

**EVALUATION OF
MANAGEMENT AND MARKETING
OF RATTAN PRODUCTS IN ASSAM**

by

Joan Smith

**A research practicum submitted
in partial fulfilment of the
requirements for the degree**

Master of Natural Resources Management

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JOAN SMITH

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University
of Manitoba in partial fulfillment of the requirements of the degree
MASTER of NATURAL RESOURCES MANAGEMENT**

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Abstract

The rattan industry in the state of Assam, North East India, is documented in this study from production to consumption. The thesis emphasizes the manufacturing and marketing segment of the system. The objective of this research was to determine the feasibility of developing rattan manufacturing as an industry to bring additional income, employment and economic value to the region. Opportunities for development and barriers that might impede industry expansion were identified and, lastly, some possible interventions to overcome the constraints were recommended.

Through the use of interviews and personal observation, comparisons were made of rattan businesses in two towns, Balipara in Sonitpur District and Silchar in Cachar District of Assam. The manufacturing businesses in the Silchar tended to have more employees (11 on average) and to be owned by a non-craftsman, while those in the Balipara area tended to be owned and operated by a craftsman and to have fewer employees (4 on average). The estimated gross income, of all businesses interviewed in Silchar was nearly twice that of Balipara businesses. From the information gathered in these two sites, an estimate of the present economic impact of the industry on Assam was calculated to be approximately 920 million Indian Rupees per year (C \$36 million). This figure assumes the number of rattan manufacturing businesses in Assam to be about 3,600, projected on the basis of government information. A more conservative estimate predicts the number of businesses to be closer to 1000 and the financial impact to be approximately 260 million rupees (C \$10 million).

There is an opportunity for Assam to compete in the international market for finished rattan products and possibly expand the domestic market if one does exist outside North East India. Availability of the raw rattan resource is the limiting factor in any development scheme. Even if there were an abundant supply, there are numerous other constraints to be overcome in terms of the marketing mechanisms necessary to make Assam a player in the world market. These constraints include: quality of product; production capacity of individual businesses; reliable transportation system; storage capacity; lack of market information; inherent risk aversion of the local population; limited access to financing; lack of standardization or grading of raw materials and finished products; and lack of motivation among the local people to expand business.

A number of possible interventions was identified as means for adapting the existing market based exchange economy to a marketing system that could facilitate entrance into the international market place. The study recommends that there is a need for a long-range strategy that will allow a balancing of the supply of raw material (through cultivation and reforestation) and the demand for manufactured goods. Such a long-range strategy would address the areas of transportation, standardization, education and finance.

A short term recommendation would be to promote growth by identifying and securing a market for a limited quantity of goods. Advance orders from such a secured market could be contracted to rattan manufacturers in a selected area who would then be supplied with standards, design, and raw materials. Demonstrating the benefits of quality of workmanship, economies of bulk ordering and access to financing, would foster entrepreneurial spirit and cooperation among a small group of manufacturers.

Acknowledgments

There are many individuals who provided me with help and guidance during the conduct of this practicum. First, and foremost, I would like to acknowledge and give thanks for the efforts of my Advisor, Dr. Fikret Berkes, who despite being on Sabbatical, gave freely of his time and his vast experience. I would also like to acknowledge my Committee members, Dr. John Gray (also on Sabbatical), Dr. Walter Good and Dr. Brian Belcher for their help and suggestions. A special thank you must be given to Mrs. Liz Belcher who took me into her home and provided some much needed encouragement and practical advice to a stranger in a very strange land and, of course, none of this would have been accomplished without the financial support of IDRC through the Young Canadian Researchers Award.

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Lastly, I would like to dedicate this practicum and this Master's degree to my husband, Jim, for all his encouragement and help during the past two years. I couldn't have done it without you.

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CHAPTER ONE

Introduction

CONTEXT

This practicum report is a documentation of how rattan furniture and smallware products are manufactured and marketed in the state of Assam in North East India. This is a practical application of knowledge gained through study and research at the Natural Resources Institute (NRI), building on my professional experience over the past 10 to 15 years. The information, gleaned from interviews with the entrepreneurs in two locations in this semi-isolated state in India, provides a rough estimate of the financial impact of this industry on the State of Assam. The intention is to compile in one place, a description of the region and a description of how the industry functions, and to evaluate this information as a basis for further development of a market system for rattan products.

Chapter 1 is the introduction to the study, outlining the parameters and the objectives. Chapter 2 describes the methods used to gather the data on which this practicum is based and Chapter 3 provides an overview of the geographic and demographic background of North East India and Assam along with a layman's overview of the botanical nature of rattan and some discussion of sustainability issues that might impact on the rattan industry in the area. Chapter 4 provides a description of the industry as told by the owners of 38 different rattan manufacturing shops, mahal licence holders and employees of various government and non-government agencies. The information is observational and anecdotal, based on my field work in India in September and October of 1996. The numbers provided are estimates but have been calculated using low estimates

and high estimates to provide a sense of the magnitude of variance. Following the descriptive Chapter 4, Chapter 5 deals with the potential opportunities and constraints which face development of the industry, taking into account sound marketing practices and the unique nature of Indian culture. The description in Chapter 5 is supported by some suggested interventions that, if implemented, could provide a basis for expansion of the rattan industry.

STUDY OBJECTIVES

The main question to be answered by this study is how the rattan processing industry could be enhanced to increase employment within the rattan sector and/or revenues accruing to participants. The general objective of this study is to identify ways and means of developing the rattan industry in North East India through interventions in the marketing system. Specific objectives are:

- a. to document the present production-to-consumption system for rattan, with emphasis on the financial impact of the processing - consumption sectors for Assam;
- b. to identify the production and marketing factors relevant to the Indian rattan industry;
- c. to identify constraints and opportunities in the present system; and
- d. to identify possible interventions to overcome constraints and/or take advantage of opportunities.

The scope of the general objective covers the entire North East Region and it should be noted that Assam was chosen as the data gathering site (Figure 1). For this

reason objective (a) deals with providing a financial impact for Assam only. The rattan industry comprises production (growing and harvesting), processing (curing and manufacturing) and consumption (marketing and end use). Although this study looks at the entire industry, the emphasis is placed on the processing and consumption segments. The term “factors” in objective (b) refers to relevant systems such as the transportation network that impact on the processing and marketing of rattan in the North East Region. The term “constraints” is meant to convey limitations within the identified factors that impact negatively on the processing and marketing of rattan and, conversely, the term “opportunities” implies areas or gaps in the present system that could be taken advantage of for financial or employment gain. The term “interventions”, in this context, means actions taken to overcome constraints or to take advantage of opportunities.

Significance of the Research

Although rattan is only one of many forest commodities, it is a remarkable group of plants. As Singh (1993) explains, rattans provide

a combination of very unusual but desirable properties like lightness, strength and flexibility. Their decorative value is also unmatched. No wonder that they are fastidious about their demand of habitat. Ecologically, they are the indicators of the health of a very fragile and threatened ecosystem called tropical evergreen forests and there is no doubt that this silent contribution of theirs is in no way less than their manifest one in the furniture and handicrafts industry.

A study of the existing processing and consumption system for rattan products provides insight to the linkages of resource management, processing and the end use.

International Network for Bamboo and Rattan: This study was carried out in consultation with the south Asia office of the International Development Research Centre

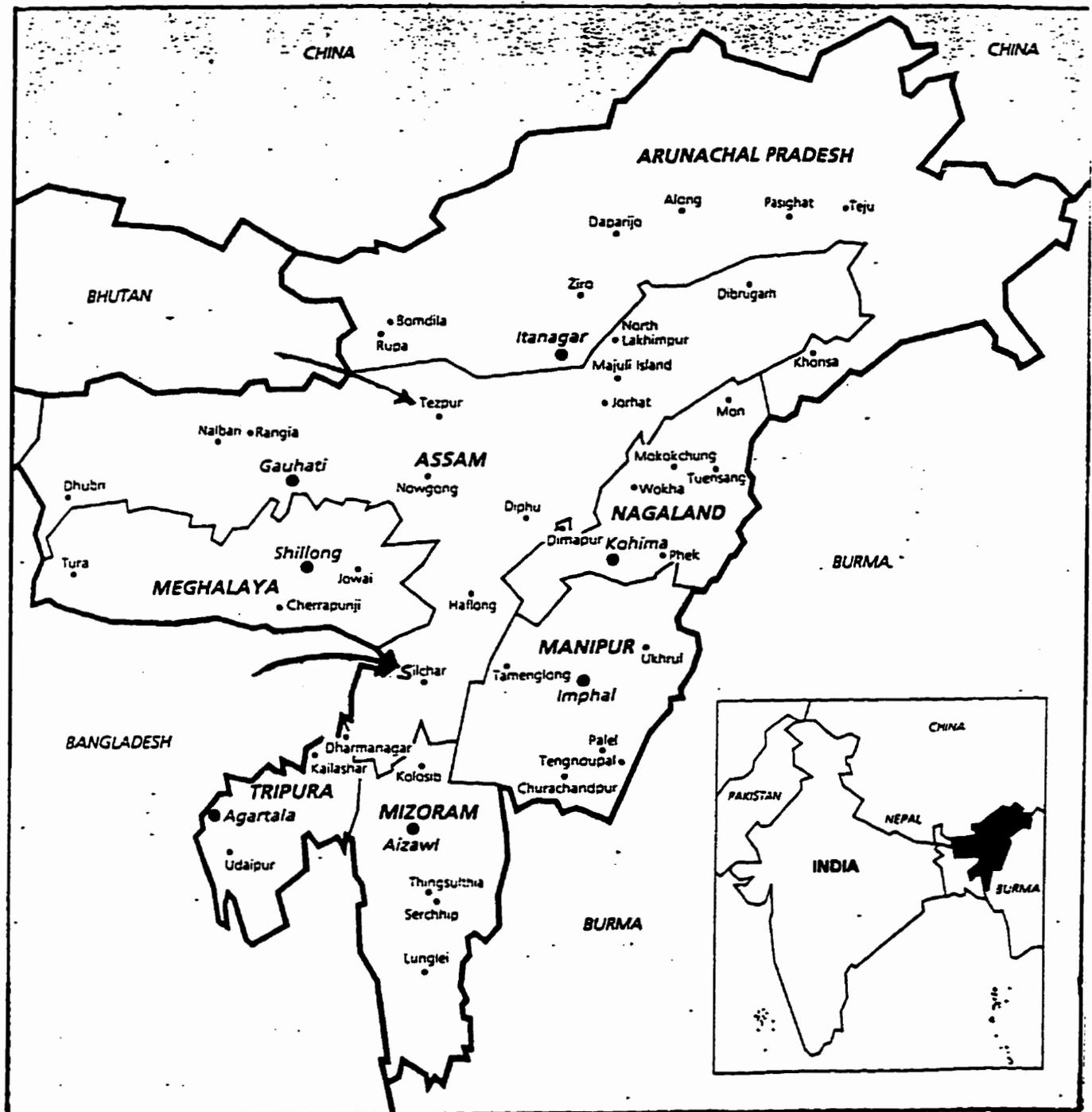


Figure 1. Map of Northeastern India. The key map indicates the location of the area.

(IDRC) and the International Network for Bamboo and Rattan (INBAR) research staff. INBAR is a global network on bamboo and institutions; and rattan, in operation since 1993. INBAR attempts to improve the well-being of small-scale producers and users of bamboo and rattan while maintaining the sustainability of the resource base. The main objectives of the Network are:

- a. "To identify, support and coordinate bamboo and rattan research consistent with the priorities set by national programs;
- b. To build skills and enhance the capacity of national research and development
- c. To strengthen national, regional and international coordination, cooperation and collaboration" (INBAR Newsletter, 1995).

It is hoped that the information in this study will provide important background on the state of the rattan industry in Assam and, therefore, serve as a basis for a project that has been initiated by the International Fund of Agricultural Development (IFAD). The IFAD project is designed to encourage and enhance community resource management in the North Eastern Region of India in the areas of silk, tea and bamboo and rattan. Specifically, IFAD has targeted three states, Assam, Meghalaya and Manipur for study. (See Figure 1.)

POTENTIAL BENEFICIARIES

The study of the production-to-consumption system, and the identification of constraints and opportunities in Assam is important because the results may well have applicability in other INBAR areas and elsewhere. The target beneficiaries include the rattan collectors, processors and marketers of Assam and the North East Region, INBAR

and IDRC. The information contained in this report may be used as a benchmark for evaluating the effectiveness of future interventions in the production-consumption system for rattan. It may also be used as a starting point for discussions dealing with management and marketing issues regarding rattan. Ultimately, the primary beneficiaries are intended to be the rattan processing community within the North East Region.

CHAPTER TWO

Methods

INTRODUCTION

Research was carried out in Assam in North East India in the fall of 1996 in Guwahati, Sonitpur District and Cachar District. This study involved a documentation of the rattan manufacturing industry in Assam, with a view to understanding the various factors that impacted the management and marketing within that industry.

Case study design was used to achieve the general and specific research objectives. This holistic approach is often used to determine the cause and effect of various relationships within an area of interest, particularly where the relationships are not clearly evident (Yin, 1994). The rattan production, processing and consumption system components create such a complex phenomenon that utilization of multiple sources of evidence become necessary. Since the variables of interest cannot be manipulated it was not possible to draw a positive cause-effect relationship but rather to draw inferences from the data available. This required the use of historical, observational and anecdotal data to develop the relationships. Multiple sources of evidence enabled increased reliability through cross checking and triangulation of data.

The primary method of gathering information for the study was through personal interviews and observations (Chambers, 1991). In most cases, the information could not be subjected to verification as records kept by the business owners are scanty and government records are hand written and stored manually, if at all. Key informant interviews were conducted to provide an understanding of the system and that information

was used to derive rough estimates of the financial impact of the industry on the State and to a lesser extent the impact of the industry on the sustainability of the resource.

Confidentiality of all information is assured and individual responses are identified by number only. The majority of the data are useful only in the aggregate.

Data Gathering

The first two weeks of the study on site were spent in Delhi, gathering botanical and industry information on rattan, rattan harvesting and processing. Information was also gathered on the North East Region of India, with emphasis on Assam, the upcoming IFAD project to be initiated in that area, and possible contacts in the North East Region.

Upon arriving in Assam, contact was made with the Omeo Kumar Das Institute of Social Change and Development in Guwahati (Figure 2). It was recommended that a suitable research location would be the village of Balipara in Sonitpur District. Balipara is located approximately 15 kilometres (km) northwest of Tezpur, Sonitpur's capital. Tezpur lies 165 km North East of Guwahati (Figure 2). The area around Balipara was viewed and some initial discussions with craftsmen were carried out to determine basic information regarding where the rattan came from and whether there was any growing in the immediate area. It was determined, at that point, that this area was not suitable for gathering data on the initial set of study objectives as they were first presented. The original intent was to spend time in a tribal village, looking at the ways local people supplemented their incomes and livelihoods by manufacture of rattan products. The commercial nature of the Balipara area presented a new focus for the study. With a minimal amount of alteration a second set of objectives was developed that could be

supported by the local conditions and a set of questions revolving around the manufacture and sale of rattan products was quickly developed.

Local and personal knowledge of the informants and personal observation by the researcher were applied to document the current process of production-to-consumption of rattan; identify factors that impact on that process and any constraints and opportunities that might exist. This involved personal interviews with small rattan manufacturers, government officials and academics from local educational facilities. Major information requirements concerned:

- a. employment practices;
- b. incomes and wage scales;
- c. manufacturing costs; and
- d. productivity.

A complete list of information requirements can be found at Appendix 1.

Sonitpur District: Balipara lies on a road extending northwest from Tezpur toward Arunachel Pradesh some 30 km distant. In the initial visit to Balipara (Figure 2) this road was explored for a distance of approximately 15 km. Between Tezpur and this 15 km outer limit the number of rattan outlets was determined to be in the region of 20. The initial intent was to interview every one of the outlets on this stretch of road. The first set of interviews yielded 18 respondents.

Tezpur was used as home base and while there, interviews were held with faculty members of the local university. This was undertaken both as a courtesy and with the hope of gaining some insights to the local situation regarding forests, forest products and,

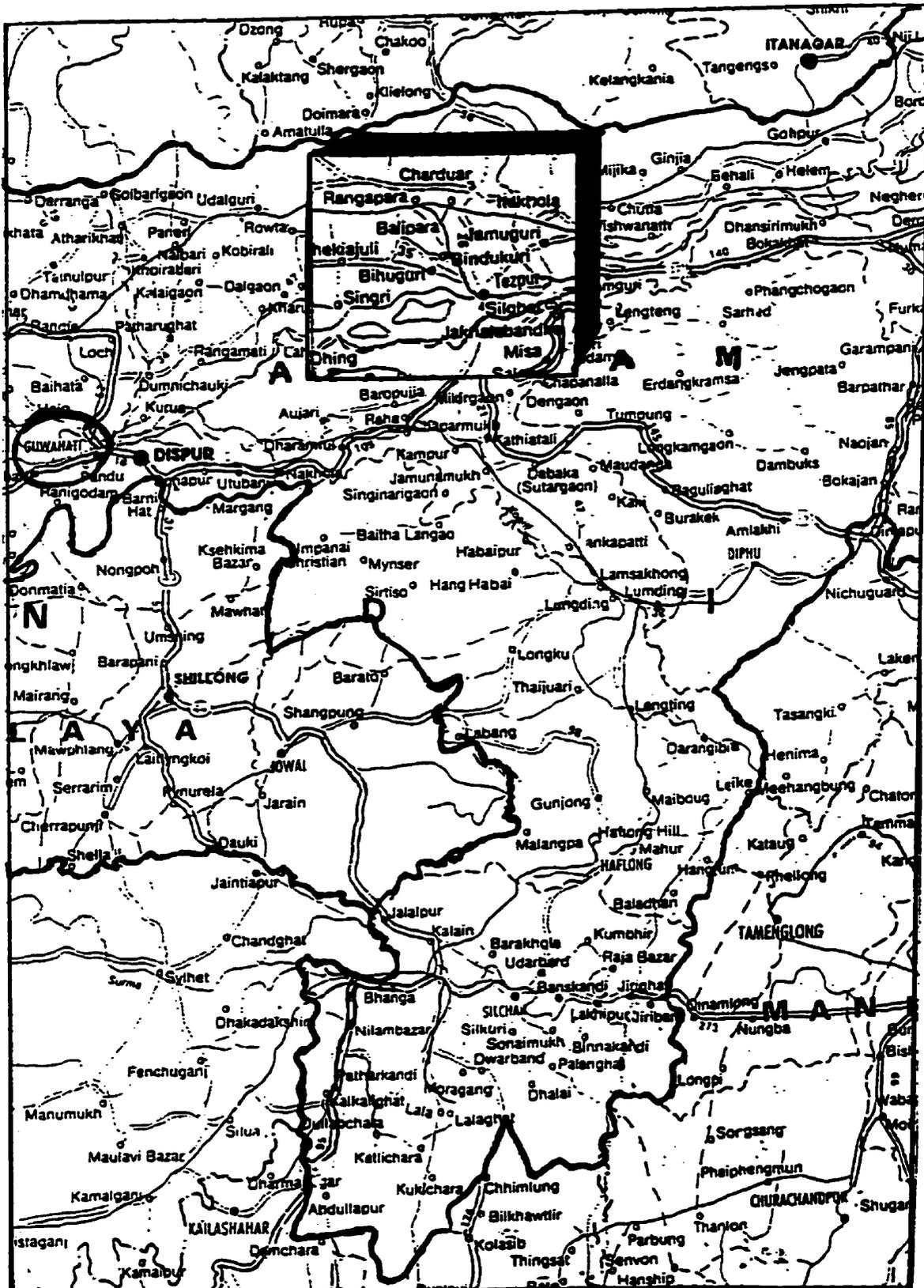


Figure 2. The Tezpur Area of Assam

in particular, any research that may have been conducted in the area of rattan. While little information on rattan was available, further understanding of the people of the North East Region was gained through discussion and through attendance at a formal lecture on the history of the local demographics from pre Genghis Khan to current time. Also while in Tezpur, local government authorities were interviewed. The Deputy Commissioner provided full access to his staff, of particular interest were the head of the District Industries Centre (DIC) and the District Forest Officer (DFO).

The District Forest Officer provided historical background about rattan in the area. Specifically, there had been no rattan growing in the area for at least the past 10 years. To the best of his knowledge any rattan used in the Sonitpur District originated in the neighbouring state of Arunachal Pradesh. The District Forest Officer also provided an account of the tendering system for rattan although there had been no such tenders in his area for either rattan or for timber in many years. Sonitpur District was mainly a plains environment supporting agricultural activity. The DIC was able to provide useful data with regards to the number of rattan related businesses in the District. A recent survey had been conducted of all such businesses with a view to encouraging the owners to register with the Centre. It had been determined that of the 202 rattan related businesses in Sonitpur, 56 (27.7%) were registered and 146 (72.3%) were not. At this point, I returned to Delhi. In consultation with INBAR staff, the revised study objectives were refined and additional informational needs were identified. The entire list of information requirements is found at Appendix 1. It was also determined at this time that information on a second rattan manufacturing centre would prove useful to the outcomes of the study.

On return to Assam, and prior to a second trip to Balipara, a local manufacturer in Guwahati was consulted to provide a cost and time breakdown on a selected four piece set of rattan furniture. Information was provided on the types of rattan used to make such a set; how long it would take to make it; how many people would work on it; wage cost; material cost; indirect cost; and how much waste would be left over. Also provided was a retail price. This independent cost information was used to determine accuracy and reasonableness of the information provided by the interview respondents as each of them were shown a picture of the same furniture set and asked the same questions.

In Balipara, the original interviewees were revisited and an additional two were interviewed. Twenty interviews provided a 10% sample of 10% of the rattan industry population of the District. The people who were interviewed tended to be owner-craftsmen. Employees were interviewed but only on an informal basis as they tended not to be aware of the business concerns of their employers or unwilling to share any information they had.

Cachar District: In consultation with staff of the Omeo Kumar Das Institute of Social Change and Development, the town of Silchar in Cachar District was selected as the second site for data gathering (Figure 3). The same basic format was followed. A preliminary visit to the Deputy Commissioner's Office yielded assistance with the hire of a driver who was instrumental in finding rattan businesses in the area. Without prior knowledge of the total number of business available, it was impossible to pre-determine how many would be interviewed but the target number was 20. The actual number interviewed was 18 which comprised all businesses in the immediate area of Silchar with

the possible exception of any in the outlying regions. A search of the records in the DIC (Cachar) office indicated that all businesses that were registered were interviewed as well as several that were not registered. Three of the eighteen were from an adjacent district that had recently been formed although originally it had been part of Cachar.

In both Districts the services of an interpreter were necessary and the same one was employed for both areas. In Sonitpur District the language used was Assamese. In Cachar, the interpreter had a few difficulties as there are several languages and dialects in use including Bengali, Assamese, Hindi, English and some local variations.

In both locations and in Guwahati, the State capital, attempts were made to collect records regarding amounts of rattan harvested in past and present years. The role of middlemen both for sale of raw materials and the purchase of processed goods was investigated in as much detail as possible given the limited numbers and lack of access to other States in the North East Region. Constraints related to outdated technology, lack of credit facilities, and lack of information were noted as indicated by informants.

Data Analysis

The data were manipulated and analysed to estimate the financial impact of the rattan industry (production to consumption) on the State of Assam. Appendix 2 provides a sample of a raw data summary and Appendix 3 details the assumptions and calculations used to arrive at the final figures of financial impact and resource usage.

The information gathered on non-financial matters was examined and the factors that are involved in the processing and consumption of rattan and rattan products were identified. The factors were generally seen as constraints by the respondents and are

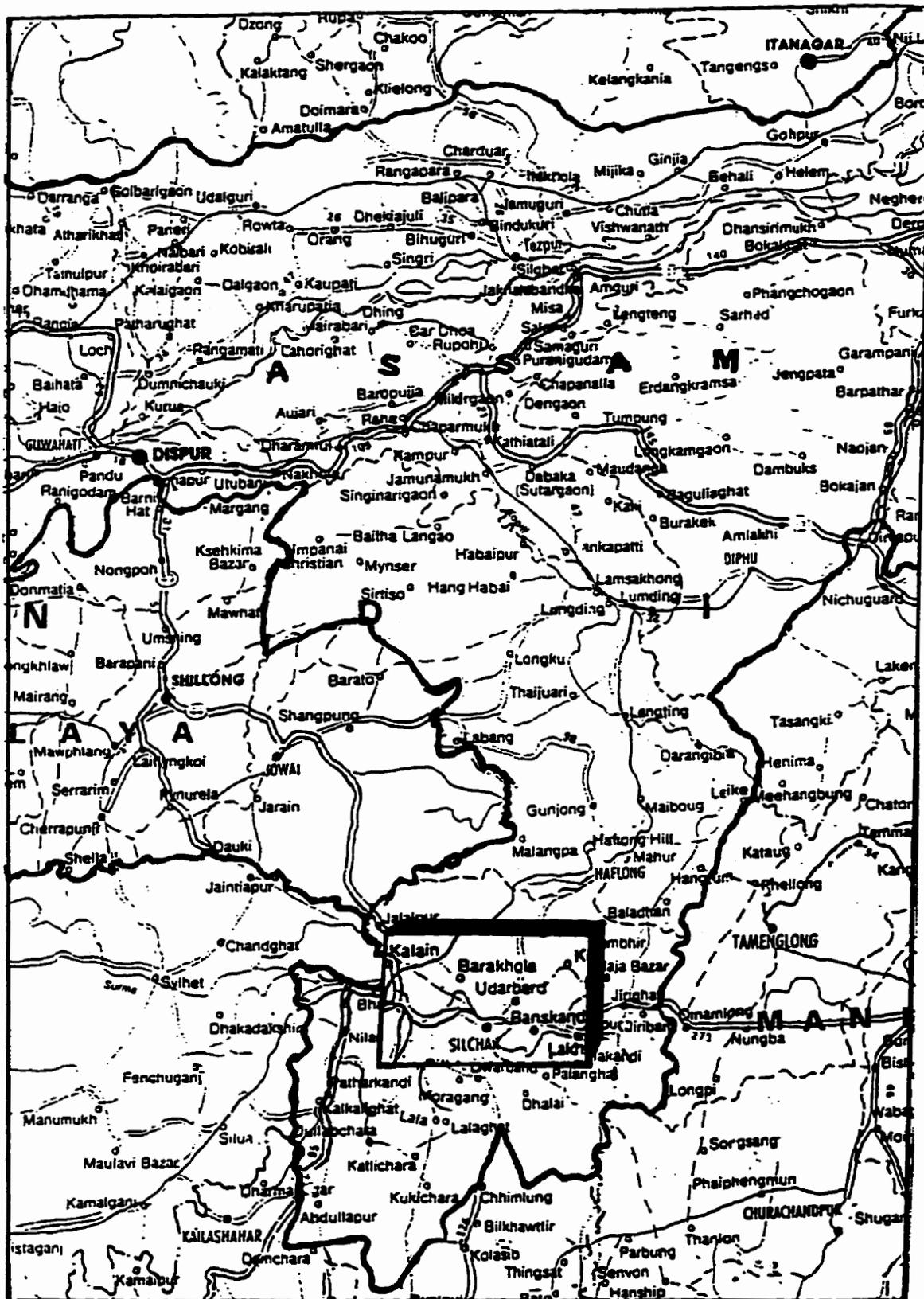


Figure 3. Map of the Silchar Area of Assam

treated as such in the remainder of this report. The opportunity(s) available to the industry were determined as a function of world markets, local market information and available information on competitor nations. Complemented by a review of literature in general, and written documentation relating specifically to rattan and the Indian environment, the informant data and subsequent analysis led to a series of conclusions and recommendations regarding development of the industry through specific interventions and the assumptions on which successful interventions would be based.

Summation

This study aims at providing two sets of information:

- a. factual, descriptive information on how the rattan production to consumption systems are organized; and
- b. factual, descriptive information on how the marketing factors including the market channels and value added chain interact.

Under the auspices of INBAR, the study was intended to be the basis for a further project in conjunction with the International Fund for Agricultural Development which has planned a study on agricultural development of silk, tea and rattan and bamboo amongst upland tribal peoples of the North East Region. From the point of view of development, this study addresses the issues that would have to be dealt with to enable long term success of such a project in the area of rattan.

CHAPTER THREE

Background

NORTH EAST INDIA

Unless otherwise indicated, the general information given here is taken from the International Fund of Agricultural Development (IFAD), 1995 Formulation Report.

Demographics: North East India comprises the seven states of Assam, Arunachal Pradesh, Meghalaya, Nagaland, Manipur, Tripura and Mizoram. This area, the North Eastern Region (NER) has a population of 31.5 million, approximately 4% of India's population. Population growth was about 2.4% per annum over the period 1971-1991 which is partly due to migration from Bangladesh and other areas but also to high natural growth rates. The people of the North East Region are ethnically linked, through tribal affiliation, with Myanmar, Vietnam, Laos, and other countries to the south and east of the region, more so than to the rest of India. Following Independence of India and the subsequent partition of India and Pakistan East and West in 1947, traditional trade routes, and many family linkages, between Myanmar (formerly Burma) and Bangladesh (formerly Pakistan East) and the North East Region were severed as the result of new, closed borders.

In the 1984-85 time period per capita worker incomes for the rural North East were Rs 1413, and for urban North East were Rs 2958. This was an increase of 2% and 46% respectively over the time period 1970-71. By 1989-90, the region's average income had risen to Rs 3530. The national average is Rs 5440. (Rs 25.6 = C \$1.00)

Political Governance: The institutional framework of the North East Region

comprises the North Eastern Council and, within the constituent states, the State level administration; the district level administration; Autonomous District Councils (which have varying roles and powers in the different states) and village administration comprising traditional and statutory village authorities. In the tribal areas of the North East Region these institutions replace the district, block and village level panchayats found in the rest of the country.

The population of the North East Region is predominantly tribal and this has led to factionalization over time. An inherent distrust exists between different ethnic groups and between ethnic groups and the central government and the increase in migrants has aggravated this condition over time. Tribal peoples are afforded special rights and protection under Article 342 of the Constitution of India. This Article designates various indigenous communities as "Scheduled Tribes". The aim of the article is to bring benefits of economic development to these groups while maintaining the traditional culture and values. Other enactments of the Constitution of India that are aimed at tribal peoples are:

- a. the Fifth Schedule, which imposes a special responsibility on states to promote the education and economic interests of the tribals and to protect them from social injustice and exploitation;
- b. the Sixth Schedule, which created the establishment of Autonomous District Councils (ADCs) specifically in the hill tribal areas of the State of Assam. At the time, Assam included Meghalaya, Mizoram and Nagaland;
- c. Article 275 of the Constitution, whereby special financial assistance is provided from the Central Government (in Delhi) to the States for implementation of

development schemes for scheduled tribes; and

- d. the Eighth Plan of the Constitution which recognizes the relatively disadvantaged socio-economic status of the tribals and places considerable emphasis on the development of the tribal areas based on people's initiative and participation in order to protect the interest of the tribals.

The Autonomous District Councils have full powers to make laws on all subjects like land, forests, mining, according to their wisdom, traditions, and customary laws. They function as a mini-government within a state and no act of the legislature of the state will apply unless specifically ordered by the Governor of the State.

The specific objectives of tribal agricultural development emphasized in the Eighth Plan include respecting the rights of tribals to forest produce, halting the process of degradation of the hills and improving the productivity of the land; popularization of afforestation programmes, appropriate technology developments and their application; improved extension services; the evolution of suitable models of land management that would invite permanent investment and ensure both optimal returns and ecological safety and development and the need to give priority to food security and to develop appropriate marketing infrastructure, institutions and procedures.

Land Tenure: By custom, ownership of land within the North East Region is vested in the communities. Most tribes have developed arrangements to provide permanent (and heritable but usually not transferable) entitlement to the use of specific areas of land for terrace cultivation and perennial cropping. The Autonomous District Councils technically have powers over the allocation of land but in practice mainly defer to

the customs of the community and this causes confusion in the land tenure situation. In general terms, households are not prevented from taking up permanent cultivation because of fears over security of tenure of the land. There are some exceptions and, in some cases, discrimination in the allocation of land does exist. The lack of a mortgageable title to the land does constrain access to bank finance. The attainment of considerable private rights over land has become an established practice; however, these are mainly without any legal basis and depend on community recognition under the customary framework. The principal means of obtaining rights over land are:

- a. by reclamation of available waste land (scope much reduced nowadays);
- b. by transfer (including purchase, gift and mortgage); and by
- c. inheritance.

Transfers and mortgaging of land are not done by execution of documents but simply by delivery of possession, occasionally in the presence of the village council or witnesses.

Tenancy: Tenancy arrangements are becoming more common although at present probably represent less than 10% of the land area in the North East Region. No tenancy laws exist and so all tenancies are governed by customary practices. Tenancy charges are on a cash or crop share basis with the latter being more prevalent. Rents will range around 33 - 50% of the production either in cash, if sold, or in actual product. The emergence of private rights over land is creating a situation where the more educated and politically aware members of the community are able to manipulate the customary arrangements to their benefit to take land into private ownership. Tenancy, in particular, represents a trend which has allowed non-tribal cultivators access to land and has

contributed to the concentration of land in the hands of a few affluent persons. This trend is upsetting the normal egalitarian nature of tribal society. Laws or Executive Orders exist to prevent tribal lands falling into the hands of non-tribals.

The security of entitlement to jhum land under the customary arrangements is important in the context of encouraging jhumias to adopt different uses for jhum land. Jhum is the local system of shifting cultivation. Jhum land is land that is subjected to shifting cultivation practices. Shifting cultivation is a method of cultivation that involves clearing, or partially clearing, an area of land, planting, harvesting and then moving on to another area and starting the cycle over again. Jhumias are the people who practice shifting cultivation. Previously, when land was plentiful and the jhum cycle relatively long, there was no need, and hence no tendency, for families to retain any interest in returning to the same jhum plot at the end of the jhum cycles. With the increased pressure on the land each family now retains the right to return to previous jhum plots. In Assam, the right to permanent use of jhum land rests with the village headman. Practically no legislation exists for surveying and recording land ownership/entitlement. Terraced land in all communities is considered to be private land with permanent, heritable and transferable right.

Climate: Throughout the North East Region wide differences in altitude as well as differences in landscape contribute to variations in climate. The central Meghalaya plateau offers a mild temperate climate while the Imphal basin in Manipur is sub-tropical and the plains of the Brahmaputra River valley are tropical. There are sharp changes in altitude which can cause significant variations in climate within short distances, with heavy rainfall

and cooler temperatures on the windward side of hills and low rainfall and warm temperatures on the other side. Approximately 65% of annual rainfall occurs during the monsoon season (June to September) and a further 25% falls during the hot season from March to May. The remaining 10% falls post monsoon (7%) and in the winter season of January and February (3%). The North East Region has the highest rainfall in the world. Annually, rainfall amounts range from 2000 mm to 4000 mm. Only during the winter season will the evaporation rate exceed the rainfall levels. Average maximum temperatures range from 23° C to 37° C and average minimums range from 3° C to 14° C.

The climate and soil composition provide the North East Region with a rich natural resource base but the resources of the region are not productive enough to generate wealth. As a consequence the region is economically backward. Some of this low productivity is attributable to such factors as geographical remoteness, rugged terrain, inadequate communication, floods, landslides etc. Added to this, in spite of its large overall resource base, the North East Region has a low ratio of usable land to population. Altogether, 73% of the land area cannot be used for raising crops.

RATTAN

Rattan, a member of the palmae or arecaceae family, is indigenous to several areas in many of the North Eastern states of India. "Rattan", an English word which has evolved from the Malayan "rotan" or "raut" is a collective name for the large group of palm trees known as "lepidocaryoid" ("scaly fruit" in Greek). In the North East Region, there is a long tradition of craft making and architecture utilizing resources that are commonly known as cane. Cane, in the local vernacular, can mean rattan, bamboo, certain

types of reeds and at times even willow branches or stems. A common denominator among these very different resources is the ability to be turned into furniture and/or small wares such as baskets and trays. For the purposes of this study, the term 'rattan' will be used throughout.

Rattans generally mature between ten and fifteen years of age. The stems or stalks are covered with leaf sheaths which have flat spines. These spines can be long or short but are sharp. In some species the leaf sheaths shed as the plant matures. Rattans grow singly or in clusters (clumps) and range in diameter from 3 mm to 20 cm. The length of a stalk can vary from a few meters up to 200 m. The length of the internodes vary within species, within plants of the same clump and even on the same plant (Shiva, 1993). Rattan grows from rhizomes, some varieties growing in congregated clumps while others grow from walking rhizomes. An area with several rattan clumps is called a "brake" (Nath, 1993).

A single stem of one rattan plant can produce up to a thousand fruits which grow in clusters. These fruits are edible and can be either sweet or sour. Each fruit generally contains only one seed but, although rare, two or three seed are not unknown.

Rattan grows naturally in the evergreen broad leaved forests of the North East Region as undergrowth. Most of the rattan species are climbers, using the forest trees as support. They climb with the aid of the hooked spines on the leaves and leaf sheaths and by flagellum-like prolongators of the leaf reaches (Nath, 1993). In many of the climbers the stems are long, usually round and of a uniform thickness.

There are four genera of rattan found in India, covering over 20 species. In the

North East Region, Calamus, Daemonorops and Plectocomis are found, the first two of which are indigenous to Assam. Without benefit of proper botanical information, it is difficult to know which type of rattan is being used because it is always referred to by its local name. According to one rattan manufacturer, only three types of rattan are grown in Assam: “jang”; “pani jati” (plains jati) and “heuka” which is similar to “raidang” but not as strong and therefore not as good a quality.

Table 1 shows the botanical names of the rattans that are available in Assam along with the local name and a general description. Without knowing the physiology of the plant in question it is not possible to ensure the accuracy of the botanical name associated with the local name but there is a correlation between sources. Other names encountered in discussion with craftsmen included: “suli”; “hill jali” (a variety of raidang), “arna”, and “latma”. “Sitalpati” or “pati doi”, used to make mats and baskets, is often referred to as rattan but is actually a reed.

Although the core is spongy when alive, rattans are solid, flexible, elastic and strong. The outer surface is hard, smooth and shiny when dried. A deposit of silica near the surface of the rattan gives it a varnished appearance (Nath, 1993). Different species of rattan require different growing conditions in terms of soil, climate, light, etc.

Harvesting consists of cutting mature stems at the base and dragging them down from the trees that are supporting them. The soft end pieces are discarded. The rattans must be dried soon after cutting as undried rattans deteriorate very quickly.

The rattan used by craftsmen is of varying thicknesses. Mainly rattan is graded according to diameter and measurement is millimetres, the thickness determining end use.

Table 1: Types of Rattan Available in Assam

Botanical Name	Local Name	Description
<i>Calamus guruba</i>	Sundi or Ringiar	Usually 1/4" to 1/2" diameter; very flexible and strong. It grows to a length of 300' and is used for making baskets, furniture, and also as tying laths. Ringiar is the local name in the Khasi Hills area of Meghalaya where it grows at elevations of 4000 feet.
<i>Calamus tenuis</i>	Jali or Jati	Usually 1/8" to 3/4" in diameter, length usually 60' to 80'. It has a moderately hard skin and is used mostly for tying laths. It is usually marketed in split halves. It is also used for baskets.
<i>Calamus leptospadix</i>	Tita	A variety of Jali that is used for baskets and furniture. When young, its soft terminal portion is used as a bitter (tita) vegetable.
<i>Calamus floribundus</i>	Lejai or llejeri	This is like jali but shorter in length.
<i>Calamus flangellum</i>	Raidang or rangi	This rattan is like jali but bigger and usually has a harder skin. The name is rangi in Cachar and Raidang in the Brahmaputra Valley. Size can be up to 1.5" in diameter and length up to 30'. It is used as stakes and as frames for furniture.
<i>Demonorops jenkensiastus</i>	Golla	A very hard and stiff variety that can grow up to 2.5" in diameter with internodes around one foot. It is used like Raidang.
<i>Calamus latifolius</i>	Houka or Honnah	This is a small rattan, 1/2" - 3/4" in diameter with internodes from 9" to 1.5'. It is very pliable. It is collected with roots attached and is used as sticks or riding whips.

Source: Nath (1993) and Sarma (1996)

Large diameter rattans, 18 mm and up are used for furniture frames and such items as implement handles. Medium rattans, 10 mm to 18 mm, and small rattans, less than 10 mm, can be used for basketry and small wares or can be split to be used as weaving material or binding material.

A rattan furniture and handicrafts manufacturing industry exists in the North East Region but the small size of most enterprises leaves them vulnerable to competition and hinders them from growth. There are numerous craftspeople producing a range of products. Currently, large amounts of rattan are being harvested and shipped out of the region in unprocessed form. When the unprocessed rattan leaves the North East, little has been added to the value of the raw stock. There does appear to be significant opportunity to change this and in so doing provide added value and employment skills which could be retained within the region. There are some cooperative arrangements and some government societies to promote crafts and small enterprises but it appears that access to markets, lack of management skills and entrepreneurial spirit may be barriers to natural resource development in the region (B. Belcher, pers. comm.). Budget and investment constraints most likely impact on development as well.

Although the production to consumption system has three major components: production (growing and harvest); processing (curing and manufacturing); and consumption (marketing and end use), this paper concerns itself mainly with the segment of the system from purchase of cut rattan to point of sale because it was here that the most information was available. A description of the production system based on the information gathered from the manufacturers, rattan depot owners or managers and

exporters is included because the supply of rattan is of primary importance to the rattan manufacturing industry.

Sustainability of the Resource

All indications point to an increasingly limited commercial supply of raw rattan. Comments from informants about the quality (size) and availability of certain types of rattan show that it is becoming more difficult to obtain. Price increases over the past 10 years also indicate a decrease in supply. The fact that in the Sonitpur District there is no rattan, and the actual number of bundles available in Assam, in 1992, was nearly three times greater than the 1993 estimate for the number of bundles available, support the notion that over-harvesting has occurred. While conducting the research for this paper, an attempt to reach any area of Assam where rattan still grows met with frustration as these areas were too far in the jungle to guarantee safety for the researcher.

It could be otherwise. Rattans can grow in a variety of climatic conditions, depending on the species, and cultivation and replanting have been carried out successfully in other areas. "Yield and economic importance of rattans are due to extensive harvesting and occurrence rather than high productivity per unit area" (Shiva, 1993). Rattan grows naturally. Research has shown cultivation to be possible and even practical given the proper growing environment. There have, to date, been no attempts at cultivation or replanting in North East India although there are examples of successful cultivation in other rattan growing regions of South East Asia. In Kalimantan, Indonesia, to cite an example, small areas of rattan have been cultivated by villagers for over a hundred years. More recently, in the last 15 to 20 years, larger, commercial scale plantations have been

established in Malaysia, China and the Philippines (Manokaran, 1990). The growing time for rattan may be a deterrent to the local people. Ten to fifteen years for a rattan to mature, while short compared to timber products, is still a long term investment for people who are not inclined to invest or save for the future.

The availability of raw material is of paramount importance to the rattan manufacturing industry. While the sustainability of rattan production is beyond the scope of this practicum, the issue deserves at least a cursory discussion. The system of leasing harvest areas (the mahal system) itself is not a deterrent to long term supply of raw rattan. What is a deterrent is the term of the lease. The short term nature of the lease is an invitation to the mahaldar (lease holder) to take as much rattan as possible during the term of the lease because there is no incentive to do otherwise. Similarly, the villagers who are cutting the rattan have no incentive to preserve the young rattans because the mahaldar only has agreed to pay them for what he can get for this season. A long term lease, regardless of who owns it, would encourage access to the rattan when it has reached maturity, and therefore full economic value, providing the economic value is higher than the leaseholder's opportunity cost.

Detailed studies of indigenous knowledge of rattan in North Eastern India are not available, but it would seem reasonable to assume, there is some detailed traditional ecological knowledge that pertains to these species. Sustained-yield harvesting of rattan is a potentially valuable component of overall land use planning and forest management (and presumably livelihood strategies as well) throughout much of Southeast Asia, for the following reasons: in many areas, commercially valuable rattan species are found

abundantly; rattans can be harvested at any time of the year; sustainability rates are potentially high because of vegetative propagation; market demand is high; and many villagers (including some of the poorest) prefer rattan collecting to other uses of the forest land (Siebert, 1993). It looks as if there is a potential to increase use of the raw material to produce marketable goods that will strengthen the economy of the local people while, at the same time, benefit the environment through the preservation of the forest. To avoid over exploitation it will be necessary to understand the factors that influence people's use of the product in different situations (Arnold, 1992). Also important is the issue of property rights and how the specific regime affects the extraction of the resource.

There is potential to link with other agro forestry initiatives such as the newly announced rubber plantations in Meghalaya. The rubber trees could provide support for rattan to climb on and both extractive industries could co-exist. In Sumatra, in Kalimantan, and in Java, rattan has been planted with rubber trees on rubber estates and in the Perum Perhutani forest areas of Java rattan has been planted with teak and non-teak standing trees (Nasendi, 1994).

Replanting should also occur. One District Forest Officer indicated that replanting is, in fact, implied in the cutting regulations but he could provide neither the regulations nor anything more specific in terms of detail. Although there are possible incentives that would make replanting an attractive option, replanting regulations would require diligent enforcement to be viable - enforcement both at the initial stage of ensuring the planting occurs and to prevent pre-mature harvest - neither of which is likely to occur.

Management Agreements: In India, in 1989, the West Bengal Resolution was

passed which legitimized community management of local resources. The Resolution dealt primarily with usufructuary rights but in reality recognized the right to manage certain forest resources that had already been initiated by local communities over other user groups in the vicinity. Following the West Bengal Resolution, a national resolution was approved that encouraged experimentation with collaborative management systems in other parts of India (Poffenberger & Singh, 1993); (Kant et al., 1991).

Throughout southeast Asia, including India, different forestry co-management (the sharing of management power and responsibility) arrangements exist; however, they usually have certain elements in common. The co-management arrangements are explicit in providing user groups with usufruct rights only. There is no land allocation or lease and ownership remains vested in the state. The lack of ownership leads to tenure issues which are generally not mentioned in the resolutions. Tenure issues can include questions of who has the right to tenure and under what conditions will that tenure exist. In India, most of the arrangements recommend village-level committees as functional groups and these village-level groups are to be operated through the forest department officials. There is also a general lack of clarity about regeneration or intensive planting of the forest area. This last issue concerns the level of investment by the participating community and the expected return.

While these co-management agreements may be considered an advance in the protection of the forest resource, there are problems that will have to be addressed in time and “. . . this does not in any way guarantee that common property relations will necessarily support sustainable use of renewable resources” (Sengupta, 1995).

As populations in the North East Region continue to grow, land and forest resources will become increasingly scarce on a per capita basis. Organizational or institutional mechanisms will have to be developed to deal with such issues as existing rights, equity and tenure. "Someone has to decide who may control the resource, who may use it, and under what circumstances . . . it has been a settled fact since Aristotle that common property resources, like private property resources, needed governance" (Haefele, 1974). Government is one form of such an institution, but in community groups, this same type of representation can be seen. Leaders emerge and take on status as decision makers (and authority) for the rest of the group. Management implies the ability to exclude users and control the resource. Locals who have the decision making authority become part of the institutional arrangement for management of the resource.

Institutions and Policies: It is not enough to simply transfer rights from the state to the community. As political, economic and social changes occur, there is a concomitant shift in political, economic and social institutions. Co-management agreements could be one way to secure a commercial supply of rattan in the North East Region; however, if these agreements are to be successful, local institutions and indigenous land use systems must be recognized (Fox, 1993). It is necessary, however, to understand, not only the local customs and traditions but, the political climate, both nationally and locally, before implementing these agreements. The national goals and objectives for management of the local forest resource may be in direct conflict with the local needs.

Although there was no evidence to support the theory, on the local level, traditionally powerful families or elements of the community who have become wealthy

may seek to 'manage' the forest resource for their own ends; quick profit coming at the cost of over-exploitation of the resource (Poffenberger, 1990). Local people, many of whom may be poor, may have a usufructuary right based on use of, or presence on, the land. Divergent claims which lead to conflict indicate the necessity for a mechanism to resolve these conflicts. The poor who are the most affected by loss of access to the forest and what it provides often have little access to legal process and must rely on local institutions to protect them. "This tends to ignore the fact that breakdowns in common property systems may reflect deficiencies in policy or policy implementation rather than deficiencies in the property regime" (Arnold, 1992).

Co-operative Self-Governance: Common property/communal institutions are a form of co-operative. "A co-operative is an ethical and practical, clearly delimited community which grants property rights to members in recognition of their capacity for, and demonstration of, right conduct, that is, right as defined by the norms of that community" (Ekelund, 1987).

Common property resource management cannot be taken out of its social context. It is the sense of community, of having a common bond, that enables a co-operative existence. The individual looks to the long term good of the community even if it means he sacrifices his/her own well being in the short term. "Cooperative self-governance imparts to the individual the lesson of self-restraint by placing the experience of self-government within a social field" (Ekelund, 1987). The individual must think beyond himself and must be given either an incentive or a deterrent to do so.

Existing Rights and Equity: The equity issues that surround the forest resources

have to be considered in light of the aim of forest restoration. If the forests are considered valuable solely because of the environmental role they play, ie carbon sink, erosion control, ecosystem balance, etc., then the claim the displaced, the landless and the poor (often the same individual) have on the resource may be negligible. If, however, reforestation serves a multiple purpose of economic services as well as ecological, there is a responsibility on the part of the managing party to ensure equity in the distribution of benefits. Dove (1993) states that forest reserves are over-exploited due to the absence of income sources. Non-timber forest products (NTFPs) provide a livelihood (cash or income in kind) for people who live in or near the forest. Dove (1993) has pointed out that the granting of rights to local, usually poor, communities, is really illusory. The lands and the products therein are usually marginal and if, by chance, a market is created for the products, outside interests who are more powerful, politically and financially, manage to disenfranchise the locals so that they are worse off than before a market was created. Peluso (1994) has observed that poverty in natural resource-dependent areas often has to do with factors such as the shift from labour-intensive to capital intensive resource extraction, unequal exchange and the clash between traditional economics and market economies. Resource problems are not really environmental problems; they are human problems that we have created at many times and in many places, under a variety of political, social and economic systems (Ludwig et al., 1993). The problem, according to Dove, is not that these people are poor but that they are politically weak. More powerful political forces exploit the forest for commercial logging because it is viewed as more important, economically, than NTFPs. Even conservation efforts on the part of

government can be a means of controlling the commercial economic value of the forest by excluding the inhabitants from use of the resource, sometimes by violent means (Peluso, 1993).

“There is, however, increasing evidence that decentralized, local community based management is a viable method of maintaining and regenerating forest resources. Interventions seek to effect joint management of forest land, building on mutual benefits to be obtained by local people and reduced protection costs for the forest department. Most successful examples seem to occur in areas where the technical knowledge already existed at the village level and the missing ingredient was an effective agreement between village institutions and local representatives of the government” (Arnold, 1992). It must be remembered that cooperative management can refer not only to the use and extraction of the raw resource but also to the manufacture and marketing of a finished product.

“Common property relations are many, occupying the continuum of choice and control ranging between complete individualization and total collectivization” (Sengupta, 1995) and a somewhat parallel form of organization to commons is the producers cooperative or labour managed firm. Although labour managed firms are quite rare, “paucity in numbers aside, PCs (producers cooperatives) exist and sometimes even thrive in market economies. . . . Arguments put forth against worker ownership often rest on an ignorance of the results that we have surveyed. Although PCs are no panacea, evidence exists to suggest that worker participation does have a role to play in industrial mixed market economies” (Bonin et. al., 1993).

ASSAM

The previous discussions of sustainability, management agreements and the issues surrounding these areas, though general in nature, are applicable to the North East Region and to Assam. Assam was selected as the site for this study because access was possible and because INBAR had contacts in the State. Assam has a population of 22.3 million, about 70% of the North East Region total. Tribals represent only 13% of the population. Forest land represent 31% of the land area. Degradation of the forest area is partly due to the extent of jhum cultivation and commercial exploitation of timber. The consequences of this reduction in forest cover have been increases in flash floods due to increased rapidity of run-off and problems with siltation and flooding in the Brahmaputra valley which is a natural flood plain. Assam is divided into districts. The two hill districts of Assam, Karbi Anglong and the North Cachar Hills, (Figure 4) represent only 4% of the population of Assam but comprise about 19% of the land area. These areas of the State are the predominant ones for rattan production. Around 53% of the households are practising jhum cultivation here. The population of these areas is between 800,000 and 900,000 and the area is about 16830 sq km.

In 1972, there was a reshuffle of territory in the North East. The States of Meghalaya and Mizoram were created from the formerly larger State of Assam. At that time, the districts of Karbi Anglong and North Cachar Hills elected to remain as part of Assam after negotiating more autonomy for the respective Autonomous District Councils. In these areas, the Autonomous District Councils have administrative responsibility for all major development activities.

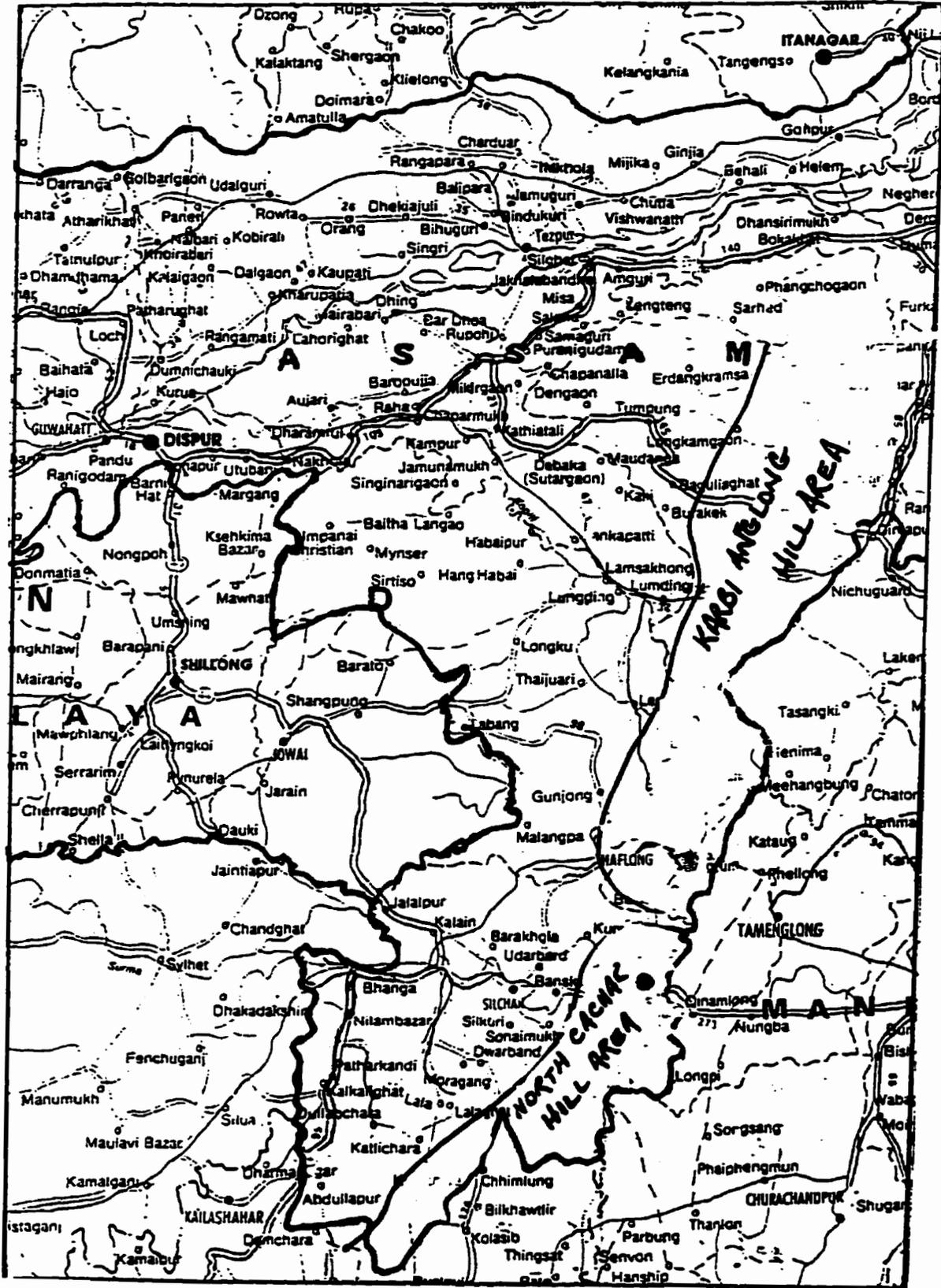


Figure 4. Map of the Karbi Anglong and the North Cachar Hills Area

Transportation: Transportation is difficult in Assam and in the rest of the North East Region. There are few roads in general and even fewer are black-topped. Because of the method of road construction, the heavy rains of the monsoon and seasonal flooding create potholes and rapid road decay, making travel slow and difficult. The roads that do exist in Assam are narrow and congested with vehicular traffic, farm workers, local labourers and domestic animals. Gasoline is expensive, costing about Rs 23 per litre (about \$0.90 Canadian). Diesel fuel is much less expensive at Rs 7 to Rs 8 per litre (\$0.27 - 0.31 per litre Canadian). There are two road exits for cargo from the North East other than through Guwahati; one through Tripura to Bangladesh to the coast, the second through Manipur to Myanmar (Figure 5).

Railway lines from all points in the North East converge in Guwahati.. To get to the rest of India from the North East Region by rail, passengers and cargo must go through this centre (Figure 6). Air transport is expensive, erratic and subject to cancellation without notice. Capacity is limited. To fly from Guwahati to Silchar, both of which are in Assam, only 347 km apart (a fifty minute flight), there are direct flights only 3 days per week which are often cancelled. The alternative is to fly to Imphal, Manipur, or to Calcutta and then to Silchar at twice the cost of a direct flight. The same trip by road would take a minimum of nine hours by car, or twelve to thirteen hours by truck or bus. There is no direct rail line between the two points.

Assam shares its borders with all six other North East states, as well as the Indian state of West Bengal on the north west, and the countries of Bhutan in the north and Bangladesh on the south west.

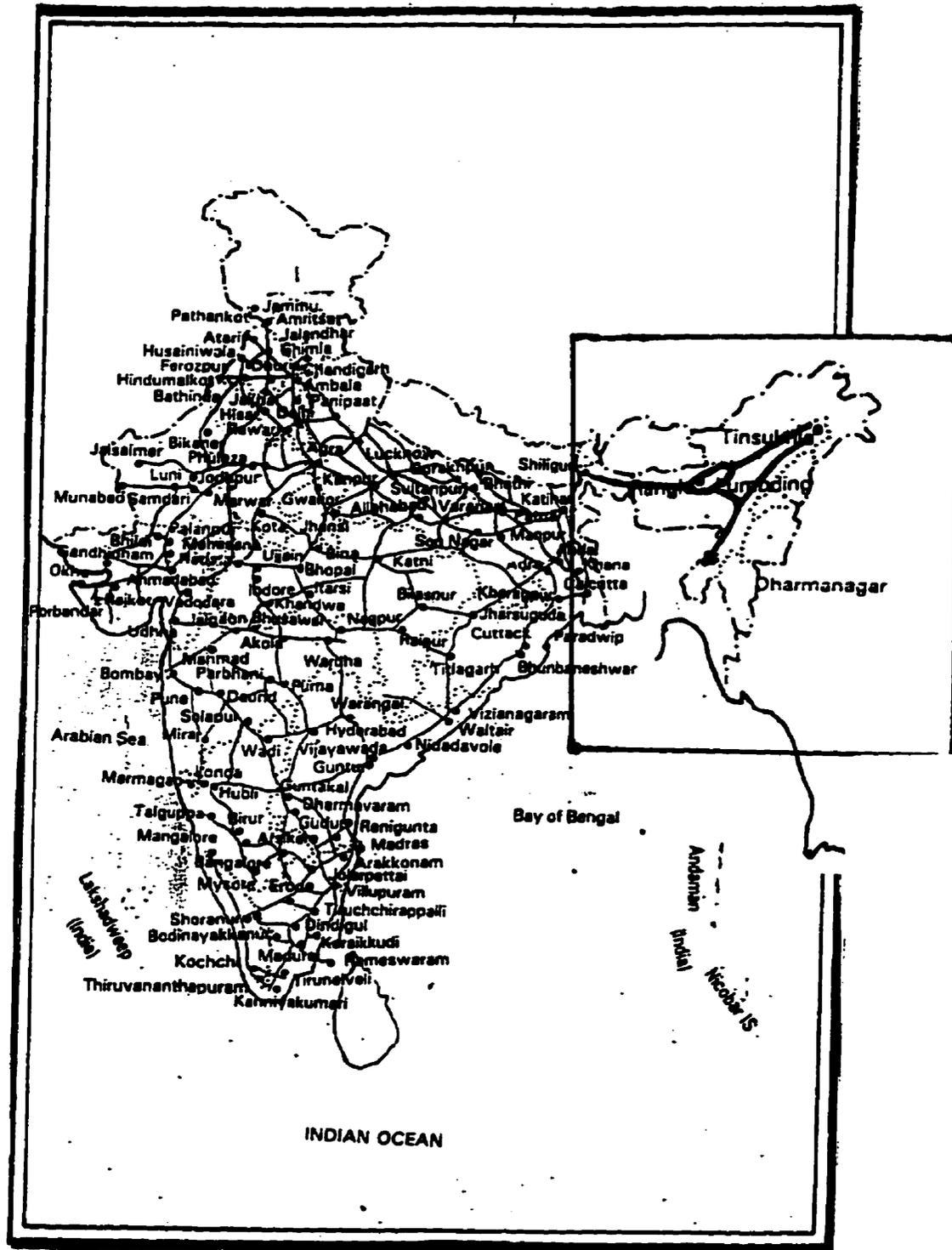


Figure 6. A Map of India's Railways

CHAPTER FOUR

The Assamese Rattan Industry

PRODUCTION

Rattan is cut either from government reserved forests or from unreserved forests that are village community property. In India all forests have been nationalized. Reserved forests are those that are designated as such by the government where rights of use and access are restricted; unreserved forests are available for access and use as common property. The available area is divided into sections known as "mahals" and licensed through tender or auction. The licence holder is known as a "mahaldar". Officially, the District Forest Office (DFO) surveys the forest to determine suitability for harvest. If sufficient rattan is found to allow cutting then a sale notice is distributed. This notice indicates which mahal(s) are available, where they are and how much of a deposit is required with the submission of the tender. Conversation with the District Forest Officer in Cachar District revealed that the forest was not surveyed for harvest suitability. The tenders were sold, by area, to the highest bidder with a minimum reserved price which was usually 10% over the previous years sale price. In Cachar District there are four rattan mahals, only one of which has been active in the past six years. In the 1995 - 1996 season, a licence for Number 4 mahal was sold for Rs 46,501 (approximately C \$1,800) which was down Rs 7,599 from the Rs 54,100 sale price in the 1990/91 season. In the Sonitpur district there has been no rattan to sell for at least the last ten years.

A second method of obtaining a mahal licence is through what is referred to as a "negotiated settlement". A negotiated settlement occurs when a prospective licence

holder approaches the District Forest Office(r) for a licence as opposed to licences being offered to the public. According to the District Forest Officer, Cachar District, if the individual offers or agrees to pay at least 10% more than the cost of the previous licence for the same area, that individual will be awarded the licence.

A mahal licence can cost as little as Rs 40,000 or as much as Rs 350,000 and can yield upwards of 36 truckloads of rattan (Handa, 1996). By volume, 36 truckloads of rattan is roughly equivalent to 1800 - 2700 bundles or 180,000 to 270,000 individual rattan canes, depending on the type and diameter of the rattan.

Mahal licences are generally granted by area and for a set time period which will be specified on the licence, usually a single season or more, but are not normally more than three years. It is also possible to obtain a licence to harvest rattan based on volume. In these cases, harvesters are required to pay fixed royalties per meter length, as dictated in the Forest Plan. Examples of the royalty charges in Assam were provided by District Forest Officer, Cachar District from the Assam Forest Plan:

- a. Golla - Rs 10 /72 m;
- b. Sundi - Rs 6 /72 m;
- c. Tita - Rs 6 /72 m;
- d. Legeri - Rs 4 /72 m.

Five whole rattans or 10 halves comprise a 'kap'. The normal length of a rattan cane is 4 meters. Based on a per 72 meter royalty, each royalty covers approximately 20 rattan canes or 4 kaps.

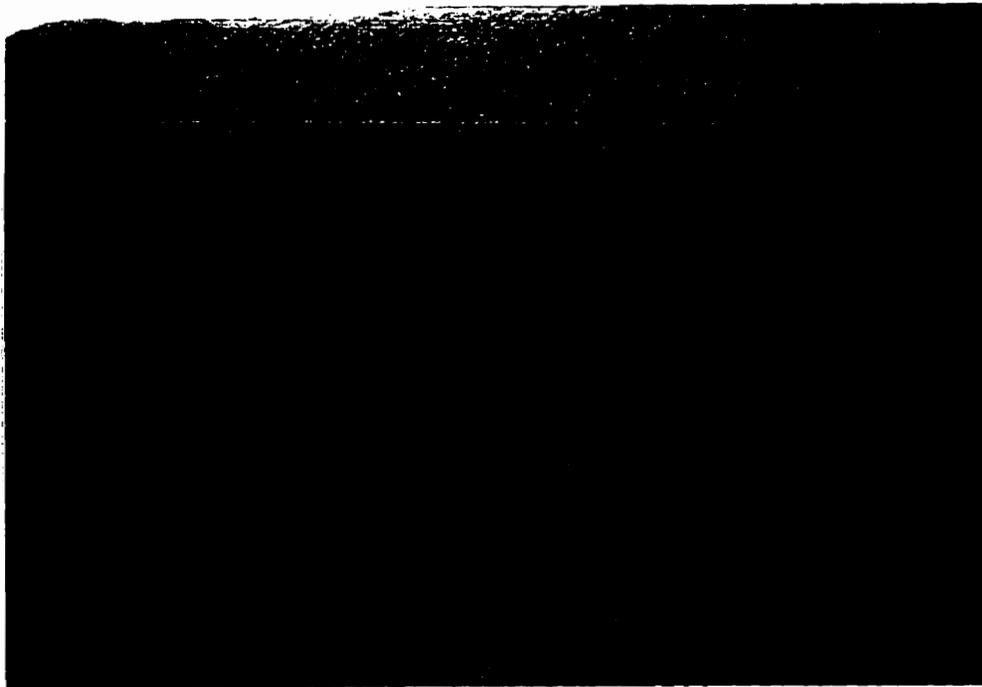


Figure 7. Bundles of Split Rattan Awaiting Transport to Kerala

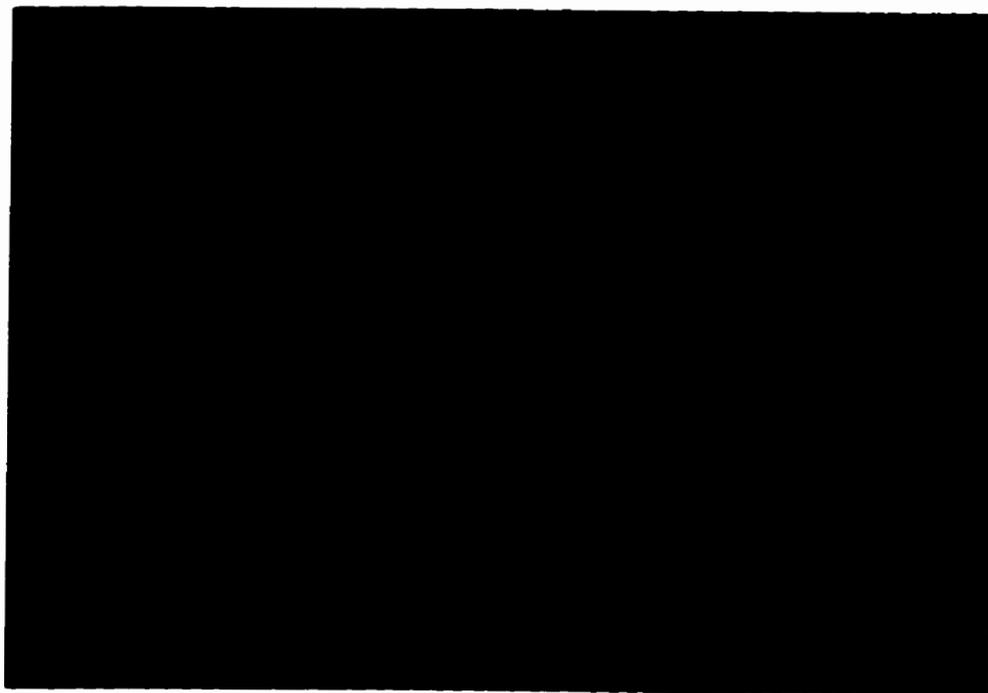


Figure 8. Rattan Drying in the Back of a Manufacturer's Establishment

In order to get the rattan harvested the licensee must negotiate a contract with the local people. A contract is made with the village headman for the actual cutting of the rattan. A cutting contract could be anywhere between Rs 5,000 to Rs 20,000 or more depending on the amount of rattan available. The headman is given the money and he hires between 24 to 36 cutters. The cutters receive an average of Rs 35 per bundle of 100 rattan canes, average length 4 m (Handa, 1996). Any money not paid to the cutters will be employed at the discretion of the village headman. Transportation to the river or roadside is included in the contract price but any further transportation costs will be extra. There is an opportunity for the harvesters to earn a little extra money by harvesting beyond the licenced mahal area. This kind of activity is illegal but is hard to detect and even harder to deter.

The process of harvesting the rattan is not destructive in and of itself because by the "very nature of the growing habit of rattans, they have to be untangled and pulled out one by one" (Shiva, 1993). It was revealed during interviews, however, that young rattans in the clump would be sacrificed to gain access to older, more desirable stems. These rattans would not get a chance to grow to maturity. There are cutting regulations for rattan harvesters but they are not readily available from the forest rangers in the field nor by the forest rangers from the District Forest Officers themselves. It is left to "the common sense of the harvesters" to decide what will be cut and what will be left.

There is very little reliable data on the availability of rattan in Assam or in any of the other North East Region states. What does exist is old but shows an unfortunate trend. During 1944-1948, total production of rattans in Assam was 27,535,000 bundles

(Anonymous, 1950). Assam, at that time, was roughly double the size it is today. Actual output in 1991/92 was 97,500 bundles (State Forest Department). Assuming a standard 4 meter length, that is about 39 million meters of rattan. The estimated availability of rattan in Assam from government reserved forests and unreserved state forests for 1993 was a minimum 34,000 bundles (13.5 million meters), approximately one-third of the amount available the year before.

From the information gained from the informants in this study, the estimated amount of rattan utilized by the rattan industry in Assam is in the magnitude of 245 million meters per year which is approximately 500,000 or 600,000 bundles dependent on whether the rattans are in 4 or 5 meter lengths. Table 2 shows the average prices for the types of rattan used in Assam and Table 3 shows estimated amounts of rattan used in the Assamese rattan industry based on government data. A more conservative estimate places the amount of rattan utilized by the industry in Assam at 68 million meters per year (170,000 bundles of 4 meter length). It is impossible to verify these estimates because most of the rattan comes from out of state and records are not kept or compiled on imported rattan. As already stated, in 1993, the State Forest Department estimated 34,000 bundles (minimum) of rattan availability. In either case, in Assam, that leaves a shortfall of at least 136,000 bundles. Even if the estimates err by a magnitude of 50%, the amount of rattan imported into Assam is significant.

Assam imports its rattan from Arunachal Pradesh, Manipur and Mizoram. Arunachal Pradesh reportedly has a ban on export of raw rattan but according to sources, the transport documents are illegally recorded as finished products while raw rattan is

shipped to Assam. From Assam, the rattan finds its way either to the local market or is again exported to other parts of India. As an example, 90% of the rattan imported into Kerala, a State in South West India, reputedly comes from Assam. As well, within the next ten years, rattan in Manipur is in danger of extinction at the current harvest levels (INBAR Newsletter, 1995). The rattan that is left in the North East States is located in areas that are increasingly difficult to access due to dense jungle and steep slopes. At present, the price of rattan is not high enough to attract harvesters to these remote, hard-to-access jungle areas.

When the rattan has been cut and has been carted out of the forest, it is transported by truck to a mahal depot or rafted down the river to a spot where it can be trucked to a mahal depot. Rattan must be dried soon after harvest as it is susceptible to insect infestation and rot.

When the rattan is transported from the forest area it is accompanied by a certificate issued by the local Forest Ranger under authority of the District Forest Officer. This certificate will indicate the amount of rattan, in bundles, that is being transported. Throughout Assam there are forest check stations at various intervals on the roads. These are for the specific purpose of verifying the legality of all timber and forest products, not just rattan. If the cargo and the certificate do not agree, the entire load and the vehicle are liable for confiscation. For rattan that is cut on private property, a certificate of origin, provided by the forest ranger, must accompany the rattan during transport.

Despite the number of forest check points and the requirements for documentation, the opportunity exists for illegal shipments or partially illegal shipments, to

Table 2. Types and Average Costs of Rattan Used in Assam

TYPE OF RATTAN¹	AVERAGE PRICE²	PERCENTAGE OF USERS³	WHERE USED⁴
Raidang	24.0	76%	Sonitpur and Cachar
Lejai	3.4	47%	Sonitpur and Cachar
Hill Lejai	18.0	5%	Sonitpur
Jang	2.7	25%	Sonitpur
Suli	1.7	75%	Sonitpur
Golla	14.0	72%	Cachar
Arna	13.0	17%	Cachar
Latma	6.9	39%	Cachar
Sundi	4.0	78%	Cachar
Railu	4.0	11%	Cachar
Jali	2.8	33%	Cachar

¹ These are the types of rattan used by the rattan manufacturers interviewed. They are presented by the District(s) in which they are used in descending magnitude of average price.

² The average price is determined by averaging the responses from the informants for a specific type of rattan. Amounts are in rupees.

³ The Percentage of Users is the percent of the respondents using this type of rattan from among the 38 interviewees.

⁴ 'Where Used' indicates which district in Assam uses a particular type of rattan.

Table 3: Rattans Usage in Assam Based on High, Low and Average Estimated Number of Workers¹

Average Price ²		Monthly Estimates ³			Yearly Estimates ⁴		
		Canes ⁷	Bundles ⁸	Meters ⁹	Canes	Bundles	Meters
17.25/cane (Large Rattans) ⁵	A	340,000	3,400	1,361,000	4,083,000	40,800	16,333,000
	H	375,000	3,700	1,502,000	4,507,000	45,000	18,028,000
	L	305,000	3,000	1,221,000	3,662,000	36,600	14,648,000
3.7/cane (Small Rattans) ⁶	A	4,759,000	47,600	19,037,000	57,111,000	571,000	228,445,000
	H	5,253,000	52,500	21,013,000	63,038,000	630,000	252,151,000
	L	4,268,000	42,700	17,073,000	51,219,000	512,000	204,876,000
Totals ¹⁰	A	5,100,000	51,000	20,398,000	61,195,000	612,000	244,779,000
	H	5,629,000	56,000	22,515,000	67,545,000	675,000	270,180,000
	L	4,573,000	45,700	18,294,000	54,881,000	549,000	219,525,000

(Average figures are in Bold)

¹ Table 7 provides a more conservative estimate of the number of rattan businesses (1000 vice 3,600). Under these more conservative estimates, the numbers in this table should be reduced by a factor of 3.6.

² Average Price is derived from the prices quoted by rattan manufacturers.

³ Monthly Estimates reflect the estimated production of rattan manufacturers. the average amount of rattan used per month and the average number of workers.

⁴ Yearly estimates are monthly estimates multiplied by 12.

⁵ The average price for large rattan canes includes raidang, hill lejai, golla and arna.

⁶ The average price for small rattan canes includes lejai, suli, jang, latma, jali, sundi and railu.

⁷ This is the estimated number of individual rattan canes utilized based on the estimated total cost of cane used in the rattan industry in Assam. (See Table 6 for details).

⁸ A Bundle contains 100 individual rattan canes.

⁹ Meters is derived by multiplying the number of individual rattan canes by 4 meter lengths.

¹⁰ Totals are an addition of large rattan figures and small rattan figures.

be brought out of the forest and find their way onto the market. Bribery and corruption were openly discussed both by government officials and by rattan manufacturers. One informant indicated that, included in the cost of one large rattan, purchased from a mahal depot, was a charge of Rs 1 for transportation costs and Rs 1 for "extra charges" - bribery or graft depending on whether one or both of the parties were guilty.

Rattan is generally purchased direct from a mahaldar (harvest area lease holder) or from a depot. A depot owner does not have to be a mahaldar but some are. In some instances, particularly with large orders, manufacturers will place an order with the mahaldar and have the rattan shipped directly from the forest to the workshop. In other instances the rattan will be shipped by the mahaldar to a depot to be distributed when purchased. It costs the depot owner Rs 500 per year for a depot licence. The manufacturers interviewed generally purchased rattan in an amount sufficient to fill the orders on hand. This is especially true of the small three or four person shop. In the case of these smaller businesses, order deposits of between 30% to 50% of the purchase price were utilized as cash flow to purchase the necessary construction materials. Some of the manufacturers indicated they purchased rattan in the local market place where it is less expensive, most probably because it was illegally cut. Several indicated the rattan would be confiscated if the forestry personnel caught them with rattan and no legal receipt. Rattan purchased from a legal source is accompanied by such proof of legal purchase.

Processing the rattan before manufacturing in most cases involved sun drying and no more. There were instances of rattan being stacked vertically and treated with sulphur to prevent insect infestation. In the Silchar area, several manufacturers boiled their rattan

prior to drying. Only in one instance was rattan found to be dried in a chamber (see Figure 9). There has been research carried out on processing methods mostly dealing with treating the rattan in a mixture of water and kerosene or other petroleum products. This bleaches the rattan and can possibly weaken it. One manufacturer has developed a process that purportedly increased the flexibility of the rattan by boiling it in water topped with a heavy oil. This heavy layer of oil on top of the water apparently acts as a barrier allowing the natural rattan oils to remain in the rattan.

PROCESSING

Based on government estimates, there are 3,600 rattan manufacturing businesses in Assam. A more conservative estimate places this number around 1000. There is no legal requirement for a rattan manufacturer to be registered with the government but a comprehensive study of all rattan manufacturing businesses in Sonitpur District indicates that only about 30% of the rattan manufacturers are registered. Registration with the District Industries Centre (DIC) can provide certain benefits to the business owner. A new entrant into the business, upon registration, can be granted a five year sales tax exemption. The business can also be eligible for a transportation subsidy both for raw materials brought to the place of business and for finished goods shipped to a point of sale - a 50% rebate on transportation costs upon application to the government. Interest rates on bank loan may also be subject to a reduction for investment loans. Of the manufacturers interviewed, only a small percentage were aware of the possible financial benefits that could be available through registration. Most were aware that by not registering they would not have to pay sales tax indefinitely. Comments from those

interviewed included information about:

- a. paying bribes to get loans and still not get a rate reduction;
- b. paying a bribe to get a loan and, 2.5 years later still not getting the loan, even with collateral;
- c. not applying for the transportation subsidy because it was not worth the time and effort of the paper work;
- d. transportation subsidy paid by the Centre (National Government) and therefore through the State Government which may or may not find its way to the rightful recipient, etc.

There are various levels of registration and taxation for rattan businesses, each involving a separate registration process and, in most cases, a registration fee. There is no official fee for registration with the District Industries Centre although there were some indications that money did change hands for registering a business. One informant cited a cost of Rs 400 to register. He was registering in order to get a bank loan. Other registrations that businesses held included:

- a. Sales tax registration;
- b. GST registration which is an Assam State Sales tax;
- c. CST registration which is a Central Sales Tax and is needed in order to sell to other states;
- d. Professional Tax registration; and
- e. Labour Licence - required if employing 18 or more people.

Many paid a yearly tax to the panchayat or village government as a kind of income tax.

The amounts reported varied but ranged from Rs 15 to Rs 40 per annum. In Sonitpur, 30% of the respondents were registered with the District Industries Centre, whereas in Cachar, 80% were. The majority of the registered informants did not perceive a benefit from being registered. In Sonitpur District, a survey of all rattan businesses had recently been conducted by the District Industries Centre. As a result all those interviewed were aware they could be registered. The main interest was in being included in government-run handicrafts exhibits where their work would be showcased throughout Assam and the rest of India.

Only 13% of the respondents had a current loan either from a bank or from another source.

There is very little mechanization of the rattan industry in Assam. The tools used in production are everyday objects found in any tool box and are available in the local market place. These tools include: knives, wooden mallets, a blow lamp and a hacksaw. With these tools, raw rattan can be turned into furniture or smallwares. The lifespan for the tools ranges from 8 months to a year with the exception of the blow lamp which will last around three years. The workshop is usually four bamboo walls, a thatched roof and a mud floor situated at the side of the road. Some shops are larger and may have two or three rooms with one or two having a cement floor but working space requirements are minimal.

The rattan worker sits on a low stool or on the ground and works with the rattan. There are three levels of rattan workers: the skilled craftsman level; the semi-skilled, where the worker is still learning and there are many strata within the level; and the

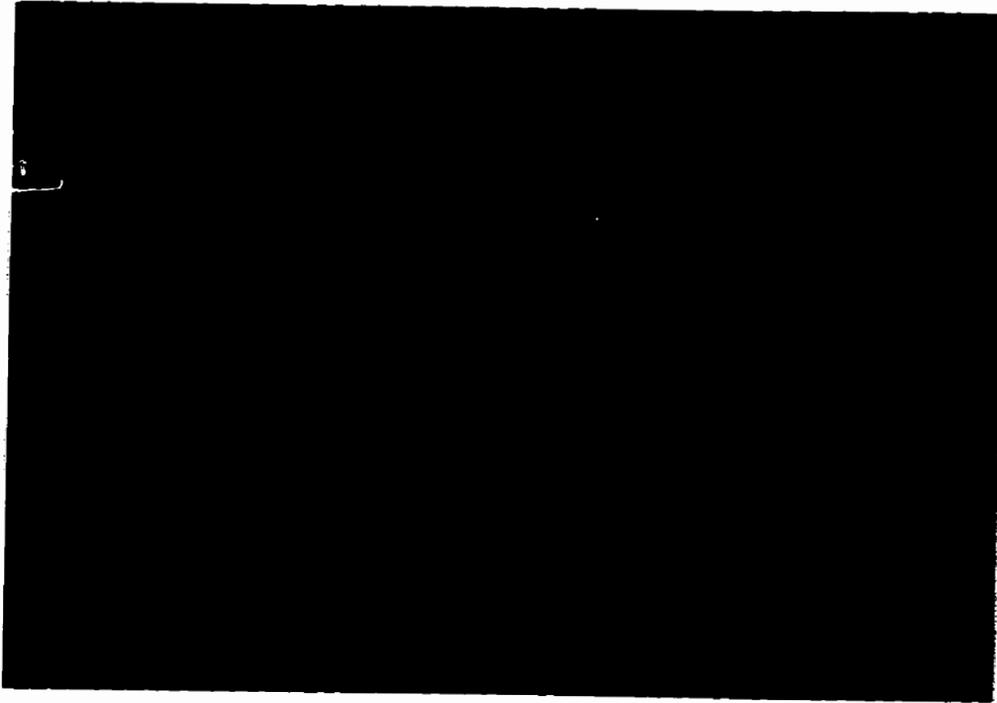


Figure 9. Drying Chamber

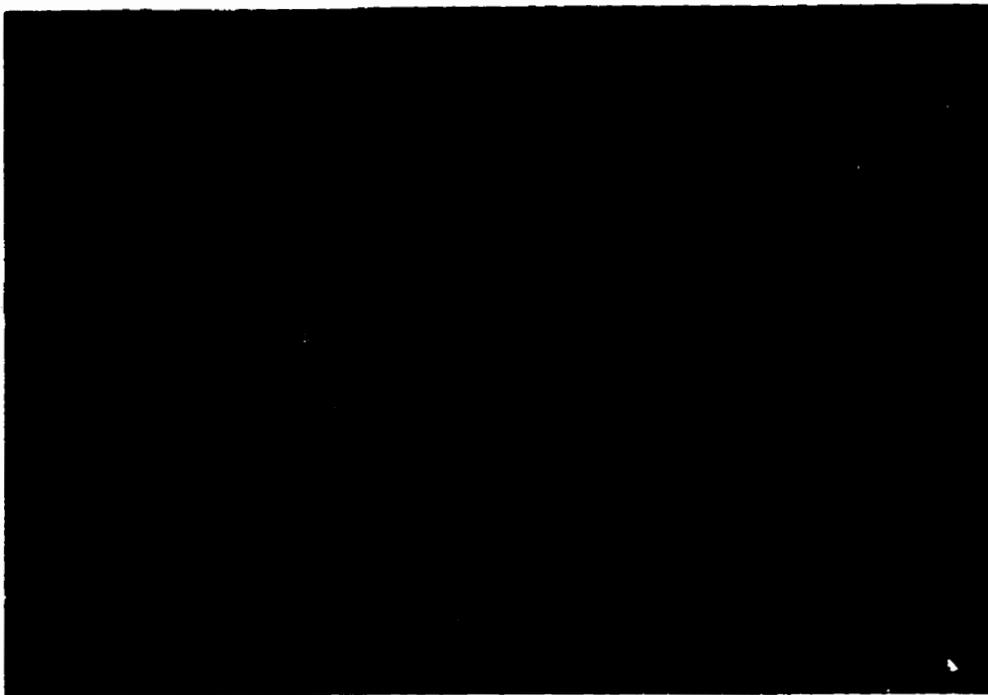


Figure 10. Traditional Method of Bending Rattan for Furniture

Table 4. Average Monthly Wages¹ of Rattan Workers in Assam

Skill Level of Worker	Skilled	Semi-skilled	Unskilled
Average High Wage (Rs)	1907	1403	849
Average Low Wage (Rs)	1687	1197	722
Average Monthly Wage (Rs)	1797	1300	785
Range² (Rs)	1000 - 2500	900 - 2000	500 - 1400

¹ Monthly Wages includes all costs to the manufacturer and are averaged in accordance with the responses as recorded from the interviews. Figures are in reported in rupees.

² The Range presents the highest and lowest wages reported per category of worker.

unskilled level of the general labourer or helper. Wage levels are shown in Table 4.

Some businesses used contract labour on either a daily basis or on a piece rate basis. These daily rates have been taken into account when calculating monthly averages. The average number of employees for manufacturing workshops is 7.7. The owner is often one of the craftsmen, especially in the smaller shops. The workshops in Sonitpur District were smaller (~ average of 4) than those of Cachar (~ average 11). Table 5 provides a comparison of the number of employees and gross incomes for businesses in Sonitpur and Cachar Districts. There are two types of employment strategies. The most common is one skilled worker supported by general labourers; in the other which usually occurs in larger shops, there will be two or three general labourers providing support to the remainder who will be skilled craftsmen.

In preparation for use, all rattan, except raidang, is peeled and shaved to remove the outer skin and smooth the nodes. Raidang will have the nodes shaved for smoothness but will only be completely peeled if a stain, dye or paint is to be applied. As a general rule, the unskilled general labourer does the shaving and peeling and initial preparation of the rattan. One worker can produce 60 shaved, 4 meter rattan canes per day. The work is done with an ordinary utility knife. As a comparison, a manufacturer's brochure indicated that a shaving machine can produce 100 shaved rattans per minute.

Splitting the rattans is also done by hand, usually by the unskilled level of worker. Again the tool is a utility knife. Some types of rattan are split for weaving and some types are used for finishing work - tying knots, covering joints and nails in the frame, etc. The division of labour is not governed by any hard and fast rules.

Table 5. Comparison of Number of Employees and Gross Incomes in Sonitpur and Cachar

District	Sonitpur	Cachar
Number of Businesses Interviewed	20	18
Total # of Employees For All Businesses Interviewed	81	212
Average # of Employees Per Business Interviewed	4.1	10.6
Total Estimated Gross Income For All Businesses Interviewed	2.6 Million Rupees/Year	4.5 Million Rupees/Year
Average Gross Income Per Business Interviewed	175,000 Rupees/Year	350,000 Rupees/Year

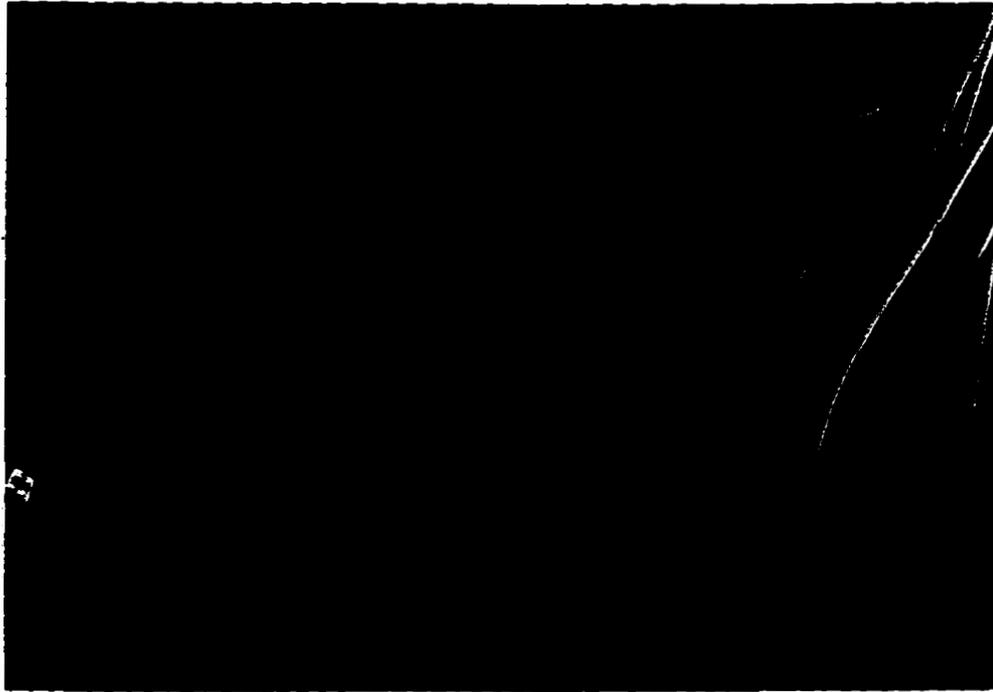


Figure 11. Series of Blades Used for Splitting Rattan (Non-Traditional)



Figure 12. Semi-mechanized Way to Bend Rattan (Non-Traditional)

One manufacturer used a self-made tool to split rattan. Its basis is still the utility knife but in this case he has set a series of blades in a block of wood that was roughly one foot to 15" square. These blades were set so that the rattan could be pulled through between the blades as opposed to running the blade through the rattan which is how it is done by hand. The result was a more uniform lath produced in a shorter period of time.

The frames for furniture are made by heating the rattan at the point of the bend with the blow lamp and manually bending the rattan to the desired shape. In the better quality furniture, any burn marks are scraped off and sanded. In lesser quality items, burn marks are left and eventually covered with varnish but are still visible. One manufacturer has devised a system for producing uniform bends. The machine, while still a manual procedure, consists of an axle piece upon which fit a series of metal covered wooden "rounds" of differing diameters. The round of the desired diameter is fixed in place and a piece of rattan is attached to the round. While one person turns the axle, a second applies heat to the rattan and bends it tightly to the round. This method allows the manufacturer to produce bends that are consistent in size and degree. This particular workshop also 'batched' the work, for example, by making twenty chair backs at one time.

Smaller pieces of rattan work such as baskets trays and lamps, etc., generally use the smaller diameter rattans which are also the cheaper varieties. The whole rattan can be coiled while the rattan is still green and allowed to dry this way but this makes cleaning the rattan more difficult. The cleaned rattan can also be soaked for about 20 minutes to make it soft enough to work with. Other small pieces are woven from laths or rattan splits. From the interviews, most respondents were unclear as to what percentage of their

business was generated through manufacture and sale of smallwares. What was clear was that the businesses tended to specialize in either furniture or in smallwares but not both. The indications are that making small goods is labour intensive and to make any profit, volume has to be high. Generally, unless smallwares were made to order, or for export, this part of the business was left to fill time between furniture orders and to using up any wastage rattan that may be left over from other products. Approximately 10% wastage of rattan occurs in the production of furniture. Of the manufacturers interviewed, there were three whose business consisted primarily of exporting smallwares. Two of these employed contract labour from the villages. These people worked from their homes in their spare time and were paid by the piece. Materials, design and specifications were supplied. In all other cases of businesses interviewed, the employees were full time. One other manufacturer employed ten ladies from a village to work in the workshop from 10 until 4 o'clock each day. He had also provided the training for these women. Thirty six percent of the respondents indicated another source of family income other than the rattan enterprise.

The rattan manufacturers prefer to produce to order. The orders they receive dictate the amount and type of rattan that is purchased. Responses indicated that a deposit of between 30 - 50% of the selling price is requested from the customer. This deposit serves the two-fold purpose of providing security for the manufacturer and providing a cash flow to purchase material and pay labour costs. As a rule, the manufacturers did not tend to stock large quantities of rattan on speculation.

Designs for furniture were taken from photographs, pictures in magazines or

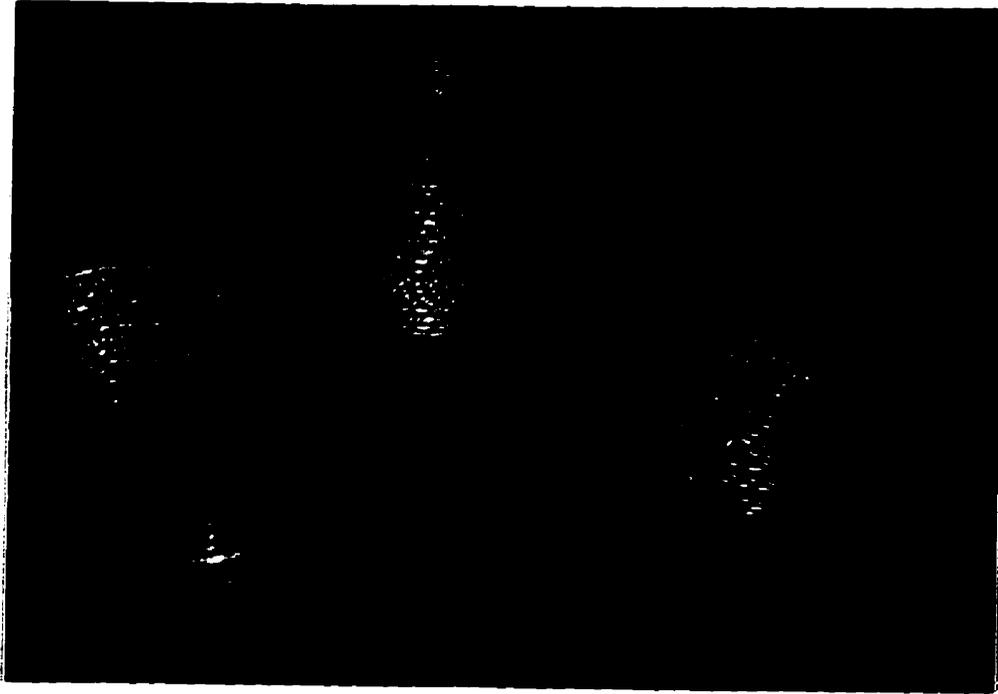


Figure 13. Samples of Smallwares

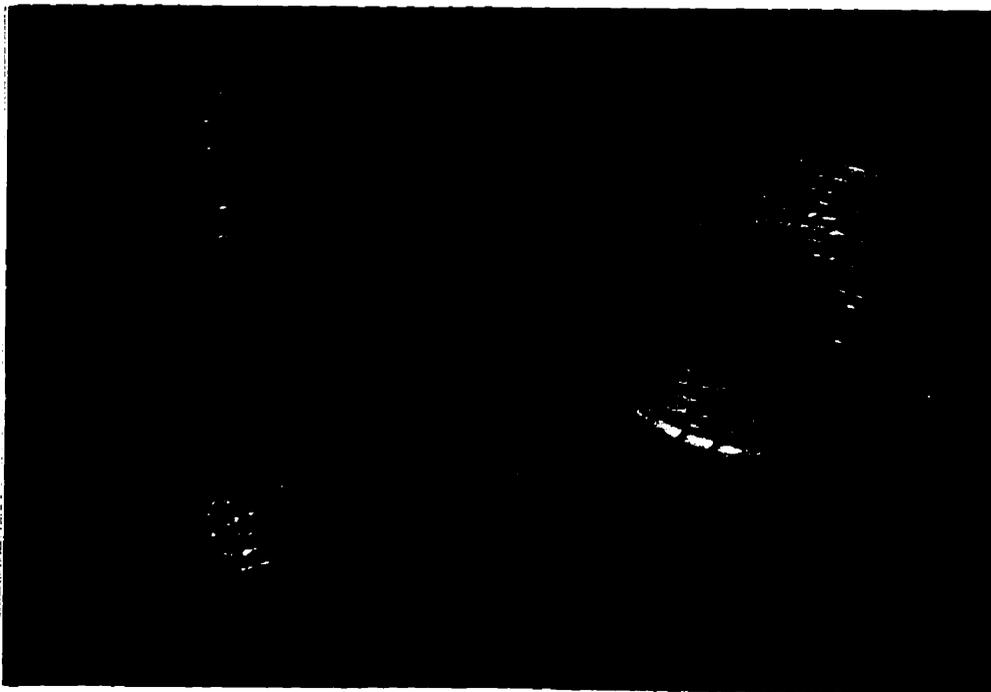


Figure 14. Smallwares

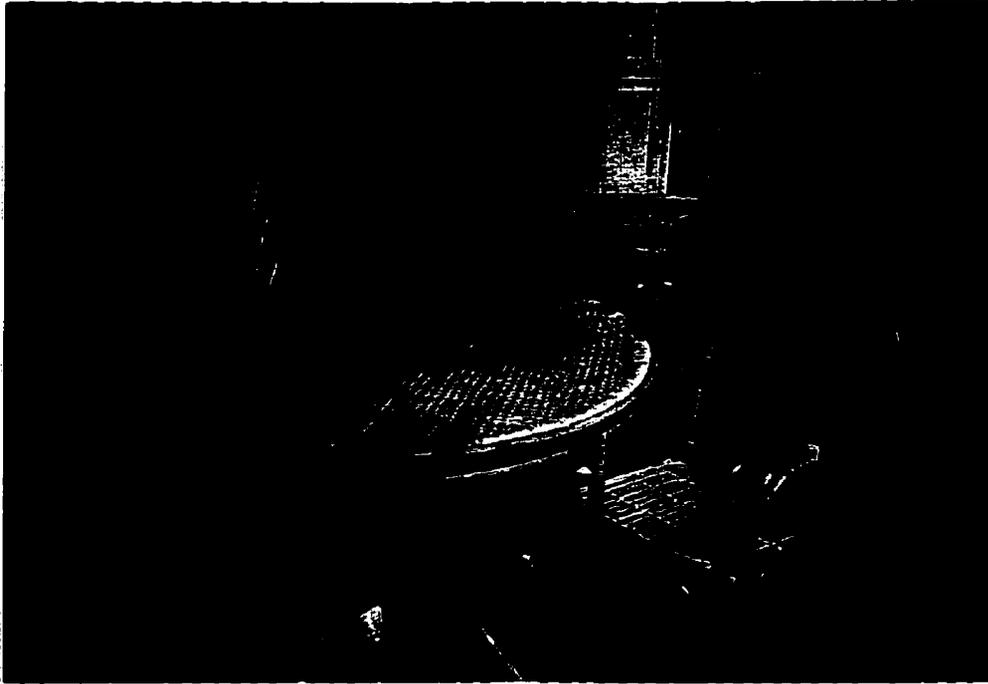


Figure 15. Rattan Furniture

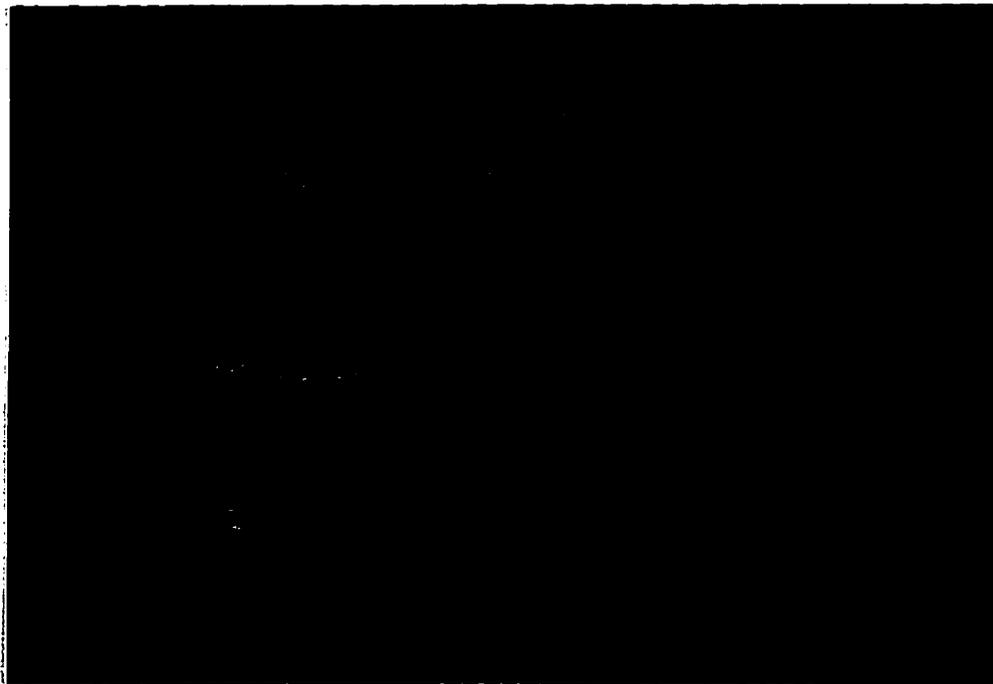


Figure 16. Four Piece Set of Furniture Used for Standardization of Data

catalogues. The catalogue seen in most shops was called "Olivier", a Japanese product. The most current version seen was dated 1991. Most shops would show a prospective customer photographs of designs they had previously manufactured.

The quality of the products depends not only on the construction of the piece and the design but on the care taken with the pre-manufacturing treatment of the rattan and the finishing of the final product. Shaving, sanding and general cleaning of the rattan before and after production is evident in better quality pieces. Very few, if any, of the shops visited, produced furniture that was of a quality suitable for export to the world market. This was confirmed by an exporter who has worked with approximately 2,000 artisans throughout the North East Region over the past twenty years. It is not that the skill is not there, but consistency is lacking. The small manufacturers do not have access to the type of customer who requires and demands the high level of work expected in the export market. These workers are also unaware of the level of craftsmanship found in products from competing countries.

In the Philippines, for example, the rattan industry is totally geared to export. The typical manufacturing unit is a proprietorship employing 15-20 workers all engaged in manufacturing. Raw material supply is in the semi-processed state so manufacturing units do not need unskilled labour for this purpose. Manufacturers in small towns are linked to exporters. Raw material supply is well organized as to specification. The semi-processed rattan: rattan splits, cores and laths are readily available (Nath, 1993).

The products manufactured in Assam are, as stated, generally made to order. Military personnel are a significant consumer in both of the areas examined, especially so

in the Sonitpur District. In Balipara, Sonitpur, there are three military bases within a 15 km radius and the rattan industry would not exist as it is without military consumers. Interviews in Silchar did not reveal the same degree of reliance on this single source. Military personnel have a posting cycle of three years which means that, on average, one-third of the military population will rotate every year. Questions about the military preference for rattan furniture indicated that availability, or limited availability, in other areas of the country was a major reason for the popularity. Also cited as reasons were fashion trends and, to a lesser degree, cost. Cost could not be confirmed as a reason but several of the manufacturers had previously been woodworkers in the area and indicated the price of wooden furniture and rattan furniture to be comparable.

Some manufacturing work is carried out as a sub-contract. When one shop receives orders it cannot fill with its own employees, it may engage another shop to provide the commodity. This is not a frequent occurrence as the owner's first avenue would be contract labour in his own shop. At certain times of the year, however, contract labour is not available.

CONSUMPTION

The consumption segment of the production to consumption system for the rattan manufacturing industry comprises marketing and sales. Most manufacturers displayed their wares at the side of the road in front of their shops. Overhead in these establishments is minimal, usually limited to rent and sundry expenses such as replacement tools. Many shops did not have electricity. Indirect costs such as these amount to approximately 10 percent of the total cost of production. Particularly in Cachar District,

some manufacturers were found to have a retail outlet at a location different from their workshop.

Sales in Sonitpur District were 95% locally retail oriented. Only one of the manufacturers did any international export and this was mainly smallwares. In Cachar District, retail was secondary to wholesale and most of the wholesale, especially furniture, was for retail outlets in the major centres in India - Calcutta, Bombay and Delhi, particularly Calcutta. A few of the units in this District supplied smallwares to exporters in Delhi for international wholesale.

One of the exporters was totally vertically integrated. Not only did he own his own mahal licence and contract for rattan harvest but he also supplied the raw materials to craftsmen along with design and specifications, and operated a finishing plant in Delhi. All product was shipped from the field to the Delhi plant for addition of brass and copper fittings, polishing and packaging for export to overseas buyers. This vertical integration has the benefit of eliminating transaction costs at the different levels as well as providing a constant source of raw material and finished goods. There is no evidence that any of that benefit is passed on to either the harvesters or the craftsmen except with regard to steadiness of employment. In fact, even though the growth of organized trading systems in the rural areas could create additional employment and possibly income, that organization can divert control and access from those who previously benefitted from the production and trade of these same goods (Arnold, 1995).

In India, the trade in non-timber forest products was nationalized so that market middlemen could be replaced with a system that would provide a greater benefit to the

harvesters and manufacturers or producers. The red tape of the state marketing agencies seem to have given rise to market distortions and a rigidness that is adversely affecting those who were supposed to benefit (Shiva, 1994).

Table 6 provides a summary of the financial data gathered in Assam based on 3,600 rattan manufacturing businesses and Table 7 provides the same summary information based on 1,000 businesses.

Table 6. Summary of Financial Contribution of Rattan Industry in Assam, Based on an Estimated 3,600 Businesses

Category	In Indian Rupees		In Canadian Dollars	
	Per Month	Per Year	Per Month	Per year
Gross Income ¹	76,914,000	922,968,000	\$3,000,000	\$35,996,000
Employee Income ²				
Industry Average	35,184,000	422,208,000	\$1,372,000	\$16,466,000
Average Low	32,748,000	392,976,000	\$1,277,000	\$15,326,000
Average High	37,606,000	451,272,000	\$1,467,000	\$17,600,000
Cost of Rattan ³	23,655,000	283,863,000	\$923,000	\$11,071,000
Indirect Costs ⁴	6,538,000	78,452,000	\$255,000	\$ 3,060,000
Profit ⁵	11,537,000	138,455,000	\$450,000	\$ 5,399,000
Average Amount of Rattan in Meters ⁶	20,398,000	244,776,000		
	22,515,000	270,180,000		
	18,294,000	219,528,000		
Percentage of the Cost of Rattan to Harvesters ⁷	7.6%			
Number of Business ⁸	3,600	Number of Rattan Workers ⁹	27,720	

¹ Gross Income is the result of the average estimated production of each business multiplied by the average price of each businesses products times the estimated number of businesses in Assam (3600).

² Employee Income is taken from Table 4.

³ Cost of Rattan is the Gross Income less employee income less indirect costs times 3600.

⁴ Indirect costs are estimated at 10% of Gross Costs (Gross Income minus Profit) (based on interviews) times 3600.

⁵ Profit is based on the overall average percentage of profit (15%) of Gross Income.

⁶ Average Amount of Rattan in Meters is taken from Table 3.

⁷ Percentage of Cost of Rattan to Harvesters is based on the wages paid to harvesters of Rs 35/bundle over the total cost of rattan.

⁸ Number of businesses is based on the survey in Sonitpur District where 27% of the total businesses were registered with the District Industry Centre and extrapolated to the approximate number of registered businesses in Assam (1000) as estimated by the State Industry Office.

⁹ Number of Rattan Workers is based on 7.7 workers per business times 3600.

Table 7. Summary of Financial Contribution of Rattan Industry in Assam, Based on an Estimated 1,000 Businesses

Category	In Indian Rupees		In Canadian Dollars	
	Per Month	Per Year	Per Month	Per year
Gross Income ¹	21,365,000	256,380,000	\$ 833,000	\$ 9,999,000
Employee Income ²				
Industry Average	9,773,000	117,276,000	\$381,000	\$4,574,000
Average Low	9,097,000	109,164,000	\$355,000	\$4,257,000
Average High	10,446,000	125,352,000	\$407,000	\$4,889,000
Cost of Rattan ³	6,571,000	78,855,000	\$ 256,000	\$ 3,075,000
Indirect Costs ⁴	1,816,000	21,792,000	\$ 71,000	\$ 850,000
Profit ⁵	3,205,000	38,457,000	\$125,000	\$ 1,500,000
Average Amount of Rattan in Meters ⁶	5,666,000	67,993,000		
	6,254,000	75,050,000		
	5,082,000	60,980,000		
Percentage of the Cost of Rattan to Harvesters ⁷	7.6%			
Number of Business ⁸	1,000	Number of Rattan Workers ⁹	7,700	

¹ Gross Income is the result of the average estimated production of each business multiplied by the average price of each businesses products times the estimated number of businesses in Assam (1000).

² Employee Income is taken from Table 4.

³ Cost of Rattan is the Gross Income less employee income less indirect costs times 1000.

⁴ Indirect costs are estimated at 10% of Gross Costs (Gross Income minus Profit) (based on interviews) times 1000.

⁵ Profit is based on the overall average percentage of profit (15%) of Gross Income.

⁶ Average Amount of Rattan in Meters is taken from Table 3.

⁷ Percentage of Cost of Rattan to Harvesters is based on the wages paid to harvesters of Rs 35/bundle over the total cost of rattan.

⁸ Number of businesses is based on an estimate of the number of businesses taking into account the number of rattan manufacturing areas in Assam.

⁹ Number of Rattan Workers is based on 7.7 workers per business times 1000.

CHAPTER FIVE

Opportunities and Constraints

THE OPPORTUNITY

Information regarding the world market in rattan is difficult to locate. The most recent figures found, indicate the annual global trade in rattan end products to be approximately US\$ 4.0 billion (1985 figures) and domestic trade can be conservatively estimated at a further US\$ 2.5 billion. Domestic trade includes the sale of goods manufactured within a country and purchased in that same country, not for export. “This figure (*domestic trade*) includes value of goods of urban markets, and of rural trade, and of value of rural usage of the material and products” (Manokaran, 1990).

The four major rattan producing countries of Southeast Asia, Thailand, Philippines, Indonesia and Malaysia, have all instituted a ban on the export of raw rattan in order to protect and stimulate the local manufacturing industry. It is estimated that the rattan industry in the Asia Pacific region employs over 500,000 people in harvesting, processing and manufacturing. All of the rattan goods exported from the Philippines and Thailand, and approximately half of that from Malaysia, is in the form of furniture. Table 6 provides the import and export values for the rattan producing and using countries for the year 1988.

Rattan furniture can be viewed as a well developed and still expanding international market. At the present time, India is not a large player in the global rattan market and, although India is only one among the 15 rattan producing Asian countries where the traditional furniture industry has been providing livelihood to rural poor for

Table 8. 1988 Import/Export Figures for Rattan in Millions of US dollars.

Country	Import	Export	Comment
Indonesia	None	\$102.6	Ban on export of raw and semi processed material from July 1988.
Philippines	\$5.77	\$135.1	Largest export market is US, approx. 50-60%
Thailand	N/A	\$8.98	Raw material moved into Thailand, until recently, unchecked from Indonesia, Malaysia, Singapore, Myanmar and Laos.
Malaysia	~\$13.0	\$81.3	Whole rattans and splits were exported mainly to Singapore, until 1989. Any imports came mainly from Indonesia until in 1989 the Indonesian government instituted a ban on all but finished rattan products.
India	N/A	\$0.29	1990 estimate
China	N/A	N/A	In mid-1980's, about 80% of rattan requirements had to be imported. Annual requirement is estimated at about 30,000 tons with domestic supply below 4000 tons.
Papua New Guinea	None	~\$0.04	Rattan resource extensive but under-developed.
Myanmar	N/A	~\$0.06	Raw Material export to Malaysia and Singapore
Vietnam	N/A	~\$0.02	
Singapore	~\$19.0	~\$55.0	No rattan resource of its own. Import figure is undervalued because it does not include value of imports from Indonesia.
Hong Kong	~\$125.0	~\$180.0	No rattan resource of its own. Imports both raw material and finished goods for re-export particularly from China.
Taiwan	~\$40.0	~\$140.0	The industry peaked in 1987 with imports of ~ 75 million and exports of ~200 million US.

Source: Manokaran, 1990.

This table does not include Bangladesh, Laos or Sri Lanka because there are no data. Rattan does, however, grow in these areas although it is now subject to severe depletion.

centuries, the trend here has been toward a decline in trade when there has been a sharp increase in other producing countries (Bhat and Dhamodaran, 1994). Rattan grows in three major areas of India: the southern area; the Nicobar and Andoman Islands; and the area under study, the North Eastern states. The rattan in the south western area is depleted to the state where rattan is being imported from the other two regions to maintain the industry. The Andoman and Nicobar Islands have recently placed a ban on the export of raw rattan in order to protect the local manufacturing industry there. Different sources in Assam indicated there is a government ban on the export of raw rattan from Assam but the evidence showed otherwise. The rattan being exported from Assam has its origin in other states of the North East and is being funneled through Assam, either legally or illegally, and being sent to the southern states. It is estimated that 90% of the raw rattan used in Kerala comes from Assam.

The bans imposed by the four major sources of rattan should have a significant impact on the three countries that imported the bulk of the resource: Singapore, Hong Kong and Taiwan. Singapore and Hong Kong have no rattan resource of their own and Taiwan has very little. Although I could find no recent figures on the subject an obvious result of the bans on export is an increase in raw rattan prices to these consumers, a concomitant raise in the price of finished goods and a decline in the supply. Assuming that world demand for rattan products remains constant or is, indeed, increasing, there is an opportunity for India to step in and fill, at least part of, the supply gap for finished products, assuming sustainability of the raw resource. It is, therefore, concluded that an opportunity exists for Assam to gain a greater share of the international market for

finished rattan products.

THE LIMITING FACTOR

In Chapter 3, the problems associated with the long-term availability of rattan have been discussed in terms of incentives to conserve and the issues that surround the provision of that incentive. Interviews with informants yielded indicators that point to a decline in the commercial availability of rattan. The indicators include:

- a. increase in price of raw rattan over time;
- b. decrease in available size (diameter) of rattan canes over time; and
- c. increased travel distance into the forest required to locate raw rattan.

It appears that some form of intervention will have to occur in the near future if the stock of raw rattan is to continue. If this does not occur, the rattan manufacturing industry in Assam could be subject to serious decline as opposed to expansion. Supply of raw material is the limiting factor for the expansion of the rattan industry in Assam.

THE ROLE OF MARKETING

“Marketing is a key ingredient in economic growth and development” (McCarthy and Shapiro, 1979). There are two elements of marketing:

- a. Micro-marketing, which is the set of activities performed by an organization to anticipate and satisfy customer needs and to direct required goods and services from the producer to the client; and
- b. Macro-marketing which is a socio-economic process which directs the flow of goods and services from producers to consumers in such a manner as to match supply capability with demand in both the short and long term.

Macro-marketing is concerned with the system of production and consumption as opposed to the individual firm and consumer. The role of marketing in economic development has advanced beyond the small village trade and barter system but the same basic principles still apply. The basic purpose of markets, and middlemen, is to facilitate exchange and allow more time for production, consumption and other activities including leisure. In less developed countries "marketing occupies a critical role in respect to the development of such 'growth areas'. Indeed, marketing is the most important 'multiplier' of such developments. It is in itself in every one of these areas, the least developed, the most backward part of the economic system. Its development, above all others, makes possible economic integration and the fullest utilization of whatever assets and productive capacity an economy already possesses. It mobilizes latent economic energy. It contributes to the greatest needs; that for the rapid development of entrepreneurs and managers, and at the same time it may be the easiest area of managerial work to get going (Drucker, 1958).

It can be argued that modern sectors are those that have moved from market based exchange to a market system. A market system is characterized by a geographical integration of markets in which there is a tendency for the prices of goods and services of similar quality to converge toward being uniform. Alternatively, traditional sectors of an economy are areas where such integration has not yet occurred and therefore there is no such tendency for uniformity of price to emerge. In this light, it is not the transfer of resources from the traditional to the modern sector that results in development. Rather, it is the change of a market based exchange economy to a market system that results in

economic development (Grabrowski, 1995).

There are three main functions of marketing:

- a. the exchange function which involves the buying and selling of products.
The buying is the search for, and the assessment of, goods or services and the selling involves providing the right goods and services at the correct prices;
- b. the distribution functions which are transportation and storage of goods;
and
- c. the facilitating functions: standardization and grading; financing, risk taking and market information. These functions aid the exchange and distribution functions, enabling the entire system to function effectively.

In North East India there is potential to move from the local, domestic market into the world market and take advantage of the current opportunity presented by the number of bans on raw rattan export. The situation, at present, is one of a cottage industry with many small, isolated enterprises trying to carve a niche in a finite market. The rattan manufacturing industry in Assam would benefit from a shift to a marketing system from the market based exchange system in practice at this time.

THE EXCHANGE FUNCTIONS

In Assam, there are craftsmen with the skill and the numbers to produce work of a quality and quantity that is equal to that available from competitor countries. One complaint in the international marketplace is that the quality of rattan furniture manufactured in India is inferior to that manufactured in the other South East Asian

countries. It has been shown that this inferiority is not intrinsic to Indian rattans but is due to the harvesting and processing techniques (Bhat et. al., 1992). There is little, if any, selling involved in the marketing sense of the word. Most product is sold from a roadside, open-air shop and advertising or promotion is virtually non-existent. Buyers in the local market do not use middlemen although there is a limited export market where the exporter does provide that role. Buying and selling may be the cornerstone functions of any market system but without improvement in the other two functions the system will remain at the micro-market level.

Quality and Capacity: If entry into the international markets depends on improved quality and increased production capability, the current system is ill-equipped to provide either component. A look at the two areas of study provides confirmation of Leidhold and Mead's (1987) contention that even small increases in the size of the (rattan) production unit will often be accompanied by significant increases in economic efficiency. Table 5 shows that, even though the number of units sampled in the Sonitpur District was higher than the Cachar District sample, the number of people employed was 2.6 times higher in Cachar. Most revealing is that estimated gross income was nearly twice as high in Cachar as it was in Sonitpur. This indicates economies of scale attributable to the number of workers employed but, even so, the units in Cachar were not large enough to produce furniture in the quantities required for international export. Organizational size will need to be expanded.

With an increase in number of employees, further division or specialization of labour could be introduced. An important issue is that of reliance on foreign technology

over indigenous development of technology. “A position on either extreme would not be in the interest of long term development of any developing country” (Mathur, 1994). It would appear to make more sense to combine both ‘buy some, make some’ as a viable strategy. Notwithstanding the desirability of mechanization, much could be done to increase productivity without it. Quality, and therefore consistency, may, however, demand at least some form of modern equipment. This may be most appropriate at the unprocessed rattan level. If the rattan could be provided to the manufacturer in semi-processed form, all labour effort from that point could be captured in the end product.

Investigation revealed no unit was using power machinery for the preparation of raw rattan or for the manufacture of end product. Consistency of input is pre-requisite for consistency of output and this could be provided mechanically.

DISTRIBUTION OF PRODUCT

The North East corner of India is physically isolated from the rest of the country with only a small corridor existing for ground transportation. What roads do exist are in disrepair and congested by people, animals and slow moving vehicles. Reliable transportation is a key ingredient to a viable marketing system. Product must reach its ultimate destination on time, every time. Air freight is expensive and is only available from a few points in the state. Rail travel also is not readily available in all manufacturing centres, necessitating the use of trucks to transport the finished goods to a railhead where the consignment might sit for weeks unattended, waiting to be shipped to Delhi, Bombay or Calcutta. The alternative is to transport the entire journey by truck which is slow and unreliable. Figures 5 and 6 illustrate the railway and road networks respectively.

Not only is it necessary to streamline the operations to increase quality and production, the products must be able to reach their destination on time - every time. Transportation by truck from Silchar to Delhi takes fifteen days, from Sonitpur a day less. Rail travel could be longer or shorter which is its main problem - unreliability. Informants indicated goods could be left sitting on the rail platform for three weeks after being delivered there by truck from the manufacturer. All who voiced an estimate said that, given the current system, an order placed in Assam would take a minimum time of three months to reach its destination in Delhi, Calcutta or Bombay.

The timely supply of raw material could also benefit from some improved transportation. Timely delivery of a finished product is, in part, dependent on timely delivery of the inputs. Not only is the collection system involved, as discussed above, but the transportation process from forest to manufacturer should come under scrutiny. The transportation system in North East India is a major constraint to the expansion of the rattan manufacturing industry.

The second physical distribution function, storage, is also a constraint to expansion in this industry. The manufacturers are, for the most part, small businesses operating from a one or two room hut at the side of a road. Goods are generally made to order and there is not much need to have a storage facility for finished goods or for raw materials. International order quantities are normally by the container load which translates into 900 to 1000 pieces of furniture. The length of time it would take these small enterprises to manufacturer that number of pieces would require storage facilities of at least container size.

FACILITATING FUNCTIONS

Standardization and Grading: In the absence of standard specifications or grading rules, there can be no quality control. To meet the demand for raw rattan, rattan suppliers tend to harvest immature stems and supply them without adequate drying. This can result in breakage, infestation or discoloration. Neither the raw material nor the finished goods benefit, at present, from a standardization program. Raw material may be subject to a grading system but it is in terms of size, the diameter of the rattan dictating the grade. The craftsmen can judge whether one piece of rattan is better than another by colour, feel and weight but this distinction is in the eye of the craftsman.

The manufactured goods are not subject to any form of standardization. The technology used to manufacture rattan products is traditional and primitive. The economic conditions do not justify the cost of full mechanization but mechanization of certain processing tasks could provide the uniformity that would make Indian rattan products more competitive in the international market place.

Financing and Risk Taking: The local population prefers to be employees or paid labour as opposed to owners or partners in cottage industries. This can be attributed to a number of causes including, but not limited to, lack of know how, poor management due to lack of experience, minimal education which contributes to lack of foresight for future development and difficulties with administrative procedures for financing, communication and government assistance (Lakshmanan, 1993). They are not inclined to invest in the future, preferring to spend any excess income now instead of later (IFAD, 1995). These opinions were substantiated by several of the informants.

Less than 30% of the informants had any current or past financial assistance in the form of loans from any source.

The position of many small businesses can be threatened by competition from within. The low capital and skill requirements necessary for entry into the industry make it common for more production units to exist than the local market can support. The small size of the majority of rattan businesses also hinders them from becoming larger. They are too small to handle the expense of moving to larger facilities and powered equipment. "Studies have shown that the very small, generally one-person activities are the least efficient; even small increases in size are often associated with significant increases in economic efficiency" (Leidhold and Mead, 1987). This appears to be substantiated by the data gathered in this study as previously discussed and as shown in Table 5. While the number of units investigated in Sonitpur was slightly larger than the number interviewed in Cachar, the total number of employees was 2.6 times higher in Cachar and the gross income was twice that of Sonitpur.

Financial institutions need to rethink their lending policies and criteria. New criteria could take into account such things as allowing harvesters or their organizations to be legitimate debt holders even if they only have use rights to an area. Allowing physical stock of product to serve as loan guarantees for working capital and using forest inventories of economically valuable species as collateral for loans. Small rattan manufacturing businesses, as well as harvesters, need access to financing if they are to be able to expand their operations or to invest in the future. There also needs to be some educational information provided to these groups that underline the long-term benefits

associated with investment.

Market Information: In Assam, there is a mixture of peoples from a variety of ethnic origins. There are Assamese, Bengalis, Nepalis, tribals of various backgrounds, people from Bangladesh and others. The tribals tend not to be constrained by artificial state borders but rather by traditional tribal boundaries. The people of Assam are fragmented and insular. There is not even a common language in the State. The current political climate is tending toward greater autonomy by ethnic groups and therefore increased isolation. This could be a serious constraint to the development of the rattan industry where a well developed communication system is required.

Not only is there limited information passed within the State, market information from the outside fails to penetrate to the manufacturing level. Business owners were ill-informed about government programs, small business subsidies, available markets or current furniture designs. The manufacturers do not have information on markets available to them. There is a lack of information on the amounts of product required, variation in prices, etc. Beyond this constraint, there is a need for information on future supply and demand of the product, new processing technologies and future price projections that will enable a shift from market based exchange to a marketing system. This information is not readily available.

A system of prices or values can only be as good as the information on which it is based. For rattan products the information should cover the nature and extent of the resources, the technology available and costs associated with the management and harvesting as well as the quality attributes of both raw materials and finished good.

Sustainable availability or security of supply is a most important item of information to an industry based on an extractable resource.

OTHER FACILITATING CONSIDERATIONS

Government: The division of responsibility among the levels of government is cumbersome and confusing which adds to the lack of accurate information available to the small business entrepreneur. The Department of Industry is organized into different functional areas. Rattan and bamboo are treated as a single sub-function of the Handicrafts Department. This is fairly logical except that handicrafts is subsumed as a division of Textiles, placing the emphasis at the wrong level for those interested in crafts other than textiles. There is a functional stove pipe approach to problems which does not allow the interdisciplinary nature of the issues to emerge. Supply of forest products are the responsibility of the Forest Departments which may be under direct control of a District or of an Autonomous District Council. The Chief Conservation Office has a presence in the Districts but is not directly linked to the District Forest Officer. Manufacturing is a function of industry but development of a rural manufacturing project may be the responsibility of the Department of Rural Development. At the District level, this will be the District Rural Development Agency (DRDA). There is also a Small Business Agency that could be involved. Coordination between and among departments and levels is a weak link and the possibility exists for projects and policy directions to be counter to each other.

Natural resource laws and regulations frequently take the form of difficult to enforce regulations, rather than effective incentives. Regulations based on restrictive

policies can create hurdles to effective and equitable marketing of products by producers. Bans on logging, for example, can close access to the forest for the gathering of other products. The current ban by states or countries on the export of unprocessed rattan products can lead to a thriving black market with little of the benefits being channeled to the producers. While the goal of the ban may be to stop the harvesting of a product, the opposite of that results.

Price controls also often have the opposite effect of the original objective. Price controls may be created to either keep prices down or keep prices up. The usual goal is to keep prices down, especially if the buyer is a state agency or board. Price controls rarely benefit the collector. One of the roles that government agencies should not play is regulator of collections, prices, transport, and handling of rattan. Such involvement has usually not benefited the collectors, not has it assisted in conservation of the resource. Taxation policies could be used to encourage the rational use of forest resources and generate income from forest resource products. One way to do this is to tax unprocessed raw materials. This both encourages local processing and provides funds for investment in it.

Politics: The many political problems of North East Region impact on practical market considerations such as adequate and reliable transportation and storage systems; communications systems; and standardization, to name a few, and it is apparent these factors are difficult to treat separately if a comprehensive plan is to be implemented. In the case of North East India, there is a negative political climate at present, with a tendency toward increased autonomy for individual tribal groups and individual states. North East

India is a melange of ethnic diversity and there are inherent problems of intergroup distrust and enmity. The rattan industry spans many of these ethnic groupings and any development attempt will have to address the requirement for cooperation. Local or joint management of resources is a promising strategy for the region to promote sustainability of supply just as cooperatives or business associations may be an appropriate vehicle for manufacturers to develop a marketing system geared for expansion. For this to occur, policy and legislation must be redesigned to allow communities to take a greater role in their own future.

In order to get a higher price, and more standardization, collectors, and/or manufacturers, could form an organization, whether it is a cooperative, community user group etc., that will assemble the individual members small amounts of raw rattan or rattan product. Organizational cooperatives are in operation in many places in North East Region but few have been successful. Four major deficiencies have been cited for the failure of cooperatives in Asia:

- a. Lack of strong leadership to direct the cooperative;
- b. Lack of group homogeneity to ensure a common view on problems and rapid identification of corrective measures;
- c. Lack of planning on long term goals; and
- d. Lack of government support needed at the initial stages of the cooperative

(Anonymous, 1983).

What is needed within the rattan industry is an increase in cooperation between the states and between the tribal communities of the rattan growing areas. While the background

research for this thesis was conducted in the North East state of Assam, it soon became apparent to the researcher that it will be impractical, if not impossible, to develop the rattan industry in one state, with limited raw material, without addressing the industry in the entire North East Region. The supply of raw rattan and the production of finished goods are two separate systems but they are inextricably linked and those links cross state borders.

Intermediaries: An added factor in the economic development within the rattan industry is the amount of control the intermediaries have over the distribution of income within the current system. Any scheme that is devised to improve the lot of the poor has to account for, and try to counter, the fact that increases in money available to the lowest levels will, to some degree, find its way into the hands of a higher level. "A combination of the . . . lack of knowledge of actual market prices and poor marketing supports the middlemen" (Anonymous, 1983). "Poor communication and transportation facilities, highly segregated markets, and unequal bargaining power between buyers and sellers make the field more profitable for middlemen" (Pabuayon, 1990). Harvesters will sell to or through middlemen for want of a better marketing system and because middlemen will provide money, including cash advances, without bureaucratic intervention (Punzalan, 1981). In this respect, intermediaries provide services that are vital to the industry and are not provided by any other party. If, within an industry, middlemen currently do not exist, they will be created when there is an opportunity for personal gain. For example, when the mahalder wants his rattan cut, he does not hire labour directly, he negotiates a contract with the village headman. The headman then hires the workers at the going rate which

will be low. The difference between what the village headman receives and workers are paid will probably become the 'finders fee' for the headman. This is not illegal but it does serve to widen the gap between the haves and the have nots.

Corruption: Graft is also a problem. Take, for example, the little 'extra' that has to be paid at the forest check stations. This extra charge is passed on the consumer and therefore becomes an indirect production cost. The price is distorted and the market does not function efficiently. Instances of bribery cited by informants have been documented. These are examples of a hidden cost that inflates the price of raw rattan and the price of the finished products. Once again it is the poor who suffer because they lack the financial means to play the game. The problem is not confined to the rattan industry as it is prevalent and visible at the highest levels of the Indian government.

Anecdotal information was given on studies that were carried out by some NGOs as a follow up to a number of government loan programs. Attempts were made to contact loan recipients to find out how the money had been spent and if they were, in fact, better off for having received the financial assistance. The loans had been administered by a bank which in turn might have agents in the subject region or for the subject group. In many cases, it was discovered that the stated beneficiaries did not exist. The bank, or the agent, or both had falsified applicant names and pocketed the money. In other cases, money may have been loaned for the purchase of animals or equipment. When these loans were followed up, the equipment was sold or the animals had been sold or eaten. In other cases, the loan recipients simply took the loan and moved on. Needless to say, the loans were seldom paid back.

MOTIVATION

One of the supplemental questions asked in interviews concerned the barriers to development of the rattan industry. Among the opinions, lack of motivation was cited as an underlying problem. This coincides with Lakshmanan's (1993) theory that rural people prefer not to own or be a partner in a cottage industry business but to be paid employees. One of the informants cited several examples of his own attempts at motivating his employees. This individual, over a period years, had attempted incentive schemes based on:

- a. time - eg. the worker would receive Rs 50 per day for a 20 day month. If the worker worked 25 days he would receive Rs 100 per day for the extra 5 days; and
- b. quantity - eg. The worker would receive Rs 1000 for 10 chairs. If he produced 15 chairs he would receive Rs 150 per chair for the extra 5 chairs.

These incentive schemes failed every time he tried them. The same individual believed in training his work force. He would employ unskilled labour from the villages. After a six month training period at unskilled level wages, the workers would be promoted to semi-skilled status and wages with additional promotions over time. This plan also was unsuccessful as the labourers, once trained, would move on to either other workshops where requirements were not as high or to other industries altogether. One other telling story involved training of forty women in a village. These women were trained in basket making and were required to work in the workshop outside the home. Even though, or

because, these women were earning approximately Rs 600 per month, as much as their husbands, it was not long before the village council forbid women from that village to work outside the home. The families lost the additional income and the entrepreneur lost his investment in training.

It is not only the motivation of the people that is important. The government must be motivated to develop the rattan industry on a regional basis and provide support both financially and administratively. If this does not happen, the obstacles to success may prove too large for an individual or group of individuals to overcome.

The issue of motivation is important to development. If the intended beneficiaries of development are not actively committed to improving their own financial situation then any proposed scheme is doomed to failure. This motivation must extend beyond the short term but again, according to IFAD (1995), the people indigenous to these regions have little foresight in terms of long term investment.

One long term possibility is to use the education system to instill the people, a whole generation of people, with the ideology of self-betterment and the means to achieve it. This would include not only management skills but the benefits of cooperation with diverse segments of the population.

Direction: Improvements in motivation, cooperation and organization will not occur without strong direction and leadership. Systems of property rights and enforcement mechanisms for such rights must be established but on their own, these will not be enough. "Cooperative relationships between buyers and sellers can survive and expand only if formal rules are reinforced by systems of informal rules. The latter can only

develop over time through the continuous interaction of the participants in the marketplace” (Grabowski, 1995). The state must create an environment in which both formal and informal sets of market rules can develop. For North East India to gain access to modern technology and the global market, and do so in a cost effective manner, will require four ingredients:

- a. Motivation;
- b. Cooperation;
- c. Organization; and above all
- d. Strong direction or leadership.

Table 9 provides a summary of the constraints discussed in the preceding material.

Table 9. Summary of Constraints

CONSTRAINTS
Limiting Factor: The decreasing availability of domestically grown rattan.
Quality of product
Production capacity of individual businesses
Reliable transportation system
Storage capacity
Lack of market information system
Inherent risk aversion
Lack of access to financing
No standardization or grading of raw materials or finished products
Motivation
Other factors

SUMMARY OF CONCLUSIONS

Based on the data gathered in Assam, the literature reviewed and the above discussion of the opportunities and constraints associated with the rattan industry in North East the following is a summary of the conclusions drawn:

- a. an opportunity exists for Assam to gain a greater share of the international market for finished rattan products.**
- b. supply of raw material is the limiting factor for the expansion of the rattan industry in Assam.**
- c. the rattan manufacturing industry in Assam would benefit from a shift to a marketing system from the market based exchange system in practice at this time.**
- d. the transportation system in North East India is a major constraint to the expansion of the rattan manufacturing industry.**
- e. small rattan manufacturing businesses, as well as harvesters, need access to financing if they are to be able to expand their operations or to invest in the future. It is further concluded that there needs to be some educational information provided to these groups that underline the long-term benefits associated with investment.**
- f. for North East India to gain access to modern technology and the global market, and do so in a cost effective manner, will require four ingredients:**
 - i. Motivation;**
 - ii. Cooperation;**

- iii. Organization; and above all
- iv. Strong direction or leadership.

INTERVENTIONS

While the many of the conclusions of this study refer specifically to Assam, the researcher believes any interventions would have a greater chance of success if applied to all of the North East Region. Without integration, cooperation and involvement of all the seven states, any attempts at developing a marketing system will be fraught with problems due to the inter-state dependencies that exist for supply of raw material. In Assam, this dependency could possibly be overcome with time and effort but, from a development point of view, it may be more beneficial to the region to involve all the states.

Expansion of the Rattan Industry: There is sufficient reason to believe an opportunity exists for the rattan industry in North East India to expand its area of operation, both domestically, if the market exists, and into the international arena. In order to achieve this objective, it is necessary to have a clear and definitive understanding of what is involved. As with any other project the first requirement is commitment to the objective, both from the local participants and, in this case, the various levels of government. Assuming a decision has been reached to actively pursue industry expansion, an integrated, region-wide implementation strategy that will deal with all of the constraints and provide the necessary support should be developed to include, not only Assam, but all seven states of the North East region. There is always more than one way to solve any problem but it is reasonable to suggest that any suitable strategy should address both the long term and the near future. The long term time frame for the implementation strategy

should cover the lifecycle of rattan which is a minimum of ten years to maturity but could be as long as fifteen years. This time frame would allow for a concurrent development of a conservation program and a marketing system for the rattan manufacturing industry, geared toward sharing in the global market. If the time frame is too short, the benefits will not be easily identified due to the heavy, up-front investment required.

A second benefit of having a long time frame for the strategic plan is that it allows for the management of realistic expectations. It also allows for the number of participants to be small at the beginning. A long time frame allows a project manager to take small, easily documented steps (the short term tactical direction) to produce small but significant benefits that can reinforce participation in the process and encourage the non-participants to want access to those benefits. Education and skills transfer can now be a gradual process based on positive reinforcement. Success can be a powerful motivator and motivation is indeed one of the issues that needs addressing.

The policy implications of such a course of action may not be significant because of the various government directives that currently exist to promote the economic development and cultural well-being of the "Scheduled Tribes". As stated previously, the Eight Plan of the Constitution provides for development of suitable land models that will encourage long term investment and for the development of appropriate marketing infrastructure. A policy in place shows precedent and could make future allocation of funds possible. There would be many components and sub-components to such a development strategy as this but this paper will deal only with the ones previously discussed as factors that impact on the rattan manufacturing industry.

The Role of Government: Central Government should take a lead role in negotiating a type of collective agreement among the states of the North East Region in that they will work toward an integrated industry based on cooperation in the production, processing and marketing of rattan and rattan products. This will necessitate cooperation in the development of:

- a. A regional transportation system;
- b. Harvest, raw material and manufacturing standards;
- c. Uniform pricing system; and
- d. A reforestation/cultivation program.

The State Governments could take a lead role in instigating the long term investment required by the local people by encouraging the use of raw resource as a means of collateral for loans and by assisting in the purchase of capital intensive equipment for the processing of raw material.

INBAR, because of its unique position relating to the rattan industry in all the Asian countries, could be instrumental in congregating the appropriate agencies to develop a workable strategic plan for the long term development of the rattan industry in the North East Region of India. This long-term plan should incorporate the development of an information system, complete with records of how much rattan is extracted, how much is exported and how much is used locally.

Entrepreneurial activity should be encouraged. In the short term, this could be accomplished by providing 'seed' money for a project to actively pursue sales orders for Assamese rattan products that would be manufactured to international quality

requirements and design. A funded project of this nature could provide the design specifications, the materials and the quality control to a number of manufacturers in a selected site. These manufacturers would, in effect, be working in a cooperative environment and there are agencies in each State that could work with the manufacturers to reinforce the benefits of keeping accurate records and of the benefits of belonging to a manufacturing consortium. These benefits include: increased volume capability to meet international demands; information sharing and transfer with regard to technology, design and markets; and economies of scale with regard to purchase of raw material, transportation and storage requirements. INBAR, an independent, international expert agency, has the credibility to develop contacts and the means of bringing diverse parties together for the benefit of the industry.

Sustainable Supply: For sustainable supply of raw material, identified as the limiting factor, the strategy could be for the government to modify the mahal system to allow long term tenure to license holders, again in the ten to fifteen year range under the proviso that a reforestation program is put in place and implemented in accordance with the long term plan. Local communities should be encouraged to apply for mahal licenses. Secure land and resource rights for producers could provide the long-term resource security necessary if they are to invest in improved and more sustainable harvesting methods, or the improved warehousing, and transportation systems needed for improved quality in the finished products, provided that economic incentives are sufficient to offset the opportunity cost.

Along with the effort to promote long term investment through security and

resource rights, research and development should be instigated on plantation cultivation of the resource in the North East Region. One possible implementation strategy could be to set up several strategically located test sites as a pilot project. The size of the site(s) should be of a magnitude that will illustrate the viability of the project as well as provide commercial benefit.

On the supply issue there are, of course, many practical issues that would have to be addressed. For example, it is not certain what the level of knowledge on growing rattan is in the local communities. Is there an educational component that needs to be addressed? What are the opportunity costs? Who will pay for the rattan seedlings? Will the community be paid for stewardship of the pilot site? These, and many other, issues would need to be dealt with at the onset of the project.

Marketing System: In the development of marketing systems, the goal should be that such organizations have good market information not only for the current but also for future markets. One of the major roles that government agencies should play in the development of marketing systems is in collecting and analyzing this information and making it available to all segments of the industry. If price information is available to the producer/collector/manufacturer, competition between middlemen, government agencies or business will result in a better price and better services.

There is a need for more indepth market analysis for rattan. The flow of each product from collection to consumer must be studied so that the information needed for sustainable management, fair prices, and efficient markets can be made available to those involved in developing the marketing system.

The development of the marketing system can help the industry but it should be recognized that there are few examples of sustainable collection of a product or resource when it receives a high price. The more successful the marketing system, the greater the pressure to exploit the product. Better marketing systems for rattan will provide opportunities for great success but also for failure if forest resource conservation is taken into consideration.

Cooperation has been identified as a key issue to be addressed for this industry. The individual business is too small to gain access to the world market and there is no one entrepreneur identifiable as being able to take the steps necessary to bring about the required changes in the present system. Cooperatives, collectives, consortiums or any other form of group association could provide the volume of product required to be a player. Such association could also provide the forum for determining standards; for accessing credit; and for achieving some form of transportation system. A transportation solution could be as simple as acquiring a small fleet of trucks dedicated to the delivery of raw materials and finished products to central locations from diverse points throughout the North East. Storage requirements can be satisfied without heavy cost due to cheap labour and cheap building materials. Storage depots could be set up in conjunction with a transportation plan to facilitate the receipt and distribution of raw material as well as the finished goods.

The interventions suggested here are only that, suggestions. Any group of individuals tasked to develop and implement an industry change will need to determine their own way of approaching the problem. This study was designed to determine what

was feasible and what must be overcome to achieve the objective. Any suggested interventions were provided as an example of the types of issues that could be developed.

In closing, I am convinced there is an opportunity for North East India to become a force in the world market for rattan products. My only concern is that by increasing the value of rattan, as a natural resource, without providing for replacement, or cultivation, will encourage extraction beyond, or farther beyond, sustainable limits. By intervening in such a manner, the rattan manufacturing industry could decline faster than if there were no intervention at all.

BIBLIOGRAPHY

- Anonymous, 1950. In: Nath, T.K., 1993. Bamboo, Cane and Assam. Sponsored by Industrial Development Bank of India and Small Industries Development Bank of India.
- Anonymous, 1983. Introduction in Small Farmer Group Marketing in Asia. Bangkok. U.N. Economic and Social Commission for Asia and the Pacific.
- Arnold, J.E.M., 1992. Policy issues related to the role of trees in rural income and welfare security. In: Priorities for Forestry and Agroforestry Policy Research (H. Gregersen, P.Oram and J. Spears, eds.) International Food Policy Research Institute, Washington, D.C., pp. 15-31.
- Arnold, J.E.M., 1995, Socio-economic benefits and issues in non-wood forest products use. In: Non-Wood Forest Products 3: Report of the International Expert Consultation on Non-Wood Forest Products, Food and Agriculture Organization of the United Nations, Jarkarta, Jan., 1995. pp 89-123.
- Belcher, B., 1995. Principal Economist, INBAR Secretariat. Pers. Comm.
- Bhat, K.M. and T. Dhamodaran, 1994. Cane(rattan) furniture manufacturing in India: Industrial outlook. In: Wood News, Jul-Sep, 1994.
- Bhat, K.M., Thulasidas, P.K. and C.P. Mohmod, 1992. Strength properties of ten South India canes (rattan). Journal of Tropical Forest Science 5(1) pp 26-34.
- Bonin, J.P., D.C. Jones, and L. Putterman, 1993. Theoretical and empirical studies of producer cooperatives: Will the twain ever meet?, Journal of Economic Literature, 31(3), September.
- Broad, R., 1995. The political economy of natural resources: Case studies of the Indonesian and Philippine forest sectors. The Journal of Developing Areas. 29:April 317-340.
- Chambers, R., 1991. Shortcut and participatory methods for gaining social information for projects. In: Putting People First: Sociological Variables in Rural Development (M.M. Cernea, editor). Oxford University Press.
- Drucker, P.F., 1958. Marketing and economic development. Journal of Marketing, January, p.253.

- Dove, M.R., 1993. A revisionist view of tropical deforestation and development. *Environmental Conservation*. 20: 17-24.
- Ekelund, F.A. 1987 *The Property of the Common: Justifying Co-operative Activity. Occasional Papers 87(02)* Centre for the Study of Co-operatives, University of Saskatchewan
- Fox, J. editor, 1993. *Legal Frameworks for Forest Management in Asia: Case Studies of Community/State Relations. Occasional Paper No. 16.* East-West Center, Program on Environment, Honolulu.
- Grabowski, R., 1995. Economic development and the rise of market systems. *Studies in Comparative International Development*, Fall: 49-69.
- Haefele E.T. editor, 1974 *The Governance of Common Property Resources.* The Johns Hopkins University Press, Baltimore and London.
- Handa, H., International Exporter, Delhi. Pers comm., 1996.
- International Fund of Agricultural Development (IFAD), 1995. North Eastern Region Community Resource Management Project for Uplands Areas: Formulation Report, August.
- INBAR Newsletter, 1995. Vol.3. No.2.
- Kant, S., Singh, N.M. and Singh, K.K., 1991. *Community-Based Forest Management Systems. Case Studies from Orissa.* Indian Institute of Forest Management, Bhopal.
- Lakshmanan, K.K., 1993. Research avenues on rattans and rural economy. In: *Rattan Management and Utilisation (Proceedings of the Rattan (Cane) Seminar India)* Basha, S. Chand and Bhat, K.M., eds. Published jointly by the Kerala Forest Research Institute, India and IDRC, Canada. pp 325-333.
- Leidhold, C., and Mead, D.C., 1987. Small-scale industries in developing countries: Empirical evidence and policy implications. MSC International Development Paper No. 9. Lansing, Michigan State University.
- Ludwig, D., Hilborn, R., and C. Walters, 1993. Uncertainty, resource exploitation, and conservation: Lessons from history. *Science*. 260: 17-18.
- Manokaran, N., 1990. *The State of the Rattan and Bamboo Trade.* Occasional Paper, No. 7, Rattan Information Centre, Forest Research Institute Malaysia.

- Mathur, A., 1994. Upgradation and diffusion of technology in small scale and cottage industries: A review article. *Indian Economic Review*. XXXIX (1) 79-89.
- McCarthy, E.J., and Shapiro, S.J., 1979. *Basic Marketing*, Irwin-Dorsey Ltd, Georgetown, Ont.
- Nasendi, B.D., 1994. *Socio-economic Information on Rattan in Indonesia*. INBAR Working Paper No. 2., New Delhi
- Nath, T.K., 1993. *Bamboo, Cane and Assam*. Sponsored by Industrial Development Bank of India and Small Industries Development Bank of India.
- Pabuayan, I.M. 1990. Marketing tree products from small farms: Case studies from the Philippines and implications for research. In Haugen, C., Medema, L., and Lantican, C.B., eds., *Multipurpose Tree Species Research for Small Farm Producers*. International Conference held Nov. 20-23, 1989 in Jarkarta, Indonesia.
- Peluso, N., 1994. *Rich Forests, Poor People. Resource Control and Resistance in Java*. U. California Press, Berkeley.
- Peluso, N., 1993. Coercing conservation? The politics of state resource control. *Global Environmental Change*, June 199p.
- Poffenberger, M. editor, 1990. *Keepers of the Forest: Land Management Alternatives in Southeast Asia*. Kumarian Press, Connecticut.
- Poffenberger, M. And C. Singh, 1993. The legal framework for joint management of forest lands in India. In: *Legal Frameworks for Forest Management in Asia: Case Studies of Community/State Relations* (J. Fox, ed.) Occasional Paper No. 16. East-West Center, Program on Environment, Honolulu., pp 3-18.
- Punzalan, D.C., 1981. Cooperative marketing in the Philippines. In *Food Marketing in Asia: Systems, Cooperatives and Policies*. Taiwan, Food and Fertilizer Technology Centre.
- Sarma, P.C., 1996. General Manager, North Eastern Industrial and Technical Consultancy Organization Ltd., Pers comm.
- Sengupta, N., 1995. Common property institutions and markets. *Indian Economic Review*, XXX (2): 187-201.

- Shiva, M.P., 1994. Determinants of the key elements of demand and supply of non-timber forest products. Paper prepared for the International Workshop on India's Forest Management and Ecological Revival, New Delhi, Feb 10 - 12, 1994.
- Shiva, M.P., 1993. Status of minor forest products with particular reference to cane. In: Rattan Management and Utilisation (Proceedings of the Rattan (Cane) Seminar India) Basha, S. Chand and Bhat, K.M., eds. Published jointly by the Kerala Forest Reserach Institute, India and IDRC, Canada. pp 48-66.
- Siebert, S.F., 1993. Rattan and extractive reserves. *Conservation Biology*. 7: 749-750.
- Singh, M., 1993, Status of canes in Kerala. In: Rattan Management and Utilisation (Proceedings of the Rattan (Cane) Seminar India) Basha, S. Chand and Bhat, K.M., eds. Published jointly by the Kerala Forest Reserach Institute, India and IDRC, Canada. pp 44-47.
- Yin, R.K., 1994. Case Study Research: Design and Methods. Sage Publications, Inc., California.

APPENDICES

APPENDIX 1
INFORMATION REQUIREMENTS

1. What is the name of your business?
2. How many employees do you have? Are they skilled? Semi-skilled? Unskilled? How many in each category?
3. How much do you pay your employees, by category? Do you provide any other benefits?
4. What type of cane do you use? Where do you purchase it? Do you know where it comes from? How much do you pay for it? In what quantities do you purchase your cane?
5. What tools do you use to manufacture your products? Are they available in the local market place?
6. Looking at the picture of a furniture set, how much would it cost me to buy this from you? How long would it take to make and how many workers would work on it? How much profit would you be making on this set at that price?
7. What percentage of your business is smallwares?
8. How much wastage is incurred in the manufacturer of a furniture set?
9. What is the price range for your products?
10. What is your volume of output, on average, per month?
11. How long have you been in business?
12. Do you own this location or rent? If rent, how much do you pay?
13. Is your business registered with any agency? With the DIC? Do you perceive any benefits from this registration?
14. Do you have any other source of income other than this business? Does your spouse work outside the home?
15. Do you manufacture on speculation or do you produce to order? Do you require a deposit and, if so, how much? Is this deposit necessary as a security measure or do you require the cash flow to purchase materials?
16. Do you have any loans either with a bank or with any other source?
17. Do you pay any taxes? To whom?

SUPPLEMENTAL QUESTIONS

1. Have cane prices increased over the past number of years? How much? What about size? What about types of cane?
2. Are you interested in exporting your goods? Have you ever tried to export?
3. What makes exporting difficult?
4. Do you think you will be in business ten years from now? Why? Why not?
5. Do you know of any government programs that could help you in your business?

APPENDIX 2

RAW DATA SAMPLE AND SUMMARY INFORMATION

Name	Total # Employees	Skilled	Semi skilled	Labourer
7	10	2	4	4
Wages	Low	2400	1800	1200
	High	2500	2000	1400

Type of cane used	Cost (Rupees)	Standard set	
Raidang	28 - 30	Time to make	20 - 25 days
Suli	2-3	# of workers	2
Lejai	4.5-5	Price - High	
Sundi	6	Price- low	7000 Min
		Profit	15-45%

Price range of product		Vol of business in an average month	Yrs in Business	Own or rent	Amt if rental
Low	High				
1400	9000	4 - 6 sets	11	own	n/a

Reg'd	Other Income	Order Terms	Loans	With Whom
yes	Yes	20 - 30%	Yes	Bank

Taxes	To Whom	% of Smallwares	Wastage
N.R.		To order	10 - 15%

Additional Comments: This informant provides lodging for his skilled workers and a certain amount of meals. His wife works at the army base near by. He is exploring export opportunities in Delhi. His capacity is 25 - 30 sets of furniture per month.

APPENDIX 3

MATHEMATICAL CALCULATIONS AND ASSUMPTIONS

Table 2. Types and Average Costs of Rattan Used in Assam

Averages were calculated from interview responses. Where the respondent provided a range of price, that range was averaged and used in the overall calculation. Percentage of users was based on the number of respondents using that particular type of cane.

Table 3: Rattan Usage in Assam Based on High, Low and Average Number of Workers

Assumption: 25% of the value of a piece of furniture is for large rattans; therefore, 75% must be small rattans.

Total rattan usage (in rupees) was based on the average volume of production per business times the estimated number of businesses times the estimated number of workers per business. Total number of businesses was based on the actual number of businesses surveyed in Sonitpur and the total number that were registered in Sonitpur District (27%) which was applied to the government's estimate of the number of registered rattan businesses in Assam.

Using 25% and 75% large and small rattans respectively, the average price of rattan (large and small) was divided into the total value to arrive at number of pieces. This figure was then translated into bundles based on 100 canes/bundle and meters based on 4 meters/cane. Yearly figures are calculated as montly amount times 12.

Table 4. Monthly Wages of Rattan Workers in Assam

Averages were calculated from interview responses. Where the respondent provided a range of price, that range was averaged and used in the overall calculation. Calculations have been produced using the high, the low and the average wage. Range is provided for sensitivity purposed only.

Tables 6 and 7: Summary of Financial Contribution of Rattan Industry in Assam Based on an Estimated 3600 and 1000 Businesses Respectively

The number of rattan workers is based on average number of workers per business (7.7) and 3600 or 1000 businesses. Indirect Costs associated with production are estimated at 10% of total cost. This is based on respondent data. Profit is based on average percentage profit as per informant data. Percentage of the Cost of Rattan to Harvesters in based on an estimated 35 rupees per bundle.