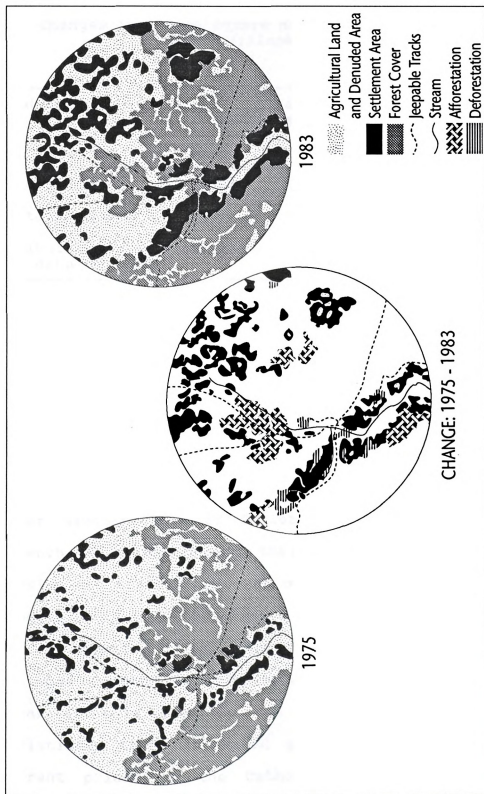
Source: Census Reports.

cover. Documents on the changes in settlement areas and agricultural land are also unavailable.

The changes in forest cover in Madhupur Garh have been calculated by the principal researcher from aerial photographs taken by the government in 1975 and 1983. Based on these air photos, maps of 30 square miles of area around the intensive study village were drawn for these two points of time (Figure 7). These maps show that during the period between 1975 and 1983 there has been a 36% decrease in forest cover, while settlement areas and agricultural land and denuded areas increased by 87.5% and 10.3%, respectively (Table 3).

6.3 The Advent of Christianity and Changes Among the Garo

According to the present priest (an American who has been living in Madhupur Garh since 1959) of the local Catholic



Data derived from aerial photography; 1:30,000 1975 and 1:50,000 1983.

Figure 7

Changes in the 30 Square Miles Around the Intensive Study Village: 1975 - 1983

Table 3

Changes in the 30 Square Miles Around the Intensive
Study Village: 1975-1983

Land Category	Area (square miles)		Changes Between 1975 and 1983 (percent)
	1975	1983	
Forest cover	9.5	6.1	- 36.0%
Settlement area	1.7	3.2	+ 87.5%
Agricultural land and denuded area	18.9	20.8	+ 10.3%

Source: Data derived from aerial photos of 1975 and 1983

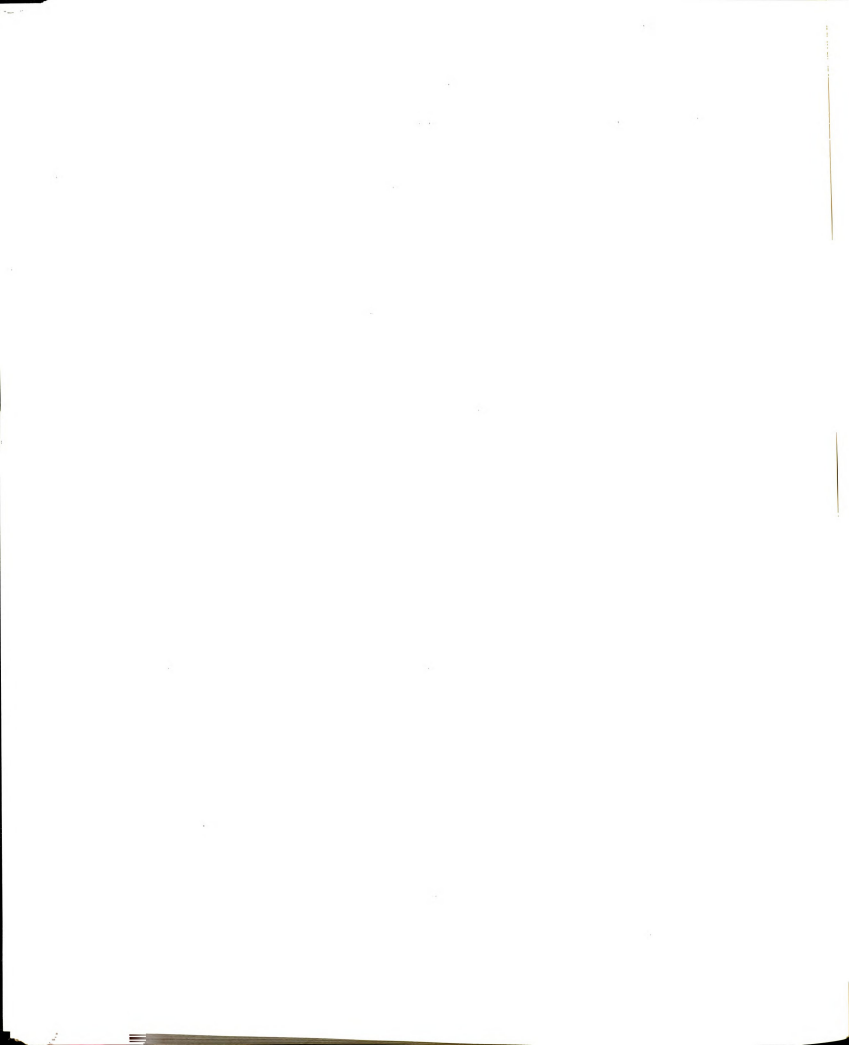
mission, conversion of the Garo to Christianity began in Madhupur Garh in about the mid-1920s. At first, Catholic priests used to come to Madhupur Garh from Mymensingh town (twenty miles away) and a Catholic mission was established at Jalchatra in Madhupur Garh forest in 1937. Preachers from other denominations of Christianity such as Baptist and Seventh-Day Adventist began their preaching after the Catholic mission was established. No other church, however, has any mission station in this area.

As reported by key informants, one or two people in some villages accepted Christianity when conversion to Christianity began in this area in the mid-1920s. The number of Christians, then, increased gradually. According to the current priest of the Catholic mission, the number of Catholics increased from 2,500 in 1959 (when he came to this

area) to 10,000 in 1990. At present, 99% of the Garo are Christian (see Chapter 7).

The traditional Garo religion, called songsarek, is a form of animism. The followers of this religion, also known as songsarek believe in supernatural beings whom they call mite. This word may be defined both as "gods" and as "spirits" (Burling 1963:54, Khaleque 1988:132). The followers of songsarek also believe that there is a soul in every living creature -- human beings, animals, trees -- as well as in such material objects as agricultural implements, household utensils and musical instruments. They do not worship the mite, nor natural phenomena like trees, rains, and mountains. But they do offer sacrifices (cow, goat, pig and cock) to honor and propitiate the mite to ensure for themselves a safe and happy life.

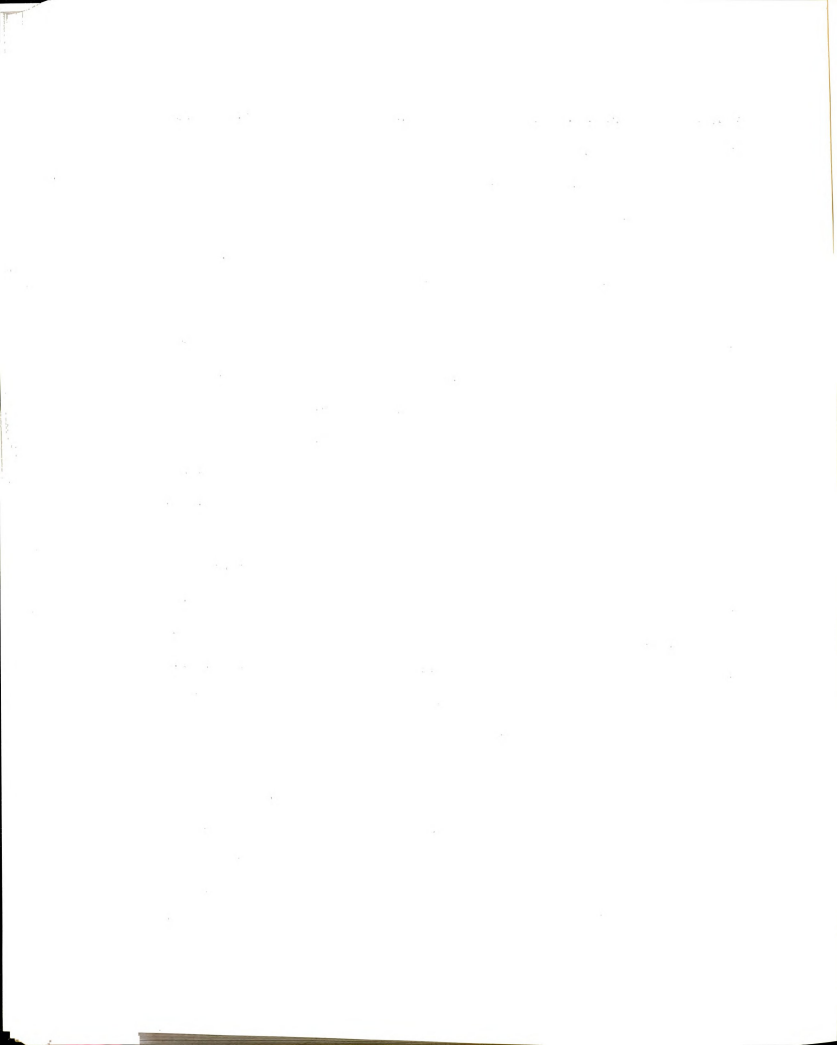
To ensure good crops, health, wealth and happiness, sacrifices were offered communally by the whole village during village festivals. Since most Garo are now Christian (see Chapter 7), they think these sacrifices are not essential anymore or they are discouraged by the Christian churches. On the other hand, the few remaining songsareks do not want to offer sacrifices for the whole village nor is it possible for them to afford the expenses for this purpose (see Khaleque 1988). However, sacrifices for the propitiation of malicious mite in order to be rid of diseases are still offered by the



songsareks and even by some Christian Garos (see Khaleque 1984, for case studies).

The aim of the Catholic church, as told by the present priest, was not only to preach religion but also to educate the Garo and make them aware about the outside world. Nonformal programs of education began from the beginning of conversion to Christianity and formal education began when a primary school (up to 5th grade) was established in 1932. Gradually, the number of schools was increased and some schools were upgraded to the secondary level (up to 10th grade). At present, there are 29 schools (26 primary, two secondary, and one technical training school) in the Garo villages of Madhupur Garh. These schools are financially supported by the Catholic mission.

In addition to the formal education program, the mission has undertaken various other programs for the social and economic development of the Garo community. There are now training programs for handicrafts, weaving, digging small irrigation wells, wet rice cultivation, pineapple plantation, horticulture, natural family planning, and cultural education. In the opinion of the present Catholic priest, "Without integral human development our preaching will never touch the lives of people in a meaningful way," (Rev. Eugene E. Homrich, personal correspondence). The Catholic mission, it may be noted, has also helped create a political consciousness among the Garo and taught them how to fight for their rights without

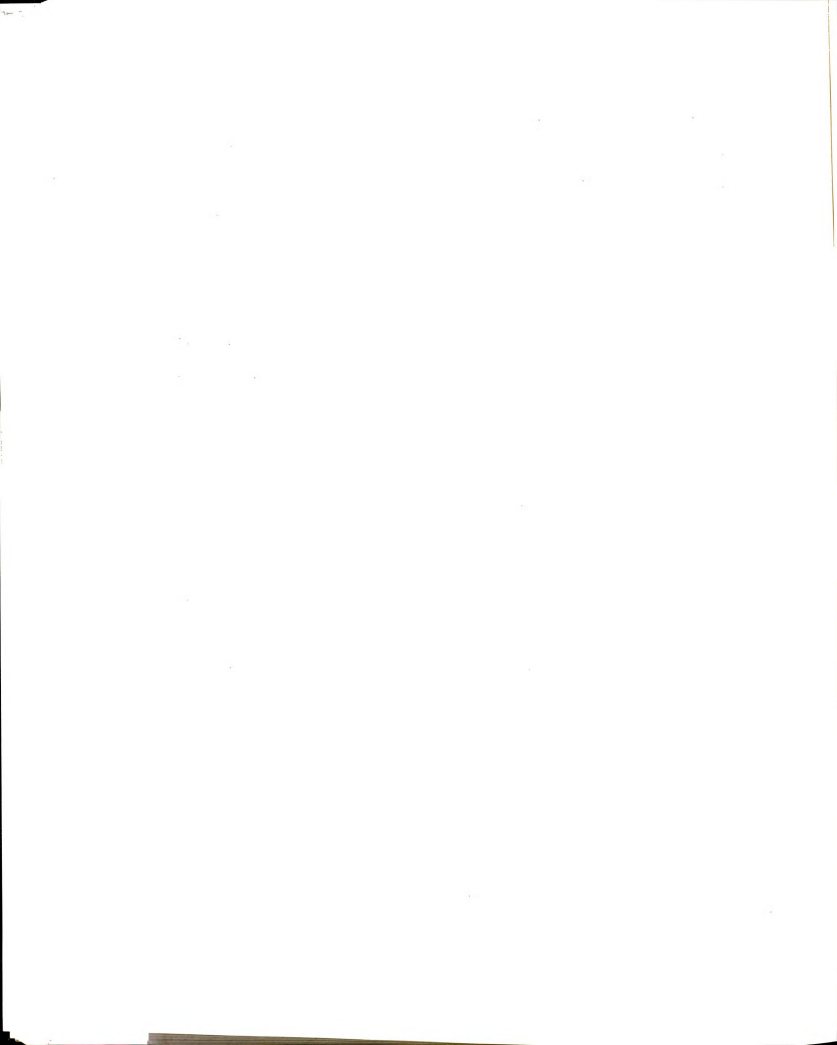


adopting violence. In addition, any injustice against the Garo have been protested by the mission itself at various times through the Justice and Peace Committee, which was formed by the mission with local people as its members.

6.4 Changes in Mode of Sustenance Among the Garo

Until prohibited by the forest department in the early 1950s, the Garo of Madhupur Garh practiced a form of swidden cultivation, known as jhum, much like that of their cousins in the state of Assam (now Meghalaya), India. After two or three years, the plot was abandoned to lie fallow for at least seven or eight years, and then recultivated. The fallow period became shorter over time as population density grew. The need to develop a more permanent, intensive form of land use led the Garo to borrow the techniques of wet rice cultivation from their Bengali neighbors, including use of the wooden plough drawn by a pair of bullocks (Khaleque 1983). As reported by key informants, the Garo continued to practice jhum on higher land covered with bushes and trees, but wet rice came to predominate in the lower-lying baid within the forest.

Although none of the key informants knew when the Garo began to practice wet rice cultivation, all of them said that wet rice cultivation has been practiced since their grandparents' generation. This evolution of farm practices came slowly, since the techniques were new to the Garo. In the beginning, according to Garo informants, some households



practiced wet rice cultivation and others did not. They explained that households which were not under population pressure were not very interested in wet rice cultivation, but those households which were increasing rapidly in size had little option but to adopt it. Eventually all the people discovered the advantages of wet rice and it became popular. Some innovative and ambitious Garo started cultivating more wet rice fields than they required for their family's immediate subsistence, some others failed to establish enough wet rice fields (see also Khaleque 1983).

When jhum cultivation was completely banned in the 1950s, the Garo started converting many of the jhum fields near their homesteads to plots for cultivation of vegetables, spices, oilseeds and fruit trees. Most outlying swiddens were returned to brush.

Beginning in the mid-1950s, a few innovative people, particularly the educated Christian Garos, converted some of these unused lands into pineapple gardens in response to rising demand in local markets. However, such conversion required substantial investments of labor in planting seedlings and building fencing. Additionally, farmers had to wait for three years before getting a return on their investments from the pineapple gardens. Some families were unable to bear these costs or were not in a position to wait for the return from their investments. Hence, these families did not establish pineapple gardens.

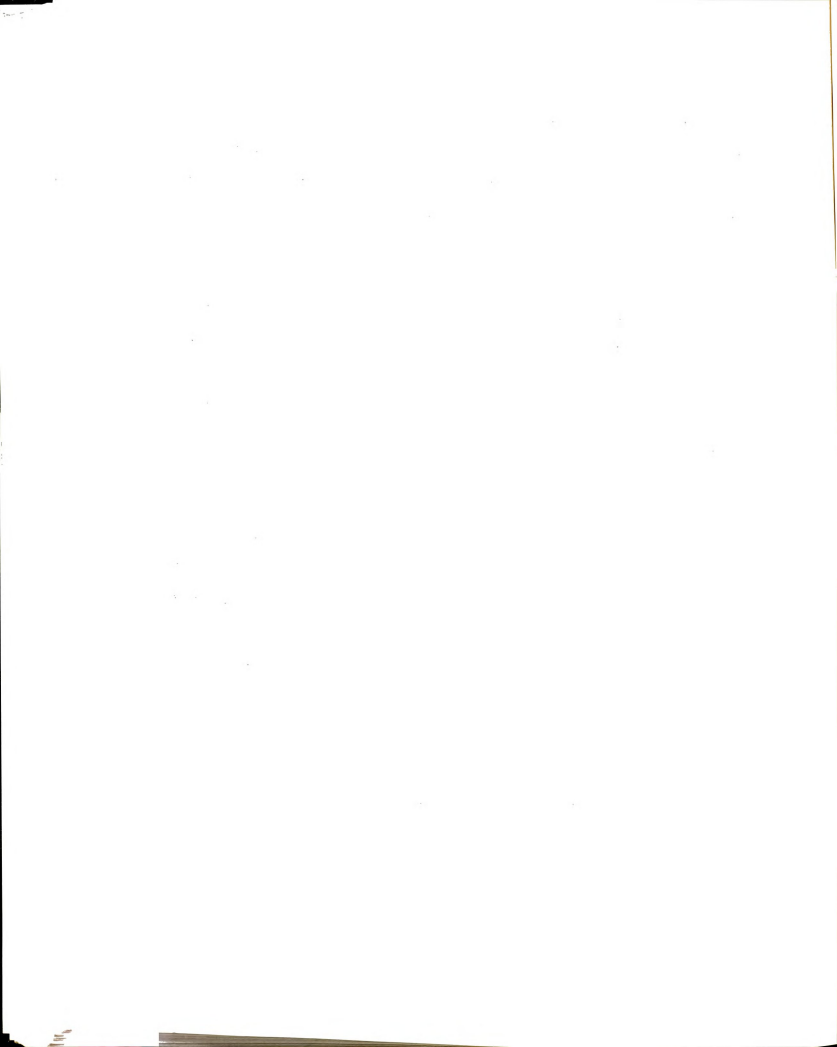


During the early 1960s, when part of Madhupur Garh was declared a national park, the forest department prohibited the Garo from any further conversion of former jhum fields to pineapple gardens. The Garo did continue growing pineapple in the gardens they had already established and converted their vegetable gardens into pineapple gardens.

Changes in the mode of sustenance were accompanied by changes in the organization of labor for sustenance activities. According to oral history, the Garo had a tradition of labor exchange. Labor given by the members of one household used to be repaid with a more or less similar amount of labor and never for cash payment. People helped each other in agricultural work as well as in construction and reconstruction of houses, digging wells and in other works.

The practice of labor exchange became impractical with the development of wet rice cultivation and permanent and individual ownership of land. It was no longer possible for the members of most households, particularly the large landholders, to exchange labor with others. The households which lacked sufficient labor power of their own had to hire labor. Those who were not in a position to exchange labor also had to hire labor. The practice of labor hiring thus emerged in this society.

As reported by key informants, the Garo borrowed the idea and system of labor hiring from the neighboring Bengali people. In the beginning, wages were paid in kind, generally



rice. Repaying a debt in goods or in cash by laboring for the lender was another earlier practice. People who borrowed rice or money from the wealthy people and failed to repay in time, were asked by the lender to give an amount of labor equivalent to the debt. Although repaying debt with labor is still in practice, cash payment for labor is now more common.

The practice of sharecropping also developed in Garo society with the development of wet rice cultivation. The idea and the method of sharecropping also was borrowed from the neighboring Bengali villages. According to the local arrangements for sharecropping, known as barga, the landholders provide the land for cultivation and the sharecroppers have to use their own draft animals, labor and agricultural implements. The harvest is divided equally between the landholder and sharecropper if the input costs of seed, irrigation, fertilizer and insecticides are equally shared by both parties. If all the input costs are invested by the sharecroppers, they get two-third of the produce and the landowners get the other one-third.

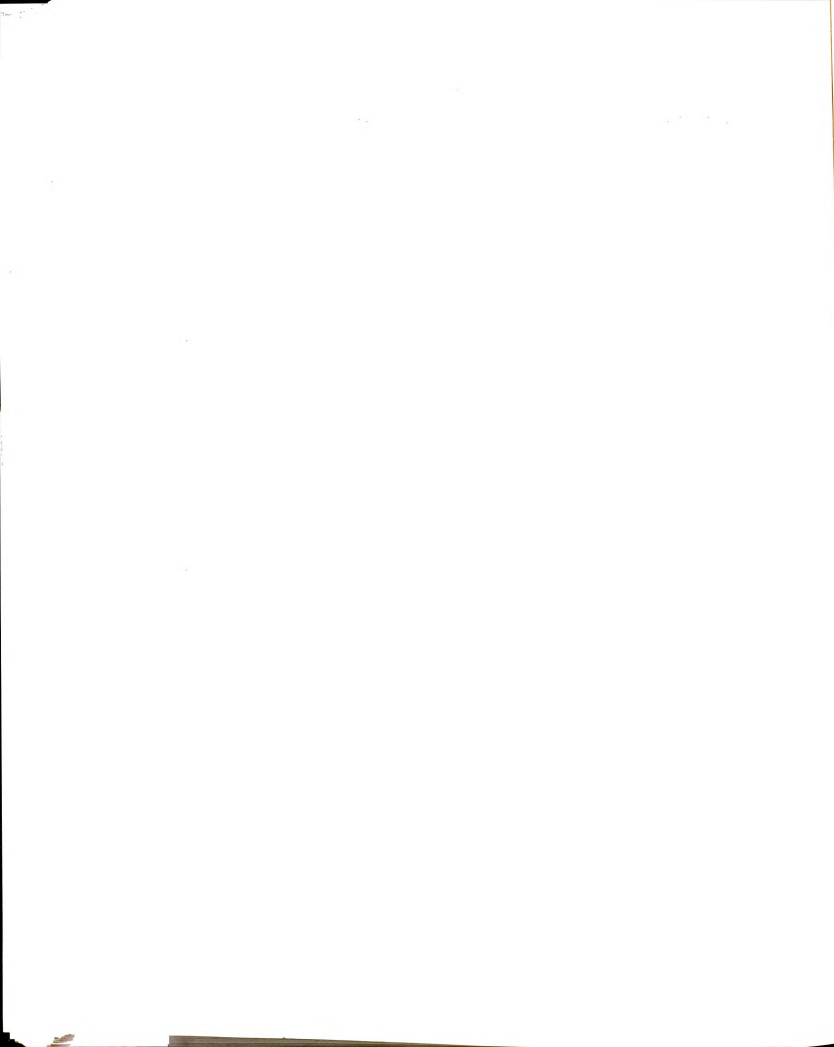
6.5 Changes in Land and Tree Tenure

This section describes the evolution of the land and tree tenure system in the state with special reference to Madhupur Garh forest, as well as the changes in land and tree tenure that have taken place among the Garo.

6.5.1 Evolution of land tenure system in the state with reference to Madhupur Garh forest

The written historical documents available to the present researcher provide an account of the general statutory land tenure system prevalent throughout the region that is now Bangladesh or the general tenurial arrangements prevalent in the administrative district and/or revenue division. The study area was under Pukhuria pargana (revenue division) during the Mughal period (1576-1757) and also during the British period (1757-1947). This area was included in Mymensingh district (administrative district) in the nineteenth century. An analysis of the contents of the documents on Pukhuria pargana (revenue division) and Mymensingh district (administrative district) reveals that the general statutory land tenure system (discussed later in this section) had been followed throughout the whole area (both in the administrative district and revenue division). But there were certain variations in the tenurial arrangements in the different parts of Mymensingh district and also in the various parts of Pukhuria pargana (Sachse 1921).

The available historical materials on Pukhuria pargana go back to the later part of the sixteenth century. They provide a chronology of different zamindars who collected land revenue from the cultivators of this area from that time to the middle of this century. The system of revenue collection by appointing zamindars, who were an intermediary between the government and the cultivators, was introduced by the Mughals



who ruled the region that is now Bangladesh (then East Bengal) from 1576 to 1757. This system, known as the zamindari system, continued during the British rule (1757-1947) and in the Pakistani regime until the system was abolished in 1950.

Written historical materials provide only a general picture of the land tenure system prevalent during these periods. Nothing was found in these materials on the specific tenurial arrangements made by the zamindars with the local cultivators. A comparison of the information in the written historical sources with that of oral history suggests that the tenurial arrangements in Madhupur Garh forest were slightly different from those in the other non-forested parts of Pukhuria pargana.

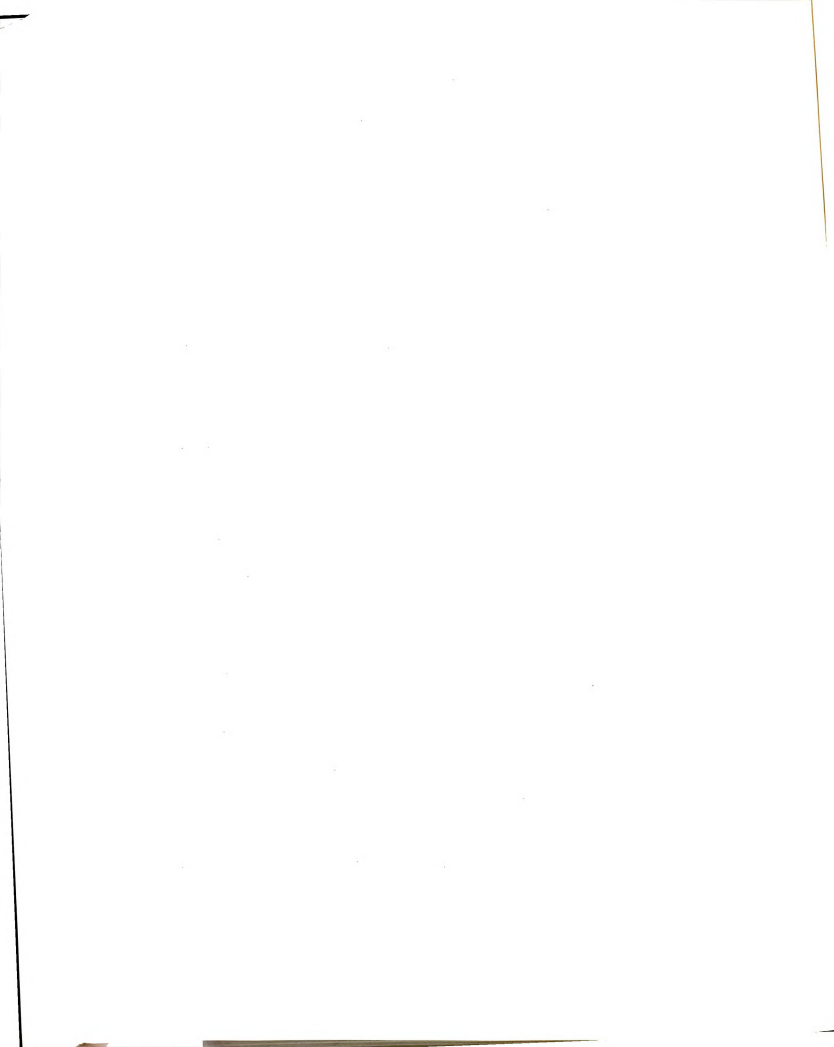
According to key informants, the people living in Madhupur Garh forest were allowed by the zamindars to live on and cultivate land within the forest in return for rent and labor payments for both arable land and their homesteads. Jhum cultivation was permitted under this arrangements subject to conditions intended to preserve the quality of the forest. The Garo were required to inform the zamindar's representatives -- the nayab and sarder, respectively, the regional-level and village-level rent collectors, of the location and amount of land cleared for jhum. Cultivators were allowed to clear undergrowth and bushes for cultivation but had to obtain specific permission before felling valuable tree species. The maximum period of cultivation for food

crops was set at three years, after which the fields were to be reforested which the Garo themselves had responsibility for tending.

The Garo say that they fulfilled these conditions in their own self-interest so that they could continue to live in the forest lands. Their rents were paid on time because they feared eviction otherwise. In return, the Garo were granted a temporary right of usufruct, known as patta, by which the plot-holder was allowed, upon payment of the usual rent, to cultivate the land and pass it on to his successors, but was not allowed to sell it. The zamindar reserved the right to appropriate these plots, either in full or in part, for any public use without compensation to the plot-holder.

A more permanent form of land tenure developed over time as the Garo established wet rice fields. Following several years of wet rice cultivation with regular rent payments under the patta arrangement, a farmer could be granted the right of ownership, known as pattan, in return for which the zamindar was paid a royalty. Under pattan, the holders obtained the rights to sell their land and to demand compensation if it were repossessed by the zamindar. Pattan was granted only for wet rice fields, not for plots under swidden cultivation.

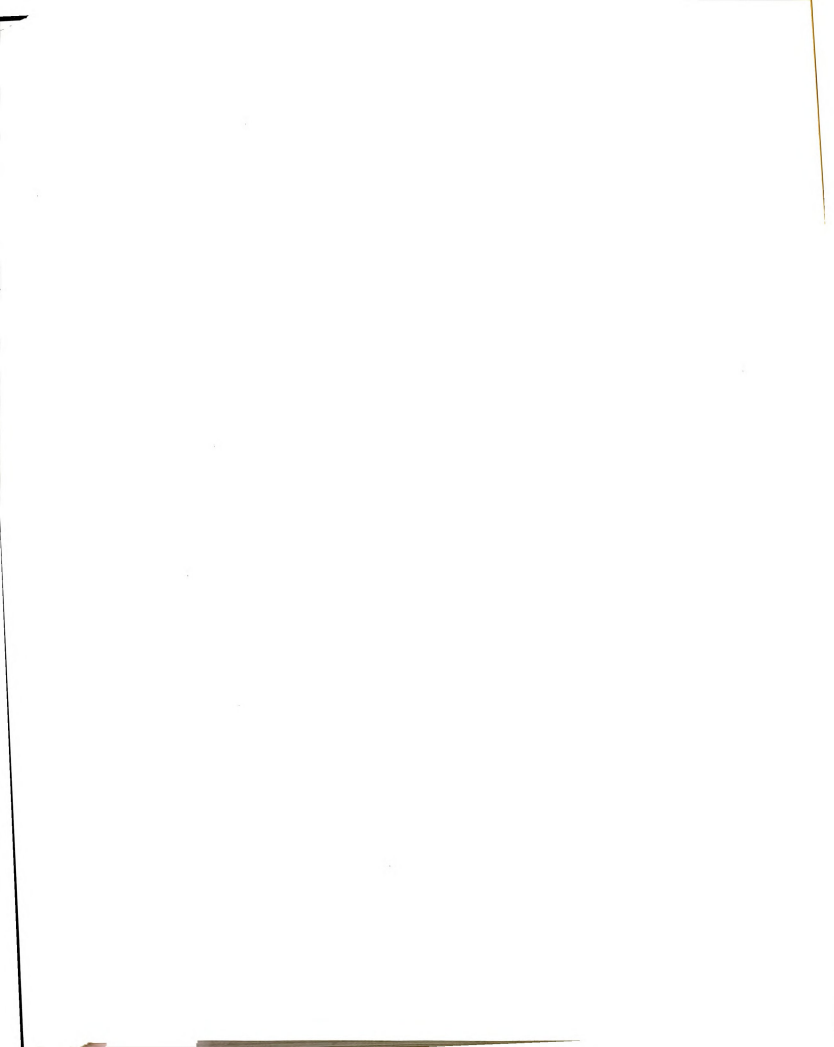
It is difficult to ascertain any historical period from the statements of key informants on the evolution of these tenurial arrangements. It has been reported by all the key



informants that the study area was a part of Pukhuria pargana which was an estate of the zamindars of Natore.

Written historical records also support the statements of key informants. According to the historical records, this pargana was under the zamindars of Natore from the first quarter of the eighteenth century (Pal 1980:10; Majumder 1904:9-10; Sachse 1917:159) to the middle of this century. This period includes the later part of the Mughal rule and the entire British period. The statements of key informants are unclear about whether they were talking about the zamindars during the British period or those in the Mughal period. It seems, however, that oral history relates only to the British period. The patta and pattan (or patni, as it is known in other areas) systems were introduced in the British period toward the end of the eighteenth century and the beginning of the nineteenth century, respectively.

After the abolition of the zamindari system in 1950, all the tree-covered higher land in Madhupur Garh was handed over by the government to the forest department for scientific management of the forest (Dacca Gazette 1951:November 8), while the right to control the low-lying wet rice fields was retained by the revenue department. Madhupur Garh was declared a reserved forest in 1955 (Dacca Gazette 1955:September 29) and a part of this forest was demarcated as a national park in 1961.



After the forest department took over management, the Garo were prohibited to use higher land within the forest for swidden cultivation. They were allowed to use the plots of low-lying land on which they had valid documents. Both high land and low land have, however, been occupied by the local people, whether they have valid documents or not.

The lands for which settlement was made with neither the forest department nor the cultivators belong to the revenue department. These are known as khas (unsettled government land). A temporary right of usufruct, known as bhumiheen pattan (usufructory rights to landless peasant) to some of these khas lands has been given by the revenue department to the local landless (bhumiheen) people since the mid-1950s. The people who obtained land under the bhumiheen pattan program had to pay a selami (royalty) and were required to pay the land revenue regularly. Land revenue has been collected from people by the revenue department for using low-lying wet rice fields under the bhumiheen pattan program as well as for that land to which the cultivators have titles. But no revenue or tax has been collected from the people since the takeover of management by the forest department, for peoples' rights to forest land are no longer recognized legally. A Garo leader said,

We always paid revenue to the zamindars for using chala land. We are eager to pay such rent now, but the government would not accept it.

Although there might have been local variations in the tenurial arrangements made by the zamindars in Madhupur Garh forest, they were consistent with the general statutory land tenure system. The general system defined the relationship between the zamindars and cultivators and it has had an impact on the social and economic condition of the cultivators. To understand the present situation with regard to land tenure and social and economic condition of the cultivators, one must consider the history of general statutory land tenure system. The present system has evolved through a process of political and economic changes in the region that is now Bangladesh.

According to the ancient land tenure system of Bengal, the cultivators had a right to own and use the land they occupied. As is evident from the ancient Hindu laws, these rights to land perhaps originated from the local tradition. The Hindu law in this respect says "A field is his who clears it of jungle, game is his who has first pierced it" (Manu Vol.44, Ch. IX, cited in BILIA 1987:1).

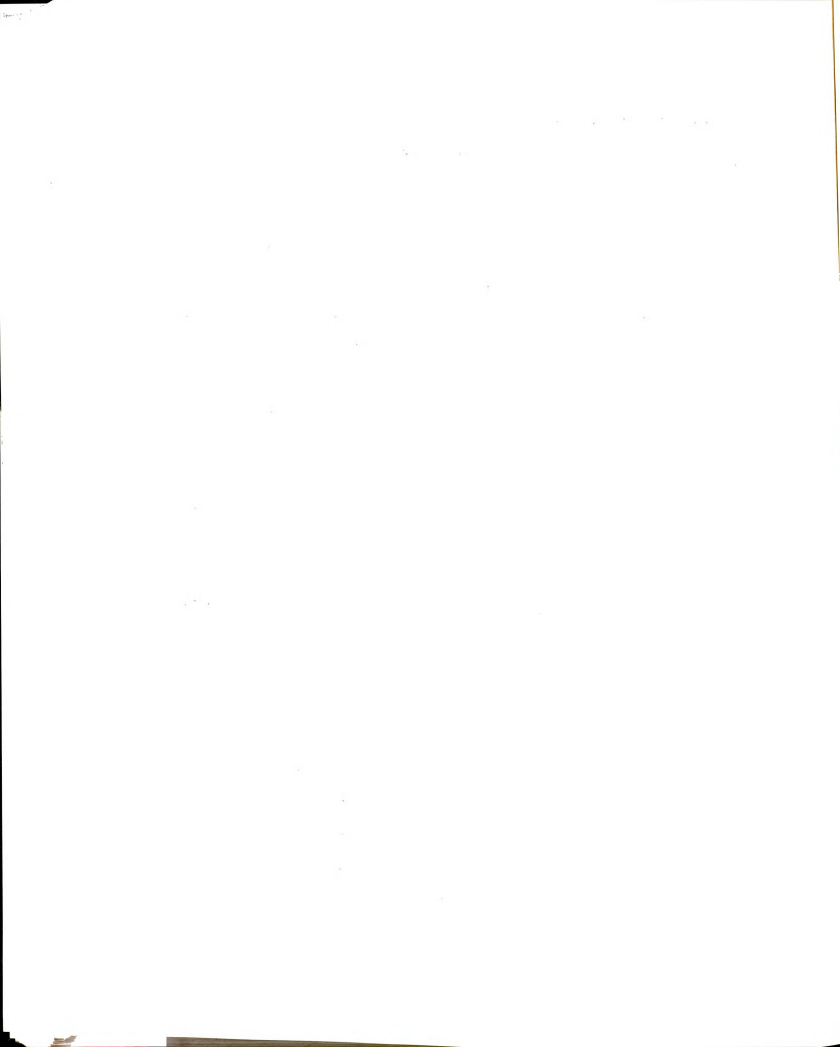
The cultivators' de facto rights to land were recognized by the Budhist Kings who ruled the region that is now Bangladesh, from the middle of the eighth century to the middle of the twelveth century and also by the Hindu Kings during the middle of the twelveth century to the beginning of the thirteenth century. The cultivators, however, had to share a portion of the produce from their land with the king.



This was regarded as the payment to the king for protecting the peasants' life, liberty and property (BILIA 1987:1).

A notion of proprietary right of sovereign in the soil had emerged after the conquest of Bengal by the foreign Muslim power in the beginning of the thirteenth century. It culminated in the Mughal period (1576-1757). During the Mughal period, the de jure ownership right to all land belonged to the state (Moreland 1929). However, the cultivators were still allowed by the Mughals to enjoy their de facto right to cultivate the land they occupied as well as the right to remain in undisturbed possession of their holdings subject to the payment of revenue (Khan 1978:281, BILIA 1987:2). The system of rent payment in cash, instead of a portion of produce from land, was introduced during the Mughal period.

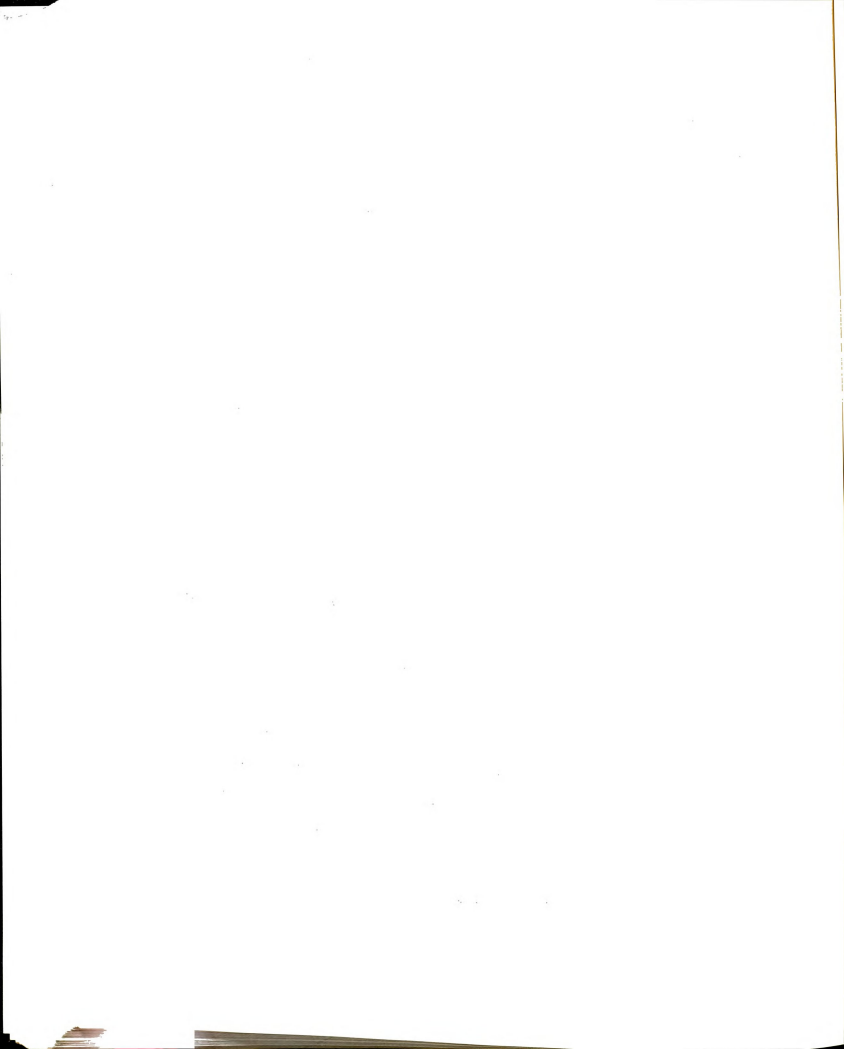
The zamindari system, as stated above, also developed in this period. According to this system, the zamindars were appointed to collect revenue and they were allowed to retain a specified portion of the collected revenue (Gopal 1949:9) as payment for their services. They were never involved in the actual cultivation nor had they been given any right of ownership to land. They were simply "revenue farmers" who had the right to collect revenue (Jannuzi and Peach 1980:1). The revenue-paying actual cultivators, called the rai-yats, were the de facto owners of the land.



The right to collect and expend revenue (dewani) of Bengal was granted by the Mughal Emperor Shah Alam to the British East India Company in 1765. The system of revenue administration prevalent during the Mughal period was initially adopted by the British East India Company.

After 1771, when the Company established its authority as the government, a different method of revenue collection was adopted. In 1772, Quinquennial Settlement was introduced by Warren Hastings. In this system, land was let out to the highest bidders without any regard to titles (Sachse 1917:99-100; BILIA 1987:6; Chowdhury et al. 1989:20). The actual cultivators' rights were ignored. In 1790, this system was replaced with Decennial Settlement, which was introduced by Lord Cornwallis. According to this system, settlement of land was made with the former zamindars. The Decennial Settlement was later made permanent by enacting the Permanent Settlement Regulations of 1793 (Islam 1979:12-13).

According to the Permanent Settlement Regulations, land ownership in perpetuity was vested by the state in the zamindars, who were under an obligation to pay the government a permanently fixed land revenue. The zamindars were entitled to receive the rent of all lands within their estates (BILIA 1987:7) and fix their own terms of tenancy with their tenants (Jannuzi and Peach 1980:2). It is important to note that the amount of revenue payable to the state by the zamindars was



permanently fixed, but the rents payable to the zamindars by their tenants were not.

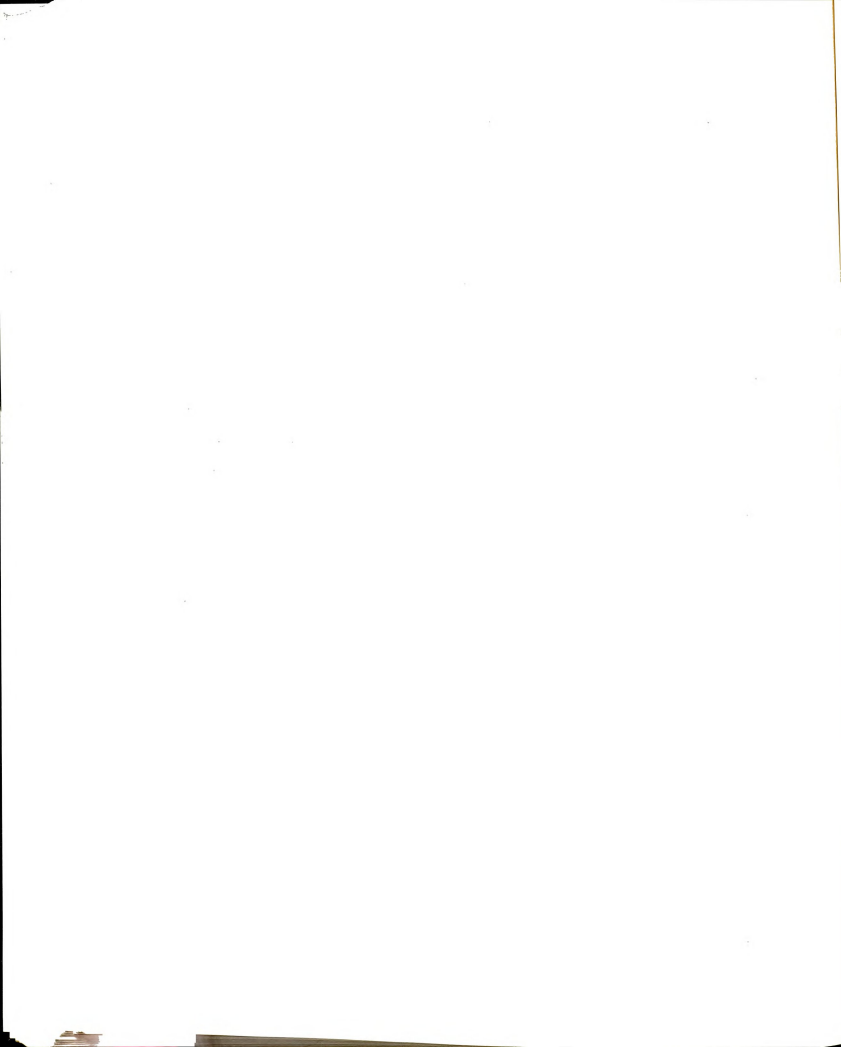
The zamindars were also entitled to transfer their estates without the sanction of the government (Jannuzi and Peach 1980:2), but the tenants were given no right to transfer their land. The zamindars became the "legally recognized" owner of land (Miller and Wozny 1985:463), whereas the traditional rights of ownership and use of land enjoyed by the actual cultivators were ignored. In addition to the rights in agricultural land, the zamindars were also entitled by the Permanent Settlement Regulations to exploit the natural resources within their estates (BILIA 1987:7) by virtue of their rights known as Jalkar (right of fishery), Bankar (right of cutting wood in jungle and waste land), and Phulkar (right of gathering fruits of gardens and orchards).

The Permanent Settlement Regulations made the zamindars' rights in land superior to the raiya's rights, and also allowed the former to enjoy a greater security on holdings than the latter (Jannuzi and Peach 1980:8). Although the terms zamindar and raiya were still used in the British period, their meanings had been altered completely. The zamindars became the owner of land, rather than simply revenue collectors, while the raiya's status had changed to simple tenants, whereas before they were the de facto owners of land. The raiya now had to undertake all the risks and responsibilities of cultivation, while the zamindars were in

a position to live off the agricultural income of their tenants. The raiyats had to pay the rent arbitrarily determined by the zamindars, and if they fell behind in payment or resisted the zamindars' demand for higher rents, they were ousted (Jannuzi and Peach 1980:3).

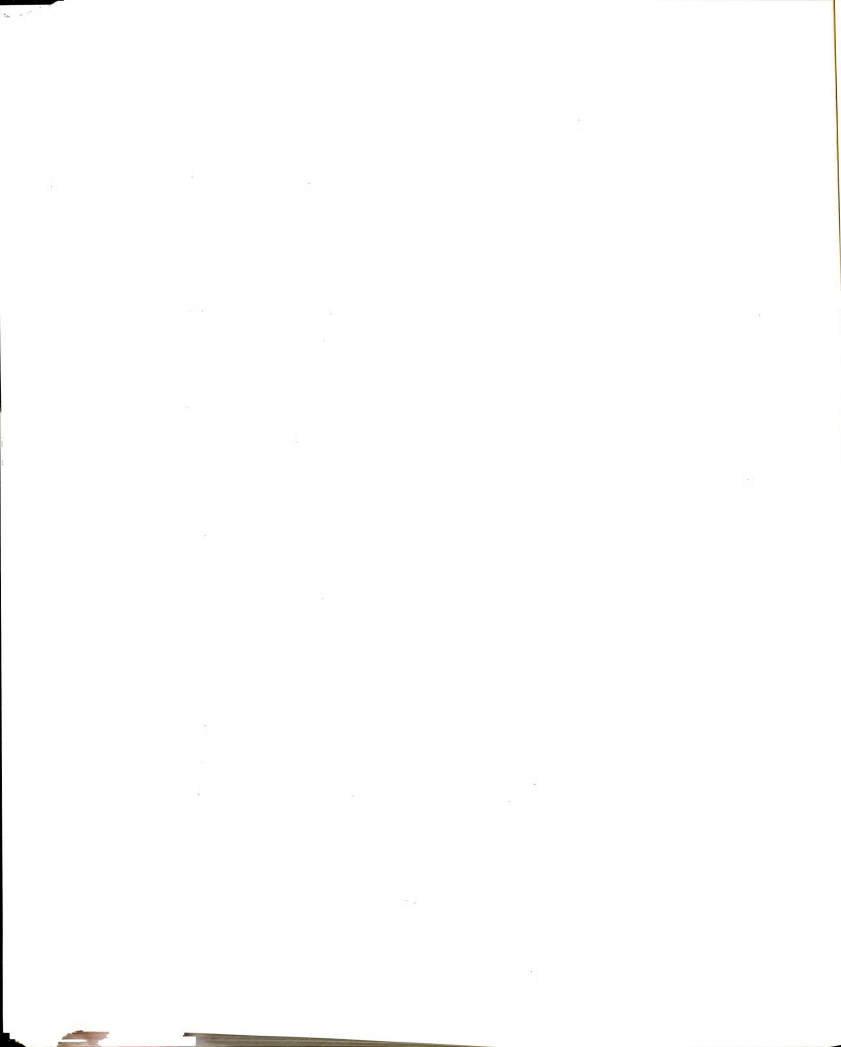
Nevertheless, protecting the interests of the raiyats was one of the aims of the Permanent Settlement Act. The zamindars were, therefore, instructed to grant their raiyats documents, known as patta, stating the rents payable and the other customs and services of the tenure (Chowdhury et al. 1989:22). The patta was generally given for a period of 10 years, but it was renewable. These written documents, however, were neither given by the zamindars nor were they received by the raiyats (Islam 1979:40-47).

Since the beginning of the nineteenth century, the zamindars began to lease out portions of their estates in perpetuity and at fixed rents to other people, who were given the right to collect rent from the raiyats and pay the zamindar the amount agreed upon at the time of leasing. These middle parties made profit out of rent collected from the tenants. Gradually, several tiers of rent-receiving middle parties emerged. The zamindars, as well as all these middle parties, lived off the agricultural income of the cultivators. As a result, the cultivators were always burdened with increased amounts of rent, causing their economic condition to deteriorate.



Having observed the impoverished condition of the raiyats, the British rulers felt the necessity for remedial action. Consequently they established the Act of 1859 which entitled the cultivators who held and cultivated the same lands continuously for a period of 12 years to have the right of occupancy to these lands (Gopal 1949:42; Jannuzi and Peach 1980:3). However, due to the tricks played by zamindars, the British rulers were not successful in enforcing these regulations.

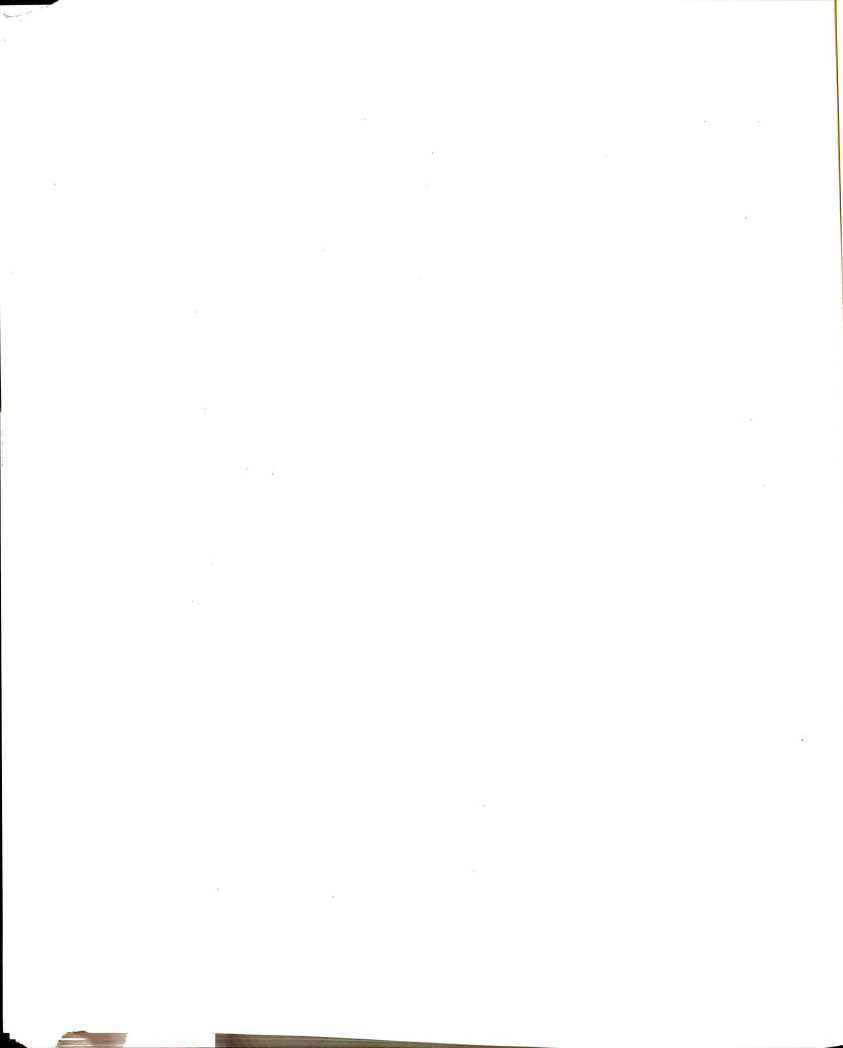
The Act of 1859 was, therefore, repealed by the Bengal Tenancy Act of 1885, which stated that all persons holding land under the zamindars achieved the status of tenant-holders. Thus, raiyats who held land in a given village continuously for 12 years became settled raiyat of that village. These settled raiyats were entitled to acquire the right of occupancy on any land they cultivated (BILIA 1987:13). Even in the cases where land was abandoned by settled raiyats, they retained their right provided they returned within a year. They also were entitled to mortgage their holding or sublet it for a period of less than nine years. Arrears in rent were to be recovered by the zamindars by selling the holding, but the raiyats could not be evicted. In the event of a sale of any zamindari estate, a raiyat's right would be protected (Gopal 1949). The Act of 1885, as amended in 1928, entitled the raiyats to have the right to transfer their holding in whole or in part by paying a fee to



the zamindar. This transfer fee was abolished by another amendment in 1938 (BILIA 1987; Gopal 1949).

Even with these amendments and new regulations, it was difficult for the British government to limit the zamindars' power or to establish and protect the rai-yats' rights to their lands. In addition, political awakening in the country created pressures on the government to abolish the Permanent Settlement Regulations (Chowdhury et.al. 1989:26). The decision to abolish the Permanent Settlement Act was made by the British rulers in the early 1940s, but its implementation was delayed by the political situation prior to the partition of India and Pakistan in 1947. The Act was finally abolished in 1950 after the partition of India and Pakistan by enacting the East Bengal State Acquisition and Tenancy Act of 1950. This Act repealed the Permanent Settlement Act of 1793 and the Bengal Tenancy Act of 1885 (BILIA 1987:18). Thus the zamindari system was abolished in 1950 and the process of acquiring zamindari estates by the government began in that year.

After acquiring zamindari estates, all landholders were brought into a direct relationship with the government (BILIA 1987:20). All rai-yats, according to this Act, were to be called maliks (which means 'owners') and they were entitled to have permanent, heritable and transferable rights to use their land in any way they liked (Siddiqui 1981:5). The state, however, assumed the role of landlord and was legally entitled



to collect land revenue directly from its landholding tenants. After the independence of Bangladesh in 1971, the provisions of the East Bengal State Acquisition and Tenancy Act of 1950 (later came to be known as the East Pakistan Acquisition and Tenancy Act of 1950 during the Pakistan regime) remained in force. But there have been certain modifications in the form of ordinances issued in the 1970s and 1980s (Alamgir 1981, Chowdhury et.al 1989).

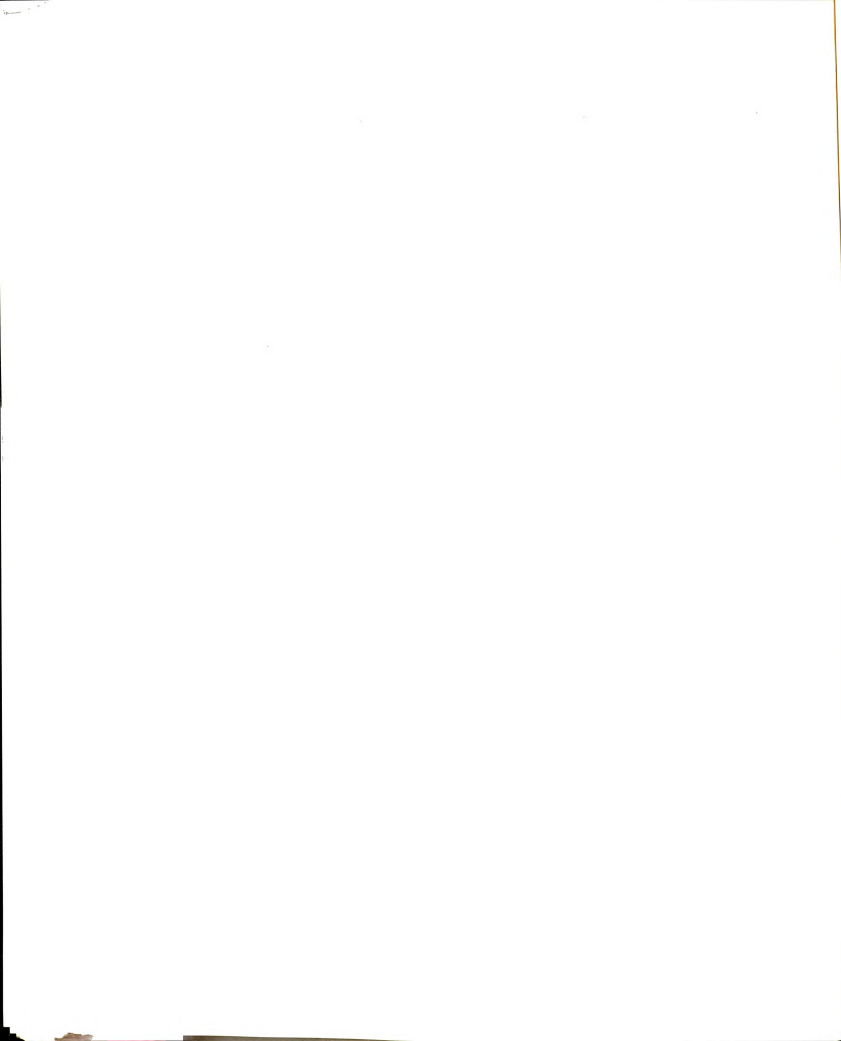
The periodic changes during the British rule, the modifications during the Pakistan period and those made after the creation of Bangladesh were directed towards improving the peasants' social and economic condition by allowing them security of tenure to land. According to observers, these objectives have not been achieved in Bangladesh. This is particularly true in the case of the sharecroppers and landless cultivators (Jannuzi and Peach 1980, Chowdhury et.al. 1989). In addition, there are cases where the former rai-yats lost their rights either as revenue-paying cultivators and de facto owners of land, as they were in the Mughal period, or as rent-paying tenants who enjoyed certain privileges in the British period. This is particularly true in those cases where the zamindars and other intermediary rent-receiving parties have been abolished but the cultivators' traditional rights to land is still ignored by the state which has assumed the role of sole owner of the land. The Garo community of Madhupur Garh is a case in point.

6.5.2 Changes in tree tenure in the state with reference to Madhupur Garh forest

Nothing was found in the historical materials specifically on tree tenure during the ancient time or during the Mughal period. It may be assumed, however, that the de facto rights of the actual cultivators to their land included similar rights to the trees they had on such lands. Such rights were perhaps recognized by the foreign Muslim rulers including the Mughals.

Because the cultivators' de facto ownership right to land was ignored by the British power, their de facto rights to trees were perhaps ignored as well or these rights became uncertain. Such an assumption was made by the principal researcher from the fact that the 1928 Amendment of the Bengal Tenancy Act of 1885 included a provision which entitled the occupancy rai-yats to enjoy the right of ownership to all trees grown on their land (Chowdhury et al. 1989:25; Gopal 1949:42). Until this amendment, the right of ownership to trees was vested in the zamindars along with their right of ownership to land.

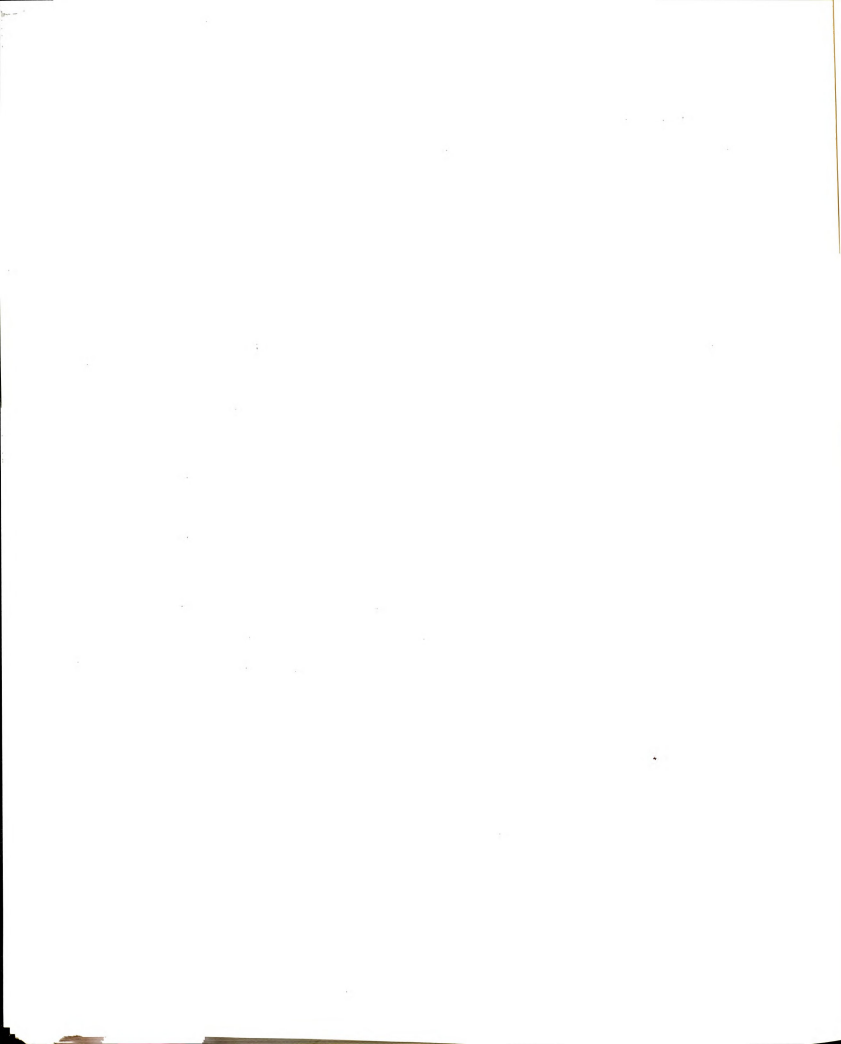
Like the oral histories related to land tenure system, the oral histories related to tree tenure also do not go beyond the later part of the British period. Oral histories suggest that the Garo enjoyed a de facto right of ownership or at least a usufructory right in case of certain trees, while no holding right for others. According to key informants, all trees in the forest area were divided into two major groups:



(a) forest trees -- which grew naturally or were planted and managed by the zamindars; and (b) homestead trees -- which were planted by cultivators or grew naturally on their homesteads. Trees under both groups were again divided into two types: (i) dami gachh (valuable trees) -- timber and other tree species which had high demand in the market; and (ii) akatha or baje gachh (not so useful trees) -- non-timber species and shrubs, which grew naturally and used as fuelwood.

The Garo were allowed by the zamindar to use and harvest the non-timber (akatha) tree species that grew naturally as well as the fruit trees they planted on their homesteads and swidden fields. However, they were given no right to the valuable tree species, even if they grew on their homesteads. According to key informants, the Garo were allowed by the zamindar to cut the valuable trees when these were harvested from their homesteads or from the forest as long as they paid a fixed amount of royalty to the zamindar's representatives.

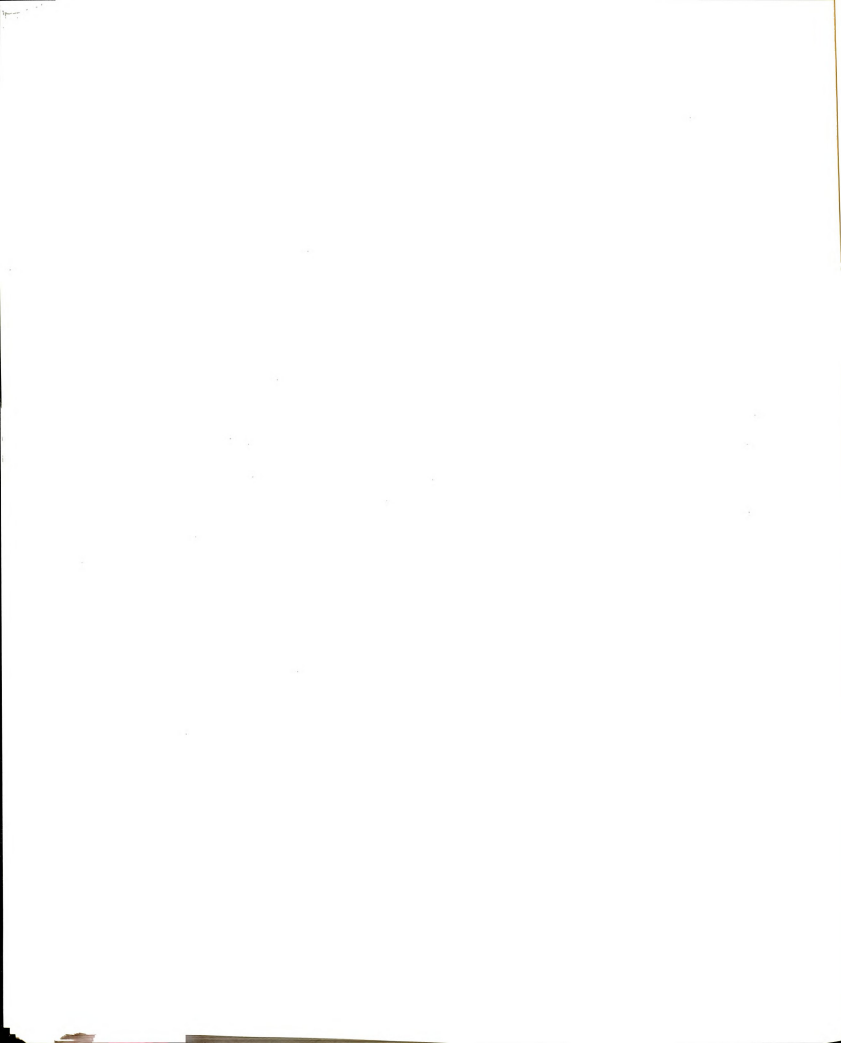
In addition to the privilege (as distinct from right) to harvest, the Garo were also allowed to use the valuable trees from their homestead or even from the forest for house construction. Permission had to be granted by the zamindar's representatives before cutting such trees. This privilege was seldom used, according to informants, because the Garo lived in simple houses constructed of bamboo and thatch grass and seldom needed the valuable trees for their house building.



Since the declaration of the Reserved Forest, the people's rights of ownership to trees are no longer recognized by the forest department. According to the law, all trees in the forested area belong to the forest department. The Garo, however, continue to use the fruit trees and non-timber species that they grow in their homestead and pineapple gardens, and the forest department does not, or has failed to, prevent them from using these trees. However, restrictions have been imposed by the forest department on cutting any valuable timber tree species that naturally grow in homestead or pineapple gardens. According to key informants, people may cut such trees with permission from the forest department but, in contrast to the zamindars' time, obtaining permission is now difficult. After the forest department's takeover, harvest rights to trees in the forest have been sold at auction to the highest bidder. The Garo, even the wealthiest of them, generally are not in a position to accumulate the money required for bidding. Outside contractors usually get the harvest rights. As a result, the Garo people no longer enjoy the privileges relating to trees that they used to enjoy in the zamindars' time.

6.5.3 Land and tree tenure change among the Garo of Madhupur Garh

The Garo of Madhupur Garh consider themselves the cousins of the swidden cultivators of the Garo Hills (see Chapter 2), and they themselves once practiced swidden cultivation. The



traditional system of communal land ownership and tenurial arrangements prevalent among their cousins of the Garo Hills, however, did not work in Madhupur Garh.

According to the traditional system practiced in the Garo Hills, as reported by Garo informants, all land in a village suitable for jhum (swidden) cultivation was communally held by all the villagers. In principle, the rights of ownership and management of such village common land, known as aking, belong to two mahari (lineage) groups whose members established the village. The right of ownership of communal land is vested in the female line and that of management is vested in the male line. These rights were passed in every generation to the successors of these two lineages.

The whole area under aking was divided into several small sections. Some were cultivated at a given point of time, while others were kept for future use. The section of aking under cultivation was sub-divided into plots, which were allotted to all the villagers according to family size. Permanent ownership of a particular plot by a particular household was not always possible due to rotation of fields, and individual ownership by any household was not allowed.

According to key informants, the aking system did not work in Madhupur Garh. They were unable to give any reason why communal ownership system was not practiced in this area, nor did they have any idea whether this system started working

and then was inhibited by the state effort to establish a statutory land tenure system.

There could be several possibilities why the aking system did not work in the Garo villages of Madhupur Garh (see also Khaleque 1983). First, the Garo had to abide by the prevailing land tenure system of the state which was superimposed on their traditional system. Individual ownership was probably encouraged by the zamindars to facilitate revenue collection. Second, perhaps the Garo themselves failed to maintain their traditional village organization, since members of different lineages (generally more than the ideal two lineages required for maintaining aking) had settled more or less at the same time. Consequently, no single lineage was in a position to claim to be the village founder (see also Khaleque 1982). Third, the nature of wet rice cultivation precluded communal ownership, since these fields were established by individual households rather than communally (see also Khaleque 1983). Fourth, the idea of permanent and individual ownership that developed with wet rice cultivation was perhaps extended to jhum fields as well either by the people themselves or by encouragement of the revenue collectors.

As reported by key informants, individual jhum fields were held by individual households. Each individual household would shift from one field to another, or from one section of a field to another, for their swidden cultivation, but such

shiftings were usually limited within the area permanently held by the particular household.

Although land, tree and other property are held among the Garo of Madhupur Garh by individual households, they still believe that the actual right of ownership and inheritance is vested in a wife's mahari (lineage). The control of mahari is not, however, practiced. Nonetheless the Garo still try to arrange marriages between a male and female member of the two mahari groups which are already related by a kinship bond, known as akim (see also Khaleque 1982).

At the household level, the right of ownership to all land, tree, and other household property belongs to women, according to the ideal principles of Garo society. Thus in principle, whatever an unmarried man may earn belongs to his mother (or his sister, if his mother is not alive), and whatever a married man may earn belongs to his wife. A woman, it should be noted, is not allowed to own property or retain her earnings before her marriage. Whatever an unmarried girl earns belongs to her mother. In practice, though, many adjustments and compromises are made according to the situation. For instance, women hold all family money but husbands have a right to its use, and a man often manages cash transactions, after consulting his wife.

In principle, a woman's property is passed on to one of her daughters. This heiress daughter is called nokna, and the daughters other than nokna are called agate. In practice,



agate daughters and sons are often given some land and other household property by their parents. The parents' land and other property, however, are not equally distributed among all their children. The daughter with whom the parents live in their old age is given the larger part of parents' land and other property (see next chapter, for case studies).

According to the ideal principles of Garo society, the nokna and her husband, called nokrom, are responsible for the care, protection and support of nokna's parents in their old age. There is no age preference, but it is often found that the youngest daughter is selected as nokna. Although husband and wife both take part in deciding on the nokna, it is, in principle, the right and responsibility of the wife, since nokna is her heiress. Hence, the wife's opinion always carries greater weight. The right to select the husband for the nokna daughter rests with her father. He selects the nokrom from among his real or classificatory sister's sons. In deciding on the nokrom, the husband generally consults his wife, as the nokrom is the one who looks after his mother-in-law after his father-in-law's death.

The ideal principle of selecting nokna and nokrom are no longer followed among the Garo of Madhupur Garh, although the principles are known to everyone. The tradition of parents' living with one of their married daughters, however, is still maintained. However, this daughter is no longer distinguished from others by calling her nokna, nor is her husband called

nokrom. The marriage of this daughter may or may not be arranged according to the ideal principles, but she and her husband assume the responsibility of the nokna and nokrom.

Parents passing land to their sons was found only in some cases when the married sons established their households in their natal village and received no land from their wives' parents. According to the ideal principle, the wife's mahari can raise an objection to such a transfer of land to sons because such transfers would enable a son's wife and her mahari to claim ownership right to such land. However, no cases of objection from mahari have been encountered by the principal researcher nor were any known to key informants. According to key informants, the wife's mahari would fail to prevent the husband from passing on those lands for which husband has the documents in his own name.

It may be pointed out that some men received land documents in their name when pattan was given by the zamindar or when they bought the title from others, although according to the ideal principle they were expected to get documents in their wives' name. Others, however, followed the ideal principles and received documents in their wives' name. It is difficult to say why some men had violated the ideal principles and used their own name. According to some of the key informants, perhaps it was thought that having land documents in men's names would be wiser, because men can more easily face the rent collectors. Other key informants claim

that people were encouraged by the rent collectors, who have a background of patrilineal descent, to have the documents in men's names. Still, it is difficult to reach any conclusion as to why some people followed the ideal principles, while others did not.

Although the Garo had no de jure ownership right to their land, they were still able to sell or mortgage the land they held under patta and pattan tenure by virtue of their de facto ownership. The selling or mortgaging of land was, however, done unofficially and zamindar never prevented them from doing this as long as rent was paid. No formal document was given by the seller or was received by the buyer for this kind of selling or mortgaging. The Garo continued this practice even after the abolition of the zamindari system. The buyers know that the forest department alleges that these lands are occupied illegally. Even so, they are happy with the possession that is transferred by the sellers. This kind of unofficial buying and selling is recognized and respected by the members of society.

According to key informants, the idea of mortgaging land was borrowed by the Garo from the Bengali people. A system of usufructory mortgage, known as bhogrehan (a local Bengali word for usufructory right), prevalent in the neighboring Bengali villages has been adopted by the Garo. In this system, land is mortgaged for a certain period (varying from five to ten years) by taking a certain amount of money (present rate is

fifteen to thirty thousand Taka [One US\$ = 33 Taka] per acre for chala land and thirty to sixty thousand taka/acre for baid land). The person or household that takes the mortgage is allowed to cultivate the land and retains all the produce until the money is repaid by the landowner. The mortgage-taker can sell the land or claim ownership only when the landowner fails to repay the money within the mortgage period.

A system of land leasing, also borrowed from the Bengali people, is practiced among the Garo. In this system, land is leased for one or two years and the lessee can cultivate the land for the specified period. Land leasing is practiced in the case of baid land only. The present rate is 3000-4000 thousand taka (US\$ 90-120) per acre per year.

6.6 Changes in Forest Management

Significant changes took place in forest management with the take-over of management by the forest department in 1951. Until 1950, forest management was unchanged for a long time. In the post-1951 period under the forest department various changes took place. The periods before 1950 and after 1951 are dealt with separately in this section.

6.6.1 Forest management practices before 1951.

Written historical materials on forest management in the region that is now Bangladesh can be traced back to the

creation of the forest department in 1860 during British rule. Forest conservancy began in Bengal in 1864 (GOB-RD 1935:9). Written records on Madhupur Tract, however, go back only to the second quarter of the present century. According to these documents, forests in the different parts of Madhupur Tract, including Madhupur Garh, belonged to different zamindars. At the request of some of these zamindars who owned various forests in the southern part of Madhupur Garh, their forests were taken over by the government forest department in 1925. These forests were first declared Protected Forests. Then a few blocks of these areas, owned by zamindar willing to hand over management to the government, were declared Reserved Forests in 1927-28. Even in those cases, the right of ownership still belonged to the zamindars. According to the agreement between the two parties, all expenses for management were borne by the owners and they had to pay five percent of their profit to the government for supervision (GOB-RD 1935, Ahmad 1938).

Details of management practices of the forest department in the forest of the southern part of Madhupur Garh are available from written documents (GOB-RD 1935, Ahmed 1938). On the other hand, nothing is found in these documents about the management of the forest on the northern part, which includes the present national park and the area of this research. There is, however, a brief reference which shows that the forests in the northern part belonged to the

zamindars of Natore (GOB-RD 1935:52). This suggests that the forests in the northern part were managed by the zamindars themselves, and the forest department was not concerned with this particular forest. A comparison of the information gathered from oral histories with written materials on forest management of the southern part suggests that management practices in the northern part were different from that of the southern part.

During the zamindar's time, the Garo living within the forest area were responsible for planting and protecting trees in their jhum fields which were abandoned after the three-year cultivation period. No outsiders were involved in these activities. Forestry activities were supervised by the sardars, (the village-level representatives appointed by the zamindars for rent collection). In addition, mafidars (informers) were appointed by the zamindars to look after the forest and inform the nayab (regional-level representative of the zamindar) of any theft of or damage to forest resources. The mafidars were not paid employees of the zamindar, but they were allowed to take a certain amount of forest resources for free in return for their services.

As explained by a Garo leader, the system of planting and tending trees by involving the Garo worked well both for the Garo and the zamindar. It was advantageous for the zamindar, who need not pay for hired labor, because tree raising was possible simply by allowing the Garo to live in the forest and

practice jhum cultivation. In addition, no loss of valuable trees was incurred by the zamindar, since jhum was allowed only in those parts of the forest which were covered with thick bush and sungrass and/or poorly stocked with valuable trees. The jhum fields used to turn into the most suitable areas for tree plantation when these were abandoned after cultivation. According to this Garo leader, the system was also advantageous for the Garo, because the labor they provided to plant and tend trees was compensated for by the privileges they were allowed to enjoy: the zamindar imposed no restrictions on the crops the Garo wanted to grow in their jhum fields.

According to informants, raising trees was not a difficult job for the Garo. Due to their long residence in forests and their observations of tree growth, they already knew that sal (shorea robusta) trees grow naturally if they are not disturbed by weeds and creepers in the initial growing stage. They also know how to collect good seeds from the forest and plant them in their abandoned jhum fields. Because the fields were generally free from bush, sungrass, creepers and undergrowth, there was no need to invest much labor for clearing bush and creepers. As explained by a Garo leader, people performed their duties and responsibilities either to show their sense of gratitude to the zamindar who allowed them to enjoy the privileges of living in and cultivating forest land or due to fear of a withdrawal of these privileges.

Oral histories revealed that forests were opened to the public once a year, usually from September to March for logging and collecting fuelwood and thatch grass. Interested loggers had to seek permission from the nayab, and it was forthcoming on payment of a fee. When written permission was given, the number of trees intended to be felled by a logger was specified in the permit by the nayab's clerk. Generally, a period of one month was allowed for completing tree felling, processing, and transporting the logs to the check stations, which were located on the edges of forest. At the check station, each logger's timber and fuelwood were stacked. The stacks were hammer-marked, numbered and measured by the zamindars' representatives, and an amount of royalty was fixed based on the size of the logs. On payment of this royalty, loggers could either sell their logs to the traders who came to the check stations or take their logs elsewhere for sale.

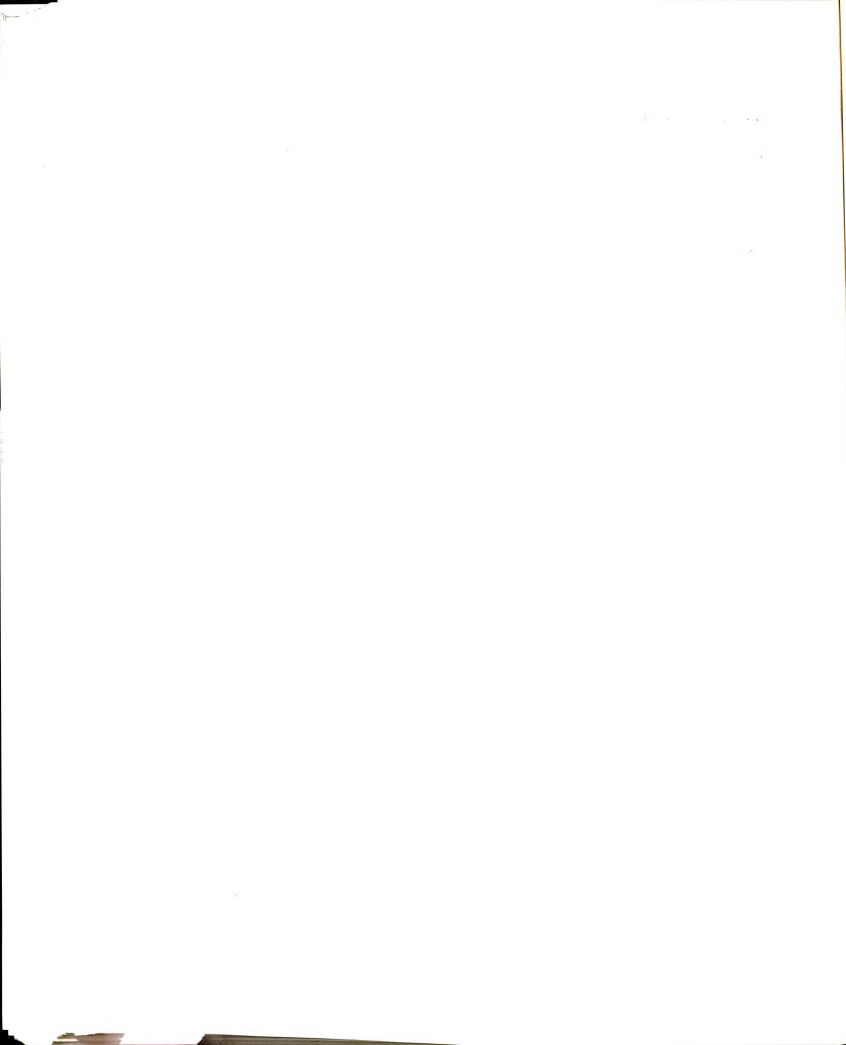
6.6.2 Forest management practices after 1951

According to the published records of the forest department (see Chowdhury, M.R. 1957), a huge destruction of this forest was caused by the past management under the zamindars (see Chapter 6, Section 6.6.1). Although there were restrictions on felling valuable trees from jhum fields, this cultivation technique destroyed the forest. The zamindars failed to control the damages caused by the shifting cultivators. In addition, large-scale felling by the

zamindars took place in the period prior to the forest department take-over in 1951. In the late-1940s, the zamindars anticipated that the zamindari system might be abolished. So they tried their best to extract forest resources as much and as quickly as possible. The felling activities were done without taking any silvicultural measures for regeneration of trees. Settlement of the Bengali people was also encouraged by the zamindars during this period more than ever before. Some of these new settlers were granted long-term leases on both agricultural land and forest land. Trees were felled by these new settlers not only from the areas for which a lease was granted but also from the adjacent areas. All these factors combined to turn innumerable patches of forest into treeless areas.

The main objective of the forest department's assumption of management was to bring about systematic scientific practices. Toward this end, the department aimed to convert the irregular forest into a series of age gradations of sal (Shorea robusta) and other valuable species (see Chapter 2), replacing in the process the less valuable forests of mixed species. A silvicultural system of clearfelling and artificial regeneration of valuable trees was adopted to achieve this objective.

According to forest department sources, a taungya system (the system that combines agriculture with tree plantations) was introduced by the forest department in 1951. The local



Garoswidden cultivators were involved in taungya plantations. The whole forest area was divided into a few "felling series," and it was planned that annually one-nineteenth of the productive area in each of these felling series would be clearfelled to convert it into a uniform forest. The clearfelled areas were given to the taungya farmers who then prepared the fields by burning the debris. Seedlings of valuable trees were then planted by the farmers under the supervision of forest department officials.

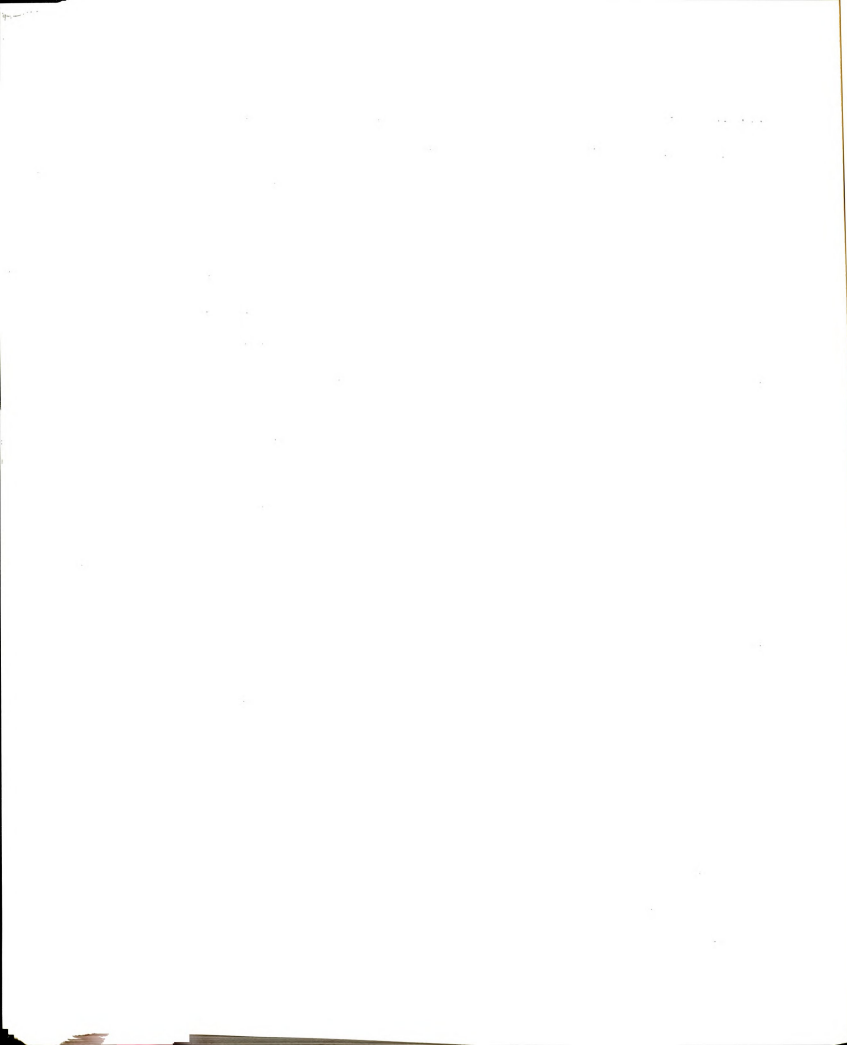
The taungya farmers were allowed to grow their own crops between the rows of trees, keeping the planting strips free. They were permitted to cultivate their crops in the plantation area for two or three years. Which crops were to be grown in which year were decided upon by the forest department. During the period of cultivation, the cultivators had to perform four or five weeding in the first year and two or three in subsequent years. This was done in return for the privileges given by the forest department to cultivate their crops. No wage was paid to them for weeding and protecting trees.

According to forest department sources, the results of taungya plantations up to 1955 were satisfactory (Chowdhury, M. R. 1957:84). The initial success of taungya plantations and the availability of the Garos for these plantations led the forest officer in charge of this area to recommend this system in the Working Scheme for the period from 1955-56 to 1959-60. It was also recommended that the largest Garo village near

each of the previously established plantation centers should be converted into "forest villages," and adequate facilities be made available for the Garo workers (Chowdhury, M. R. 1957:46).

The above recommendations were followed during the period from 1955-56 to 1959-60 (Chowdhury, A. M. 1960:26). No comment was made in the later documents regarding the result of the taungya system during the period from 1955 to 1960, but there is an indication that the forest department's efforts to establish forest villages were not quite satisfactory (Chowdhury, A. M. 1960:44). The taungya system was again recommended in the Working Scheme for 1960-61 to 1969-70. No document has been published by the forest department since 1970, so it is impossible to determine if the taungya system was a success or failure.

The principal researcher's interviews with some forest department officials as well as with key informants revealed that the taungya system ceased to operate in the early 1960s, even though it was supposed to be continued until 1970. It was replaced with the plantation system using wage labor. According to one forest officer, the government funds allocated for forest development in the early 1960s were spent to hire labor for tree cultivation. However, wage labor was used in the case of some plantations, while taungya plantations were used to grow trees in other cases. Because the taungya workers received no wage, they were unhappy, and

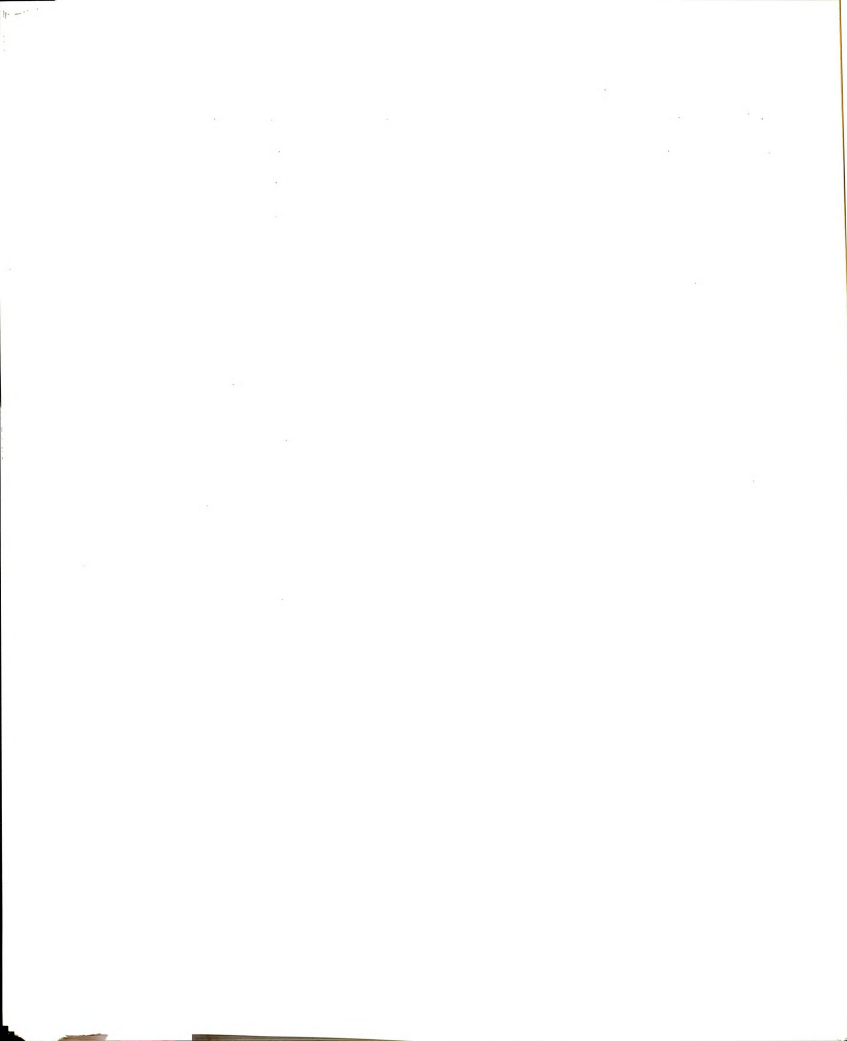


some of them were reluctant to continue to participate in the taungya plantations. In addition, because simultaneous operation of both taungya and wage labor-based plantation became impractical, a uniform system of wage payment was introduced.

Another forest officer claimed that the taungya farmers were responsible for the failure of this system. Instead of taking care of the trees in taungya plantations, they felled immature trees or destroyed them to make the program fail and then converted the land to permanent field for cultivation of agricultural crops. This explanation, however, is refuted by some village level informants who claim that the forest department officials were responsible for the failure of the taungya system. In their view, forest department officials took bribes from outsiders and allowed them to illegally destroy the taungya plantation to make room for settlement and agriculture. It is difficult to determine who actually was responsible for the destruction of taungya plantations.

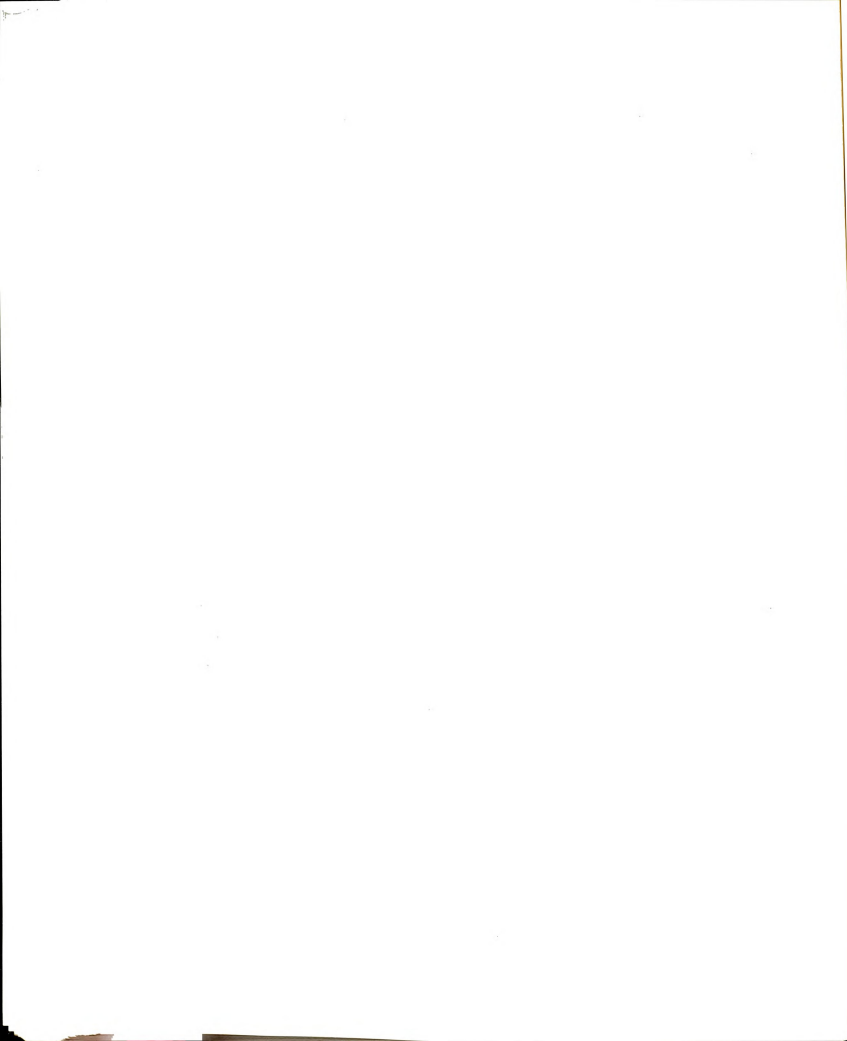
According to some forest department officers, the depletion of the Madhupur Garh forest called for a "moratorium," and the felling of trees was banned in 1972. Until 1972, trees were harvested by contractors selected by the forest department.

The method of forest resource exploitation prevalent during the management under the zamindars was changed after the forest department took over management in 1951. Under the



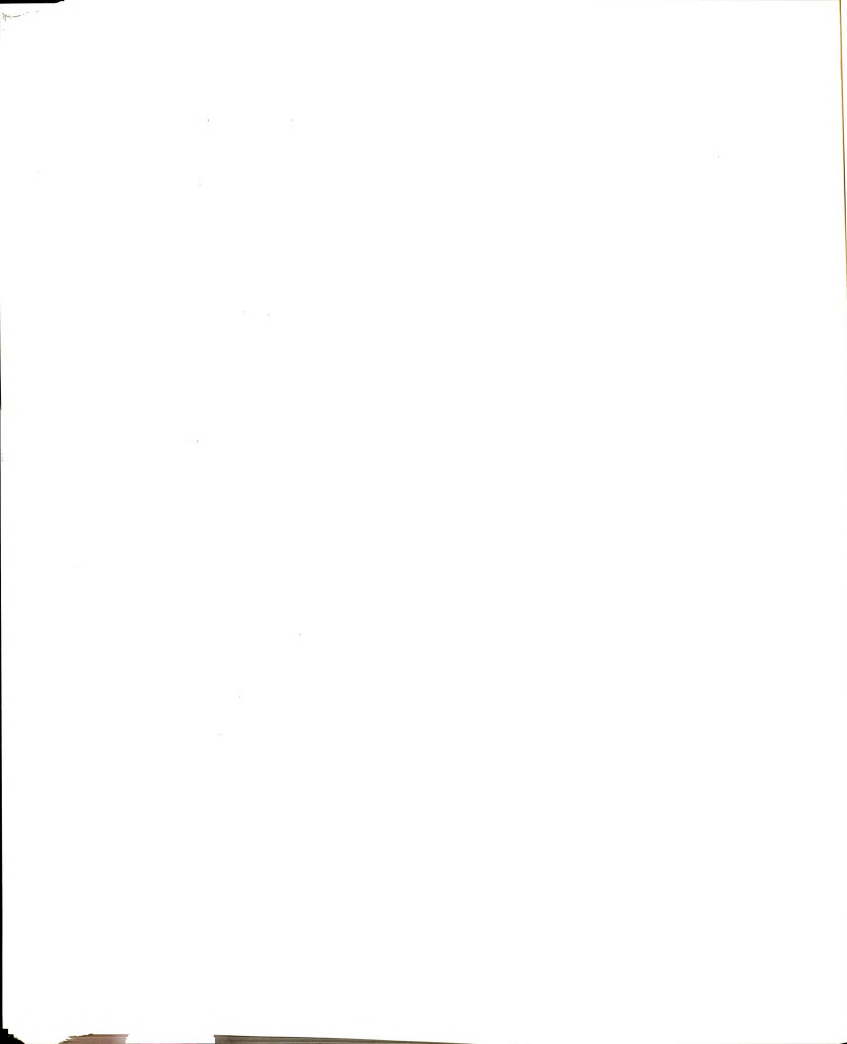
forest department, areas due for clearfelling were laid out and divided into lots. All trees, except for small poles, were hammer-marked and digit-numbered, and then the lots were sold by auction. All products in the clearfelling lots were included in the auction sale. The highest bidder received the concession. Trees were cut from the forest and then transported to the sale depots by the contractors (Chowdhury, M. R. 1957:17).

Although lots have not been given to the contractors since 1972, scattered trees in the degraded areas have been clearfelled by the forest department for the afforestation of those areas. Other methods have also been used since 1972 to promote tree growth. The system of artificial regeneration of trees by using wage labor continued in the plantations after 1972. To supply fuelwood and house construction materials to the people living in and around the forest, fast-growing exotic tree species like Cassia siamea, Sesbania grandiflora, Acacia auriculiformis, and Acacia mangium were introduced in the post-1972 plantations. According to one forest department officer, no systematic evaluation of these plantations has ever been made. In his opinion, however, some of these plantations have been successful, while others have not been as satisfactory as expected. According to key informants, however, most of the trees planted after 1972 did not survive in most plantations, while parts of many of these post-1972 plantation areas are completely denuded.



Fifteen thousand acres of forest land in Madhupur Garh were proposed in the late 1970s for rubber plantation (The Daily Ittefaq 1990: November 4), but it took awhile to introduce rubber plantation in the area. The principal researcher learned from the director and also from the manager of the Madhupur Rubber Plantation Project that the forest department gave 8,000 acres of land to the Forest Industries Development Corporation (FIDC) for rubber plantation development in 1986. Under the FIDC management, 4,000 acres were brought under rubber plantation in the first phase of the project during 1986 to 1990. The other 4,000 acres plantation was supposed to begin in the second phase from 1990-91, but this has not yet occurred.

The project director cites delays in the decision-making process as the reason for the delays in the second phase plantation. However, local newspaper sources claim that after learning that the continuation of the rubber plantation might affect the local people adversely, the Asian Development Bank, the prospective donor for the second phase, was hesitant to support this project (The Holiday 1989:June 16; The Dhaka Courier 1989:January 27-February 2). The Asian Development Bank perhaps learned about the conflict between the local people and the rubber plantation project authority (to be discussed in Section 6.7) from newspapers and periodicals (The Ekata 1989:March 3; The Holiday 1989:June 16; The Dhaka Courier 1989:January 27-February 2, March 31-April 6, June 2-



8, July 21-27). These newspaper reports also bitterly criticized the rubber plantation project in Madhupur Garh.

The Rubber plantation has been criticized in newspapers on two main grounds: first, although there was a promise to employ local people, they have not been employed in this project except as low-paid wage laborers; and second, local people have been deprived of their privileges of collecting twigs and branches for fuelwood and of using forest land for grazing their animals. But the project director and the manager of Madhupur Garh Rubber Plantation Project told the principal researcher that local people have been employed in the project in positions suitable for them. They also added that there are no local people to occupy administrative positions because no suitable people from the area were found for these positions. Regarding the other criticisms, they said that the newspaper allegations were untrue.

According to both the director and the manager of the Rubber Plantation Project, the overall performance of the plantation has been satisfactory. The growth pattern of the high yielding varieties of exotic rubber-producing species planted in this project is highly satisfactory. They think that if plantation activities can be carried out without disturbances from the local people, the project will be successful. According to one Bangladesh forester, even if the rubber plantation in Madhupur Garh proves to be successful, such success will be achieved at the expense of natural

biodiversity that characterized the sal-dominated miscellaneous forests of Madhupur Garh.

It should be noted that experiments with rubber-producing species in some sal forests of Bengal during the British period, though not in Madhupur Garh, were not successful. Historical documents show that many attempts were made to introduce exotic rubber-producing tree species at various times in the late 1860s, but "owing to the climate of Bengal being too moist, none were successful" (GOB-RD 1935:94).

In 1990, two new projects have been introduced in Madhupur Garh forest. One of these projects, "Woodlot Project," was intended for afforesting the unencroached state forest land which are of low productivity and/or barren. The other is called the "Agroforestry Project," and was designed for the afforestation of encroached upon forest land. These projects constitute two components of a nationwide social forestry project funded by the Asian Development Bank.

The aim of both projects is to grow trees, mainly fast-growing fuelwood species. According to forest department records, 650 acres of degraded forest land within the national park area were afforested under Woodlot Project in 1989-90, while 715 acres were established as plantations in 1990-91. Under the Agroforestry Project, 25 acres of land occupied by local people were afforested in 1989-90. Tree species planted in both projects include exotic species such as Eucalyptus camaldulensis, Acacia mangium, Acacia auriculiformis, Cassia

siamea, and local species like Albizia chinensis, Albizia procera, and Terminalia arjuna.

In both Woodlot and Agroforestry projects, local people have been involved in tree growing activities. According to forest department sources, all planting materials are supplied by the forest department. Preparing the land, tree planting and maintenance are performed by the project participants. The forest department pays them wages for their labor. The project participants will be allowed to grow their agricultural crops for the first three years. They are also entitled to have tree products such as leaves, twigs, branches, fruits, and seeds during the seven-year rotation period. In addition, the participants will be allowed to share a certain percentage (40% in the case of Woodlot and 60% in the case of Agroforestry) of the wood harvested at the end of the project.

According to key informants, local people still hesitate to participate in these projects. The forest department, however, has motivated some people to participate in the already implemented projects. The willing participants had to sign an agreement, which contains conditions laid down by the forest department officials without consulting the participants. These participants are not quite comfortable with these projects, because: (a) tree species and crops to be grown in these projects are selected by the forest department according to its own objectives, which do not serve the

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purpose of the participants; and (b) although participants are allowed to use the land and to share benefits, they are not given any security of land tenure.

According to forest department sources, the design and implementation of the nationwide social forestry program, of which the Woodlot and Agroforestry projects are two components, was inspired by the success of a participatory community forestry program implemented in the early 1980s in northern Bangladesh. This approach to forestry was adopted by the forest department in the late 1970s and early 1980s when it was realized that the success of any forestry program depends largely upon local people's participation. Accordingly, Woodlot and Agroforestry projects were meant to be participatory in nature. Although participation has been sought and achieved to some extent, the information given above suggests that a top-down approach has been followed in project planning and decision-making processes. In addition, it appears that the situation in this area and the recommendations on tenurial security made by Khaleque (1984) were not considered before implementing these projects.

6.7 Dispute Between the Garo and the Forest Department

A dispute between the Garo and the forest department over the rights on chala land began after the forest department takeover in 1951. Forest department sources state that land under the jurisdiction of this department has been occupied by

the Garo illegally. The Garo feel that they have legitimate rights to the land they have occupied and cultivated for generations. According to a Garo leader, the Garo were told by the lawyers they have consulted that the facts of their long-term settlement and legal status as settled cultivators give them automatic occupancy rights under provisions of the East Bengal State Acquisition and Tenancy Act of 1950.

The forest department disputes such alleged rights of the Garo on the grounds that the area was declared as a reserved forest. Gazette Notifications were issued by the forest settlement officer in which the public was informed that anyone laying claim to the proposed reserved forest land must submit a claim with supporting documents within a six-month period (Dacca Gazette 1955:May 12, September 29; 1956:February 2). Since the Garo made no claim during the stipulated period, most of the land occupied by them was included in the reserved forests.

According to a Garo leader, however, no such notification was circulated among them. He believes that the notification was kept in official files or sent to them after the expiration of the stipulated six-month period. Thus the people were tricked by the government. Another Garo leader explained that even if notifications were received by the Garo, their ignorance of the outside world would have prevented them from making a claim, either to have land registered in their names or to demand compensation.

In 1984, another Gazette Notification was issued by the forest department (Bangladesh Gazette 1984:July 19). Again, people were asked to submit any claims they had to the lands listed under reserved forest areas, with supporting documents, within a six-month period. The lands listed in this notification were the same as those included in the previous notifications. According to key informants, lands owned or occupied by the local people were included in the list. A settlement survey is underway and was due to be completed by the end of 1991. The principal researcher was also told by one official of the local land revenue office that unless valid documents based on the cadastral survey records of 1916-18 were presented by the local people, all the lands within the Reserved Forest area, including the baids, would be recorded in the forest department's name. The land office ignores land documents received by the people from the zamindars. This official also reported that the forest department alleges that local people obtained these fake documents by bribing the zamindar's representative, or the land revenue officials, who prepared forged documents by using back dates.

According to key informants, the local people are now in legal trouble because the only documents most Garos have are those given by the zamindars. The Garo now fear that if these documents are unacceptable, they will lose the right to their ancestral land. Then their future will be uncertain.

An additional unresolved issue concerns the Garo and Bengali people living and cultivating land within the boundaries defined in 1961 for Madhupur National Park. A 1962 enumeration of the forest department revealed that 483 out of the total 542 households within the park area were Garo. The forest department recommended that these families be relocated in a part of the Fulbaghchala area located within the reserved forest but outside the park's boundaries. A second enumeration, conducted after the formation of Bangladesh in 1974, indicated that the Garo made up 700 of the total of 1045 households within the park. The remainder were Bengali, whose numbers had increased much more rapidly than those of the Garo over the twelve-year period.

From the late 1960s, the Divisional forest officer issued occasional notifications urging the Garo to move to the resettlement area. The Garo have steadfastly refused, arguing that the proposed resettlement area is already occupied by Bengali families who would certainly not permit the Garo to cultivate land there.

The Garo appealed to the government to relocate them, if it were really necessary, to an area where unoccupied land exists. They also demanded that any new land be registered in their names and that a just compensation be paid for their existing pineapple and vegetable gardens. The Garo say that they received no favorable response from what was then the government of Pakistan. The new government of Bangladesh has

attempted to implement exactly the same resettlement programs as its predecessor. Various proposals and counterproposals (Appendix C) have been exchanged between the two sides, but no resolution has yet been reached.

As indicated above, a conflict has resulted from the Rubber Plantation Project implemented in Madhupur Garh in 1986-87. Information gathered from newspaper reports (The Ekata 1989:March 3; The Holiday 1989:June 16; The Dhaka Courier 1989:January 27-February 2, March 31-April 6, June 2-8, July 21-27)) and from the principal researcher's interviews with the informants in the villages near the rubber plantation area revealed that local people were not consulted before the implementation of the first phase of the rubber plantation project. Land occupied and used by many people was taken without compensation. To these people there was a direct negative affect caused by rubber plantation. Others failed to note the adverse effect of this project until trees grew in the rubber project area. They then found that the areas they previously used for fuelwood collecting and animal grazing were lost. The local people, therefore, started protesting against any further expansion of the rubber plantation area, and began organizing when some people's rice fields were taken for rubber plantations.

In the face of the people's organized opposition, the government and the rubber plantation authority decided that no

agricultural land would be used for rubber plantations. It was also decided that a land survey would be conducted before establishing any new plantation in order to identify lands owned or occupied by the local people. Before this proposed survey took place, however, there was an attempt to convert some people's rice fields and homestead land into rubber plantation areas. At that point the protest turned violent and some people uprooted all the rubber plants that were planted on their land. The organized opposition became even stronger when people learned that a feasibility study for the second phase had been completed in 1988 and that a land survey was to be done for its implementation. They are now ready to resist any further attempt to expand rubber plantations.

6.8 Changes in Garo Social Organization

This section describes the major changes that have occurred in the social, political, and economic life of the Garo of Madhupur Garh due to the various factors mentioned in this chapter.

6.8.1 Garo kinship organization

Although Garo society has been encapsulated within the wider national political system of Bangladesh, the Garo still identify themselves as a distinct group. In the face of changes in virtually all aspects of life, they have maintained their traditional matrilineal social organization. The

matrilineal social organization of the Garo living in Madhupur Garh area is similar to that of their counterpart in the Garo Hills of India. According to anthropologists who have worked with the Garo, there are three large exogamous matrilineal groups (known as chatchi among the Garo): sangma, marak, and momin. The first two are predominant in most Garo areas of India and Bangladesh. A moiety structure was found by the anthropologists between these two predominant groups (Burling 1963, Nakane 1967, Khaleque 1982). Each of the chatchi group is divided into many smaller groups, called machong (clan), and the closely related kin-group within each machong are again distinguished as mahari (lineage). Exogamy is practiced at all the above divisions of Garo matrilineal descent groups.

6.8.2 Gender role and specialization

The basic principles related to women's role and status are still maintained by the Garo of Madhupur Garh. By virtue of her social position a woman plays a major role in familial decision making. Husband-wife relations among the Garo typically are characterized by mutual cooperation and not by domination (cf. Harbison et al 1989). Men hold the formal political authority, and most decisions with regard to village affairs are made by men. Men's authority does mean that women are dependent on men for protection of communal interests. Instead Garo men exercise their greatest authority over the

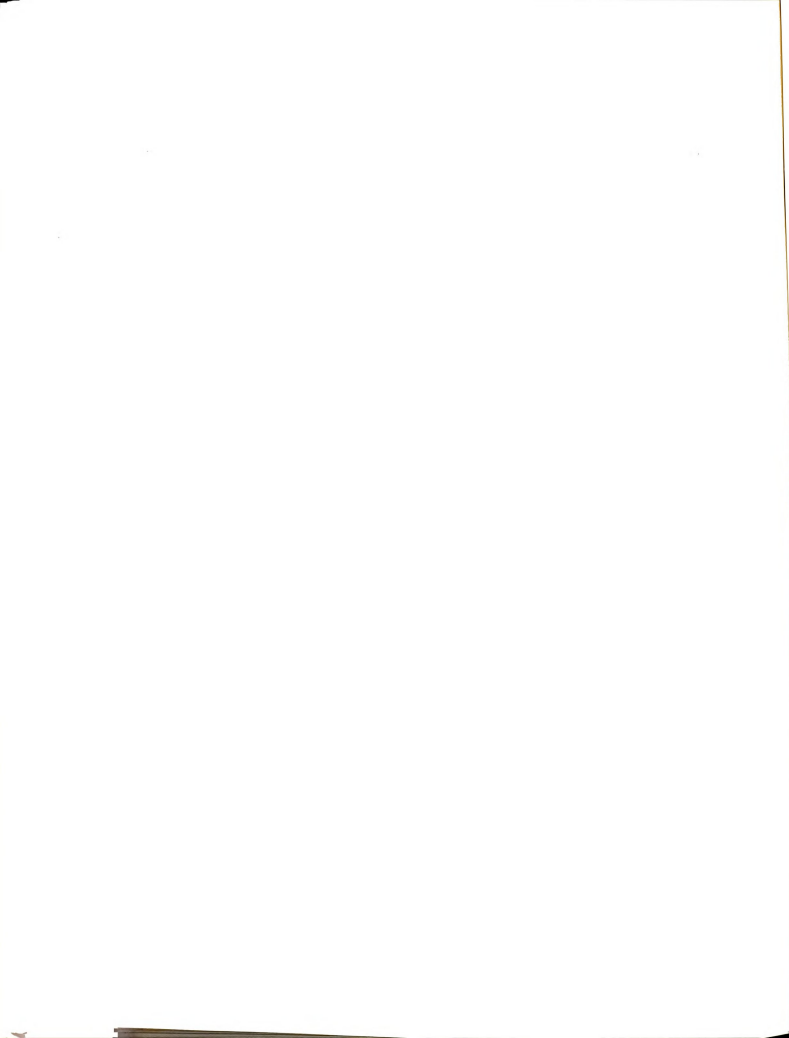
females of their own lineage, not over their own wives, who belong to a different lineage.

Both agricultural activities and household work, which are necessary for maintaining a household, are generally shared by the members of both genders. In principle, no work is distinguished in Garo society as exclusively men's or exclusively women's work. In practice, however, the heavier work that is generally difficult for women is performed by men. As reported by key informants, men performed the heavier jobs such as felling trees and slashing undergrowth when jhum cultivation was in practice. Planting and harvesting crops was performed by both male and female members of a household. As reported by a female Garo key informant, and also supported by the male key informants, at that time woman had to spend more working hours each day than did the men. Although men and women worked together in the jhum field for the whole day and cooked their lunch together right in the field, when they returned home it was generally the women who cooked dinner and took care of the children. Men would sit, drink home-brewed rice beer and gossip. According to both male and female key informants, Garo men are lazier than are women who are more active and hardworking.

In terms of the volume of work and the total working hours spent each day, women still do more work than men. Both men and women still participate in agricultural work. Carrying loads from the field to home and also from home to

market is also done by both genders. The only job women are not seen to perform is the ploughing of land. This work is not as heavy as felling trees in jhum fields, but for some reason this has become men's work. None of the key informants could give any reason for this behavior, although some said it does not look nice if women plough the land. This idea of "decency" may have been copied from the Bengali people among whom women generally do not plough the land even in those cases where they participate in agricultural work. (Bengali women of the neighboring areas rarely perform agricultural work and only among the poorer section of the society. Even among them, the nature of work is generally limited to harvesting crops).

Although the tradition of both men and women working together in agricultural work has been maintained by the Garo, the women of educated and wealthy households tend to avoid agricultural work, particularly those in wet rice fields. According to the female Garo key informants, these women do not want to participate in such works, and they can afford to hire labor. None of the key informants, however, could explain why these women do not like to participate in wet rice cultivation. It has, however, been observed by the principal researcher that even some of the women of wealthy households who do not participate in wet rice cultivation often work in pineapple and vegetable gardens. Child rearing and household chores are still performed by all women, no matter whether



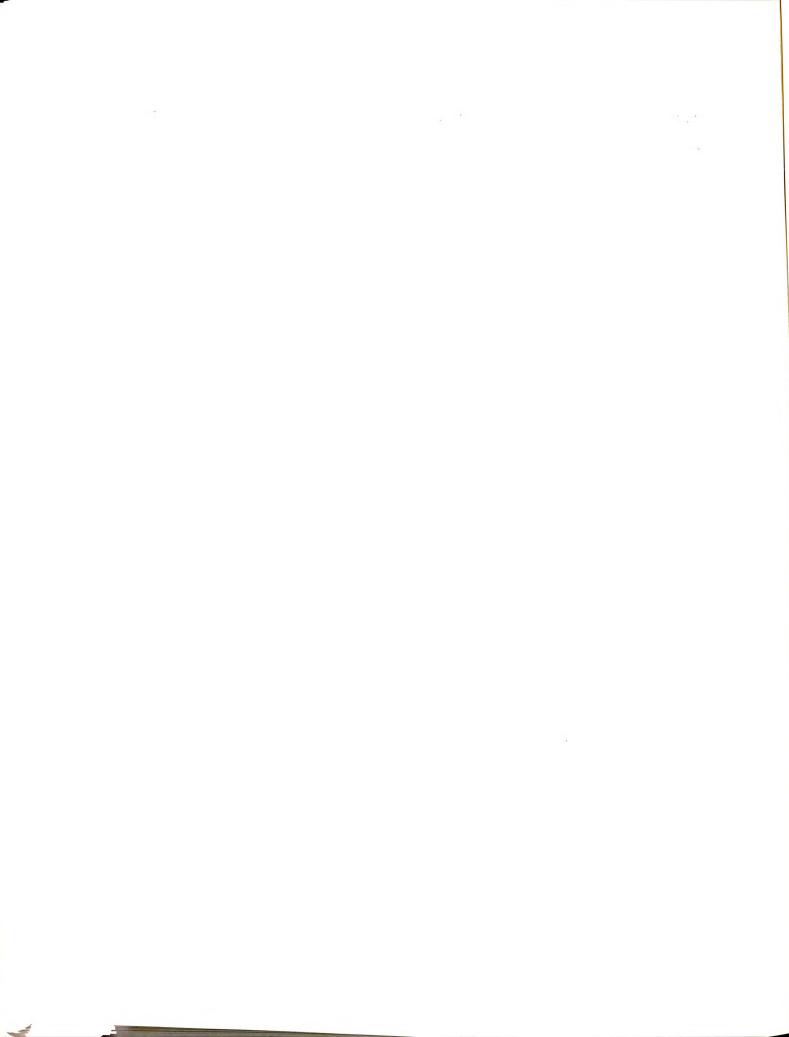
they belong to wealthy households or poorer households. However, most wealthy households generally hire female labor to perform household chores.

6.8.3 The development of social and economic differentiation of households

Major changes took place in the Garo social organization with the development of wet rice cultivation and the ban on jhum cultivation. The people who had the foresight to claim land became wealthier than those who failed to do so. The households that had more labor power and resources to invest in the establishment of pineapple gardens also became wealthier than those which lacked these resources. The result was that wealth became concentrated in the hands of a few households, while others became landless and poor.

Landlessness is a direct result of the prohibition of jhum cultivation. As reported by Garo key informants, none of the Garo was landless when jhum cultivation was in practice. Households which had only a small amount of wet rice field prior to the ban on jhum cultivation eventually became landless with an increase in population in their households after 1951. Many of these households were forced to sell their land to survive.

It may be pointed out that a distinction between rich and poor existed among the Garo even before their adoption of wet rice cultivation. Households with a large labor force and/or those that could manage their jhum fields efficiently would



often become wealthier than those which lacked these. But the distinction between landholder and landless, based on the holding of wet rice fields, developed after the ban on jhum cultivation.

6.8.4 Pattern of leadership

Large landholders found an avenue to gain prestige and prominence by providing employment to the landless and small landholders (Khaleque 1982). Some of these large landholders and wealthy people achieved not only prestige and prominence but also informal social power. People with some education and leadership qualities, in addition to their large holding size and accumulated wealth, began to be regarded as village leaders. These village leaders are variously known as modol or matbor (both terms used by the neighboring Bengali people for 'village leader'. Because of their large landholding, wealth, education and the ability to contact government officials, the position and role of these new leaders has gradually been recognized by the villagers as more important than those of the traditional village leader (nokma).

The position of a nokma is hereditary. According to Garo custom, the male village founder is first given this position and it is then passed on to his male inheritor (his sister's son, since descent among the Garo is matrilineal) in every generation. But since the aking concept did not work in Madhupur Garh, and as people of several lineages live together



in the same village, the position of nokma is often given to the wealthiest household. The tradition of inheriting this position by nokma's sister's son, however, is still maintained.

The nokma has no political power and authority over other villagers nor is he socially superior to them. But by virtue of his position, a nokma is entitled to certain privileges, if not rights, as well as certain duties and responsibilities, including: (a) to own and use the sacred religious drums; (b) to fix the date and time for observing the traditional village festivals; (c) to perform the role of ceremonial leader and offer sacrifices at the time of festivals on behalf of all the villagers to ensure good crops and health and wealth for the whole village; and (d) to take the initiative to settle disputes, arrange a village council and perform the role of a mediator.

The ceremonial leadership of nokma is no longer necessary since observance of the traditional village festivals has ceased. (see Section 6.3). Although village councils for dispute resolution are still arranged by nokma in some cases, it is no longer considered by the villagers to be his responsibility. Taking the initiative to resolve disputes is not the responsibility of the new leaders either, but this duty is generally performed by them to maintain their leadership status. People also want the new leaders to intervene in dispute resolution. They feel, as told by one



key informant, that the new leaders are more suited and efficient because of their education and knowledge of the outside world than are the illiterate traditional leaders.

Dispute resolution and managing all other village affairs have always been and, in most cases, are still carried out by the village elders in a village council (which used to be arranged by the nokma but now is arranged by the new leaders). Since the imposition of external political control, however, formal authority in charge of the villages has been entitled to intervene in village affairs. During the zamindar's time, formal authority was vested in the sardar (the village level representative of the zamindar). After the abolition of the zamindari system, the elected member of the local administrative unit became the formal government representative.

The local administrative unit, called "Union Parishad" (formerly, "Union Council") is divided into several "Wards," each of which is composed of several villages. A link between the people of different villages under a Ward and the Union Parishad is maintained by the Union Parishad member (UPM) of each Ward. As the official local representatives of the government, the UPMS are responsible for reporting to the government the needs of the people in their respective Ward. This includes asking for funds required for village developmental projects such as small irrigation schemes, construction and repair of village roads, programs on health



and sanitation, and programs on education. The UPMs are also expected to take initiative for settling petty disputes among the villagers. However, they have no formal authority and power to adjudicate disputes. The only duty they are expected to perform is to arrange a village council and invite the village elders, nokma and modol, and then perform the role of a mediator to resolve the dispute. The UPM also reports to the government disputes which are complex and impossible to settle in the village council, or major crimes.

According to key informants, the Garo generally resolve their disputes within their own village through the mediation of either the traditional or the new leaders (see Khaleque 1982, for case studies); they rarely seek help from the UPMs. As reported by key informants, the Garo still prefer not to go court because they believe going to the court is of little help; the lawyers are unfamiliar with Garo customary law and their interpretation is not always right. In case of major disputes, primarily those concerning land right, some Garos do go to court, but such instances are rare. In the intensive study village, for example, only one case was found where the disputants went to the court when the traditional attempts to resolve their dispute over inheritance of land had failed.

The Garo leaders were not (and still many are not) concerned with the outside world. The Garo sardar appointed by the zamindar were concerned only with the villages under their jurisdiction. After the abolition of zamindari system,

according to oral history, none of the Garo showed any interest in the position of a UPM. This meant that the Bengali people who live in the Wards which include Garo villages were elected as the UPMs. The Garo were not interested in voting either -- many of them did not understand what voting was and why was it necessary. Eventually some Garos were to attain the position of UPM. An interview with the officials at the local Union Parishad revealed that the position of a UPM was held by a Garo in 1956. Since then there has been at least one Garo UPM (never exceeding three) out of the nine elected UPM of Arankhola Union Parishad in each five-year period.

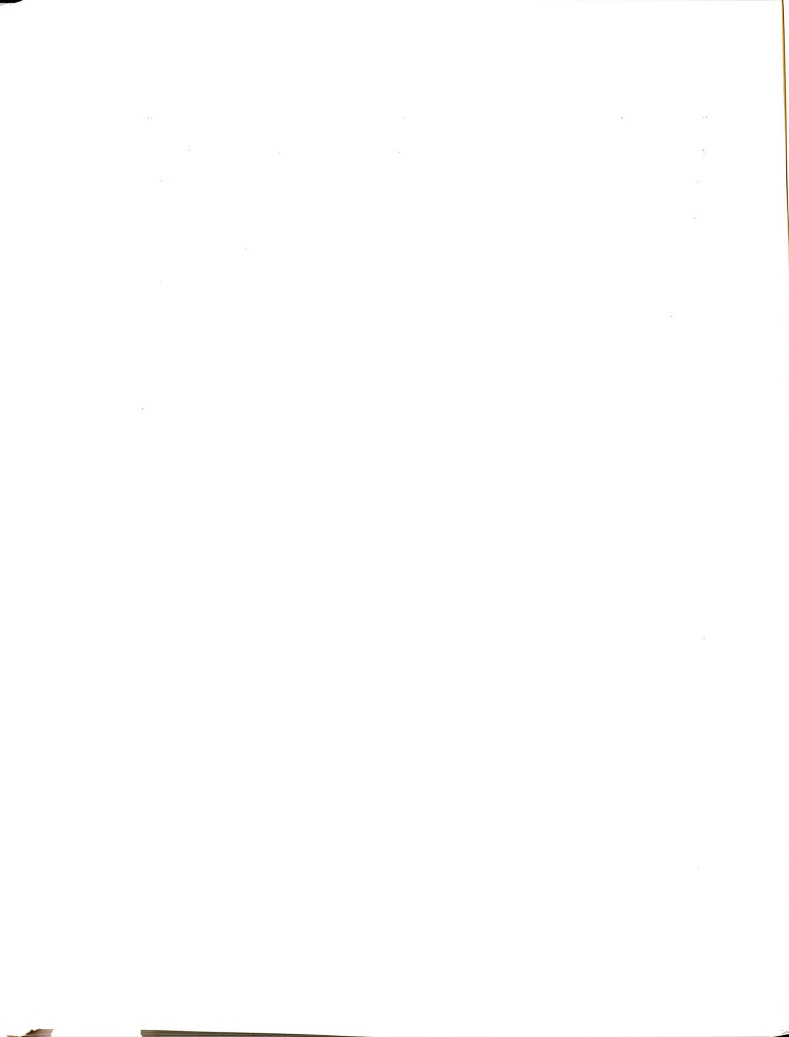
Although Garo UPM have been elected in each five-year period since 1956, before 1972 no Garo UPM had made an attempt to be elected chairman of the Union Parishad (the chairman is the top official of the Union Parishad and is elected by the UPM of different Wards). None of the key informants could state why the Garo were not interested in the position of chairman. It seems that the Garo UPMs were perhaps interested only in the villages under their respective Wards and not beyond that. Or, perhaps they thought that it was impossible to win election for the position of chairman because of the number of Garo UPMs in Arankhola Union Parishad had always been less than that of the Bengali UPMs.

In 1972, a Garo leader, named Paresh Mri, however, competed for the position of chairman. The principal

researcher learned during his interview with Paresh Mri that he was inspired to compete for this position by the Garo UPMs and some of the Bengali UPMs. In addition, Paresh Mri himself was confident. He thought that the popularity he earned during the distribution of relief goods to local people after the liberation of Bangladesh would help him gain support of the Bengali UPMs. But he failed in the election. After the failure of Paresh Mri, no Garo UPM competed for the position of chairman until 1988. An ambitious young college graduate Garo man competed for this position when a bi-election was held in 1988 after the resignation of the chairman, a Bengali. This young Garo man, named Benedict Mangsang, was supported by some influential Bengali leaders. He is the first Garo chairman of Arankhola Union Parishad and he now holds this position.

6.9 Summary

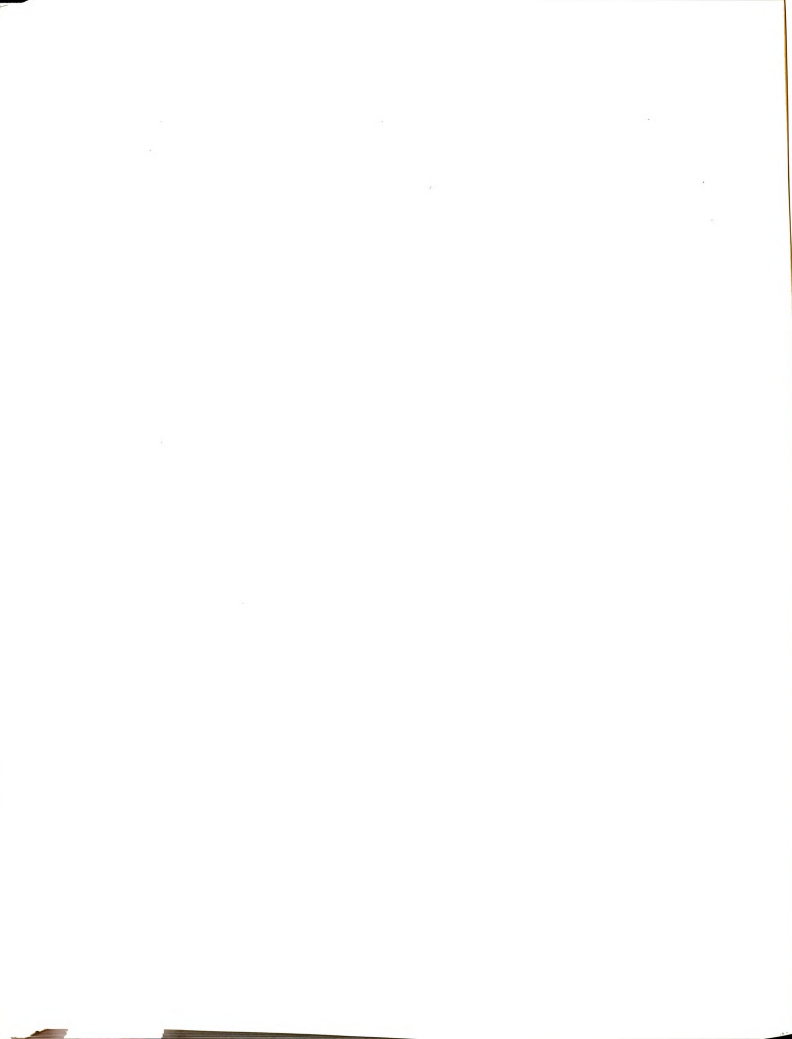
The process of change in all the factors/variables under the different dimensions of the PETIO schema are described. Major change took place in the Garo's mode of sustenance after 1950. Until prohibited by the forest department in the early 1950s, the Garo practiced their traditional swidden cultivation, known as jhum, as well as wet rice cultivation. After the ban on jhum cultivation, pineapple gardens were established by some innovative people, particularly by the educated Christian Garos, on their previous jhum fields near



their homesteads. The practice of labor hiring and sharecropping developed among the Garo following the adoption of intensive land use technologies. Wealth became concentrated in the hands of a few. Distinction between landholder and landless emerged after the ban on jhum cultivation. In addition, new forms of leadership emerged with the social and economic differentiation of households and also due to the encapsulation of Garo society within the wider national political system.

Changes in sustenance-related ideology began to take place since the advent of Christianity in the mid-1920s. Education was also disseminated by the Christian missionaries, and a number of schools were established by the Catholic mission.

Written historical materials suggest that this area was under the zamindars (revenue collectors and later landlords) since the Mughal period, and the cultivators enjoyed a de facto ownership right to their land. During the British period, the cultivators traditional rights to their land were ignored and land ownership was vested by the state to the zamindars. As the cultivators were burdened with an ever-increasing rent, their economic condition deteriorated. To alleviate this condition, the British rulers attempted to secure the cultivators' land tenure, but periodic amendments and regulations enacted towards this end failed to do so. In 1950, the East Bengal State Acquisition and Tenancy Act



entitled the cultivators to have a secured tenure of their land. But the cultivators' rights are still ignored by the state when the state itself is interested in the land. The case of the Garo is such a case.

According to oral histories, the Garo were allowed by the zamindars to use and harvest the non-timber tree species that grew naturally and the fruit trees they planted on their homesteads and swidden fields. However, the people's right of ownership and use of trees is not recognized by the forest department.

Changes in forest management took place after the takeover by the forest department. The conflict between the forest department and the Garo began when the Garo's traditional rights to their land was denied in 1951. This dispute intensified in the 1960s when a part of this forest was declared a National Park and attempts were made to evict the people from the National Park area. The creation of a rubber plantation also created a conflict.



CHAPTER 7

RESEARCH FINDINGS: SURVEY AND INTENSIVE VILLAGE STUDY

The research findings from survey and the intensive study of a particular village are presented in this chapter. It also contains the information gathered from the observation study and interviewing with both village-level informants and area-level key informants.

7.1 Village Size and Characteristics

The spatial area of Garo villages (see Chapter 5, Section 5.4), both within the national park area and to its close proximity, generally covers approximately one to two square miles. The area of a village includes homesteads and vegetable and pineapple gardens on the higher land within the forest, patches of forest with or denuded of trees, and low-lying wet rice fields.

It appeared from the list of households in the ten sampled villages that the number of households in the Garo villages ranges between 46 and 88. On average there are 68 households.

7.2 Demographic Characteristics of the Population

Demographic characteristics of the population under study such as ethnic composition, gender and age composition,



religious affiliation and educational attainment are described in this section.

7.2.1 Ethnic composition and spatial distribution

The population under study is composed of three ethnic groups: Garo, Koch and Bengali. The Garo people constitute 86.6% of the study population, while Bengali and Koch are 10.9% and 2.5%, respectively (Table 4). The list of

Table 4

Distribution of Study Population by Ethnicity

Ethnic Group	Number of People	Percentage
Garo	919	86.6
Bengali	116	10.9
Koch	26	2.5
Total	1,061	100%

households in the sampled villages shows that out of the ten villages, two are populated by only Garo people. Both are located in the interior part of the national park area. The other villages are mixed -- Garo and Bengali, Garo and Koch or all three ethnic groups. Garo households are, however, in the majority in all of these mixed villages. The number of Muslim households are higher in the villages located in the edges (both inside and outside) of the national park area than in

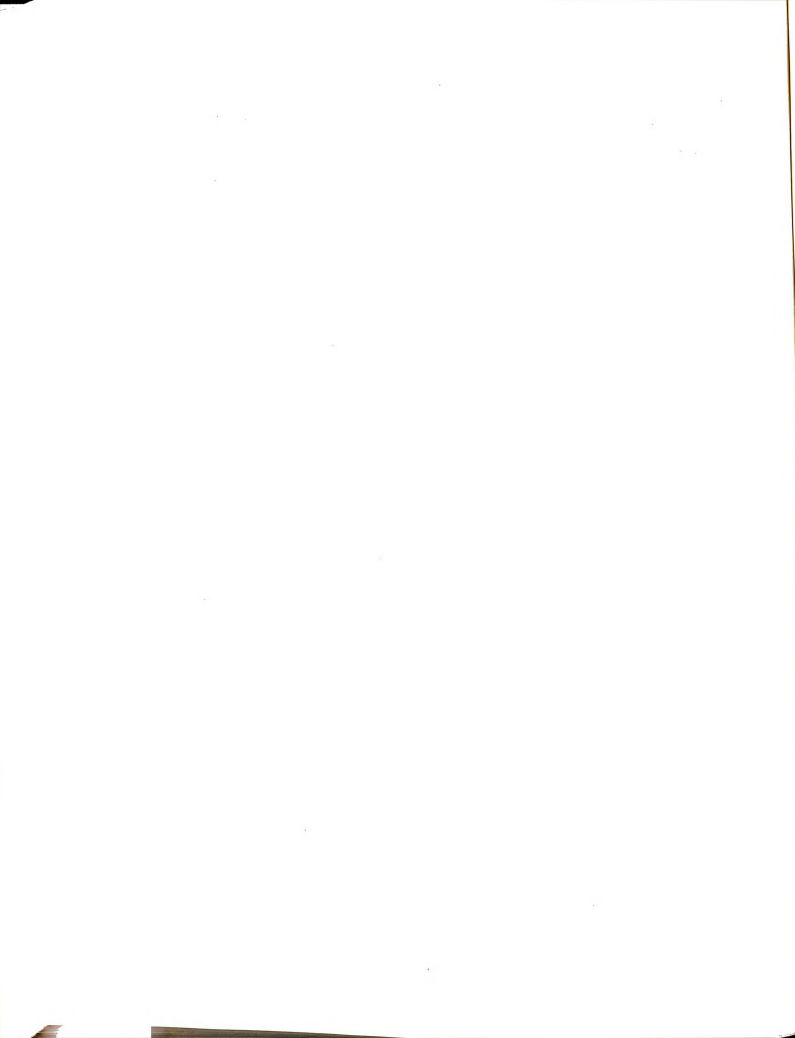


the interior part (see Chapter 5, Table 1). This spatial distribution suggests that the Garo households are more concentrated in the interior part of the national park.

7.2.2 Household size and characteristics

A total number of 1,061 people live in the 200 sampled households. The household size ranges between two and twelve members and the average is 5.3. Garo households are generally either of two types: (1) households with a nuclear family -- consisting of a married couple and their unmarried children; and (2) households with an extended family -- composed of a married couple, their unmarried children, and the married daughters and sons with their respective spouses and children. One of the married daughters with her husband and children permanently live in her parents' household (see Chapter 6). The other daughters and sons with their respective spouses live in their parents' household for a certain period (varies from one to five years). They then establish their own households.

According to the ideal principle of marital residence among the Garo, sons have to leave their parents' household at marriage and live in their wife's parents' household until they can establish their own household. In practice, however, some men have brought their wives into their parents' households (see also Khaleque 1987).



Muslim and Koch households are also either of the two types as in the Garo households, with the exception that married daughters and their husbands have their own households. Thus, households with more than one married couple were found in case of all three ethnic groups. Eighty-eight percent of all households in the three ethnic groups were found with one married couple, while 10.5% contained two and 1.5% contained three married couples. In the households where there are more than one married couple, either of the spouses of the senior couple is regarded as the head of household.

7.2.3 Gender and age composition

Of the total population (1,061) in the selected households, 51.5% are male and 48.5% are female. The findings on gender composition are similar to those found by Khaleque (1983) in a complete enumeration of two Garo villages in this area. According to that study, the percentage of male and female were 52.5% and 47.5%, respectively.

A distribution of population by age shows that about 50% of the population, including both males and females, is between 15 and 60 years old (Table 5). These people are considered the potential labor force. Nearly 13% of the population is 10 to 14 years old and they also participate in the labor force, but only as minor workers. This usually entails lighter jobs such as fuelwood collection and assisting

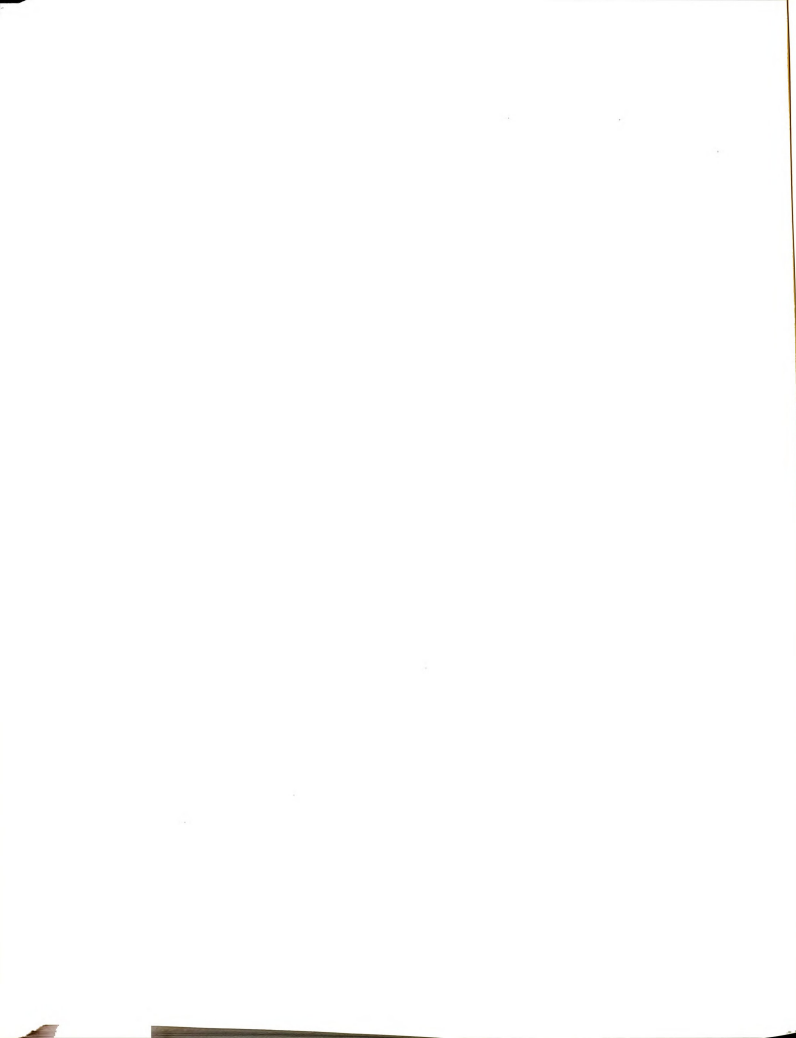
The first of these is the fact that the
 system is not a simple one. It is a
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parents in agricultural work especially during the peak period of the agricultural cycle. These young laborers work only part-time, as some of them go to school or play when they do not have work to do. Almost 30% of the population is under ten years old, and 7.6% over 60 years old.

Table 5
Distribution of Study Population by Age

Age Groups (in Years)	Number of People in the Sample	Percentage of Total
0 - 9	317	29.9
10 - 14	135	12.7
15 - 29	269	25.4
30 - 49	220	20.7
50 - 59	39	3.7
60 and above	81	7.6
Total	1,061	100%

Except for the percentage of population over 60, the distribution of population by age is similar to the findings in Khaleque's (1984a) study based on a complete enumeration of two Garo villages. In that study, Khaleque found only 2.8% of the population over 60 years. A large variation between these two studies with respect to the percentage of population over

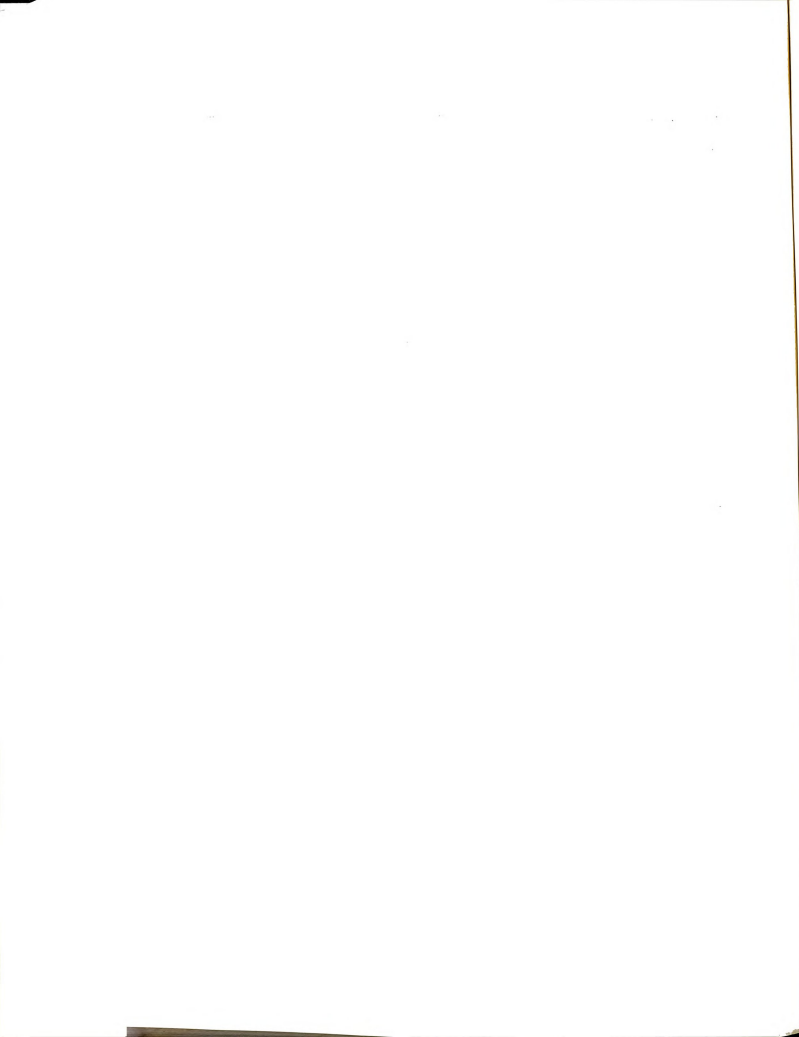


60 may be due to the variations in the estimates of age made by the interviewers.

The interviewers were instructed to estimate a respondent's age, particularly in those cases where the age given by the respondents themselves seemed to be too far from their actual age. Accordingly, whenever it was necessary interviewers estimated age as best as they could. Of course, the interviewers' estimates may not have been as close to the actual age as they should have been. Age of the children and unmarried boys and girls was estimated by looking at their height and physical characteristics. The age of married women was estimated by adding fifteen years (the age at which girls usually get married) to the age of her first child and then adding another one year assuming that the first child was born one year after marriage. In cases of women without children, 15 years was added to the number of years they were married. Married men's ages were estimated in the same way, but 18 years was taken as the usual age at which men generally marry.

7.2.4 Religious affiliation

About 86% of the sampled population are Christian (81.1% Catholic and 4.6% Baptist). Nearly 11% are Muslim, while 2.5% are Hindu and 0.9% are the followers of an animistic belief known among the Garo as songsarek (Table 6). All the Christian and songsarek people are Garo, while all the Muslims are Bengali and the Hindus are Koch. Of the 919 Garo people



in the sampled households, almost 94% are Catholic, 5% are Baptist and the remaining 1% are songsarek.

Table 6

Distribution of Study Population by Religious Affiliation

Religious Affiliation	Number of People in the Sample	Percentage of Total
Catholic	860	81.1
Baptist	49	4.6
Songsarek	10	0.9
Muslim	116	10.9
Hindu	26	2.5
Total	1,061	100%

The percentage of Christian population in Table 6 may be overstated, and it may not show a real picture of the belief system (see Chapter 6). Although most Garo are overtly Christian and also go to the Christian church, many still have belief in their traditional animistic religion. Religious affiliation given by the Garo respondents for themselves and for the other members of their households might have been the verbal statement of the ideal pattern, i.e., what they thought is good to say when interviewed by a Christian interviewer.



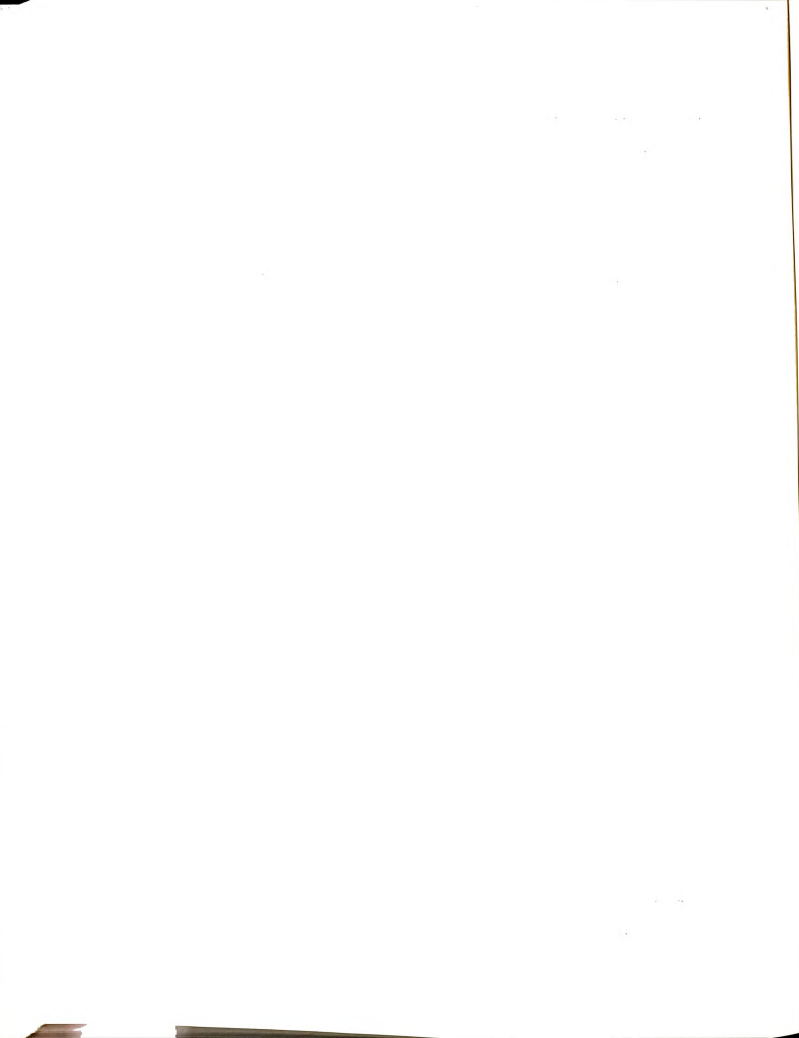
7.2.5 Educational attainment

Forty-two percent of the study population is illiterate, while the other 58% have an education that ranges from primary level (1st to 5th Grade) to post-secondary level (11th Grade and above). The findings show that almost 27% of the population have completed the primary level of education, but among them, 8% dropped out after completing primary level, while the others continued up to the secondary level. Again, almost 6% of the population completed the secondary level and among them only 1.4% continued for an educational level beyond the secondary level (Table 7). The dropouts from school occur all along the way, but mostly after attaining the secondary level and very few people go beyond this level. The figures

Table 7

Distribution of Study Population by Educational Attainment

Educational Attainment (Grades Completed)	Number of People	Percentage of Total
No schooling	449	42.3
Primary level (1st-4th)	329	31.0
Primary completed (5th)	85	8.0
Secondary level (6th-9th)	135	12.7
Secondary completed (10th)	48	4.5
Post-secondary (11th & above)	15	1.4
Total	1,061	100%



given in Table 7 include both the people who dropped out from school after attaining a certain educational level as well as those who are still going to school.

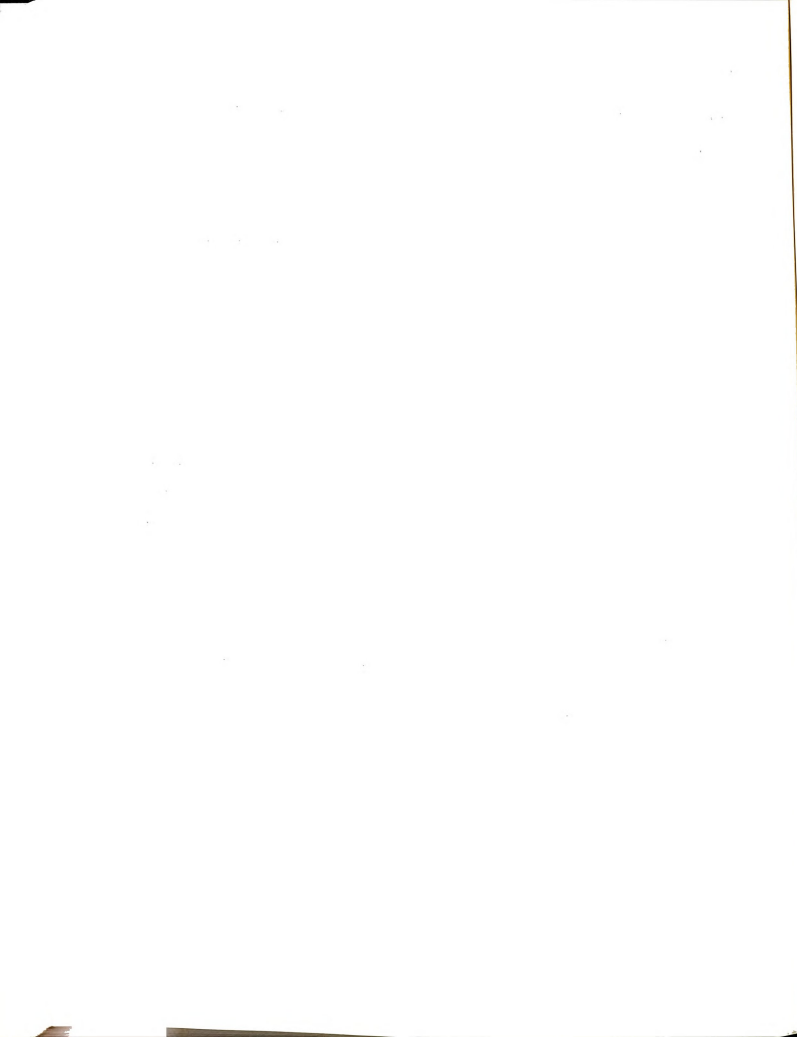
The trend evident in Table 7 is common among people in all three ethnic groups. Observation study and interviews with key informants suggest that when boys are ten to twelve years old and are able to participate in the agricultural activities of the household, they are taken out of school to engage in full time work for the household. The poorer households, which do not have the resources to hire labor for agricultural activities, have no other option. Even in the relatively wealthy households, this is done in order to save the resources that would be required to hire labor. The girls are taken out of school during their teenage years, sometimes even before that, for marriage.

7.3 Social and Economic Characteristics of Households

The social and economic characteristics of the households under study such as landholding size and income are described in this section.

7.3.1 Landholding size

Considering the importance of landholding as the major indicator of social and economic status, special emphasis has been given in this study to the data on landholding size. To discern the landholding-based status, only the present holding



size is taken into account. The present holding size of a household includes the lands: (1) owned or occupied and presently cultivated by the household; (2) taken by it from others under usufructory mortgage (bhogrehan) agreement; (3) rented out to others for one year; and (4) given to others for sharecropping. But certain categories of lands were excluded from the holding size of a household: (a) lands given to others under usufructory mortgage (bhogrehan) agreement (see Chapter 6, for details of this agreement); (b) land rented for one year; and (c) other people's land taken for sharecropping.

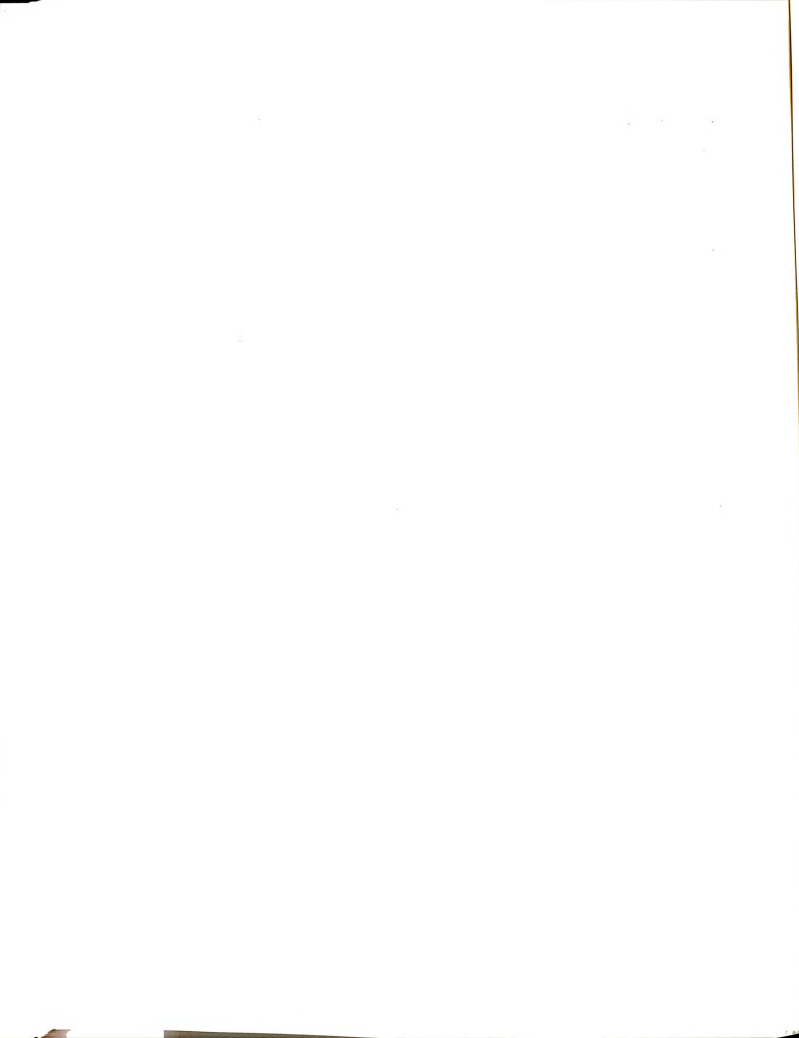
In this area, as in most other parts of Bangladesh, land is generally given by the poorer households to the richer ones under usufructory mortgage (bhogrehan) agreement. The poorer households do so when they are in need of cash for their maintenance or for certain other reasons. When land is mortgaged by the poorer household, it is often difficult for them to repay the money they borrow and regain their land. Thus once land is mortgaged, it often goes to the household which lends the money for the usufructory right to this land. Even if the original owner is able to repay the loan and gets the land back, the other party can hold the land until the period of agreement is over. Usufructory right to land thus adds to the income and status of the household which enjoys this right at least for a certain period. The land under such arrangements was, therefore, included in the holding of the household which enjoys the benefits of usufructory mortgage



and excluded from the holding of the household which has mortgaged it.

On the other hand, rented-out land is included in the holding size of the household which has rented it out because by renting out land it earns an income, which may add to its status or be useful for investment. Although an income is also earned by the household which cultivates rented land, its landholding status remains lower in relation to the landowner. The status of a household may increase with its income, and if it does, then income variable (see Section 7.3.2) explains that status. It should be pointed out that whatever a household can grow in the rented land is generally consumed by its members, and it is difficult for them to save anything. However, the status of those households that cultivate rented land is considered to be higher than those households that depend only on wage labor.

As stated, the wealthier households generally rent out land and they seldom lease additional land primarily because agriculture is not yet seen by most Garo as a capitalist enterprise to make profit. The Garo have had a tradition of a subsistence type of agriculture (Khaleque 1982, 1983) and this tradition is still maintained. Although the economic orientation of the Garo has changed (see Chapter 6), the investments made by people is limited to pineapple plantations. It is also important to note that lands suitable



for pineapple plantations are not rented out. Land rental is generally limited to wet rice fields.

Land under sharecropping (see Chapter 6 for terms and conditions) was included in the holding size of the landowner. Generally, households having insufficient land sharecrop with the households having more land. Although both households share in the produce, the households with the larger landholding usually have a higher status. The sharecroppers can rarely, as in the case of rented land discussed above, save anything to elevate their status.

The survey revealed that 50% of the households do not own or hold any land, 12.5% have a holding size of up to 0.50 acre, while the category of landholding between 0.50 and 3.00 acres includes almost one-third of the population. Only 6% hold over 3.00 acres (Table 8). The mean holding size is 0.72 acre.

The landholding size found in the survey (Table 8) seems to have been understated by the respondents. There are several reasons behind the above remark. First, overall impression of the interviewers is that landholding size has been understated by almost all the respondents (the interviewers were asked to write their remarks about each household they interviewed). Additionally, the interviewers' remarks show that landholding size of some households does not include the chala land they are occupying within the forest.

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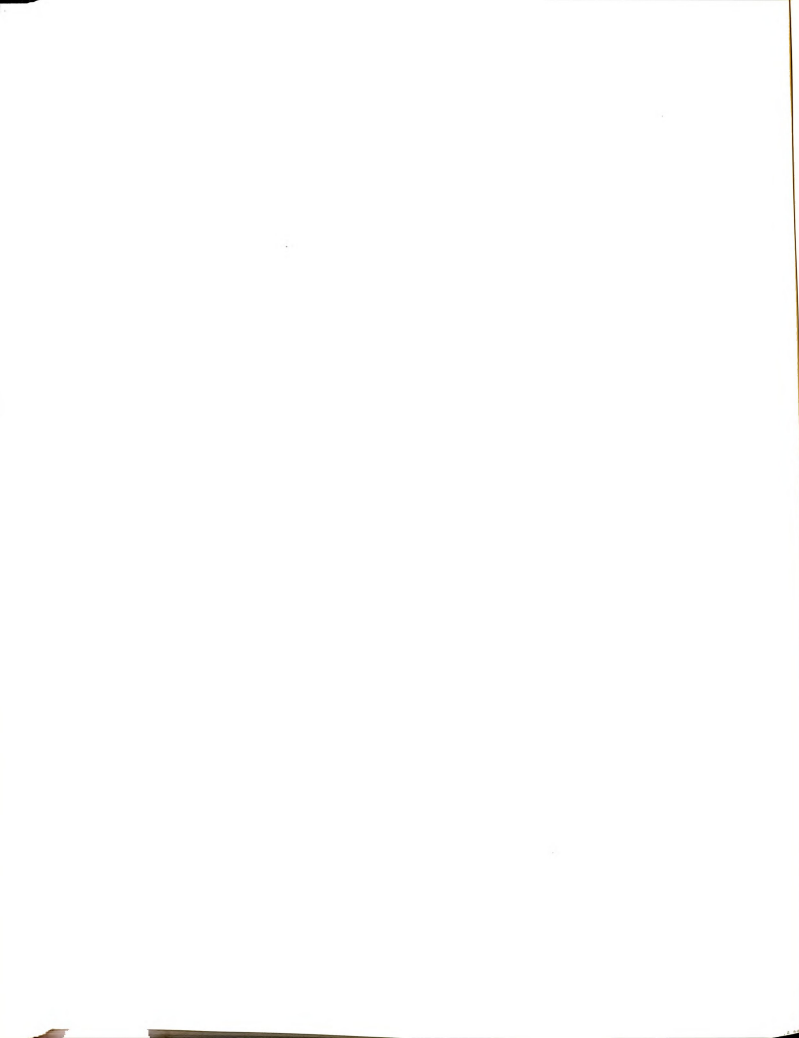
Table 8

Distribution of Households by Landholding Size

Landholding Size (in Acres)	Number of Household	Percentage
0 (no land)	100	50.0
.01 -- .50	25	12.5
.51 -- 1.00	34	17.0
1.01 -- 3.00	29	14.5
3.01 & above	12	6.0
Total	200	100%

According to the interviewers, some people did not state the amount of forest land they occupy. The interviewers were told by these people that their right is not recognized by the forest department and they may be turned away at any time, so they cannot say that these are their lands. Therefore, these lands were not included in the holding size of those households which did not want the interviewers to mention it.

Second, it was found by the principal researcher in his general observation of the whole area that every household has at least some land within the forest for their homestead (no matter how small the size and whether people's rights to homestead land is recognized by the forest department). It is true that people who have homestead or other chala land within the forest may not have low-lying baid land for wet rice



cultivation. However, that 50% of the households have no land at all, as found in the survey, seems to be inaccurate. Obviously, these are the people who did not report their homestead land at the time of interviewing.

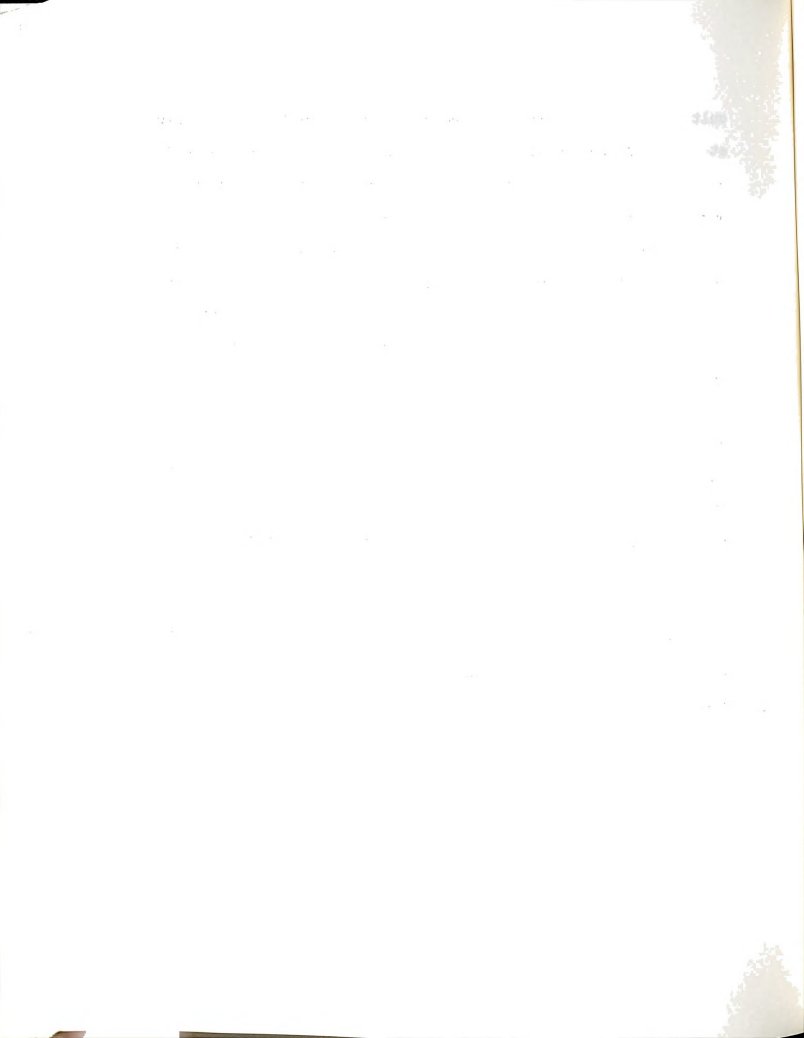
Third, a comparison of the pattern of landholding size found in the data collected from the intensive study village with that of the survey findings shows that the respondents in the survey understated their holding size. The distribution of landholdings in the intensive study village (Table 9) shows

Table 9

Distribution of Households in the Intensive
Study Village by Landholding Size

Landholding Size (in Acres)	Number of Household	Percentage
.01 -- .50	8	11.8
.51 -- 1.00	11	16.2
1.01 -- 3.00	35	51.5
3.01 -- 6.00	7	10.3
6.01 & above	7	10.3
Total	68	100%

that all the households have at least some land. The holding size is very low -- .50 acre or less -- in 12% of the households, while it varies between 0.51 and 1.00 acre in 16% of the cases. About 21% of households have more than three



acres of land. According to the survey findings, only six percent of households have a landholding size in this category. Similarly, there is a wide variation between the survey findings and intensive study village data with respect to the percentage of households with a landholding size between 1.01 and 3.00 acres -- 14.5% in the former and 51.5% in the latter (see Table 8 and 9). The mean holding size found in the survey findings is 0.72 acre, whereas it is 3.2 acres in the intensive study village data.

Even if the landholding data from the intensive study village are not perfect, they may be regarded as more reliable than the survey findings. Based on a cadastral map, all the plots of land in this village were drawn on a map and every household head was requested to identify the plot(s) owned or occupied by the household. A list of households with respective holding size was then prepared and the two most knowledgeable persons of this village were consulted to verify the holding size of each household. After verification, the list was finalized. Even these careful measures may have failed to get the true extent of landholdings if they were concealed by the people, particularly by the large landholders.

An understatement or overstatement of landholding during the interviewing of any survey is common throughout rural Bangladesh (see Miller and Wozny 1985:461, for the general problems involved in collecting landholding data in the

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developing countries; and Jannuzi and Peach 1980:92-93, for the types of biases in survey data on landholding in Bangladesh). The principal researcher learned from a discussion with two local school teachers who were interviewers in survey conducted in this area in 1983, that people in this area understate their landholding size when they understand that data are being collected by a non-government organization like private voluntary organizations and Christian churches. According to these school teachers, some people think that they may receive certain financial help or free goods as relief if they understate their holding size. Almost everybody is interested in free goods, and the large-holders are particularly interested in low-interest loans which they can invest to grow more pineapples for market.

But the principal researcher also learned from an interview with a forest department official that the people of this area generally overstate their holding size when any survey is conducted by the forest department or revenue department. They may think that overstating their landholding would enable them to make claims for more land if the forest department ever recognizes their rights to the land.

It thus appears that people tend either to understate or overstate their holding size according to the purpose of a survey. This interpretation of respondents' behavior was also supported by a Garo leader. He explained to the principal researcher that since most people are illiterate, they can

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hardly comprehend the actual purpose of a survey. Their responses to any inquiry are generally guided by what they think may be the purpose and not by what the interviewer is trying to investigate.

The interviewers of the present study also found it difficult to make most people understand the purpose of this survey. The interviewers were trained to explain that the purpose of this survey is purely academic and not to assess landholding size or to collect information for the forest department nor to distribute any free goods or financial help. Although they tried their best, they had an impression that most respondents did not believe them.

Even if the survey findings on landholding size are not quite accurate, they provide a general pattern. Since landholding sizes are understated by both small-holders and large-holders, there is a pattern in the understatement that preserves the order of the true landholding areas. In other words, the underestatement preserves the proportion of small to large landholders.

The principal researcher has considered the need to combine different sources (such as survey, in-depth field research, and government records) for landholding data in the developing countries (see Miller and Wozny 1985:461). Inspired by the example of using multiple sources by researchers in some areas of Bangladesh (see Schendel 1981), the principal researcher endeavored to collect government



records on landholding. But in this case, the government records from the revenue department were of no use because this department maintains only the records related to low-lying wet rice fields. Thus no record was available from the revenue department on the chala land occupied by people. Although the records of these forest lands are maintained by the forest department for both chala and baid lands in some villages, complete records for all the sampled villages were unavailable from the forest department.

Although total landholding size may indicate social and economic status, the type of land owned by a household often makes a difference in this area. The households that have more low-lying land for wet rice cultivation can invest their surplus from wet rice fields to pineapple plantation, which adds to their wealth. The households that have no wet rice fields are often regarded as landless. Although these households may possess higher land within the forest, they will have no land if they are ejected by the forest department.

Table 10 shows a distribution of households in the intensive study village by the amount of low-lying land they held for wet rice cultivation. More than half (54%) of the households do not have any low-lying land for wet rice cultivation, and more than one-third (38%) have an amount of land between 0.1 and 3.00 acres. The holding size of 7% of the households is more than three acres.



Table 10

Distribution of Households in the Intensive Study
Village by Size of Wet Rice Field

Size of Wet Rice Fields (in Acres)	Number of Households	Percentage
0 (no land)	37	54.4
.01 -- .50	9	13.2
.51 -- 1.00	8	11.8
1.01 -- 3.00	9	13.2
3.01 -- 6.00	2	2.9
6.01 & above	3	4.4
Total	68	100%

The income of the households having more land under pineapple plantation is higher than households having smaller pineapple gardens. A distribution of households of the intensive study village according to the size of pineapple garden (Table 11) shows that more than half of the households have no pineapple garden, while one-third of all households have one to six acres of land under pineapple agroforestry. About three percent of households have large pineapple gardens, the size of which is more than six acres, while six percent have very small pineapple gardens, less than one acre. The size of pineapple gardens ranges between one and twelve acres. The median size is two acres.



Table 11

Distribution of Households in the Intensive Study
Village by Size of Pineapple Garden

Size of Pineapple Gardens (in Acre)	Number of Household	Percentage
0 (no garden)	39	57.3
Up to 1.00	8	5.9
1.01 -- 3.00	15	22.1
3.01 -- 6.00	8	11.8
6.01 & above	2	2.9
Total	68	100%

7.3.2 Income

During the pretesting of the questionnaire for the survey, it was found that collecting data on income by interviewing the respondent is almost impossible. When the respondents were asked during the pretesting about their household income, most of them said they do not have any income. From previous knowledge of the principal researcher about this and other rural areas of Bangladesh, it was understood that by "income" people of this area, as in all over rural Bangladesh, mean the "cash savings" after meeting the whole year's household expenditures. This means that rice and other subsistence crops grown and consumed by the household members are not considered as income. This also holds true for money earned by a household by selling



pineapple and other cash crops. When the respondents were asked how much money they earned by selling pineapple and other cash crops during the whole year, almost all of them found it difficult to answer. Observation study and discussion with a key informant suggest that the money earned by selling crops and/or laboring is spent by the people to buy goods and services for the household. Books are not kept for such income and expenditures.

People who depend on day laboring earn cash income, but they also find it difficult to remember how much money they earned or how many days they were employed. Day laborers are employed during the different stages of the agricultural cycle and particularly during the peak season of planting pineapple and/or transplanting rice paddies and harvesting these crops. As such, day laborers are not employed throughout the whole year. They may find jobs in some months and nothing in others. Even in the months they are employed, they may only work some days of the week. Since most day laborers have to spend their earnings to maintain their families, it is hardly possible for them to save.

It was difficult to get any information on income even from the wealthy households that are able to save cash. When these households were identified and asked about their income, the respondents either did not give any information or the amount stated by them was too low compared to their landholding size. Incomes were understated either because

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they forgot their income or they consciously concealed their actual income for fear of taxes.

The average annual household income in this area mentioned in Harbison et al. (1989) is 2,000 Taka (US\$ 60). This figure is likely based on an approximate amount given by the respondents, who either miscalculated their income or deliberately understated it, or the stated income may have been the amount they saved. Observation study suggests that an annual income of only 2,000 Taka (or a monthly income of only 170 Taka) is far too low. It is impossible for the members of any household (the average size of which is 5.3 persons) to survive on such a low income. The average gross annual household income mentioned by Khaleque (1984) is 21,000 (about US\$640), which is perhaps a closer approximation, but still it seems to have been based on the amount understated by the respondents.

Under the above situation, questions on income were dropped from the interviewing schedule after pretesting. To obtain a general pattern of income, case studies were made in the intensive study village. Ten households were selected from different landholding groups, given in Table 8, according to the proportion of households in each landholding group. To find the range of income, the household with the lowest and highest landholding size were included in the case studies. Based on a discussion with the household head in each case, a potential gross income of their respective household was then

calculated. The following points were considered during the discussion:

1. present landholding size, including different types of land, and the total land under cultivation for growing different crops;
2. potential yields of different crops from each type of land under cultivation, and the present market value of these crops; and
3. potential income from laboring in other people's rice fields and pineapple gardens by taking into account the average number of person days of employment usually available during the whole year, and the average daily wage rates for these work.

A potential net income was then calculated by subtracting the potential costs involved in producing different crops. The labor invested by the household members in their own agricultural work was included in the costs. An amount of annual household income was determined for each household under case study by taking either, (a) the figure of potential income calculated in the above manner, if it was agreed upon by the household head as a close approximation of their actual income; or (b) an amount, lower than but closer to the figure of potential income suggested by the household head. It is important to note that the medium and large landholders suggested an amount lower than the calculated potential income, while the smallholders thought that the calculated amount is about the same as their actual income.

A percentage distribution of these ten case studies shows that the annual income of 30% of the cases is under 10,000 Taka and another 30% is between 11,000 and 20,000 Taka, while

40% of the households have an annual income between 21,000 and 30,000 Taka. In one-tenth of the cases it is above 30,000 Taka (Table 12). The annual household income ranges between 6,000 to 80,000 Taka. The mean and median annual income are 22,200 and 15,500 Taka, respectively.

Table 12

Distribution of Ten Cases in the Intensive Study
Village by Annual Household Income

Annual Household Income (in Taka: US\$1= 33 Taka)	Percentage
Less than 10,000	30
11,000 -- 20,000	40
21,000 -- 30,000	20
30,000 and above	10
Total	100%

7.4 Social and Economic Differentiation of Households

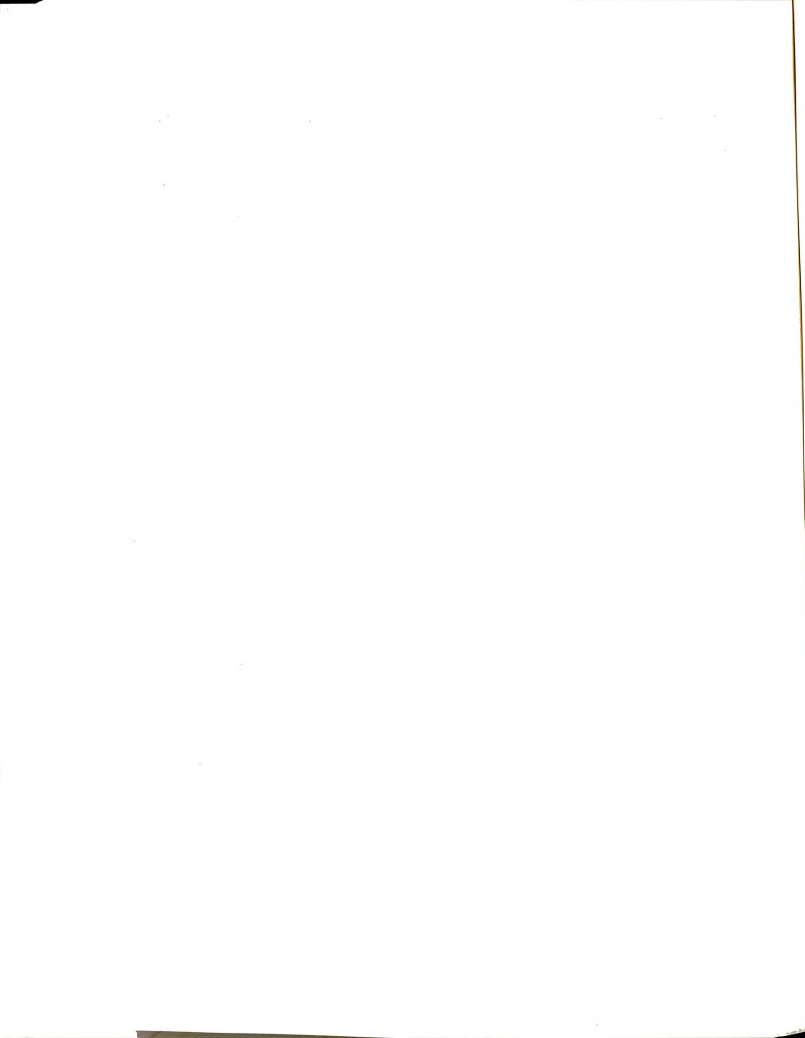
Landholding size and income of households are the measures of social and economic differentiation. In general, landholding size is considered as the major criterion for the social and economic status of a household in the rural areas of Bangladesh. Since the majority of the rural population is exclusively dependent on agriculture, the household income largely depends on landholding size. Although achieved attributes like education, leadership, and a position in the

local administrative unit or in a rural school may add to one's social status, these attributes themselves are rarely recognized as the symbols of social and economic status of the households. However, these attributes are often dependent on the opportunities, which in turn, depends on landholding. More lands provide more wealth and more wealth means more opportunities.

The social and economic differentiation that began to be accentuated with the development of wet rice cultivation and the ban on jhum cultivation (see Chapter 6, Section 6.8.3) became constant. Today, both the economic and social status of the landless households is at the bottom of the scale and households with less than one acre land are considered poor; those having one to three acres of land are regarded as the medium-landholding group. Households with a holding size of more than three acres are well-off, while those over six acres are the wealthiest.

The social and economic status of the households with more land under both wet rice cultivation and pineapple agroforestry is higher than those with less land under both categories. Case studies revealed that households with more pineapple gardens are also the households with more wet rice fields.

The case study of the ten households mentioned in Section 7.3.2 revealed that the income of a household is related to its landholding size. The history of these ten households



shows that the wealthy households had more land under wet rice cultivation than the poor households, not only in the present generation but also in the past generation. The households with more land under wet rice cultivation also established more areas of pineapple gardens than did the households which had fewer wet rice fields. In addition, the number of households members who have formal schooling of one year or more is higher in the wealthy households than in the poor households.

7.5 Summary

The number of households in Garo villages ranges between 46 and 88, and on the average there are 68 households. Garo are in the majority (87%) in all the study villages. The household size ranges between two and 12 members and the average size is 5.3 persons.

Of the total 1,061 people in the 200 sample households, 51.5% are male and 48.5% are female. Half the population, including both genders, belong to different age categories between 15 and 65 years: this was considered the active labor force. Among the Garo, 94% are Catholic, 5% are Baptist, and the remaining 1% follow the traditional Garo religion, known as songsarek. Fifty-two percent of the study population is illiterate, while one quarter of the population has an educational level up to and above 5th grade (which is necessary to be considered educated).

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4. The third part of the report is a description of the results of the study.

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6. The fifth part of the report is a conclusion of the study.

7. The sixth part of the report is a list of references.

8. The seventh part of the report is a list of appendices.

9. The eighth part of the report is a list of figures.

10. The ninth part of the report is a list of tables.

11. The tenth part of the report is a list of footnotes.

12. The eleventh part of the report is a list of acknowledgments.

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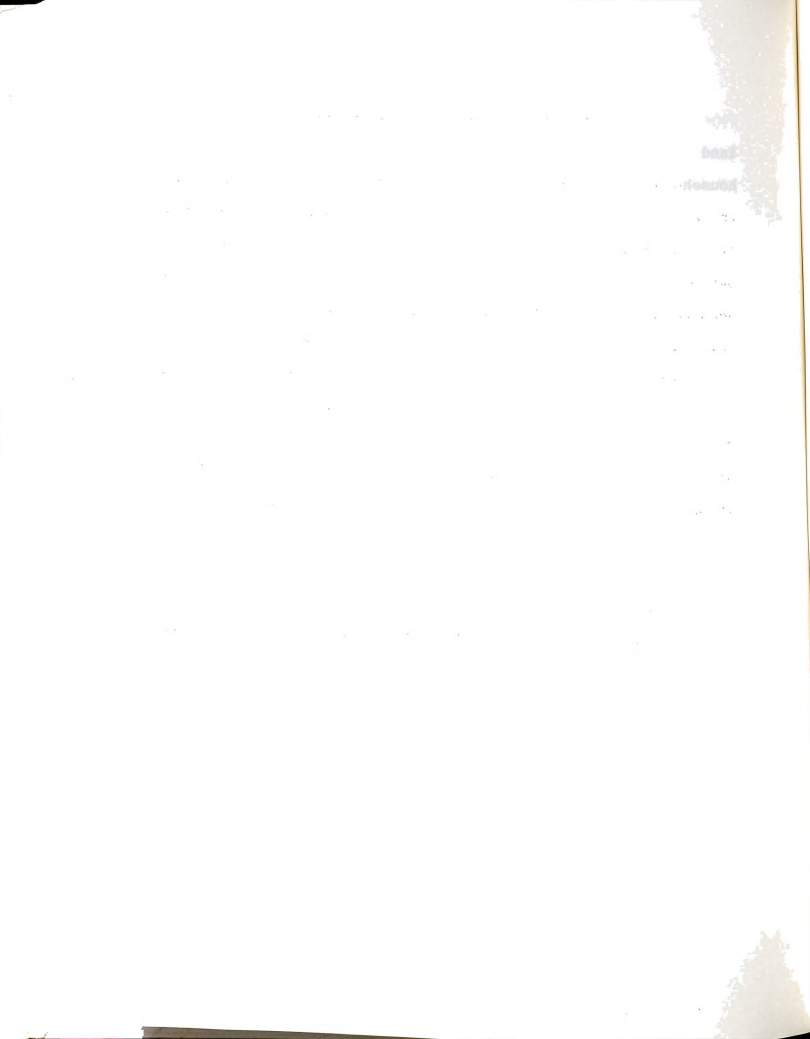
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Landholding size, including both higher and low-lying land within the forest, of more than a quarter of the households of the intensive village is no more than one acre, while one-fifth of the households have more than three acres of land. More than half of the households have a holding size between one and three acres. More than half (54%) of the households of this village do not have any wet rice fields, while only 7% of the households have more than three acres of land for wet rice cultivation. More than half (57%) of the households do not have any pineapple gardens. A wide income range, 6,000 to 80,000 Taka (US\$180 to 2,500) was found in the distribution of the 10 households selected from the different landholding groups in the intensive study village.

A social and economic differentiation of households has resulted from the variation in landholding size and income. The status of the households with more wet rice fields and pineapple gardens is higher than those which have less land under both categories.



CHAPTER 8

ANALYSIS OF RESEARCH FINDINGS

This chapter analyzes the research findings presented in Chapter 6 and 7 and introduces and analyzes new information. To explain the process of land and tree tenure change among the Garo of Madhupur Garh, the role played by the various interactive factors/variables under each of the five dimensions in the PETIO schema has been analyzed.

The trend of increase or decrease in one factor/variable and the corresponding increase or decrease in the closely related factor/variable has been shown from the time for which historical (written or oral) information was available to the present. The trend of change has been analyzed as a continuous process.

8.1 Population

This section analyzes: (a) the relationship between the trends of changes in population size and forest cover (Proposition 1); and (b) the relationship between changes in population size and the development of intensive land use technologies (Proposition 2).

8.1.1 Population size and forest cover

As stated in Chapter 6, it is difficult to ascertain the changes in population size of the national park area from the



available records (see Section 6.1). However, a rapid increase in population size of the whole forest, including the national park area, between 1962 and 1974 is evident from the census reports of 1961 and 1974. The population of Arankhola Union Council/Parishad, which includes the national park area, increased by 142% during 1961 and 1974. A trend of increase in population size of this Union Council/Parishad is evident in the census reports from 1951 to 1981 (Chapter 6, Table 2). But compared to a 60% increase between 1951 and 1961 and a 20% increase between 1974 and 1981, the rate of increase was the highest between 1961 and 1974. The large scale immigration of the Bengali people to the forest during 1962 and 1974 explains the rapid increase in population size of Arankhola Union Council/Parishad. It is, however, difficult to determine the number of people increased specifically within the national park area, since data in the census reports relate only to the whole area of Arankhola Union Council/Parishad.

The trend of population increase is also evident from the results of an enumeration of households within the national park conducted by the forest department in 1962 and 1974 (see Chapter 6, Section 6.7). The number of households within this area increased from 542 (483 Garo and Koch households and 59 Bengali households) in 1962 to 1045 (700 Garo and Koch households and 345 Bengali households) in 1974.

The information on the increase in the number of households does not provide the exact population size. The

increase in households might have been the result, at least partially, of an establishment of separate households by the children (now adults) of the households counted in 1962. The population may have increased when the adult children of the original households established their own households and had their own children. Unfortunately, it is difficult to quantify the increase in population based on the increase in households.

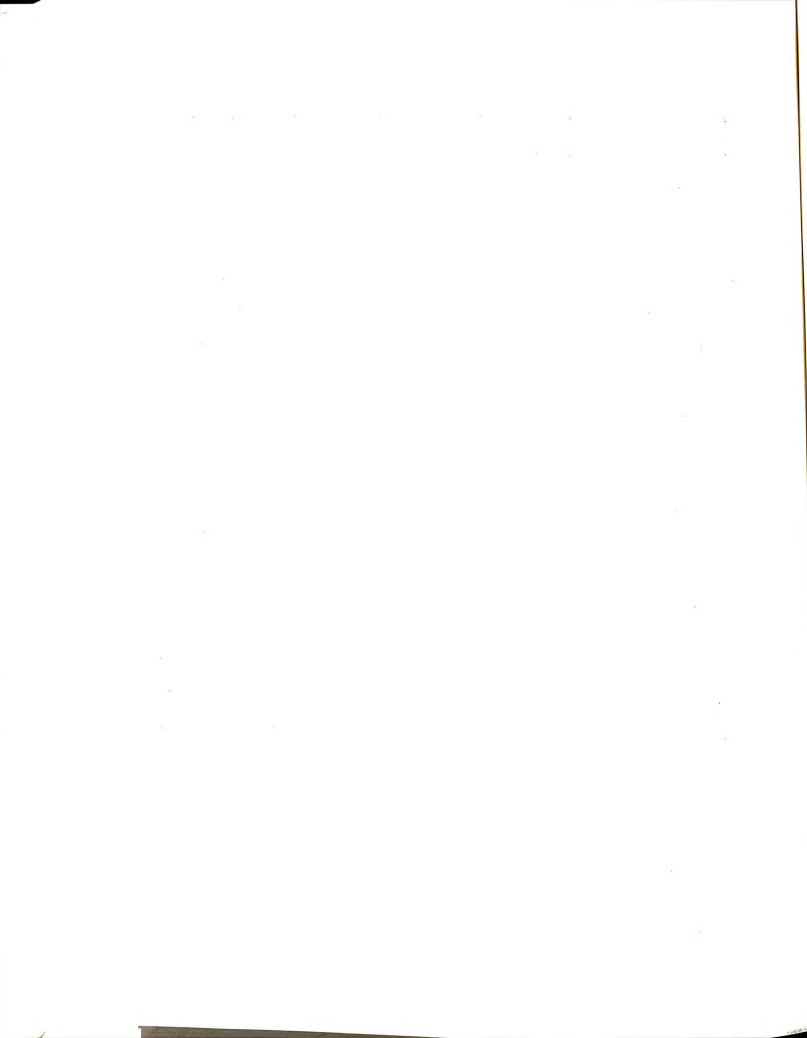
In addition to the natural increase in the number of households counted in 1962, immigration of the Bengali people to the forest area contributed to the increase in households. In fact, an almost six-fold increase in the number of Bengali households between 1962 and 1974 can hardly be explained by resettled progeny. Settlement of new Bengali households during this period was obviously the main reason behind such a high rate of increase in the number of households.

An increase in the settlement of Bengali people during the period between 1962 and 1974 is evident from oral histories (see Chapter 6, Section 6.1). A large number of Bengali people settled in the forest in 1965 and 1971. In both years, many Koch and Garo households emigrated to India (see Chapter 6, Section 6.1). The number of Bengali immigrants was relatively much higher than that of emigrant Koch and Garo households. Some of the Garo people who emigrated to India returned to Madhupur Garh when the India-Pakistan war of 1965 and the liberation movement of Bangladesh

in 1971 were over. But the immigrated Bengali households remained in the forest.

In the absence of any data on the emigration of the Garo and Koch people or on the natural increase among them, it is difficult to ascertain the rate of increase in Garo and Koch population. It is, however, obvious that the number of Garo and Koch households that did not emigrate to India increased with a natural increase in population. The change in population size of the intensive study village shows the trend toward population increase. The number of people in this village increased from 267, counted in 1980 by the principal researcher, to 396 in his 1990 count. An almost 50% increase in population during this decade was largely due to natural increase. Migration contributed very little to this increase. Two of the households found in 1980 moved from this village to another village, but two new households settled in this village during this period.

The findings on changes in population size relate to different levels (Arankhola Union Council/Parishad, national park area and the intensive study village) and different time scales from 1951 to 1990. A trend of steady increase, however, is evident at all levels and at different time periods. Due to lack of data, it was not possible to determine the trend of increase before 1951. Based on the oral histories, it may be assumed that population also increased in the pre-1951 periods. However, the rate of



natural increase was perhaps lower in the pre-1951 periods, due to a higher mortality rate resulting from the epidemics of malarial diseases coupled with the absence of health services.

Presumably, the rate of increase in population size due to immigration of the Bengali people in the pre-1951 periods was also lower. According to oral histories, the Bengali people were not very interested in living in the forest. Most Bengali settlers who had migrated in the relatively earlier periods were compelled to live in the forest when they found that the land in their own villages was insufficient for their survival. Population pressure in the villages outside the forest has always been the most important factor behind the settlement of the Bengali people. But the problems associated with the living conditions in the forest were perhaps the reason why they were not interested in migrating to the forest.

The lack of interest among the Bengali people is evident from the fact that they did not respond to the zamindars' invitation to them for settlement in the forest. It may be noted that the conversion of the unused low-lying land within the forest was always encouraged by the zamindar, since the use of these lands by people gave the zamindars land revenue. Although wet rice fields were established by the Garo, they were more interested in shifting cultivation. As there were low-lying lands still remaining unused, the settlement of the outsiders to the forest was always encouraged by the

zamindars. The Bengali people, however, increasingly tended to immigrate to the forest when they found: (1) their fellow villagers were doing well in the forest; (2) malarial diseases were under control; and (3) the transportation network that linked the forest with outside areas was more developed than before. These changes came slowly, and the number of the Bengali people in the forest also increased slowly but steadily in the pre-1951 period.

After the abolition of the zamindari system in 1951 (see Chapter 6, Section 6.5.1), the Bengali people perhaps discovered that forest lands can be occupied without paying the royalty that was required during the zamindars' time. This may have motivated many Bengali people to immigrate to the forest area. The emigration of the Koch and Garo households during this period (see Chapter 6, Section 6.1) created an opportunity for these Bengali people to settle in the forest. Presumably, the tendency of the Bengali people to immigrate to the forest area increased to a greater extent when they found that their settlement in the forest would enable them to grow pineapple as a cash crop. This may be another factor responsible for the rapid increase in population in the period after 1961, as mentioned earlier.

The steady increase in population size had a negative impact on forest cover. Although the Garo and Koch people adopted an intensive mode of sustenance (wet rice cultivation), they still practiced their traditional mode of

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References

1. The first part of the paper discusses the general principles of the method of moments.

2. The second part of the paper discusses the application of the method of moments to the problem of the distribution of the sum of independent random variables.

3. The third part of the paper discusses the application of the method of moments to the problem of the distribution of the sum of independent random variables.

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sustenance (jhum cultivation) until 1950 (see Chapter 6, Section 6.4). The Garo claim that the practice of their jhum cultivation did not cause any damage to the forest. But according to forest department sources, jhum cultivation destroyed the forest (see Chowdhury, M.R. 1957). Shifting cultivation may not have been harmful for the forest as the Garo claim, and perhaps it did not cause a rapid destruction of the forest as long as the rotation cycle was sufficient for the regeneration of tree species. Presumably, damages were caused by shortening the rotation cycle, perhaps to accommodate an increase in the number of the shifting cultivators in an area where land suitable for such cultivation was limited.

The large-scale settlement of the Bengali people contributed to an ongoing depletion of forest resources. These new settlers did not practice shifting cultivation, but the clearing of new forest area for their homesteads caused a decrease in forest cover. Unfortunately, no official record was available on the rate of decrease in forest cover due to shifting cultivation and clearing new areas for homesteads (see Chapter 6, Section 6.2).

The data gathered by the principal researcher from the aerial photographs of this forest taken by the government in 1975 and 1983, however, showed a trend of decrease at least for that particular period. These data (see Chapter 6, Table 3) revealed that during this eight-year period, forest cover



decreased by 36%, while settlement area increased by 87.5%. A rapid increase in settlement area is related to a rapid decrease in forest cover. These settlement areas are located within the tree-covered higher land within the forest (see Chapter 2, Section 2.4), so they must have been created by clearing the forest. An increase in the agricultural land and denuded areas by 10% (see Chapter 6, Table 3) also suggests a decrease in forest cover. The suitable low-lying areas within the forest for wet rice cultivation are limited (see Chapter 2, Section 2.4), so there cannot be an increase in the agricultural land. An increase in low-lying agricultural land was the result of an extension of wet rice fields by some people. These people cleared the forest adjacent to their wet rice fields and converted those lands to wet rice fields (see Chapter 2, Section 2.4).

The denuded areas within the forest were also created by the residents. The denudation of these areas may be due to: (1) the residents' deliberate attempts to clear forest and later occupy the lands for cultivation (to grow wet rice or pineapples); (2) grazing of animals by the residents or outsiders; (3) cutting trees to meet the needs for fuelwood and other forest products; and (4) illegal tree-felling by the residents or by the outsiders. Due to the lack of data, it is difficult to ascertain which factor was more responsible for destruction of forest. All these factors are, however, related to an increase in population size both within and

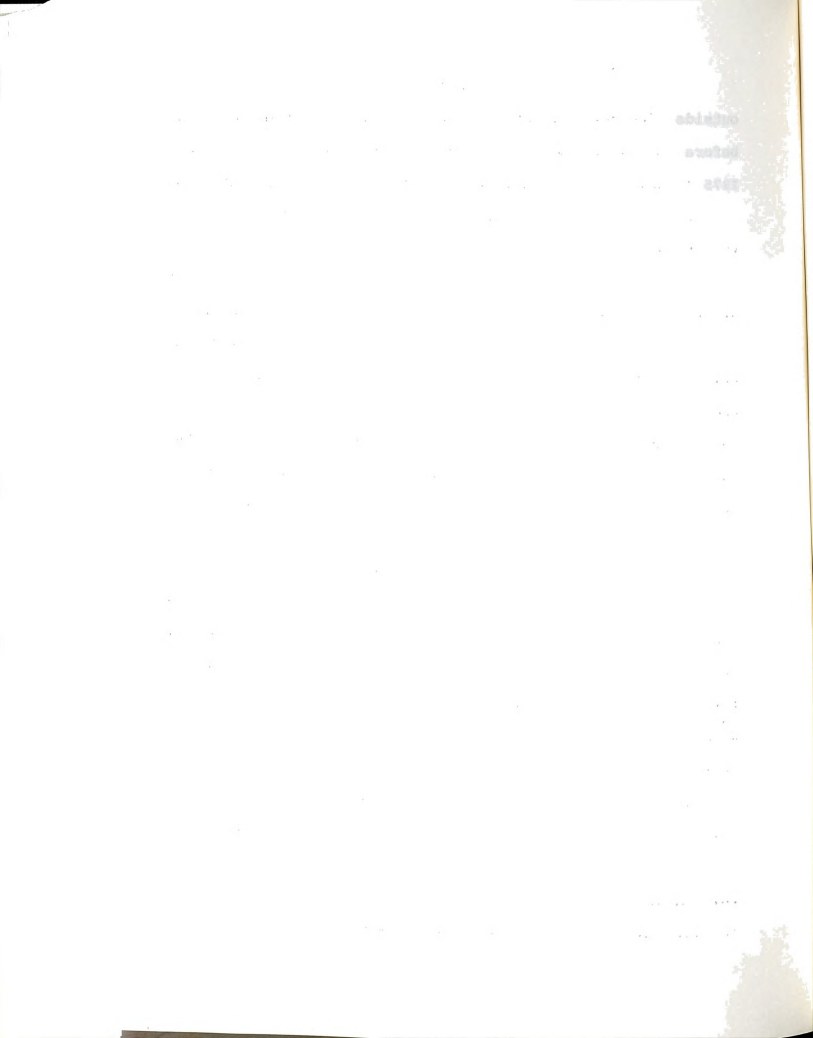


outside the forest. The trend toward population increase before 1974 and the trend of decrease in forest cover after 1975 suggest that the settlement of a large population in the forest has been responsible for a rapid depletion of forest resources.

8.1.2 Population size and intensive land use technologies

No information was available on the inception of wet rice cultivation among the Garo of Madhupur Garh nor on the proportion of Garo households that first adopted this technology. Information gathered from key informants, however, revealed that wet rice was cultivated at least since their grandparents' generation, and that this technology was initially adopted by some households (see Chapter 6, Section 6.4). Key informants were unable to give any idea about the rate of increase in the number of households that adopted this technology at different times, but they think that the number gradually increased rather than decreased. None of the key informants or the informants could recall any case of discontinuation of wet rice cultivation by any household after adopting this technology.

According to the estimates given by key informants and the village-level informants, 80-90% of all Garo and Koch households in different study villages practiced wet rice cultivation in the period before the ban on jhum cultivation in 1951. Since 1951, wet rice cultivation has been practiced



by all the households that have wet rice fields. The households that have no wet rice fields are involved in wet rice cultivation either as sharecroppers or as wage laborers.

The reasons why earlier generations adopted wet rice cultivation are unknown to key informants. But they think that the same factors that motivated the people in their own generation to adopt this technology led their predecessors to adopt it. In their own generation, they found that an increase in family size led many households to practice wet rice cultivation to supplement their produce from jhum cultivation. The advantages of wet rice cultivation, e.g. the same field can be cultivated every year, were also given by key informants as another reason why this technique was adopted.

Some households established more wet fields than they required for immediate subsistence. It was reported by key informants that the households that had the labor power to establish larger amount of wet rice fields generally did so. Key informants guessed that since these households were large, people may have established larger wet rice fields to ensure that all their children would receive enough land when they established their own households. It was also suggested by some key informants that the people who established more wet rice fields than their requirements wanted to be wealthier than others. However, it was not known to key informants whether this tendency to establish more wet rice fields than

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immediate requirements was found among people right from the beginning of wet rice cultivation.

It is difficult to reach any conclusion on the basis of key informants' guesses. Either an ambition to become wealthy or a concern for future generations, or both might have been the goal of establishing more wet rice fields by some households than they required for immediate subsistence. Thus, it may be assumed that both immediate population pressure and a concern for future population pressure might have motivated the Garo to adopt wet rice cultivation.

The development of pineapple agroforestry followed a different path (see Chapter 6, Section 6.4). In wet rice cultivation, surplus labor was employed to convert unused low-lying land into wet rice fields by the households that grew. The need for investments other than labor was minimal. In pineapple agroforestry, on the other hand, capital investment was required in addition to labor. The lack of capital prevented some households from establishing pineapple gardens, even if those households had their own labor to invest. Thus establishing pineapple gardens was not possible by some households even though a surplus labor was available and a population pressure was felt by those households. Pineapple agroforestry was adopted by some households that were not under population pressure but had the capital to invest. Thus there is no apparent association between population pressure and the adoption of pineapple agroforestry.

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As in the case of the development of wet rice cultivation, an apprehension of a future population increase crisis might have motivated the educated Christian Garo to establish pineapple gardens. It is, however, difficult to ascertain the role of this factor on the development of pineapple agroforestry. Research findings suggest that population increase played a role in the development of wet rice cultivation in certain cases. The population factor might have influenced some households to establish more wet rice fields than they required, although it is difficult to ascertain the role of the population factor in those cases. The role of an increase in population size is not clear in the case of the development of pineapple agroforestry.

8.2 Environment

This section contains an analysis of the relationship between external control and the development of more intensive use of land within the forest (Proposition 3).

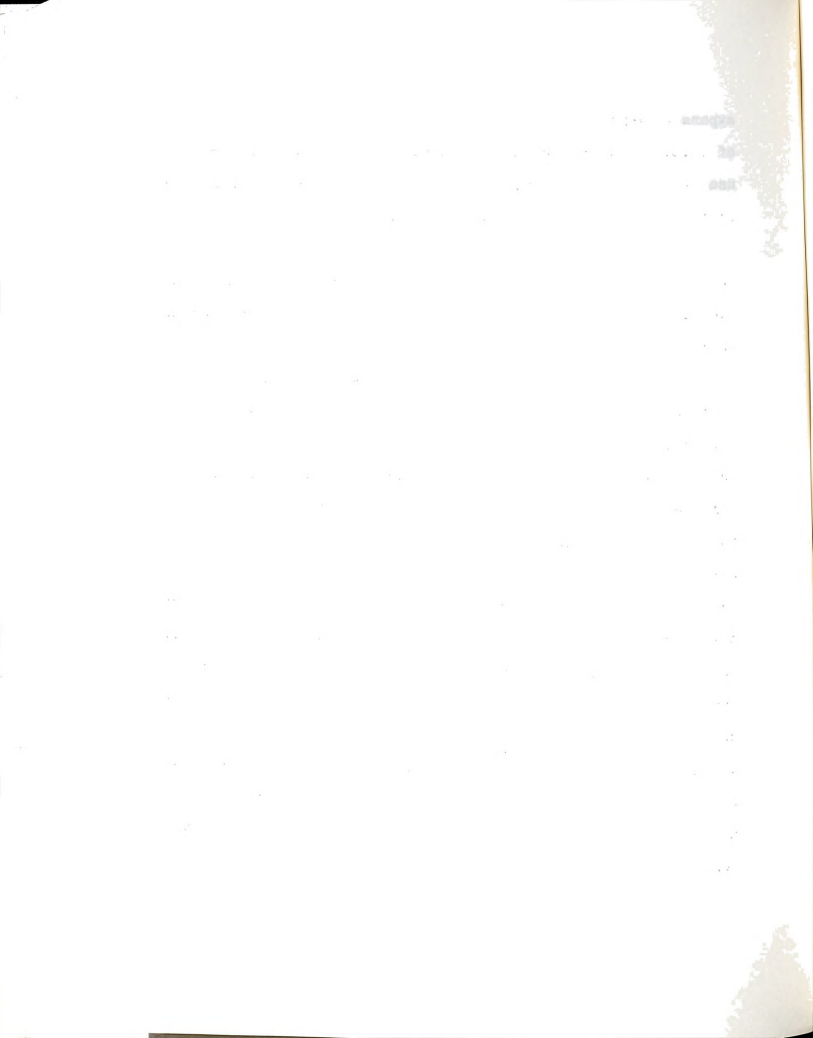
As stated in Section 8.1.2, wet rice cultivation was practiced by 80-90% of the Garo and Koch households before the ban on jhum cultivation by the forest department in 1951. Thus, it is difficult to establish any relationship between prohibition on jhum cultivation by the forest department and adoption of wet rice cultivation in the case of these 80-90% households. However, in the case of the other 10-20% households, the ban on jhum cultivation that was accompanied

by the strengthening of external control, has been responsible for the adoption of wet rice cultivation. The ban on jhum cultivation was also responsible for the discontinuation of this cultivation technique and dependence on wet rice cultivation alone by all the households.

Information related to the evolution of pineapple agroforestry shows that this technology developed in response to the strengthening of control over the higher land within the forest. After the imposition of restrictions on the use of these lands for jhum cultivation, there was a squeeze in the available land area for the Garo. They became dependent only on a small amount of higher land near their homestead that they previously used for jhum cultivation, while most other outlying jhum fields were taken by the forest department for afforestation. Thus the Garo had to depend on the limited amount of higher land they occupied near their homesteads and the low-lying wet rice fields. Initially, people used their limited higher lands to grow vegetables then later converted to growing pineapple (see Chapter 6, Section 6.4). The availability of a market for pineapple and other crops grown in the pineapple gardens played an important role in the development of pineapple plantations. Pineapples grown in Madhupur Garh, it may be noted, captured the local markets in the urban centers of Mymensingh and Tangail, as well as the largest market in Dhaka city. A good transportation network between Madhupur Garh and these urban centers facilitated the

expansion of a market for pineapple. The squeeze in the area of available land due to the imposition of restrictions on the use of previous jhum fields may, however, be regarded as one of the important factors behind the initial development of pineapple agroforestry. The educated Christian Garos found that growing pineapple would enable them continuous use of the limited lands to grow more than one crop, including pineapple as a cash crop.

Besides the short-term goal of growing pineapple as a cash crop, a long-term objective of landownership acted as an underlying factor for the establishment of pineapple gardens. The educated Christian Garos understood that continuous cultivation of land would enable them to claim the right of possession and usufruct (if not ownership), according to the statutory land tenure system of Bangladesh. Pineapple gardens were, therefore, established by some Christian Garos towards this end. This tendency toward securing rights over previously cultivated jhum fields developed in response to the prohibition on the use of these land instituted by the forest department (see also Section 8.5.2). Thus, the ban on the use of higher lands in the forest and an increase in external control was related, both directly and indirectly, to the development of more intensive land use technology among the residents.



8.3 Ideology

This section analyzes the association between changes in sustenance-related ideologies and the adoption of intensive land use technologies (Proposition 4).

Changes in sustenance-related ideologies and economic orientation among the Garo began to take place with their contact with the Bengali wet rice cultivators, conversion to Christianity, spread of education imparted by the Christian churches, and exposure to the outside world. The ideology related to the use of land among the neighboring Bengali people emphasizes the tapping of this resource as much and as quickly as possible. Presumably, some Garo were influenced by this external ideology before the adoption of wet rice cultivation, while the traditional Garo ideology still persisted. The traditional Garo ideology, as opposed to the external Bengali ideology, is based on the belief that nature has provided them land to be used for subsistence and it should be used in such a manner that the people in the present generation as well as those in the future generation can re-use this resource. As explained by one key informant, the concern for a re-use of land motivated the Garo to plant trees, or at least to help them regenerate, on the jhum fields they abandoned after a three-year cultivation period. However, most Garos were perhaps influenced by the external ideologies related to sustenance activities. These changes in

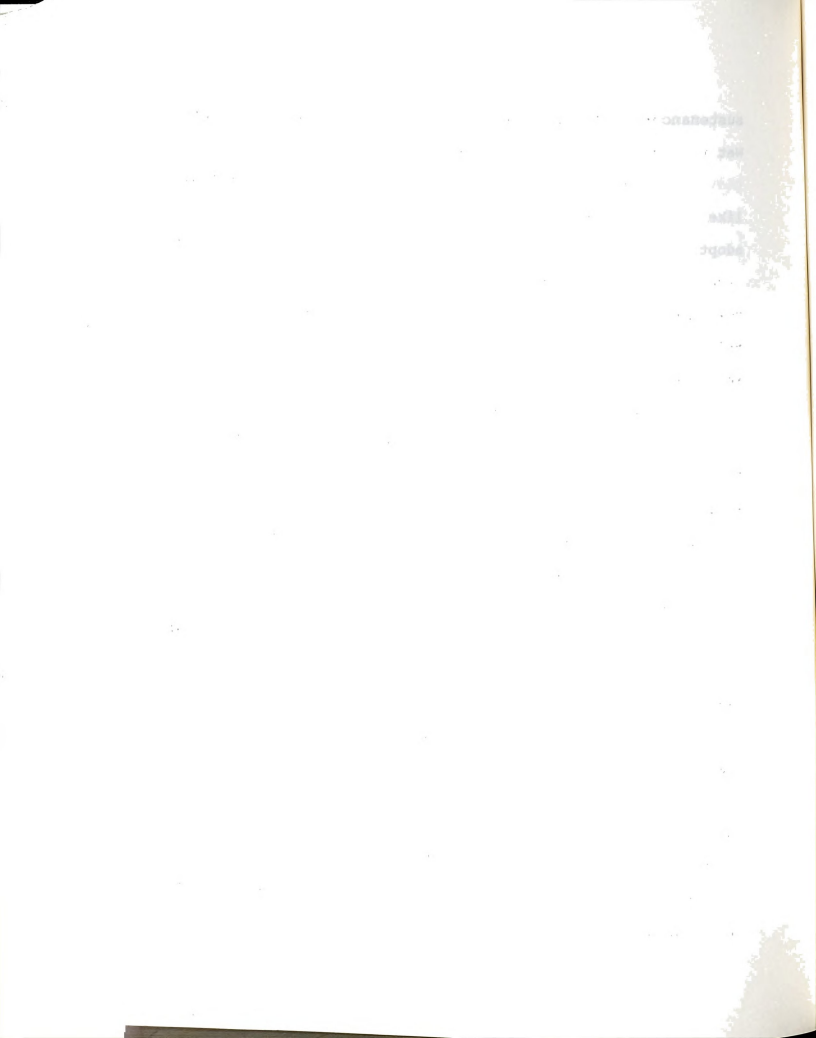


sustenance-related ideology, however, took place very slowly. Wet rice cultivation also developed slowly.

As reported by four key informants, some Garo did not like wet rice cultivation even after this technology was adopted by others in their society. Wet rice cultivation itself and the rice grown in the wet fields were considered by the people who did not like this cultivation technique as "dirty" or "unclean." These people, according to these four key informants, used to think that wet rice cultivation involved work to be done in the muddy fields, which are "dirty," and the rice that grows in such "dirty" fields also becomes "dirty," as it often falls on the muddy ground before harvesting. When this rice is dehusked by using cattle power (the technique learned by the Garo from the Bengali people), it becomes "dirty" or "unclean," as cow-dung and urine often fall on the rice at the time of dehusking.

According to key informants, people's attitude toward wet rice cultivation changed with changes in their economic orientation. While solely dependent on jhum cultivation, the Garo had a subsistence economy, but a market-oriented economy emerged among them with the development of wet rice cultivation. The emergence of this economic orientation created an incentive to invest money and exploit labor for field cultivation.

Christian missionaries came at a time when changes in sustenance-related ideologies and economic orientation among



the Garo were slowly taking place. In addition to preaching Christianity, the missionaries played the role of a change agent. The goal of the Christian missionaries was to help the Garo to improve the quality of their life. Dissemination of formal education and practical training was chosen by the missionaries as a strategy to change the economic ideas of the Garo (see Chapter 6, Section 6.3). In addition, the Garos were motivated and helped by the missionaries to grow pineapple as a cash crop.

The trend toward a gradual increase in the dissemination of formal education by the Catholic mission is evident from the increase in the number of mission-conducted schools from only one in 1932 to 29 in 1990. The upgrading of two schools to the secondary level indicates the expansion of the level of formal educational programs (see Chapter 6, Section 6.3). The effect of the educational programs of the Catholic mission and other Christian churches is reflected in the proportion (58%) of the present Garo population that have formal schooling of one or more years (see Chapter 7, Table 7).

The effect of education provided by the Christian missionaries hastened the process of change in ideology. It was not the contents of Christianity but the presence of Christian missionaries, who happened to be a change agent, that hastened the process of change in sustenance-related ideologies and economic orientation. Although 99% of the Garo are overtly Christian (see Chapter 7, Table 6) and also go to

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the church, many still have belief in their traditional animistic religion. Change in traditional religious ideologies occurred slowly and still is an on-going process (see Chapter 6, Section 6.3). However, changes in sustenance-related ideologies and economic orientation occurred rapidly and both Christian and non-Christian Garos were influenced by such changes.

By virtue of their education and knowledge of the outside world, the Christian Garo realized by themselves and/or were motivated by the Christian missionaries, that they would be in danger of starvation in future if they relied on jhum cultivation alone. Later adoption of wet rice cultivation by those Garo who did not like it might have been motivated by such an apprehension of a future crisis. Presumably, this apprehension was the factor behind establishing more wet rice fields by some households than they required for immediate subsistence.

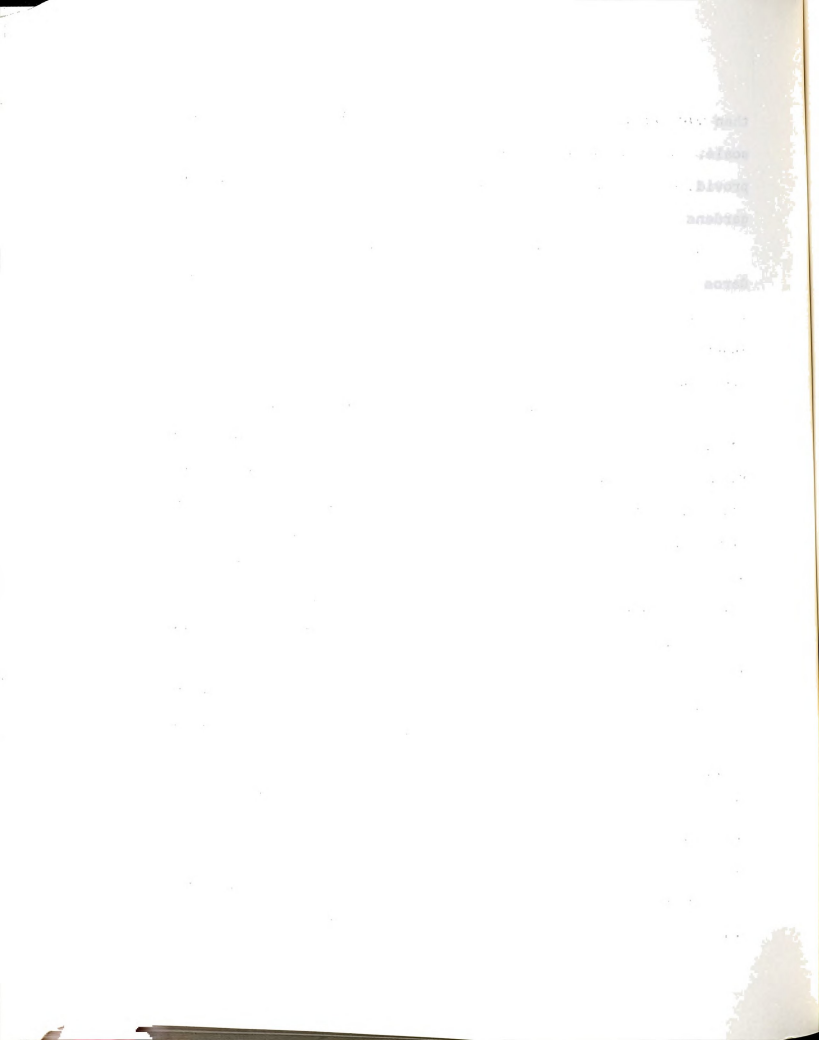
Pineapple agroforestry was adopted by the educated Christian Garos before the less-educated Christian and non-Christian Garos. Having observed the deteriorating economic conditions of the Garo after the ban on jhum cultivation, Christian missionaries were concerned about the future of these people. During the mid-1950s, the economic viability of pineapple growing was discovered by the local Catholic mission and it was thought that growing pineapple for market would help improve the Garo's standard of living. The Garo were

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then advised by the missionaries to grow pineapple on a large scale. The mission helped the interested Garo households by providing seedlings for the initial establishment of pineapple gardens.

By virtue of their education and training, the Christian Garos acquired the skills required for determining returns and profits. Ideas of value and importance of financial investments were also given to the Garo by the Christian missionaries. The educated Christian Garo picked up these ideas and applied their knowledge and skills in pineapple plantation. In all the study villages, educated Christian Garos were the pioneers in pineapple growing. Once success in pineapple plantation was achieved by the educated Christian Garos, the others (both Christian and non-Christian) became increasingly interested in pineapple growing. But due to the lack of capital, some households failed to establish a pineapple garden even if they had the land and the willingness to adopt this technology.

Growing pineapple on a large-scale for market began in the late-1950s and since then the number of pineapple-growing households has always increased. The history of the development of pineapple agroforestry in the intensive study village may provide an idea about the trend toward increase in pineapple growing households. Pineapple gardens were established by only one household of this village in 1958. The head of this household was a Christian Garo. He followed



a Christian Garo of another village who was successful in growing pineapple on a large scale. About two years later, two other Christian households followed the first household and established pineapple gardens. Then, pineapple gardens were established by a non-Christian household. Within a period of 10 years from 1958, eight of the 20 (40%) households of this village had established pineapple gardens. At present, 29 of 68 (43%) households of this village have pineapple gardens (see Chapter 7, Table 11).

Although the number of households with pineapple gardens increased from eight in the late 1960s to 29 in 1990, the proportion of pineapple-growing households increased by only 3%. These data suggest that the rate of increase was slow in the period after 1960s. Oral histories revealed that most of the present pineapple gardens were established after the declaration of a part of Madhupur Garh as a national park in the early 1960s. With an objective of claiming land by establishing pineapple gardens, people converted their vegetable gardens to pineapple gardens. As a result, the pace of development was rapid in the early to mid-1960s. Case histories of several pineapple growing households uncovered that the households currently growing pineapple originated from the households that established pineapple gardens in the 1960s.

The pace of development of pineapple agroforestry was faster than that of wet rice cultivation. Wet rice

cultivation was a new technology to the Garo. In the earlier stage of the development of this technology, the Garo did not have sufficient knowledge and training about this technique of cultivation. Even after acquiring knowledge of this technique by some people, others still lacked the required skills.

Pineapple agroforestry technology, on the other hand, was not altogether new to the Garo. Except for the introduction of pineapple as a cash crop, this technology was, in fact, an adaptation of their indigenous technology. Growing a mixture of tree crops and agricultural crops in their jhum fields is an old Garo tradition. Thus, once the success in pineapple growing was demonstrated by the educated Christian Garos, the others adopted this technology for a continuous use of the same land for growing more than one crop, including pineapple as a cash crop.

Thus, the simultaneous effect of changes in the economic orientation of the Garo and the availability of an outside market played important roles in the development of pineapple agroforestry. It is difficult to ascertain which factor was relatively more important. The changes in economic ideology, however, may have preceded the market factor. It is reasonable to argue that the availability of a market had to be tested by growing pineapple for market. The idea of growing pineapple as a crop for market, therefore, came first. This idea resulted from the changes in economic orientation.



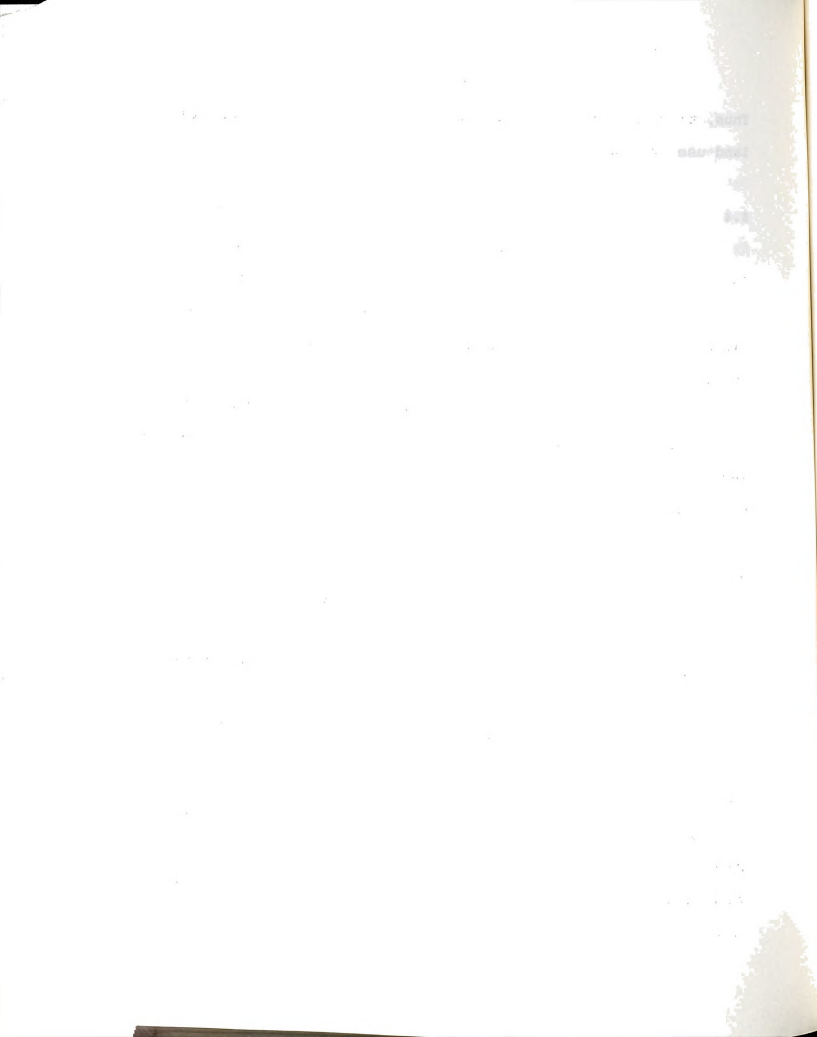
Thus, the changes in ideology and the acceptance of intensive land use technology are related.

8.4 Technology

The effect of an increase in the adoption rate of intensive land use technologies (wet rice cultivation and pineapple agroforestry) on an increase in social and economic differentiation among Garo households (Proposition 5) is analyzed in this section.

A distinction between wealthy and less wealthy households existed among the Garo of Madhupur Garh even when they were entirely dependent on jhum cultivation. This distinction, however, was accentuated by an increase in the adoption of wet rice cultivation (see Chapter 6, Section 6.4). It is difficult to ascertain the rate of increase in the adoption of wet rice cultivation and the corresponding rate of social and economic differentiation. The trend of a simultaneous increase in both factors, however, is evident from oral histories. An analysis of oral histories suggests that an increase in social and economic differentiation resulted from the variations in the time period for adoption of wet rice cultivation by different households.

Based on the research findings, it may be assumed that when the population size of the forest was smaller, there were more opportunities to get suitable land for establishing wet rice cultivation. These opportunities gradually decreased as



population increased. Wet rice fields were established by those households that had the required labor power and whose members had the willingness to avail themselves of the opportunities. Some of these people, as has been stated earlier, established more wet rice fields than they required. Over time, both labor power and members' willingness increased in the case of the households that did not establish wet rice fields at an earlier period. But it became difficult for them to find suitable land for establishing wet rice. As a result, the differentiation among households remained constant or became even wider with a further increase in wealth and landholding in the households that adopted this technology earlier.

Due to the variation in the amount of land under wet rice cultivation held by different households at different times since the beginning of adoption of this technology, three major categories of household developed among the Garo of Madhupur Garh: (1) households with more land under wet rice cultivation than their subsistence requirements; (2) households with an amount of land under wet rice cultivation that was sufficient for their subsistence requirements; and (3) households with a very small amount of land under wet rice cultivation that was insufficient for their subsistence requirements. The variation in the amount of land under wet rice cultivation produced a variation in the amount of wealth among different households.

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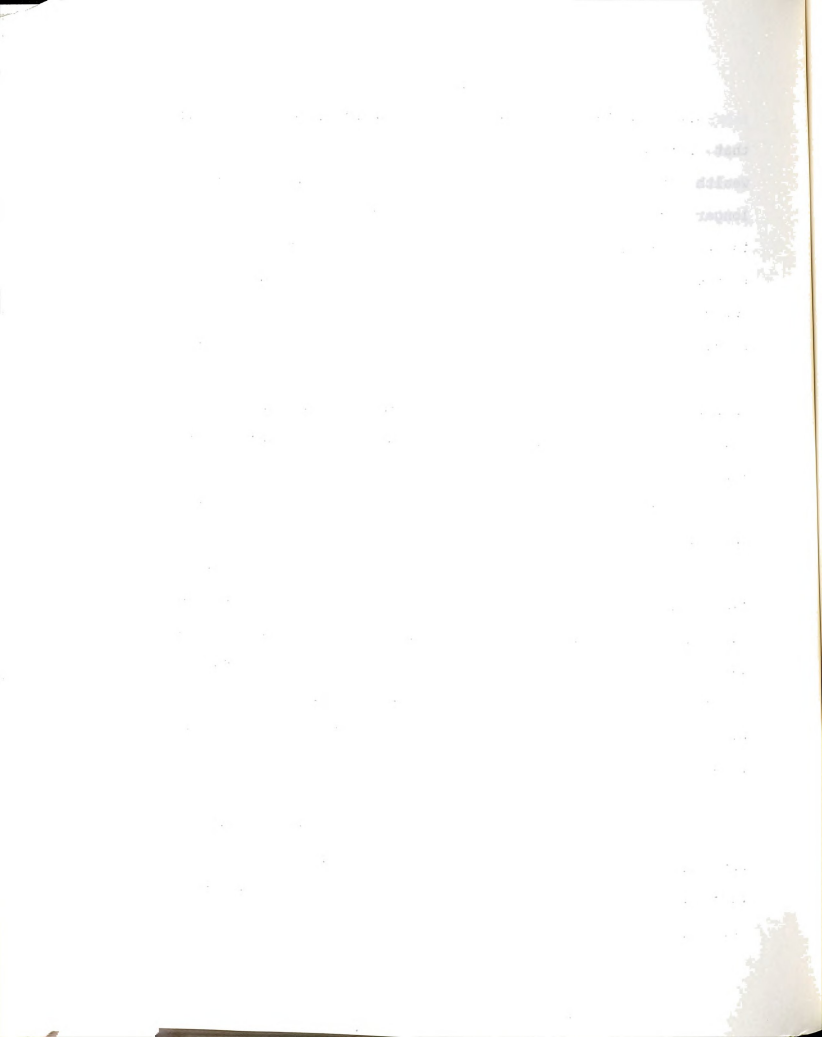
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After the ban on jhum cultivation in 1951, the households that had more wet rice fields and more wealth remained wealthy, while the others became poor. Opportunities were no longer available for these poorer households to supplement their subsistence requirements from jhum cultivation. With a further increase in population of their household, many of these poorer households had to sell their land and became landless. Thus, a new category of household -- the landless -- emerged among the Garo of Madhupur Garh after the imposition of restrictions on jhum cultivation (see Chapter 6, Section 6.4). The differentiation of households, based on landholding size, that developed in the process of change is reflected in the present distribution of households in different villages (see Chapter 7).

The landless households as well as households with small amount of wet rice fields had to earn a livelihood by selling labor and/or by sharecropping with or renting land from large landholders. The ideas of sharecropping, land renting and labor selling developed among the Garo with the development of wet rice cultivation and their contact with the Bengali people (see Chapter 6, Section 6.4).

The large landholders found a new avenue for gaining prestige and prominence in society: giving jobs or even giving land for sharecropping to the landless and poorer people. Thus, a distinction emerged between landholder and landless, and between the giver and taker of land for sharecropping.



The amount of land held by different households began to be considered as the symbol of their social status. The large landholder's status began to be regarded as higher than the small landholders, since the latter became dependent on the former for both renting land and/or taking land for sharecropping. The social position of landless households began to be placed at the bottom of the scale. Large landholders achieved both social and economic status. More land meant more wealth, and more wealth meant more opportunities. An increase in opportunities enabled them to gain more wealth and more land, which in turn, helped raise both social and economic status.

The already existing differentiation among different households in terms of their holding size of wet rice fields and wealth was again reflected in the variation of size of pineapple gardens established by different households. The households which had larger wet rice fields and more wealth were in a better position to invest their surplus in pineapple plantations than those households that had smaller wet rice fields and less wealth. The history of the development of pineapple agroforestry in the intensive study village supports the above statement.

The development of pineapple plantations opened new opportunities for the households that had small amounts of wet rice fields but suitable forest land under their possession which they could use for pineapple growing. The lack of

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accumulated wealth, however, prevented many of these households from availing themselves of this new opportunity. Only a very few of these households succeeded in establishing a pineapple garden, while most others had to sell or mortgage their land to meet immediate needs. Thus, the status of the households that failed to take advantage of wet rice cultivation at an earlier time and again failed to establish pineapple gardens remained the same as before or even became lower with further increase in population of their household. On the other hand, the status of the households that were in a position to avail themselves of the opportunities and succeeded in taking advantage of intensive land use technologies (both wet rice cultivation and pineapple agroforestry) continued to increase.

8.5 Land and Tree Tenure Change

Change in land and tree tenure has been seen in this study as a process that begins with the tendency among people toward achieving secure land and tree tenure. A tendency toward securing land and tree tenure increases with the changes in social reality, particularly when resources become scarce. It is difficult to say when this tendency developed among the Garo of Madhupur Garh. Research findings indicate that the tendency toward achieving secure tenure has increased among the Garo people with an increase in two factors: (a) social and economic differentiation (Proposition 6); and (b)

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changes in government policy and strengthening of external control and restrictions on the use of forest land (Proposition 7). This section gives an analysis of Proposition 6 and 7 that state the relationship between each of the two factors with the tendency toward achieving secure tenure.

8.5.1 Social and economic differentiation of households and the tendency toward achieving secure tenure

Research findings indicate that during most of the zamindars' time, most Garo were happy with the patta tenure to the land they cultivated (see Chapter 6, Section 6.5). According to the statutory tenure system, patta tenure allowed them a temporary right of usufruct. In practice, however, the Garo enjoyed secure tenure to the land they held under this tenurial arrangement. Regular payment of revenue to the zamindar entitled them to hold land and also to pass it to their inheritors. The Garo had no de jure ownership to land, but due to their continuous possession and use of the same plots they virtually achieved a de facto ownership (see Chapter 6, Section 6.5). As a result, they were able to buy and sell land unofficially. Although such land transactions were not recognized according to the statutory tenure system, the buying and selling were recognized by the members of society.

When a more permanent tenure -- pattan -- was given by zamindars by taking a royalty as a confirmation of tenure (see

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Chapter 6, Section 6.5), most Garo did not go for this official confirmation, while some people changed the tenurial status of their land from patta to pattan. Key informants found it difficult to recall how many households changed the tenurial status of their land from patta to pattan, nor do they know when or why people did it.

Official records related to change in tenure were also unavailable. According to the statutory tenure system, the zamindars were expected to provide a document to the cultivators who held their land under pattan tenurial arrangement. But as in many other areas of Bangladesh, no document was given by the zamindars after taking a royalty from the cultivators. On the other hand, the Garo did not, according to key informants, try to get documents from the zamindars. They were happy with the security of tenure that they enjoyed, and did not care for a "paper right." In time, however, land documents were received by some people from the zamindars, while others still did not receive such documents. It was not possible for key informants to say how many people received land documents and how many did not, nor did they know why some people received documents, while others did not.

Research findings from the intensive study village provide an idea about the trend in this respect. When the zamindari system was abolished in 1951, as reported by one key informant of this village, all 14 households held their jhum fields under patta tenure. Eleven of these 14 households had

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some of their wet rice fields under pattan tenure, while the other three households had all their land under patta arrangement and none under pattan tenure.

The households that had some land under pattan tenure in 1951 belonged to both large and small landholding groups, and they changed the tenurial status of their land from patta to pattan at different times. According to key informants, a royalty was paid to the zamindar for pattan tenure first by a wealthy household. Then, other households followed that household. Although tenure was changed to pattan arrangement by different households, all these households still had some land under patta tenure.

None of the key informants could give any reason why some people did not change their tenure from patta to pattan, while some others did. Nevertheless, it was explained by one key informant that most people found it difficult to comprehend the differences between patta and pattan. People found that the households that changed the tenurial status from patta to pattan had the same usufructory right to land as they had in the case of their land under patta arrangement. Most people found it difficult to understand why should they pay a royalty to the zamindar for a confirmation of tenure that they were already enjoying. They thought that the tenure they had was already secured, since there was no threat from the zamindar on their patta tenure.

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The above explanation still does not help us understand what motivated some people to change the tenure from patta to pattan, and no explanation was available from key informants. Based on the research findings from the intensive study village, it may be assumed that the importance of secure tenure was first realized by the wealthy households whose heads were educated. Because of their education and knowledge of the outside world, the level of awareness among the educated people was higher than in the case of illiterate people. The awareness and concern of the educated and wealthy people helped them to realize the importance of secure tenure.

In addition, wealthy people perhaps realized that the security of tenure to the land they held was vital for maintaining their higher status and prominence in society. Since landholding was the foundation of their status, they perhaps tended to achieve security of tenure. But it is still unclear why, then, tenurial arrangement was not changed by the wealthy and educated people for all their land. One key informant guessed that perhaps they had a plan to change the tenurial status for all their land, but due to the abolition of the zamindari system, failed to do so.

Key informants do not know the reasons why people received documents from the zamindars for the land held under pattan in a later period and none in the beginning. Similarly, they have no idea why some people received documents, while others did not. The trend evident in the

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case of receiving documents is similar to the trend of changing tenurial arrangement from patta to pattan. The wealthy and educated Christian Garos received documents before the illiterate people. The same factors that motivated the wealthy and educated people to change the tenurial status might have worked in the case of receiving land documents as well. The other people followed the educated and wealthy people as they did in the case of changing the tenure. But still there were many people who did not receive any documents. Thus, the trend toward increasing social and economic differentiation seems to be associated with the trend toward achieving secure land and tree tenure.

8.5.2 External control and the tendency toward claiming secure land and tree tenure

The external control exercised by the forest department over the forest land is regarded by the Garo as "unfriendly," while the control of the forest land by the zamindars was regarded by them as "friendly." Research findings suggest that although both zamindars' control and the forest department's control were external, the latter's control was stronger than the former's. A usufructory right to the forest land was allowed by the zamindars, but such right has not been recognized by the forest department since it took over forest management in 1951. As stated in the previous section, the Garo were happy with the usufructory right they enjoyed during the zamindars' time. They were not concerned with a "paper

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right." Many people did not receive any document even for the land which they held under pattan tenure, for which they paid a royalty to the zamindars.

With the strengthening of control by the forest department, particularly after the declaration of this area a reserved forest in 1955, the level of awareness of the importance of secure tenure increased among the Garo. The dispute that arose following the forest department's denial of the Garo's previous rights to land (see Chapter 6, Section 6.6) created this awareness even among those who were not aware before. The forest residents were asked to produce valid documents to support their claim to forest land. The people without these documents quickly realized their importance. These people thought they would never need any document to prove the right they had to their land. In fact, nobody had ever challenged their right before.

An increase in external control is evident from the eviction notifications issued to people at different times by the forest department, as well as from the cases of eviction of some settlers in some areas. Although threats of eviction for default in rent payment existed even during the zamindars' time, no case of eviction was known to any key informant. An increase in the awareness of and tendency towards claiming secure tenure is evident from the fact that a number of written memoranda were submitted by the Garo to the government explaining the situation and the justifications for claiming

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their rights to the land, while no such memoranda had ever been submitted to the government before the forest department take-over in 1950.

Although an awareness of the need for secure tenure developed even before the imposition of stronger control by the forest department (see Section 8.5.1), it increased after the forest department takeover. Spread of education among the Garo and an increase in their knowledge of the outside world created an awareness among them. Christian missionaries also played a major role in arousing this awareness among the Garo. But the restrictions imposed on the use of forest land produced a situation that created an awareness of secure tenure among those Garo who could not comprehend the situation before it actually happened to them. Thus, there is an association between the external control by the forest department and the awareness of and tendency toward claiming secure tenure among the Garo.

8.6 Relevance of Research Findings to the Model on the Process of Land and Tree Tenure Change

The analysis of research findings suggests that an interaction of all the factors/variables mentioned in the specified model (see Figure 6) was involved in the process of land and tree tenure change in this case.

It is evident from the research findings that the tendency towards achieving secure tenure to land and trees increased among the Garo with an increase in social and

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economic differentiation of households. This differentiation was the result of an uneven development of intensive land use technologies and in the size of wet rice fields established by different households. Adoption of pineapple plantations intensified this differentiation. Whether or not a household adopted intensive land use technologies depended on their acceptance of sustenance-related ideologies and economic orientation. Whether or not people were ready to accept changes was influenced by their exposure to the outside world. Exposure to the outside world varied with the level of education, which was dependent on the conversion to Christianity.

The ideological factor played its role in the development of intensive land use technologies when a situation for change was produced by the population and environmental factors. Changes in the structure of social organization resulted from the interaction of all the other factors. With the changes in the structure of the social organization, came changes in the institutional aspect of social organization, which includes the land and tree tenure system. All these factors were related to each other and changes in each of them produced changes in all the others. The complex interplay of all these factors produced changes in land and tree tenure.

Although all the factors played their respective role in the overall process of land and tree tenure change among the Garo, some factors were relatively more important at certain

points in time than others. Initially, the population factor played the most important role. Then, the rate of adoption of intensive land use technologies dominated and increased with changes in the ideological factor. The advent of Christianity and the role of Christian missionaries as change agents hastened the process of change in economic orientation, which in turn, led to a further increase in the adoption of intensive land use technology. Thus, the Christian missionaries played a relatively more important role at that particular point of time. The change in forest management and the strengthening of control by the forest department (after forest reservation) increased people's awareness of claiming secure tenure. So, this factor became relatively more important than the others.

The relative importance of any factor at a particular time does not, however, mean that factor ceases to play its role in the process. Rather, that factor continues to play its role at all times. However, its importance may diminish when another important factor enters into the process.

External factors influenced the process of change in all the internal factors in the unit of observation. An increase in population size was the result of a large-scale immigration. The technique of wet rice cultivation was readily available to the Garo from the external source. External ideologies and economic orientation came with the external technology and the advent of an external religion,

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Christianity. External market forces created an incentive for growing pineapple as a cash crop. Imposition of an external land and tree tenure system produced changes in indigenous tenurial arrangements and property relations. The strengthening of external control after forest reservation created a situation that compelled the Garo to abandon their traditional mode of sustenance. Finally, the statutory land and tenure system used by the external authorities created people's awareness of the importance of secure tenure of land and trees. Although all these external factors from various sources and at various levels influenced the process of change, the roles of Christian missionaries as change agents and external control after forest reservation were relatively more important than any other external factor. These two external factors hastened the process of change in all the internal factors.

The factors/variables used in the specified model were derived from the operational model on land and tree tenure change (see Figure 5), and they represent all the interactive factors in the PETIO schema of the Nature-Human-Ideology Interface model (Figure 4). The analysis of research findings supports that the interplay of all the key factors used in the model was involved in the process of land and tree tenure change. Hence, the theoretical framework developed in this study is useful for explaining the process of land and tree tenure change.

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8.7 The Roots of the Conflict Between the Garo and the State

The ongoing conflict between the Garo and the state arose in the process of land and tree tenure change with changes in government policy. This conflict resulted from a gap between the traditional concept of ownership among the Garo and the contents of the statutory land and tree tenure system. The Garo's concept of property ownership, particularly land ownership, stems from their tradition of living in the forest and the practice of shifting cultivation. Land was not something to be owned, bought or sold. Traditionally, ownership means the right to hold the land for a certain period and use it for cultivation.

As long as their use rights were recognized by the zamindars, the Garo were happy even without paper documents. After the concept of permanent and individual ownership emerged, many could not understand how a piece of paper established land ownership. These people once thought that land which they have occupied and used for several generations is theirs. This is the reason they did not care for a "paper right."

The idea of buying and selling land developed in the process of change. With an awareness of the outside world, the importance of land documents were realized by some people. Though land documents were received by these people from the zamindars, there were still many others who did not care for such documents. However, according to the statutory land

tenure system, valid documents are required to claim land rights. Hence, a conflict is obvious.

8.8 Summary

The role of the various factors/variables under each of the five dimensions of the PETIO schema in the process of land and tree tenure change among the Garo has been analyzed. A relationship was found between a steady increase in population size within the national park area and a trend of decrease in forest cover. An association was found between population increase and the adoption of intensive land use technologies. Research findings suggest a relationship between imposition of external control after the declaration of reserved forest and the Garo's dependence on wet rice cultivation alone. Information about the evolution of pineapple agroforestry showed that this technology developed in response to the strengthening of external control and the resultant squeeze in the available land.

Changes in sustenance-related ideologies and economic orientation played an important role in the Garo's adoption of both wet rice cultivation and pineapple agroforestry. These changes took place due to their contact with the Bengali wet rice cultivators, conversion to Christianity, dissemination of education by the Christian missionaries, and exposure to the outside world.

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Social and economic differentiation of Garo households was produced by an uneven development of wet rice cultivation and pineapple plantations. A relationship was found between the trend of an increase in adopting these technologies, an increase in the variation in the area of land cultivated by different households and the trend of an increase in social and economic differentiation.

Research findings indicate that the tendency toward achieving secure tenure has increased among the Garo with: (1) an increase in social and economic differentiation; and (2) an increase in external control by the forest department over the use of forest land. The ongoing conflict between the Garo and the state arose in the process of land and tree tenure change with changes in government policy.



CHAPTER 9

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

9.1 Summary

9.1.1 An Introduction to the Study

9.1.1.1 Problem statement

This study endeavored to understand the process of land and tree tenure change among the Garo community of Madhupur Garh forest of Bangladesh. The critical situation prevailing in this forest due to an ongoing conflict between the Garo and the forest department motivated the present researcher to undertake this study.

Madhupur Garh is a part of the plains forests of the central region of Bangladesh. The plains forests are surrounded by heavily populated, rapidly urbanizing areas. The result is that deforestation creates a shortage of fuelwood and other forest resources for the people of the region.

The conflict between the Garo, the original residents of Madhupur Garh forest, and the forest department, has alienated the residents from the forest resources. A result is that they are unwilling to participate in the forest department's efforts to protect and develop the forest. This conflict began in 1951 and intensified when a part of this forest was declared a national park in 1961. The forest department proposed a program to resettle the people living in the



national park but the Garo people did not move. The conflict continues.

The dispute is increasingly difficult to resolve. Any attempt to resettle the people without providing them secure means of subsistence will meet with serious resentment and produce a crisis. However, if measures to avert the ongoing depletion of forest resources are not taken, the whole forest will be denuded.

9.1.1.2 Rationale for this study and research questions

The present study was a response to the need to understand the process of land and tree tenure change because the ongoing conflict arose in the process of this change. Based on the conflict between the Garo and the forest department, this study sought to answer the questions -- Why and how do changes in land and tree tenure take place?, and What factors are involved in the process of change? It also examined the root cause of this conflict to answer another important question -- Why and how does a conflict between local people and state result in the process of land and tree tenure change?

9.1.1.3 Objectives and scope

The objective of this study was to understand the process of land and tree tenure change in relation to changes in the interactive social, economic, political, technological,

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demographic and environmental changes. The study was concerned specifically with the national park area, where the conflict has reached a climax. It was limited to the analysis of the process of land and tree tenure change among the Garo, who are the majority of the residents of the national park area.

9.1.2 The Study Area: Land, Forest and People

Since sal (Shorea robusta) is the principal (75-80%) tree species in Madhupur Garh, this area is known as sal forest. This is a Reserved forest with a total area of 300 square miles. The trees of this forest have an unlimited demand across the country as building materials and fuelwood.

The forest lands with trees are higher in elevation than the surrounding floodplains. The tree-covered higher lands, known as chala are used by the residents to build their homesteads and grow pineapple and other crops (previously for shifting cultivation by the Garo). The low-lying areas within the forest are used for wet rice cultivation.

People of three different ethnic groups live in this forest. Two of these groups -- the Garo and Koch -- are the earliest settlers, and live predominantly in the interior of the national park. The other group -- the Bengali live mainly in the deforested areas along the forest's periphery. The Bengali people are relatively recent arrivals, having settled largely during the middle of this century.

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9.1.3 A Review of Literature on Land and Tree Tenure

A review of the general literature on land and tree tenure showed that understanding of tenurial issues is essential for natural resources management and development in general, and forest resources in particular. In some literature, insecurity of tenure was regarded as the cause of forest dwellers' alienation from forest resources. At the same time security of tenure for the forest dwellers is recognized as the most important prerequisite for protecting, managing and developing government forests.

Other cases suggest that a conflict between the state and local people is inevitable when land and tree resources are scarce and both parties are interested in these resources, and people's traditional rights to these resources are ignored by the state. A conflict may manifest itself in different ways: setting fires to the forest by local people, violence, protest, revolt and organized movement, and an alienation from the forest and unwillingness to participate in forestry activities.

Various dimensions of land and tree tenure and necessary conceptual tools are provided in the analytical literature. An emphasis has been given on understanding tenure change, and the need to consider the interactive social, cultural, and ecological variables in the analysis of tenure change.

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9.1.4 Nature-Human-Ideology Interface: A Theoretical Framework

A human ecological perspective is adopted in this study to explain the process of land and tree tenure change in relation to the changes in the interactive social, economic, political, technological, demographic and environmental factors. Basically, Duncan's Ecological Complex model is used to conceptualize human-environmental interactions involved in the process of land and tree tenure change. The Ecological Complex model considers a complex interplay of four key factors: Population, Organization, Environment, and Technology (POET).

To broaden this framework, it is modified to incorporate the ideational aspect of culture: beliefs, values, morals, religion, ritual and worldviews. These were included under a new dimension -- Ideology. The modified schema is: Population-Environment-Technology-Ideology-Organization (PETIO) and the modified model is named Nature-Human-Ideology Interface.

In the modified model, the relative importance of one or more factors in different situations and at different times is emphasized. In addition, the role of different external factors from various sources (social, political and religious) and at various levels (local, national, regional and global) is considered.

Land and tree tenure is an element of the Organization (O) factor in the PETIO schema. An increase in the tendency

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among people to secure their tenure to land and trees is considered to be an indicator of land and tree tenure change. An increase in this tendency is seen as a process that evolves with changes in the interactive social, economic, political, demographic, technological and environmental factors. Land and tree tenure change is regarded as the dependent variable and all the other factors as independent variables.

9.1.5 Research Strategies and Methodologies

9.1.5.1 Research strategies

To capture subtle points that were inconceivable before immersion in the field, a strategy of flexibility was adopted. Research propositions were modified and refined after clarifying and understanding concepts during the fieldwork. A multi-method approach was adopted and several methods were used: survey, historical method, oral histories and retrospective interviewing, and ethnographic study.

9.1.5.2 Research methodologies

A survey was conducted on 200 households in ten Garo villages selected at random from Madhupur Garh national park area. The sampling design involved multistage cluster sampling, stratification and systematic selection with probabilities proportionate to size. Both the head of household and his/her spouse were interviewed. Based on a semi-structured questionnaire, face-to-face interviewing was

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performed. The principal researcher supervised data collection in the field.

Written historical documents were gathered, listed, and scrutinized. The contents of selected documents were analyzed by the principal researcher. Oral histories and retrospective interviewing were used when no written historical record was available. Oral histories were gathered from area-level key informants and the village-level informants through in-depth interviewing by the principal researcher. Ten area-level key informants and twenty village-level (two from each of the ten sample villages) informants were selected from among the most knowledgeable people.

Data on the day-to-day life of the people were gathered by an observation study made by the principal researcher in all the study villages. The village studied by the principal researcher in 1979-80 was selected for an intensive study.

9.1.5.3 Specified model for understanding the process of land and tree tenure change among the Garo

The specified model for understanding the process of land and tree tenure change among the Garo considers the relevant factors/variables related to an increase in the tendency toward achieving secure land and tree tenure. These factors/variables are: population size, forest cover, external control with forest reservation, external change agent, external ideology, sustenance-related ideologies, intensive

land use technologies, and social and economic differentiation of households.

9.1.6 Research Findings: Historical and Ethnographic

9.1.6.1 Changes in population size and forest cover

No specific period for the settlement of human population in Madhupur Garh forest could be ascertained from the research findings: eighth century, according to one source, tenth or eleventh century, according to another. There is also a wide variation on how long anthropologists think the Garo have been living in this forest. The distribution of Tibeto-Burman languages given by Burling (1985), indicates that the Garo have been living in Madhupur Garh for over a thousand years.

The population of this forest grew steadily from the natural increase of the Garo and Koch, but largely due to a large-scale immigration of the Bengali people during the middle of this century. The rate of population increase in the existing tree-covered parts of this forest was highest (142%) between 1961 and 1974. Data derived from aerial photographs taken by the government in 1975 and 1983 showed a 36% decrease in forest cover during this period.

9.1.6.2 Changes in mode of sustenance among the Garo

Until prohibited by the forest department in the early 1950s, the Garo of Madhupur Garh practiced swidden cultivation, known as jhum. In this cultivation technique, a

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plot of land was cultivated for two or three years and then abandoned to lie fallow for at least a seven or eight year period before it is recultivated. The Garo also practiced wet rice cultivation.

When jhum cultivation was completely banned, many of the former jhum fields were used to grow vegetables, spices, oil seeds, and fruit trees. Since the mid-1950s some innovative Garo with enough resources, particularly the Christian Garos, converted some former jhum fields into pineapple gardens. When part of Madhupur Garh forest was declared a national park, the forest department prohibited the Garo from converting former jhum fields to pineapple garden. The Garo, however, continued growing pineapple in the gardens they had already established.

9.1.6.3 The advent of Christianity and changes among the Garo

Conversion to Christianity began in the mid-1920s. Christian missionaries not only preached religion, but also disseminated education among the Garo. There are 26 schools for education up to 5th grade, two for education up to 10th grade, and one technical school in Madhupur Garh area, all supported and conducted by the Catholic mission.

9.1.6.4 Land and tree tenure changes in the state

According to oral histories, the Garo of Madhupur Garh forest were allowed by the zamindars (revenue collector and

later landlord) to live on and cultivate land within the forest in return for rent and labor payments. Jhum cultivation was permitted under these arrangements subject to conditions intended to preserve the quality of the forest. The Garo were responsible for planting and tending trees in their abandoned jhum fields.

The Garo were given a temporary right of usufruct, known as patta, by which the plot-holders were allowed, upon paying rent, to cultivate the land and pass it on to their successors, but not to sell it. A more permanent form of land tenure, known as pattan, developed over time as the Garo established wet rice fields.

Definite period relating to the evolution of these tenurial arrangements was not available in oral histories. The system of collecting revenue by appointing zamindars, intermediaries between the government and the actual cultivators of land, was introduced by the Mughals from 1576 to 1757. This "zamindari system," continued until it was abolished in 1950.

After the zamindari system was abolished, the tree-covered higher lands in Madhupur Garh were handed over to the forest department. The Garo were then prohibited to use higher land within the forest, but they were allowed to use the plots of low-lying land on which they had valid documents. Both higher land and low-lying land have, however, been occupied by the Garo, with and without valid documents.

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Realizing the importance of understanding the process of changes in the statutory land tenure system that was imposed on the Garo of Madhupur Garh forest, a brief history of evolution of statutory land tenure system is given in Chapter 6.

Nothing was found in the historical materials specifically on tree tenure. However, written historical materials revealed that the rights of ownership and use of trees were given to the landholders in 1885. According to oral histories, the zamindars allowed the Garo to use and harvest the non-timber tree species that grew naturally and the fruit trees they planted on their homesteads and swidden fields. They were, however, given no right to the valuable tree species, except for the privilege of harvesting these trees for the zamindars. Since the declaration of the Reserved forest, people's right of ownership to trees are no longer recognized by the forest department. The Garo, however, continue to use the fruit trees and non-timber tree species that they grow in their homesteads and pineapple gardens.

9.1.6.5 Land and tree tenure change among the Garo

The traditional system of communal ownership of land and tenurial arrangement prevalent among the Garo of the Garo Hills did not work in Madhupur Garh. Instead, the concept of individual household ownership developed. The imposition of

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external land tenure system was probably the main factor that compelled or encouraged them to follow individual ownership. The idea of leasing and mortgaging land, which were unknown to the Garo, also came to them from external sources.

The ownership of land, tree, and other property among the Garo is in a process of change from matrilineal to patrilineal. According to the ideal principle, all property of a household belongs to women and a woman's property is to be passed on to one of her daughters. Though the ideal principle is still followed in some case, men's ownership and inheritance is also practiced.

9.1.6.6 Changes in forest management

Until the abolition of the zamindari system in 1950, the Garo living in the forest were responsible for planting and protecting trees in the jhum fields. Forests were opened to the public once a year for logging and collecting fuelwood and thatch grass. On payment of a royalty, the Garo could cut trees and sell them to traders.

After taking over management in 1951, the forest department introduced the taungya system which involved the local Garo swidden cultivators. But this system was replaced in the early 1960s with the plantation system using wage labor. Under forest department management, areas due for clearfelling were sold at auction to the highest bidder. Due to a rapid depletion of forest resources, these auctions were

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banned in 1972. However, the forest department continued clearfelling certain areas for afforestation after 1972. According to oral histories, most trees planted in the post-1972 plantations did not survive, while parts of many of these plantations are completely denuded.

Eight thousand acres of forest lands were handed over by the forest department in 1986 to the Forest Industries Development Corporation for rubber plantations. This project was strongly opposed by local people whose lands were taken for the rubber plantations, and also by others who now fear that the second phase of this project will affect them negatively. The second phase has not yet begun.

As part of a nationwide social forestry program, two new projects designed to grow trees -- Woodlot and Agroforestry -- were introduced in 1990. About 1,400 acres of forest land have already been planted to primarily exotic tree species under these projects. In both projects, local people's participation was sought and also achieved to some extent. As reported by some of the participants, people are not quite happy with the project: they question the exotic tree species selected for these projects and participants' tenure to land they are using in these projects is not secured.

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9.1.6.7 The conflict between the Garo and the forest department

The ongoing conflict between the forest department and the Garo became inevitable when the Garo's traditional rights to their land were denied by the forest department. The rights to this land are claimed by the forest department according to the statutory tenure system, but the Garo people think that they have legitimate rights to the land they have been occupying for generations. The Garo understand from their lawyers that their rights are recognized according to the provisions of the East Bengal State Acquisition and Tenancy Act of 1950.

The dispute between the Garo and the forest department intensified and the relationship between these two parties was severed by the government's attempt to evict them from the national park area. In the most recent conflict the people blame this department for handing over people's land to the rubber plantation authorities. These people have organized to resist any further attempt to expand rubber plantations.

9.1.6.8 Changes in Garo social organization

The basic principles related to women's role and status are still maintained by the Garo. Women play a major role in familial decision making. Husband-wife relations among the Garo are typically characterized by mutual cooperation and not by domination.

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Major changes took place in the Garo social organization with the development of wet rice cultivation. A distinction between landless and landholders emerged after the ban on jhum cultivation. Wealth became concentrated in the hands of a few, while others became poor. Large landholders easily gain prestige and prominence in society by employing the landless and small landholders. Some large landholders also achieved an informal power in society. These new leaders' roles are recognized by the villagers as more important than the role of the traditional hereditary leaders.

Due to the encapsulation of Garo society within the wider national political system, another form of leadership emerged among the Garo. Since 1956 some educated Garo participated in for the Union Council/Parishad elections, and there have been one to three Garo elected out of the nine elected members in each five-year period.

9.1.7 Research Findings: Survey and Intensive Village Study

9.1.7.1 Demographic characteristics of the population

Data on demographic characteristics and social and economic characteristics of the population under study were gathered from survey, intensive study of a village, interviewing and observation study. The number of households in Garo villages averages 68. Garo are in the majority (87%) in all the study villages. The household size averages 5.3

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persons. Eighty-eight percent of all households contained one married couple.

Out of the 1,061 people in the 200 sample households, half of the population is between the ages of 15 to 65 years. These people are considered the potential labor force. Another thirteen percent is between 10 to 14 years, and also participate in the labor force, particularly during the peak of agricultural cycle. Forty-two percent of the study population are illiterate, while the other 58% have an education that ranges from primary level (1st to 5th grade) to post-secondary (11th grade and above).

Among the Garo, 94% are Catholic, 5% are Baptist and the remaining 1% are the followers of traditional Garo religion, called songsarek.

9.1.7.2 Social and economic characteristics of households

The social and economic status of the households under study is related, for the most part, to landholding size and income. Landholding size, including both higher and low-lying land within the forest, of more than a quarter of the households of the intensive study village is one acre or less. One-fifth of the households have more than three acres.

Household income largely depend on landholding size. Thus, landholding is the major indicator of social and economic status. The type of land owned by a household, however, makes a difference. The households that have more

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land under wet rice cultivation can invest their surplus from wet rice fields to pineapple plantation. On the other hand, households without wet rice fields are often regarded as landless. Although these households possess higher land in the forest, they will have no land if they are ejected by the forest department. In this sense, more than half (54%) of the households of the intensive study village are landless.

Income of the households having more areas of higher land under pineapple plantation is greater than those which have smaller pineapple gardens. More than half (57%) of the households of the intensive study village have no pineapple gardens.

Because it was difficult to gather income data by interviewing people, case studies were made of ten households selected from the intensive study village. A wide variation in income was found among these 10 households, which represent different landholding groups. The yearly income ranges between 6,000 to 80,000 Taka (\$180 to 2,500).

9.1.8 Analysis of Research Findings

The role of the various factors/variables under each of the five dimensions of the PETIO schema in the process of land and tree tenure change among the Garo has been analyzed.

A relationship was found between a steady increase in population size within the national park area and a trend of decrease in forest cover. An association was found between

1. The first part of the report is a general introduction to the subject.

2. The second part is a detailed description of the methods used in the study.

3. The third part is a discussion of the results of the study.

4. The fourth part is a conclusion and a list of references.

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population increase and the adoption of intensive land use technologies. Research findings suggest a relationship between imposition of external control after the declaration of reserved forest and the Garo's dependence on wet rice cultivation alone. Information about the evolution of pineapple agroforestry showed that this technology developed in response to the strengthening of external control and the resultant squeeze in the available land.

Changes in sustenance-related ideologies and economic orientation played an important role in the Garo's adoption of both wet rice cultivation and pineapple agroforestry. These changes took place due to the Garo's contact with the Bengali wet rice cultivators, conversion to Christianity, and dissemination of education by the Christian missionaries.

Social and economic differentiation of Garo households was produced by an uneven development of wet rice cultivation and pineapple plantations. A relationship was found between the trend of an increase in adopting these technologies, an increase in the variation in the area of land cultivated by different households and the trend of an increase in social and economic differentiation.

Research findings indicate that the tendency toward achieving secure tenure has increased among the Garo with: (1) an increase in social and economic differentiation; and (2) an increase in external control by the forest department over the use of forest land. The ongoing conflict between the Garo and

the state arose in the process of land and tree tenure change with changes in government policy.

9.2 Conclusion

The tendency towards achieving secure tenure to land and trees increased among the Garo with an increase in social and economic differentiation of households. This differentiation was the result of an uneven development of intensive land use technologies. The variation in adopting intensive land use technologies resulted from a variation in the acceptance of sustenance-related ideologies and economic orientation. How people readily accepted changes was influenced by the extent of their exposure to the outside world which, in turn, varied with the level of education, which was dependent on the conversion to Christianity.

The ideological factor played its role in developing intensive land use technologies when a change was produced by the population and environmental factors. Changes in the structural aspect of social organization then occurred. With the changes in the structural aspect of social organization, changes also took place in the institutional aspect of social organization, which includes land and tree tenure system. All these factors were related to each other and changes in one affects all. The complex interplay of all these factors produced changes in land and tree tenure.

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The role of some factors was relatively more important at a certain point than the role of other factors. Initially, the population factor played the most important role. Then, the rate of adoption of intensive land use technologies increased with changes in the ideological factor. Christian missionaries played an important role as external change agents. Finally, strengthening control over forest land by the forest department after forest reservation led to the Garo's awareness of claiming secure tenure of land and trees.

External factors influenced the process of change in all the internal factors in the unit of observation. Population increased due to large-scale immigration. Wet rice cultivation came from an external source. External ideologies and economic orientation came with the external technology and the advent of Christianity. External market forces created an incentive for growing pineapple as a cash crop. Imposition of an external land and tree tenure system produced changes in indigenous tenurial arrangements and property relations. External control strengthened after forest reservation, compelling the Garo to abandon their traditional mode of sustenance. The statutory land and tenure system used by external authorities created people's awareness to claim secure tenure of land and trees.

Although these external factors had various effects on the process of change, the roles of Christian missionaries and external control after forest reservation hastened the process

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of change in all the internal factors. The ongoing conflict between the Garo and the forest department was resulted from a gap between the contents of statutory land and tree tenure system and the indigenous tenurial arrangements.

9.3 Limitations of the Study

Since the quantitative data related to the past situation in Madhupur Garh were inadequate, it was impossible to use statistical hypothesis testing. This failure to test the statistical significance of research hypotheses is the major limitation of this study. A dependence on qualitative information collected from written historical materials and oral history was the only option for the principal researcher in this situation.

9.4 Future Research

Certain measures should be taken to find methods to link the statutory land and tree tenure to the local tenurial arrangements, devise strategies for resolving the conflict, and arrive at a consensus between people and the forest department for sustained management. Applied research is required to achieve these goals.

If the Garo people are given security of tenure to the land they occupy, they may continue their practice of pineapple agroforestry unless a more profitable crop replaces pineapple. It is necessary to work closely with the people to

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help identify how they can improve their pineapple agroforestry practices and how the resources could be used in a sustainable manner. Recommendations for system improvement have been provided in Khaleque and Gold (in press). Based on those recommendations, further on-farm research should attempt to improve the pineapple agroforestry system.

It is obvious that the Bengali people living in the forest will also want to secure tenure to the land they occupy. Being relatively recent settlers, the claims of the Bengali people to the forest land are not as strong as that of the Garo. Most Bengali settlers, however, are poor and landless and will have no place to go if they are ejected. Hence, their concerns must also be considered. Systematic research is required to find out strategies for solving the problem of these people.

9.5 Recommendations

The findings of this study have important implications for sustainable management and development of forest resources in Madhupur Garh. It is clear that insecure land and tree tenure among the local people is the root cause of the failure of taungya plantations in the mid-1950s and many other subsequent reforestation programs. Due to the conflict and an insecurity of tenure, the Garo are alienated from the forest resources. For a sustainable management of resources, the gap between the statutory land and tree tenure system and the

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indigenous tenurial arrangements must be bridged. Conflict began with the denial of secure tenure. It can only be resolved by giving the security of tenure back.

Resettling the Garo outside the national park area has become impossible, since it is difficult to find any unoccupied area for this purpose. In this case, it may be wise to let these people live where they are now and involve them in forestry activities, as the zamindars did, by providing them long-term tenure. New forestry programs must be responsive to the Garo's needs for fuel, fodder, fruit and construction material, as well as assure their food crops. In addition, efforts should be made to improve the living conditions of the poor and landless people.

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1911
1912
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1914

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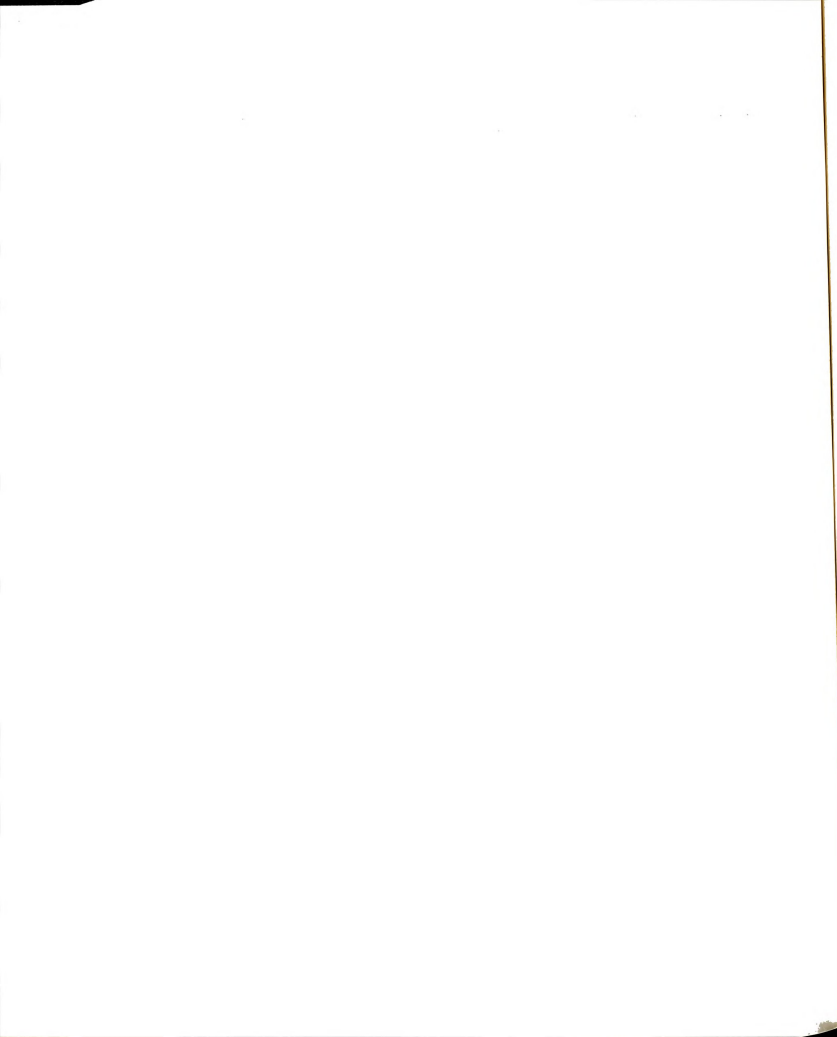
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1920

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A P P E N D I C E S



APPENDIX A

**QUESTIONNAIRE ON
THE SOCIAL, ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS
OF THE PEOPLE LIVING IN MADHUPUR GARH**

APPENDIX A

QUESTIONNAIRE ON THE SOCIAL, ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF THE PEOPLE LIVING IN MADHUPUR GARH NATIONAL PARK

Village Id. No. ----- Village:-----

Household Id. No. ----- Head of household:-----

1. Number of married couples in the household:----

2. Number of household members----

3. Information about the head of household and spouse:

	Husband	Wife
	-----	-----
3.1 Age	-----	-----
3.2 Level of education	-----	-----
3.3 Main occupation	-----	-----
3.4 Secondary occupation	-----	-----
3.5 Religious affiliation	-----	-----

4. Information about other members of household:

Member No.	Relationship with head of household	Age	Edn.	Occupn.	Religion
----	-----	---	---	---	-----
----	-----	---	---	---	-----
----	-----	---	---	---	-----
----	-----	---	---	---	-----
----	-----	---	---	---	-----

5. Information on landholding:

	Amount of land (with land type)	Type of tenure				
		own	L-in	L-out	M-in	M-out
5.1	Total land:	---	---	---	---	---
5.2	<u>baid</u> land:	---	---	---	---	---
5.3	<u>chala</u> land:	---	---	---	---	---

6. Amount of recorded land:----

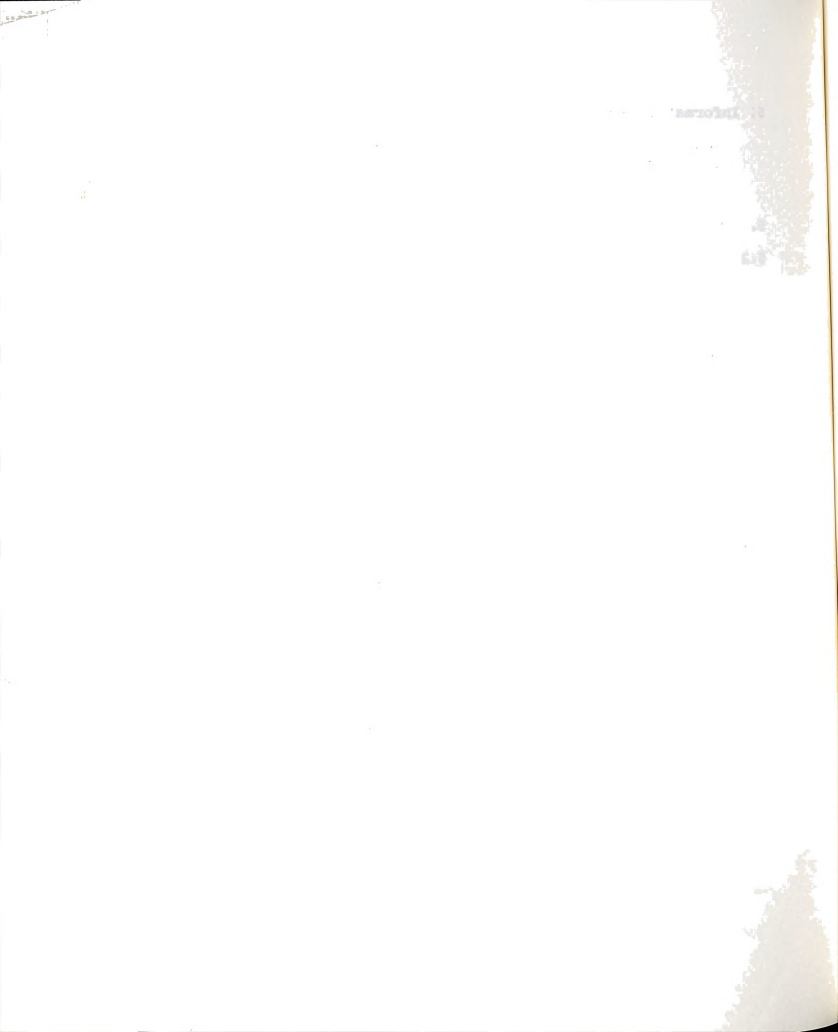
7. Inheritance of land:

	Land inherited from	Amount of land (with land type)
7.1	Mother	-----
7.2	Father	-----
7.3	Sister	-----
7.4	Mother-in-law	-----
7.5	Father-in-law	-----
7.6	Others (specify)	-----

8. Land under cultivation: --- chala --- baid --- Total ---

9. Information on trees on homestead

Name of tree	How many
-----	-----
-----	-----
-----	-----
-----	-----
-----	-----



10. Domestic animals:

	Animal	How many
	-----	-----
10.1	Bullock and cow	-----
10.2	Buffalo	-----
10.3	Pig	-----
10.4	Goat	-----

11. Main crops grown during the last season:

	Name of crop	Amount
	-----	-----
11.1	Paddy	-----
11.2	Pineapples	-----
11.3	Taro roots	-----
11.4	Ginger	-----
11.5	Jackfruit	-----

12. Gender specialization:

	Type of Work	Who does the work		
		Men	Women	Both
	-----	-----	-----	-----
12.1	Ploughing land	---	-----	----
12.2	Sowing	---	-----	----
12.3	Transplanting	---	-----	----
12.4	Harvesting paddies	---	-----	----
12.5	Preparing pineapple gardens	---	-----	----
12.6	Tending pineapple gardens	---	-----	----
12.7	Harvesting pineapples	---	-----	----
12.8	Working in vegetable gardens	---	-----	----
12.9	Planting trees	---	-----	----
12.10	Tending trees	---	-----	----

12.11	Harvesting trees	---	-----	----
12.12	Collecting fuelwood	---	-----	----
12.13	Household chores	---	-----	----
12.14	Child rearing	---	-----	----

13. Gender role:

		Who	does	what

		Husband	Wife	Both

13.01	Keeping money	-----	----	----
13.02	Lending money	-----	----	----
13.04	Borrowing money	-----	----	----
13.05	Spending money	-----	----	----
13.06	Investing money	-----	----	----
13.07	Purchasing land	-----	----	----
13.08	Selling land	-----	----	----
13.09	Selling paddies	-----	----	----
13.10	Selling pineapples	-----	----	----
13.11	Selling other crops	-----	----	----
13.12	Making decision on family affairs	-----	----	----

14. Opinion on land, tree and other property ownership:

Items of property		Who should own		

		Men	Women	Both
-----		-----	-----	-----
14.1	Land	---	-----	----
14.2	Tree	---	-----	----
14.3	House	---	-----	----
14.4	Others (specify)	---	-----	----



APPENDIX B
LIST OF HISTORICAL MATERIALS

APPENDIX B

LIST OF HISTORICAL MATERIALS

Since Madhupur Garh area was under the formerly undivided Mymensingh district, the historical information were collected from the published and unpublished sources on this district.

1. Published Books

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2. Unpublished Documents

- old land documents and land tax receipts collected from local people.
- documents collected from forest department.
- documents collected from revenue department.
- documents collected from Catholic mission.
- old newspapers
- census reports

APPENDIX C

**THE GOVERNMENT SCHEME FOR GARO EVICTION AND RESETTLEMENT
AND
THE DEMANDS OF THE GARO BEFORE THE GOVERNMENT**



APPENDIX C

THE GOVERNMENT SCHEME FOR GARO EVICTION AND RESETTLEMENT AND THE DEMANDS OF THE GARO PLACED BEFORE THE GOVERNMENT

Scheme for Garo Eviction and Resettlement

- The Garo would be resettled in the area proposed earlier by the government, i.e., Fulbagchala mouza.
- Of the total 1,045 families, 200 would be resettled in the financial year 1976-77, 650 in 1977-78 and the rest in 1978-79.
- The people would be given an amount of agricultural land equivalent to that they had under their rightful possession according to the survey of 1974.
- Each family would be given 500 Taka for re-building its house and another 500 Taka as compensation for other structures and trees.
- Projects for the welfare of the Garo would be undertaken in the area where they would be resettled.

The Demands of the Garo

- Double the amount that they possessed in their present villages, according to the survey conducted in 1972-73 by three government teams, must be given in the areas they wished to move, i.e., Beribaid, Joramgacha and Kulachala mouza. All these lands would have to be registered in their names and all official documents must be given to them. It must also be ensured that they may be able to get possession of those lands.
- The landless and poor people must be given sufficient so they can support their families.
- All the households should be resettled at one time and house sites must be demarcated on an individual family basis.



- All costs of shifting and re-building houses, schools, churches and other structures must be borne by the government. Such costs should be calculated according to the price prevalent at the time of shifting and the money must be paid promptly to the families concerned.
- The required timber, bamboo and thatching materials for constructing houses in the new area should be provided from the forest. These materials as well as fuelwood should also be provided as and when necessary even after resettlement.
- Appropriate compensation for pineapple and other fruit gardens must be given according to the market price. The costs of re-establishment of such gardens in the new area must also be borne by the government.
- Until the new area is completely suitable for habitation and cultivation, and pineapple gardens ready for harvesting, the people must be allowed to live in their present homes and cultivate the land that they currently possess.
- All the resettled households must be exempted from paying land revenue and other taxes in the first three years resettlement.
- Priority must be given to the Garo in employment in forest department services.
- The proposed government development schemes must include the facilities of clean drinking water, sanitary latrines, dispensaries, playgrounds, post office, market, roads, schools, churches and projects for social and economic and agricultural development.

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