INTRODUCTION OF SMALL SCALE TEA CULTIVATION AND ITS IMPACT ON LAND - USE AND SOCIO-ECONOMIC CONDITION OF THE PEOPLE OF SIVASAGAR DISTRICT, ASSAM.

ABSTRACT

BY
AJIT CHANDRA BORAH

SUBMITTED IN PARTIAL FULLFILLMENT OF
THE DEGREE OF DOCTOR OF PHILOSOPHY
REGD. NO. – 1039 OF 2006

DEPARTMENT OF GEOGRAPHY
NORTH EASTERN HILL UNIVERSITY
SHILLONG
2008

Geography

INTRODUCTION:

In many tea growing countries of the world, individuals farmers cultivate tea in small scale. Tea is cultivated extensively in small scale in some regions of India also, like south India and Himachal Pradesh. In Assam, the small tea cultivation is in an infant stage considering the 160 years old tea industry of the country. The small tea growers have come up in recent years to takes up tea cultivation in individuals holdings in Assam.

Various organization speaks about what is small tea cultivation. The "Tea Board of India" has defined small tea cultivation as those having plantation of 10.12 hectares or 25 acres. The government of Assam strictly declared that a small tea farmers should not have more than 4.28 hectares of tea cultivated land. According to ' All Assam Small Tea Association' those who have minimum area of 33.33 hectares of tea cultivated land are recognized as small tea farmers. Presently this has been changed to those farmers who are having 1.42 hectares of tea cultivated land is recognized as small tea farmers and cultivation is known as small tea cultivation.

It has been noticed that during the last decade small tea cultivation has started making in roads among the farmers of Assam. This has made a significant impact on the pattern of agricultural land use, creation of rural employment opportunities, occupational structure shift and economic benefit to the people in neighbouring areas. It has changed the surrounding environment in terms of natural as well as economic activities of the people directly or indirectly. In many places the traditional cultivation of bamboo forest, sugarcane, orange, pineapple, thatch, vegetable etc. have been replaced by small tea cultivation. It has occupied the areas under ceiling surplus, grazing lands and government fallow lands including their own lands. The virgin high land areas were normally un-

utilized for agricultural purposes due to lake of irrigation and accessibility, but for small tea cultivation, these lands are ideal. Thus area left fallow, waste land and grazing lands and high lands etc. were converted to tea cultivation by small tea farmers. This has gradually changed the existing cropping pattern in the area. The small tea cultivation has also created a shift in occupational structure by practicing tea cultivation from only rice and cereal crops. It has also greatly contributed in changing the socio-economic development of the region.

Area of the study: The area for the present study covers the Sivasagar district of Assam. This district is purposively selected because the Sivasagar form the traditional tea growing tract of Assam. Small tea growers in this district constituted 11.08 percent of the total number of small tea growers of Assam. Accordingly 243 no of sample small tea gardens are selected from Sivasagar district.

Significance of the study: The small tea cultivation forms an interesting field in Economic Geography. There are many intensive studies have been carried out on tea industry in different disciplines in different parts of the world, but very little contributions were available from the Geographers as well as Economists on the importance of small tea cultivations in Assam as well as in other parts of the country. The economic contribution and employment opportunity generated by these small tea cultivators have great significance in Assam. It has also greatly contributed in changing the socio-economic development as well as land use pattern of the region. There fore it is an interesting field of research how it has changed people's attitude in their occupational

structure, providing better economic conditions and employment opportunity to unemployed youth of Assam in the form of farmers.

Objectives of the study:

The present study was carried out with following objectives:

a) To study the extension of small tea cultivations in Assam especially in Sivasagar district ;

b) To study the changes of agricultural land use pattern in the district due to small scale tea plantation ;

c) To study the occupational shift from crops to tea plantation among the people ;

d) To study the changes in occupational structure and income changes of the farmers and

e) To study the employment opportunities generated by the small tea cultivations.

Research questions:

The following major research questions were placed before the study:

a) Has small scale tea cultivation in Assam replaced the existing cropping pattern to mono-cropping as tea?

b) Has small scale tea cultivation brought the changes in the pattern of agricultural land use especially high land agriculture of upper Assam?

c) Are these small tea gardens providing better employment opportunity to the people in the Sivasagar district?

d) Has this occupation shift brought significant economic changes among the small tea growers and the laborers?

Data base and Methodology: The study is based on data collected from primary and secondary sources. Prime emphasis is given on primary data. Data has been collected from small tea growers having less than 4.00 hectares area under tea cultivation.

Sampling procedure: A stratified random sampling procedure is followed for the present study. The selection of sample tea gardens are made at two stages by applying different criteria.

In the first stage the study area has been divided in to three zones according to their geographical location i.e. Cultivable high land, Hill slope land and Plain land. In the second stage sample small tea gardens have been divided in to four categories on the basis of their size – i) below 01 hectare, ii) 1.01 – 2.0 hectares, iii) 2.01 – 03 hectares and iv) above 03 hectares. There are 243 numbers small tea gardens of Sivasagar district has been selected on the basis of above criteria.

Data Base: For the purpose of this study both primary and secondary data have been used. To conduct a meaningful empirical study, data has been collected from different sources. Field data are collected up to 2006 covering the period 1993-94 to 2005-06.

Primary Data Base: Primary data are collected from the small tea growers. Specific information on the given theme is obtained from small tea growers through field study and questionnaires. Accordingly a schedule is prepared as tool for interviewing the small tea garden owner. The first part of the schedule is designed to collect the data on socio-economic information of small tea growers. Questionnaires on the socio-economic information of small tea growers is contained questions related to occupations, income and expenditure, properties owned family size, educational status, types of labour use,

type of operation , household amenities use etc. The other part is designed to collect the information related to land use of small tea growers. Questionnaires relating to land use pattern is contained land use, land holding, size of the small tea gardens, type of land used by the small tea growers, soil type, location etc.

Secondary Data Base: Secondary information has been collected from various published documents and reports of government and semi-government agencies, as well as the bulletin and journals of small tea growers association. Some important sources of data and information are:

a) Social, economic and demographic information – Census publications.

b) Information relating to physical aspects of small tea gardens have been collected from Department of Tea Husbandry and Technology, AAU, Jorhat, Assam, Toklai Experimental Station, Jorhat, Assam.

c) Various statistical information from tea statistics published by Tea Board of India.

d) Various published and unpublished reports, official publications, unpublished thesis and other records.

Data processing, analysis and presentation: The collected data has been processed and analyzed with the help of suitable statistical techniques. The result obtained are being presented with the help of suitable cartographic technique. Table, maps, diagrams, groups and necessary photographs etc. been prepared for the purpose

Sample size of the small tea grower's gardens:

Sl No	Name of the villages	Group– I	Group-II	Group- III	Group- IV	Total
1	Garakhya Nagar	4	3	2	1	10
2	Katekeybari	4	3	2	1	10
3	Charaideo	4	4	4	3	15
4	Lakwa	4	4	2	1	11
5	Sonarigrant	4	4	4	3	15
6	Nimonagarh	4	4	4	3	15
7	Moran Gaon	4	3	2	1	10
8	Lahan gaon,	4	3	2	1	10
9	Jabaka region	4	4	4	3	15
10	Mautgaon	4	3	2	1	10
11	Abhoipur	4	4	4	3	15
12	Khanikor gaon	4	3	2	1	10
13	Bengena bari	4	4	4	3	15
14	Khangia	4	3	2	1	10
15	Safari	4	4	4	3	15
16	Mathurapur	4	4	4	3	15
17	Khamoon	4	3	2	1	10
18	Samaguri	4	3	2	1	10
19	Dagaon	4	3	2	1	10
20	Michajan	4	3	3	2	12
	Total	80	69	57	37	243

Summery: The present work is associated with the small scale tea cultivation and it's impact on land use and socio-economic condition of the people of Sivasagar district, Assam. The study has been carried out in seven chapters. Chapter, one deal with the introduction, statement of the problem, significance of the study, objectives, area of the study, research questions and methodology adopted for the present study. A brief review of certain works connected with the problem also has been incorporated in this chapter.

An introduction to the study area has been given in the chapter II, which includes physical background, climates, soil and vegetations and socio-economic situation of the study area.

Chapter III devoted to the growth of small scale tea cultivation in Assam. During the seventies of the last century, tea has entered to the high land of common farmers of

Assam. Growth picked up abruptly from 1990 – 2005. The rate of growth was maximum during 1999, owing to sudden rise of price of green leaf. 90 percent of total tea growers are in five districts of Assam. 10 percent spread over the remaining 16 districts. At present there are 50, 000 small tea gardens in Assam. During 12 years (1993 -2005) there was eight fold increase in the number of growers.

Small scale tea growers originally from sedentary cultivators, educated rural youth, educated urban youth, in service personal, and ex-tea garden workers. The average family size of the small tea growers was 6.58 and percentage of literacy rate was very high among the small tea growers which was observed 81.29%. The working force constituted about 55.63% of the total sample population. Small tea cultivation helps in utilization of human labours and provide ample avenue to self employment engaging family members directly and has created indirect employment in the field of manufacturing and supply of garden implements, transportation of green leaf and agro-chemicals.

The small tea estates are mainly producing green leaf. They don't have their own factories. Out of the total area in the small sector, 10% is in the formative stage.

Chapter IV seek to study the land use pattern of the study region. The land use pattern has been discussed in to two phases – general land use pattern of the Sivasagar district and Land use pattern of sample small tea growers of the study region. Land under tea and rice are the most dominant forms of land use. A gradual increase in percentage area under tea cultivation and decrease in area under rice and other crops was observed. The small tea growers has used virgin land, crops replaced land, marginal land and

unsuitable land for tea cultivation. Tea and other field crops were the two groups of crops competing for available land as well as other resources of the sample small tea growers. Tea was relatively more important for the larger farm size group.

Chapter V deals with the small scale tea cultivation and land use change. Small scale tea cultivation when started in Assam was done on suitable high land only. But gradually it has been occupying all types of highland whether it belongs to their families or government land. Bulk of the present area under tea came from cultivable fallow land followed by land previously occupied by bamboo, sugarcane, trees and other plantation crops. Most of the rural farmers re-organized their highland crops field for small tea cultivation. Many hundred bighas of sugarcane field, pine apple garden, homestead garden and Bamboobari disappeared from this study area for mono cropping of tea. All these are elaborated in this chapter.

Chapter VI concerned with the change in occupational structure and income level. Small scale tea cultivation has brought changes in occupational pattern and has brought significant economic changes among the rural people of Sivasagar district. There has been a considerable shift of working population from other occupation to tea cultivation. The working participation rate in tea farms is more than others like other agricultural crops, Business and services. Among different sources in all the size groups of growers, agriculture and its allied activities have the highest share in the total income. Agriculture is the major and the most important sources of income. Again, among the agricultural income, tea has the highest share to the total income. Very few persons are engaged in salaried jobs.

The socio-economic changes has taken place among the small tea growers. Marked changes have been noticed in household and basic amenities among the growers. The urban style of seeking luxury and entertainment and fashion has been slowly developing among the rural people of the area depending on economic conditions and educational advancement.

A summery of the entire work is given in the chapter VII.

Findings:

1) The Small tea growers are mainly producing green leaf. They don't have own factories. Total 503.16 hectares of land out of 1144.85 hectares are devoted to small tea cultivation in the study area. Small scale tea cultivation provides ample avenue to self employment engaging family member directly. 56.13% workers are engaged in small tea cultivation. It has stopped the migration of rural workers in to urban centers. Besides the direct employment it has created indirect employment in the field of manufacturing and supply of garden implements, transportation of green leaf and agro-chemicals.

2) Small tea growers are originally from sedentary cultivator, educated rural youth, educated urban youth, in service personal and ex-tea garden workers.

3) Small tea cultivation helps in utilization of human labour. It provide ample avenue to self employment engaging family members directly and has created indirect employment in the field of manufacturing and supply of garden implements, transportation of green leaf and agro-chemicals. It has stopped the migration of rural workers in to urban centre, specially in the Sivasagar district.

4) Percentage of literacy rate was very high among the small tea growers. It was observed 82.28%, which was found to be above state average of 64.28% (2001). The working force constituted about 55.63% of the total population. The remaining 44.37% were non workers. The work force constituted farming, services and business.

5) Sample small tea growers sold their green leaf to commission agents, sub-agents and to the tea processing units.

6) In the beginning small scale tea cultivation in Assam was done on suitable high lands only. But with the increase in numbers of growers, it has started occupying all type high lands, whether it belongs to their families or government lands. Bulk of the present area under tea have been brought from cultivable fallow lands, sugarcane fields and land under some plantation crops, bamboo forest etc. People are replacing the high land crops even rice also.

7) There are many small tea gardens in the area which were previously covered by bamboo forest. Most of the rural farmers converted their high land crops fields to small tea cultivations. More than 90% fallow lands of this area were brought under tea cultivation including government forestlands.

8) There has been a considerable shift of working population from business and other agricultural sector to small tea sector in rural area. The work participation rate in small tea sector are more than others, like other agricultural crops, business and services.

9) Small scale tea cultivation has brought significant economic changes among the rural people of upper Assam specially in Sivasagar district.

10) Among different income sources of growers, agriculture and its allied activities have the highest share to the total income. Again among the agricultural income sources tea has the highest share to total income. Very few persons engaged in salaried jobs.

11) Socio-economic changes have taken place among the rural people of Sivasagar district. Basic amenities like source of fuel cooking, source of lighting, housing conditions, source of drinking water etc. has been changed among the growers. The urban life style has been slowly developing among the rural people of the area depending on economic conditions and educational advancements. Improvement of economic condition combined with the increasing impact of urbanization and modernization has also brought a considerable change in the house hold amenities.

Conclusion: The concept of small scale tea cultivation by common farmers in Assam is not very old. During the last two decades, tea has became a popular crop among the farmers. Tea cultivation in small holdings ranging from 0.13 hectare to 3.0 hectares or even more spread over almost all districts of Assam, however highest concentration is in the five districts of upper Assam.

During the initial years, most of the small plantation were done on suitable high land. With the increasing number of growers, it has been occupying all types of high land whether it belongs to their families or to government. The discussion reveals that socio-economic changes has been taken place among the rural people of Sivasagar district, primarily in respect of urbanization, literacy and occupational behavior. Land use changes has also been taken place in the rural areas of Assam. It is clear that there has been considerable influence of the small tea cultivation in raising the socio-economic

status of the rural people. After all the introduction of small scale tea cultivation may be considered as a boon to the rural economy of upper Assam. To achieve long term benefits it would be worthwhile to develop strategies and implement them with right earnest.

****

INTRODUCTION OF SMALL SCALE TEA CULTIVATION AND ITS IMPACT ON LAND USE AND SOCIO-ECONOMIC CONDITION OF THE PEOPLE OF SIVASAGAR DISTRICT, ASSAM

BY
AJIT CHANDRA BORAH

THESIS SUBMITTED IN PARTIAL FULLFILLMENT OF THE DEGREE OF DOCTOR OF PHILOSOPHY
REGD. NO. – 1039 OF 2006

DEPARTMENT OF GEOGRAPHY
NORTH-EASTERN HILL UNIVERSITY
SHILLONG, MEGHALAYA
INDIA
2008

NORTH EASTERN HILL UNIVERSITY, SHILLONG, MEGHALAYA

25th September, 2008

I, Shri Ajit Chandra Borah, hereby declare that the subject matter of this thesis is the record of work carried out and completed by me, that the contents of this thesis did not form basis of the award of my previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other university/ institute.

This is being submitted to North Eastern Hill University, Shillong for the degree of Doctor of Philosophy in Geography.

(Ajit Chandra Borah)
Candidate

(Prof. D.K. Nayak)
HEAD
Department of Geography.

Prof. D. K. NAYAK,
Head,
Department of Geography,
NEHU, Shillong.

(Prof. B. S. Mipun)
SUPERVISOR

Department of Geography
North - Eastern Hill University
Shillong - 793022

Geography

ACKNOWLEDGEMENTS

I have the pleasure to acknowledge the members of the Research Committee of the Department of Geography, North Eastern Hill University, Shillong, for their kind consideration in selecting me as one of the Ph. D. candidates for the year 2005-06 and also their valuable help and guidance in carrying out my research work.

I am highly indebted to Prof. B. S Mipun, who has greatly inspired me and has rendered immense help and guidance from the very beginning in preparing the present study.

I owe a deep sense of gratitude to Prof. A.C. Mahapatra and Prof. Surendra Sing for their valuable suggestions and encouragement.

I am thankful to Prof. D. K. Nayak, Head of the Department of Geography, NEHU, for his valuable suggestions and guidance.

I am thankful to all other faculty members from the Department of Geography for their worthwhile advice and guidance.

I owe a deep sense of gratitude to Dr. Swapan Boruah, Head, Department of Tea Husbandry and Technology, AAU, Jorhat, Assam and Dr. Madan Taparia, Programme Coordinator, Small Tea Advisory Programme, Department of Tea Husbandry and Technology, AAU, Jorhat, Assam, for their kind help in connection with my work.

I would like to thank to owner of all the 243 small tea gardens of Sivasagar district for their help and cooperation while conducting the field work in their gardens.

I acknowledge the help rendered to me by different persons and officials of various government and semi Government Departments and organizations in the course of my study.

I would also extend my thanks to Syed Mubidul Islam, Principal, Nazira College, Sivasagar, Assam and to all my friends and colleagues and my wife Moni for their valuable help.

(AJIT CH. BORAH)

Shillong
25th September, 2008

CONTENTS

List of Tables:

List of Maps and Figures

List of Plates:

CHAPTER-I

INTRODUCTION

1:1 – GENERALITIES: Tea is one of the most important plantation crops of India. The importance of tea lies in its capacity to earn foreign exchange, ability to provide employment directly and indirectly to over a million of people and ability to utilize land resources most profitably. India remains as one of the largest producer, consumers and exporters of tea. It ranks third among foreign exchange earners of the country.

Tea industry, being one of the significant contributors to the country's foreign exchange earnings, it has been identified under the present export policy in India as the thrust product with high potential in the overseas market[1].

The commercial cultivation of tea in India, as a source of beverage started in 1839 after its discovery in upper Assam by Charles Alexander Bruce (1793-1871). Thereafter, there was rapid expansion of tea cultivation in Assam and other States of India. Presently tea is grown in two distinct regions of the country- i. e. North-East India and South India. The North-East Indian tea growing areas covers the Brahmaputra and Barak Valleys of Assam, Dooars, Terai and Darjeeling in West Bengal and Tripura. In South India, major tea growing states are Tamil Nadu, Kerela and Karnataka. Tea is also cultivated in small way near Ranchi in Bihar, Dehradun in Uttaranchal, and Kangra region of Himachal Pradesh. Recently, tea has also been introduced in Arunachal Pradesh, Nagaland, Meghalaya, Mizoram, Sikkim and Orissa. Assam has an area of 2.69 lakh hectares under

[1] *Mishra, S.R.; India's Export of Tea: An Assessment; CHA-KI-BAT, Feb (1994) vol.39 (2): p.35-36.*

tea (2001). Tea in Assam is the mainstay of the state's economy. It provides livelihood to over 6 lakhs people directly and about 18 lakhs people indirectly.

Traditionally the large companies grew tea in Assam in an extensive manner. There are over 800 commercial Tea Estates in Assam covering an area of 2.35 lakh hectares. In many tea growing countries of the world, individual farmers cultivate tea in small scale. In India also, tea is cultivated extensively in small scale in some regions like South India and Himachal Pradesh. In Assam, small scale tea cultivation is an infant stage considering the old tea industry of the country. The small tea growers have come-up in recent years to take up tea cultivation in individual holdings. Within last three decades, more than 40,000 farmers have entered in to this venture covering nearly 57,000 hectares area. The National Committee on long term strategy and plan for tea, in its report submitted in 1989, had identified that an area of 15 thousand hectares is readily available for extension of planting in Assam. It has also envisaged that another area of 14 thousand hectares will be available for use after reclamation. Further area of about 11 thousand hectares was identified as plant able within estate grant but falling under the purview of various enactments. Moreover, at the periphery of tea estates 22.9 thousand hectares has been identified as vested non-forest land previously with the estates, 6.6 thousand hectares as government non-forest land and 8.65 thousand hectares as degraded forest land. This makes a total of 78.15 thousand hectares which can be considered for extension of tea cultivation in Assam[2].

In Assam, except swampy land and natural ditches, more or less highlands are available almost in every district. Grazing lands, forest villages and ceiling surplus land

[2] *Das, H.N.; NETA: Small Growers Development, the Planters' Chronicle, March (1993) P.127.*

are also available. Thus, the total available land suitable for tea cultivation amounts to about 4.0 lakh hectares[3]. It therefore encourages landless labours, marginal farmers and unemployed youths to take up small tea cultivation in this land. However, small tea cultivation is a recent development in Assam, since large tea plantation has already occupied most of the suitable lands.

Assam is known for its traditional areas of tea plantation. Tea industry was established in Assam by the British during their rule in India where as small tea growers have emerged beyond the traditional tracts of tea cultivation in recent years. It has been noticed that during the last decade only small tea cultivation has started making in-roads among the farmers of Assam. However, various organizations speak about small tea cultivation.

The **Tea Board of India** has defines small tea growers as having an area of plantation with 10.12 hectares or 25 acres of land under tea.

The **West Bengal Land Reform** office considers 9.79 hectares or 24.20 acres of land as small holding and explains small tea growers as 'Small Tea Cultivator'. On the other hand **Government of Assam** strictly declared that a small tea farmer should not have more than 4.28 hectares of tea cultivated land.

According to **All Assam Small Tea Growers Association**, those who have minimum area of 33.33 hectares (250 *bighas*) of tea cultivated land are recognized as small tea farmers.

Presently, this has been changed to those farmers who have 1.42 hectares of tea cultivated land, and it is recognized as small tea farmer and cultivation is known as small tea cultivation.

---

[3] *Saikia, G., Souvenir, Indian Tea Year, Kamarbandha, Golaghat, 27th September (1993)*

1:2 – SIGNIFICANCE OF THE STUDY: The small tea cultivation forms an interesting field in Economic Geography. There are many intensive studies have been carried out on tea industry in different disciplines in different parts of the world, but very little contributions were available from the Geographers as well as Economists on the importance of small tea cultivations in Assam as well as in other parts of the country. The economic contribution and employment opportunity generated by these small tea cultivators have great significance in Assam. It has also greatly contributed in changing the socio-economic development as well as land use pattern of the region. Therefore, it is an interesting field of research how it has changed people's attitude in their occupational structure, providing better economic conditions and employment opportunity to unemployed youth of Assam in the form of farmers and labours.

1:3 – STATEMENT OF THE PROBLEM: Tea industry of Assam plays a dominant role in the economy of the state. Recently it has been observed that a number of small tea cultivator cum owners have made an entry in to the tea industry in Assam. This has made a significant impact on the pattern of agricultural land use, creation of rural employment opportunities, occupational structure shift and economic benefit to the people in neighboring areas. The small tea cultivation has changed the surrounding environment in terms of natural as well as economic activities of the people directly or indirectly. Assam was known for its traditional base of tea plantation areas in India, which was introduced by the British before the Independence of the Country. Thus it has already occupied most of the suitable land and available areas for tea cultivation; whereas the small tea growers are left with lands beyond the traditional tracts of tea cultivation areas, mostly marginal

lands. The traditional cultivation of Bamboo forest, areca nut, sugarcane, orange, pineapple, citronella, thatch, vegetable etc. have been replaced by small tea cultivations. The small tea cultivation has also occupied the areas under ceiling surplus lands, grazing lands and government fallow lands including their own lands. The virgin high land areas were normally un-utilized for agricultural purposes due to lake of irrigation and accessibility, but for small tea cultivation these lands are ideal. Thus the areas left fallow, waste lands and grazing lands and high lands etc. were converted to tea cultivation areas by small tea farmers. This has gradually changed the existing cropping pattern in the area. The small tea cultivation has also created a shift in occupational structure by practicing tea cultivation from only rice or cereal crops. Within a short period of last two decades, it ushered in to an era of revolution, bringing a long term socio-economic changes in the rural areas of Assam[4].

1:4 – REVIEW OF LITERATURE: In recent years intensive works have been done on tea cultivation in different parts of the world, but very little information have so far been focused on small scale tea cultivation because of its recent origin, especially in Assam. Hence the literatures relating to the present study are very meager. Never the less an attempt has been made in this chapter to review some of the relevant literatures on small tea cultivation. The main objective of review of literature is to highlight the study different scholars on various aspects, issues and problems of small tea cultivation in Assam. In order to make the work more convenient, the concerned literature has been reviewed here under the following heads.

[4] *Boruah, S. And Taparia(2004) 'Small Tea Growers of Assam, Status and Strategies' Part I and II, published in the Assam Review and Tea News – Vol.-11,12, December 2004 and January 2005*

1) General literature connected with the small tea cultivation and

2) Literature connected with the conceptual aspects of small tea cultivation and its impact on socio-economic structure and land use pattern.

1) General literature connected with the small tea cultivation:

The Plantation Inquiry Commission (1956) carried out the first official investigation on small tea cultivation. It was observed that, though in absolute numbers the small tea growers outnumbered the bigger gardens, their production was as low as 1.34% of the all India production. The Commission also recognized the special measures needed for the development of small tea cultivation and recommended that Tea Board should promote co-operatives efforts among growers and manufactures.

The 'Agriculture Refinance Co-operation' (1964) studied the small tea cultivation in Southern India. It reveals that the small tea growers recorded low yield because they follow outdated cultivation techniques. The group found that the small tea growers were not forthcoming in an organized way.

The P.C. Boruah committee (1968) during study on the tea industry in Nilgiri district of South India, observed that small tea growers were not efficiently cultivating their gardens and that the yield obtained from small holdings was only a quarter of the average yield of bigger gardens in the district. Committee also found that the bought leaf factories were mostly ill-equipped with old and worn-out machineries and had in-adequate facilities in manufacturing good quality tea.

Halayya (1969) in a study on small tea holdings in South India reported that most of the problems of small tea growers arose because of too small size of holding and limited resources, thus the small tea growers in Nilgiri were indebted to bought-leaf

factories. The tea growers were required to sell their crops to the factories at price fixed by them, which was much lower than the prevailing market price. In Kangra district, the small tea growers were largely dependent on the bought-leaf factories and merchant who use to buy green leaves from such units. The small tea growers are being exploited by the merchants providing funds and supports with high rate of interest. The bought leaf factories were small in size, ill-equipped with machinery thus producing low quality and getting low price of product in the market.

Sarkar (1978) highlighted some of the basic national and international policy imperatives for the world's tea industry and the major areas of ignorance, which needed to be investigated closely with a view to establishing a national tea policy. The study contains a discussions of relative costs and profitability of production in the traditional and the newly emerged tea producing countries, taxes and subsidies on tea with particular reference to the small holder schemes of East Africa, the cooperative efficiency of small tea growers' vis-à-vis plantations.

The Tea Board of India conducted a study in 1979, with a view to knowing the various problems faced by the small tea growers of Himachal Pradesh. The study reveals about 98.5% of area under tea had bushes of over 50 years age which was beyond the economic age and around 35% of the total grant area was found to be unutilized. The yield rate for the small tea garden was estimated at 177 kg. of made tea per hectare, which was lowest in the country.

Ngali (1979) reported that tea plantation in Kenya had started in 1950 as a result of experimentation on small holders at Karatina by the colonial government. The standard of husbandry obtained was high and quality was inspiring and thus people have

started planting tea. The average size of small holders plot was 0.38 hectare only which was too small. The scale of production and wide spread and scattered distribution of small holders posed a number of problems specially to organize the production activities economically for each small holder.

Kulasagaram (1980) in a study on technical development in tea production examined that in Sri Lanka a tea small holding was a tea land below 4.10 hectares. This category of tea small holdings constituted 20.3% of the total tea area. The basic grievance of most of the holders was low price paid for their green leaves by middle man, leaves vendors or private factory owners.

Sharma *et.al.* (1989) analyzed the investment, input use and production constraints on small and large tea farms in Himachal Pradesh. They found that per acre investment on large farms were higher than on small farms. Significant difference in per acre level of input use was observed in fertilizers and chemicals.

Sharma and Moorti (1990) studied the economics of technical change in tea farming in Himachal Pradesh. They concluded that small tea farms and other tea farms in Himachal Pradesh were found to be a locative efficient. Present technology seems to be in favour of small tea farmers. They also concluded that the main constraints in tea farms were lack of extension and lack of skilled labour.

2) Literature connected with conceptual aspects of small tea cultivation and its impact on land use and socio-economic structure.

Ponniya (1975) examined that the small holdings in Nilgiri district were family owned and their gardens were about 1.51 hectare in size. The tea gardens were found to

have scattered in 3 or 4 places. Proper cultivation practices were not adopted by most of the small tea growers. The leaves were sold to private bought leaf factories and to Government co-operative tea factories at reasonably good price. Fragmentation of holding, scattered location, non-adoption of improve and inadequate input facilities etc. are the main factors of low yield if small tea growers in Nilgiri district. The additional income obtained from other crops varied between Rs.250/- to Rs.500/- per hectare per year.

Neog (1993) observed that tea cultivation in small holdings provided avenue for self employment of the educated unemployed persons besides generating a source of additional earning to the farmers. He highlighted the Indian Tea Association recommendation that an economically viable family holding for producing green leaf should be approximately 1.25 hectare. He also advocated adequate finance in liberal terms for this category of small farmers to enable them to start tea farm.

Bhuyan *et. al.* (1993) analyzed the comparative economics of tea vis-à-vis sugarcane in Assam. From the analysis small tea cultivation was found to be more profitable compared to sugarcane. Hence, the replacement of sugarcane by tea in the study area was considered to be justifiable by the author. They worked out the feasibility analysis of small tea cultivation in Golaghat district of Assam. The feasibility analysis revealed that per hectare investment in small tea cultivation resulted of Rs.69,724/- to 1,11,321/- and thereby indicating the feasibility of investment in small tea cultivation.

Saikia (1994) in a study of Economics of production and processing of small tea cultivation in Dibrugarh and Golaghat district of Assam examined that extension of tea plantation not only increases the prospect of future tea in the country, but also increases

the importance of the small tea growing section in the country's economy. He studied the socio-economic characteristics of small tea growers of Dibrugarh and Golaghat district of Assam. He stated that average size of family was 7.66 persons; percent of literacy rate was very high among the small tea growers ranging from 90.16% to 94.53%. 36% of the total working force engaged in farming followed by service and business accounting for 10.92% and 5.54% respectively. He also studied the land used by the small tea growers of Assam and said that land used by sample growers constituted own land, grazing land, ceiling surplus land and govt. land accounting for 4.24, 0.15, 0.19 and 2.33 hectare respectively. He also pointed out that present area was brought from cultivable fallow land accounting for 40.90% followed by land previously occupied by bamboo and miscellaneous trees, fruit crops and land occupied by sugar cane accounts for 23.77% of the total area.

The North East foundation, Guwahati conducted a field survey of the small tea garden movement in Assam. The survey reported the small tea garden movement as the largest single economic activity in Assam. The land use pattern had changed with traditional cash crops, bamboo plantation being replaced by tea at a rapid pace.

The report mentioned that small scale tea industry provides self employment, besides direct and indirect employment to thousands of persons. According to the report the education profiles of the small tea growers includes collegiate, graduates, postgraduates and technical graduates. Allotment of land for tea cultivation was identified as the single largest problem due to which the growers were unable to obtained institutional credit (Bora,1999).

Tea Board of India (2001) revealed that there were 4892 small tea growers in the district of Wynaad and Indukki in Kerela registered with Tea Board. The total area where such growers grew tea was 3796.06 hectares. Besides there was also a considerable number of unregistered small tea growers. Average area under tea was 1.06 hectare per garden. The average yield of green leaf per hectare was 3420 kg. (769.5 kg. made tea). Green tea leaf was sold to factories owned by large growers either by direct sale or through middle man and 50% surveyed gardens sent their green leaf to factories within a distance of 2 to 5 kms, 20% sold their leaf to factories located over 10 kms from the farms.

Horo (2000) described the contribution of small tea growers to the economy of the state. He analyzed how small tea growers sector soon became one of the well-known avenues for employment not only for self but also for many others. He mentioned that numbers of small tea growers increased every year and soon got united to get their problems solved. He pointed out that small tea growers sectors has now become an established, new future contributory force in the plantation economy of Assam and that is going to occupy a significant place in the history of the tea industry. It has changed not only their own socio-economic life and of the people around them but also of the state as a whole.

Sharma and Bhuyan (2000) examined the investment capital and working capital needs and sources of finance for small tea cultivation in the Golaghat district of Assam. Farm per hectare investment capital need for sample tea growers was estimated as Rs.100148/- and Rs.39629/- respectively. Human labour was the most important item of working capital accounting for more than 67% of the total working capital need per

hectare. Small tea growers financed their investment mainly form equity (63.63%) supplemented with non equity sources such as relatives and money lenders. They recommended adoption of appropriate measures to channel the flow of funds from banking sector to this profitable and emerging area of small tea cultivation.

Deka (2001) described the influence of small tea cultivation on socio-economic life of rural people of Assam. He stated that during the last two decades small tea cultivation has become popular among the common farmers and it is a significant development in the history of 150 years of tea cultivation in Assam. This new venture is [laying a vital role in uplifting the socio-economic conditions of the farmers in some districts of Assam. Thus he pointed out that small sector has to play an important role in increasing the production of tea in the state. He also analysed that how small tea cultivation has changed the traditional high land crops of the region. He mentioned that although it is a most well come phenomenon, it is also alarming due to rapid extension of tea cultivation; most of the traditional highland agricultural crops are facing threat, especially in upper Assam region.

Benerji (2002) studied the history, origin and dispersion and the importance of tea in national economy of India. He stated that tea is grown only in the rural areas and it contributes significantly and substantially towards the national economy. Tea exports constitute 6% of the India's total earnings, though occupying only 0.9% of the net domestic product. He shows that tea contributes annually at least Rs.1000/- cores to the central and state exchequers, apart from generating extra revenues through indirect taxes related to tea growing and selling of the finished products. He pointed out that tea

provides the highest employment per unit of arable land, largest quantum of job to rural people, people in the weaker section of the society and women.

Nath (2002) presented an account of growth and development of small tea cultivation in Assam. In his work he stated that the concept of small tea cultivation was initiated during the seventies of this century. During the seventies by the encouragement of government patronage a few farmers of Golaghat district of Assam initiated small tea cultivation in the high land. Now it is spread to 20 districts of Assam. He said that this venture of the local people of Assam has gained momentum and has emerged as one of the most important economic activities of the state. It is most profitable than any other highland crops of Assam. Explaining the land used by small tea growers, he said that as small tea cultivation came lately, no virgin highland was available for small tea farmers. Most of the land, used by the small tea growers may be considered as 2^{nd} grade land for tea cultivation. Most of the small tea gardens are established in either ceiling surplus land or encroached or on their own land which were under other the crops previously.

Sharma (2002) stated that tea is an important cash crop of Himachal Pradesh. He proved that tea cultivation may be ecologically adopted on slope lands and to maintain the forestry system. Most of the tea garden has a good bush cover on the floor, which supports soil conservation. Tea cultivation of marginal sloping lands would also improved direct and indirect employment opportunity for the landless and women.

Hanan (2002) stated how small tea cultivations are increasing day by day in North Bengal. He pointed out that he emergence of small tea cultivation in the region has created many problems. All the small growers today in the region were pine apple growers earlier. They resorted to tea cultivation due to non availability of suitable market

for pine apple. Thus he said that traditional crops are facing threat, because of high popularity of small tea cultivation.

Saikia *et. al.* (2003) studied the land utilization pattern of small tea growers of Rajgarh and Naharkatia region in the Dibrugarh district of Assam and stated that on an average each grower had 1.27 hectare area under tea, which was 35.38% of his total land occupation. Of this 0.45 hectare (35.43%) was earlier virgin land and 0.64 (56.40%) hectare was under other crops, which were uprooted. Correlation between area and green leaf production was found to be positive but the same was reverse in case of area and productivity.

Taparia (2003) gave a description of small tea growers and its contribution to the economy of Assam. He stated that the emergence of small tea growers in the agrarian scene heralded a new era of agricultural revolution in Assam. He divided small tea growers in to five groups like – sedentary cultivator, educated rural youth, and educated youth from urban area, the service personal and ex- tea garden workers.

Boruah *et.al.*(2004) stated that within a very short period of last two decades, small tea growers of Assam ushered in to an era of evolution, bringing in long term socio-economic changes in rural areas of Assam. From the traditional agriculture, the tea cultivation has helped in changing the attitudes towards commercialization of farming activities of the region. Describing the land used by small tea cultivator, they mentioned that land used by small tea growers can be classified as virgin land, marginal land and unsuitable land. From the study of land used pattern of Dibrugarh district of Assam, they opined that tea growers are still growing different crops along with tea. Tea constituted about 35% of the total land holdings of the growers. They pointed out that one of the

most important contributions of small tea cultivation is that it has successfully stopped the migration of rural workers in to urban areas in search of employment.

Chakraborty (2005) in a study of small tea growers of North Bengal reported that the small sector tea cultivation in North Bengal began in 1980's. Initially holdings were less, but during 1994-97 it has flourished. Mainly the growers have migrated from paddy, jute and pine apple. The small sector tea cultivation contributed 20% of tea production of West Bengal during the year 2003. Nearly 3 Lac people are directly or indirectly engaged with this sector, especially in the rural areas. Explaining the land used by the small tea growers he said that nearly 18,000 thousand hectares area occupied by small tea growers may be considered as second grade land. He also categorized the land used by the small tea growers as - virgin land; crops replaced land, marginal land and unsuitable land. He pointed out that cultivation of tea by small tea growers was able to bring remarkable changes in the rural economic scenario of North Bengal.

It will not be out of context to mention here that intensive research on small tea cultivation and its related aspects have been pioneered by the 'Toklai Experimental Station' and the 'Tea Husbandry and Technology' department of Assam Agricultural University, Jorhat. In this regard references may be made from the published and unpublished articles by a few devoted scholars of the above organizations – Deka[5], Taparia[6] etc.

---

[5] *Deka, A. - Asomat Khudra Pajyar Chah Kheti Bartaman aru bhabichyat Kajyapantha. "Cha-Tsing", Souvenir, Published by All Assam Small Tea Growers Association - 2000.*

[6] *Taparia, M. – 'Special Characteristics of Small Tea Enterprises' – "Kunhipat", Souvenir, Published by All Assam Small Tea Growers Association – 2003.*

1: 5 - OBJECTIVES:

The present study was carried out with following objectives:

a) To study the extension of small tea cultivations in Assam especially in Sivasagar district ;

b) To study the changes of agricultural land use pattern in the district due to small scale tea plantation ;

c) To study the occupational shift from crops to tea plantation among the people ;

d) To study the changes in occupational structure and income changes of the farmers and

e) To study the employment opportunities generated by the small tea cultivations.

1:6 - RESEARCH QUESTIONS:

The following major research questions were placed before the study:

i) Has small scale tea cultivation in Assam replaced the existing cropping pattern to mono-cropping as tea?

ii) Has small scale tea cultivation brought the changes in the pattern of agricultural land use especially high land agriculture of upper Assam?

iii) Are these small tea gardens providing better employment opportunity to the people in the Sivasagar district?

iv) Has this occupation shift brought significant economic changes among the small tea growers and the laborers?

1: 7 - METHODOLOGY AND DATA BASE:

Methodology: The proposed study is conducted in Sivasagar district of Assam and is based on both primary and secondary data of small tea growers. For the present study, following Government of Assam norms, primary data has been collected from small tea growers having less than 4.00 hectares area under tea cultivation. Prime emphasis is given to primary data.

Sampling procedure: A stratified random sampling procedure is followed for the present study. The selections of sample tea gardens are made at two stages by applying different criteria.

At the first stage – The study area Sivasagar district of Assam is divided in to three zones according to their geographical location, i.e. Cultivable high land, Hill slope land and Plain land. Cultivable high lands are taken from Charaideo, Sonari grant, Nimonagarh, Abhoipur and Galekey region; Hill slope lands are taken from Moran gaon, Lahan gaon, Charaideo, Jabaka region and Galekey region and Plain land taken from Namti, Garakhya Nagar, Katekeybari, Khangia gaon, Khamoon gaon, Samaguri and Mahutgaon. Accordingly 20 selected villages are taken from above given 3 zones. These are - 1) Garakhyanagar, 2) Katekeybari, 3) Lahongaon, 4) Nimonagarh, 5) Morangaon, 6) Sonarigrant, 7) Abhoipur, 8) Lakwa, 9) Mahutgaon, (10) Joboka region, (11) Charaideo,(12) Khanikar Gaon, (13) Bengena bari, 14) khangia gaon, 15) Safari, 16) Mathurapur, 17) Khamoon gaon, 18) Samaguri, 19) Da-gaon and 20) Michajan gaon. It has been decided to take ten to fifteen small tea gardens each from selected 20 villages. Thus 243(5%) no of small tea gardens are taken from total 4862 gardens of Sivasagar district for the proposed study.

In the second stage – Small tea gardens of the above given villages has been divided in to four categories on the basis of size of the garden viz., (1) up to 1.00 hectare group - I ; (2) from 1.01 to 2.00 hectares group- II ; (3) from 2.01 to 3.00 hectares group – III and (4) from 3.00 hectares and above group - IV. Taking in to consideration the time 243 numbers of total small tea growers in the district are selected for detailed study on the basis of their sizes and location.

Gogoi (1999) argued that there is no agreed definition of small tea growers. According to the Tea Board of India, a small tea grower is one whose land under tea cultivation does not exceed 10.12 hectares. The same definition of small tea growers has been accepted by the 'Small Tea Growers Advisory Programme' of the Department of Tea Husbandry and Technology, Assam Agricultural University, Jorhat.

NABARD also follows the same definition as STAP. However, according to the government of Assam, one is considered as small tea grower if his area under tea cultivation does not exceed 4.0 hectares. In the present study, following Government of Assam norms, data are collected from small tea growers having less than 4.0 hectares area under tea cultivation. The sample size of the small tea gardens and type of ownership of small tea gardens is given in the table: –1:1

Table: 1: 1 – **Sample size of the small tea grower's gardens:**

Sl No	Name of the village	Group– I (Below 1.0 hectare)	Group-II (1.01-2.00 hectares)	Group- III (2.01-3.00 hectares)	Group- IV (3.01 and above)	Total
1	Garakhya Nagar	4	3	2	1	10
2	Katekeybari	4	3	2	1	10
3	Charaideo	4	4	4	3	15
4	Lakwa	4	4	2	1	11
5	Sonarigrant	4	4	4	3	15
6	Nimonagarh	4	4	4	3	15
7	Moran Gaon	4	3	2	1	10
8	Lahan gaon	4	3	2	1	10
9	Jabaka region	4	4	4	3	15
10	Mautgaon	4	3	2	1	10
11	Abhoipur	4	4	4	3	15
12	Khanikor gaon	4	3	2	1	10
13	Bengena bari	4	4	4	3	15
14	Khangia	4	3	2	1	10
15	Safari	4	4	4	3	15
16	Mathurapur	4	4	4	3	15
17	Khamoon	4	3	2	1	10
18	Samaguri	4	3	2	1	10
19	Dagaon	4	3	2	1	10
20	Michajan	4	3	3	2	12
	Total	80	69	57	37	243

Source: Sample survey conducted by Researcher.

Table: - 1:2- **Sample Villages:**

Sl. No.	Name of the villages	Number of small tea garden surveyed	Percentage of total	Percentage of surveyed gardens
1	Garakhya Nagar	10	0.21	4.12
2	Katekeybari	10	0.21	4.12
3	Charaideo	15	0.31	6.17
4	Lakwa	11	0.23	4.52
5	Sonarigrant	15	0.31	6.17
6	Nimonagarh	15	0.31	6.17
7	Moran Gaon	10	0.21	4.12
8	Lahan gaon,	10	0.21	4.12
9	Jabaka region	15	0.31	6.17
10	Mautgaon	10	0.21	4.12
11	Abhoipur	15	0.31	6.17
12	Khanikor gaon	10	0.21	4.12
13	Bengena bari	15	0.31	6.17
14	Khangia	10	0.21	4.12
15	Safari	15	0.31	6.12
16	Mathurapur	15	0.31	6.17
17	Khamoon	10	0.21	4.12
18	Samaguri	10	0.21	4.12
19	Dagaon	10	0.21	4.12
20	Michajan	12	0.25	4.93
	Total	243	5.0	100.00

Source: Sample survey conducted by the Researcher.

Table-1:3– **Number of gardens in each group**

Size group in hectare	No of sample Gardens
Below 1.00(Group-I)	80 (32.92%)
1.01 – 2.00(Group-II)	69 (28.39%
2.01 – 3.00(Group-III)	57 (23.46%)
3.00 & above(Group-IV)	37 (15.23%)
Total	243 (100%)

Source: Sample survey conducted by Researcher.

Table:1:4-**Sample Number of Small Tea Grower's garden**

(According to geographical location)

Geographical location	Group-I (Below 1.00 hectare)	Group-II (1.01-2.00 hectares)	Group-III 2.01-3.00 (hectares)	Group-IV (3.01 and above)	Total
Plain Land	40	35	27	20	122(50.21%)
Hill Slope Land	15	14	10	11	50(20.58%)
Cultivable High Land	25	20	20	06	71(29.21%)
Total	80 (32.92%)	69 (28.39%)	57 (23.46%)	37 (15.23%)	243 (100%)

Source: Sample survey conducted by the Researcher.

Figures in brackets indicate percentages to total sample.

Data Base: For the purpose of this study both primary and secondary data have been used. To conduct a meaningful empirical study, data and fact has been collected from different sources. Field data are collected up to 2006 covering the period 1993-94 to 2005-06.

1:7:1 –Primary Data: Primary data are collected from the small tea growers. It is done through using a schedule prepared for the purpose by personally interviewing the small tea growers. Specific information on the given theme is obtained through field study and questionnaire. Accordingly a schedule is prepared as tool for interviewing the small tea garden owner.

The first part of the schedule is designed to collect the data on socio-economic information of small tea growers. These questionnaires aimed at obtaining information related to family size, nature of occupation, nature of employment, pattern of plantation, cost of plantation, income and expenditure pattern, educational status, social interaction, properties owned by household (agricultural and non-agricultural) and quality of houses etc. The questionnaires also contain questions of small tea growers like facilities available, household amenities etc. It is also use in obtaining level of standard of living of small tea growers.

The other part is designed to collect the information related to land use of small tea growers. A detailed study has been carried out in the selected small tea gardens regarding the land use pattern. Information also has been collected regarding the productivity, size and ownership of the gardens. The information of land occupied by tea gardens and other high land crops are also collected. The schedule was prepared to cover various aspects of labour management etc. Data are collected by directly interviewing the selected small tea gardens owners. Apart from the direct interview, personal discussions with the respondent were held. The gardens in the sample areas are visited several times during the study period to observe various aspects.

1:7:2- Secondary Data Base: Secondary data have been collected from various sources. Data like aerial extent, climate, soil temperature, rainfall, population etc. are collected from Directorate of Agriculture and District Gazetteers, Report of government, semi government agencies, as well as the bulletin and journals of small tea growers association and various issues of Tea Statistics published by the Tea Board of India. Some important data sources are –

a) Social, Economic and demographic information from Census publications.
b) Information relating to physical aspects of small tea gardens was collected from Department of Tea Husbandry and Technology, AAU, Jorhat, Toklai Experimental Station, Jorhat, Assam.
c) Statistical information has been collected from Tea Statistics published by Tea Board of India.
d) Various published and unpublished thesis and other records related to the subject.

Data processing, analysis and presentation: The collected data has been processed and analyzed with the help of various statistical techniques. The results obtained are presented with the help of various cartographic techniques. Table, maps, diagrams, graph and necessary photographs has been prepared for the purpose.

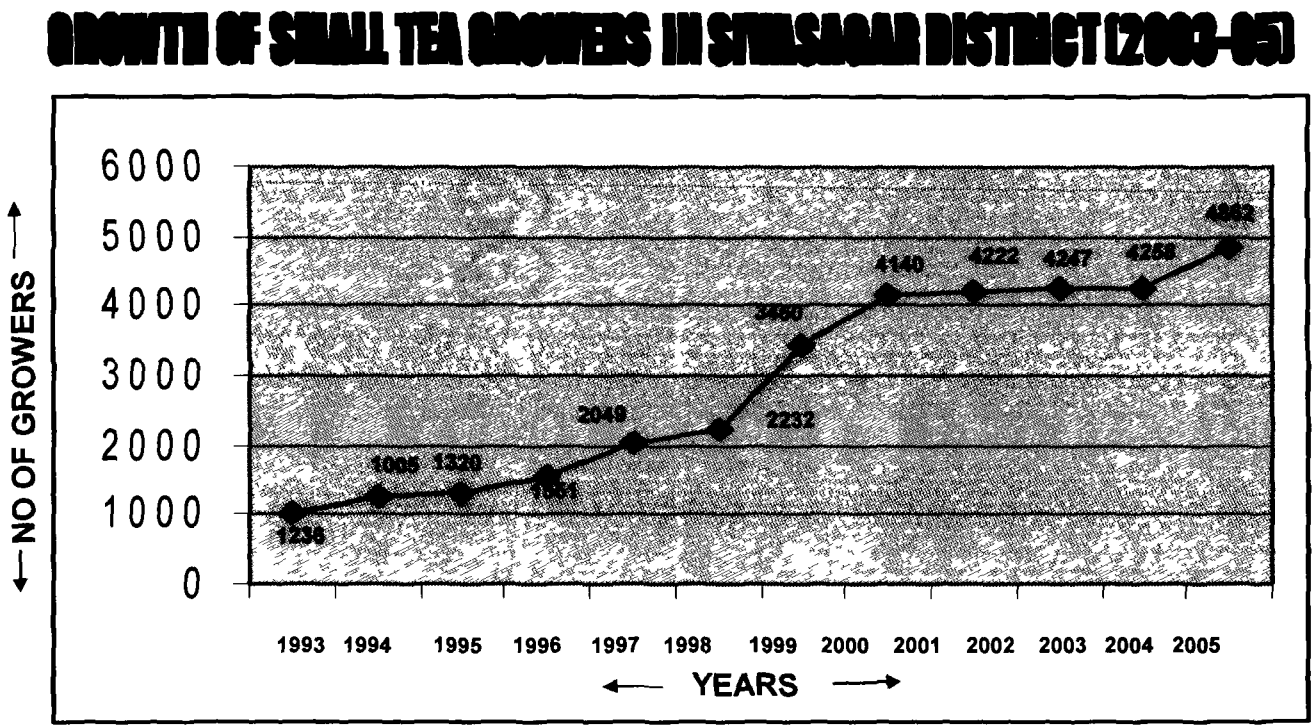
1:8 - STUDY AREA: The study was conducted in Sivasagar district of Assam. This district is purposively selected because the Sivasagar form the traditional tea growing tract of Assam. Small tea growers in this district constituted 11.08 percent of the total number of small tea growers of Assam. The number of small tea garden in this district

was 4258 (2003) and it is now 4862 (2005). Total area covered by small tea gardens in this district is 6387 hectares. It is important to note that there are five districts of Assam, viz., Tinsukia, Dibrugarh, Sivasagar, Jorhat and Golaghat, which constituted 89.17 percent of the total number of small tea growers of the state. Sivasagar district is selected for study as there is high number of tea gardens and area under small tea gardens. Moreover, this district has the large number of labour employed in small tea sector. The growth of small tea growers in Sivasagar district as per record of available with the small tea growers advisory Programme (STAP), Department of Tea Husbandry and Technology (THT), Assam agricultural University, Jorhat, from 1993 to 2003 is given in the table 1:6.

Table:1:5 - **Growth of small tea growers in Sivasagar district during 1993 to 2005**

Year	Estimated growth
1993	1005
1994	1236
1995	1320
1996	1551
1997	2049
1998	2232
1999	3450
2000	4140
2001	4222
2002	4247
2003	4258
2005*	4862

Source: Annual Report; Small tea growers advisory Programme Department of Tea Husbandry and Technology, Assam Agricultural University, Jorhat, year- 2005-06



Source. Annual Report; Small tea growers advisory Programme Department of Tea Husbandry and Technology, Assam Agricultural University, Jorhat, year- 2005-06

Fig: 1

Moreover, it is noticed that the rural areas of Sivasagar district, Assam experienced a phenomenon growth of tea cultivation from 1993 onwards. Cultivation of tea by the farmers has able to bring remarkable changes in the rural socio-economic scenario of the area. Apart from self employment the cultivation of tea has opened wide vistas of business opportunities in the area. That is why the Sivasagar district has been selected.

Presently, the Sivasagar is constituted with three sub-divisions and nine development blocks. The district is located in the upper Brahmputra valley region. The study area covers a geographical area of 2668 sq kms. The district has a total population of 10,51,736 as per 2001 census with the rural population of 9,54,557 and total rural area of 2637.85 sq. kms. and total urban area of 30.15 sq kms with total urban population of 97,179.

1:9-CHAPTER SCHEME: The present study has been divided in to the following chapters:

Chapter – One deal with Introduction, Significance of the study, Statement of the problem, Objectives, Research Questions, Data base and methodology, and a Brief Review of relevant Literature. An Introduction of the Study area has been given in Chapter Two. This Chapter includes the physical background of the study area where attempts are made to co-relate the location aspects, physical setting, physiography, climate, soil and vegetation and socio-economic situations. Chapter Three is devoted to the Growth of Small Scale Tea cultivation in Assam. This Chapter also includes the study of socio-economic condition of small tea growers of Sivasagar district. Chapter Four deal

with the study of general land use pattern of the study area. Chapter Five seeks to study the impact of small tea cultivation on land use change. This Chapter studied how small scale tea cultivation has brought the changes in the pattern of agricultural land use especially high land agriculture of upper Assam. The small scale tea cultivation in Assam has replaced the existing cropping pattern to mono-cropping of tea. A study of it also has been given to Chapter Five. Chapter Six is concerned with the study of Changes in Occupational Structure and Income Level. It also studied how small tea garden has provided better employment opportunity to the people of Assam especially in the Sivasagar district and how this occupation shift has brought significant economic changes among the small tea growers and the labourers engaged. Chapter Seven provides summery and conclusion of the present study.

CHAPTER – II

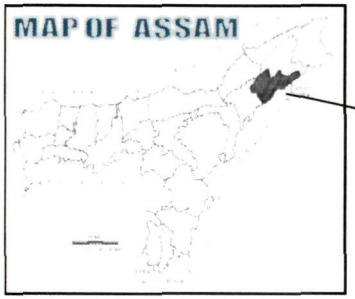
GEOGRAPHICAL INTRODUCTION OF THE STUDY AREA

2:1 – Physical Setting of the Region:

2:1:1 – Location: The Sivasagar District of Assam has been selected for the proposed study. The Sivasagar is lies between $94^0 8$ and $95^0 4$ East longitude and $26^0 7$ and $27^0 2$ North latitude. It is located 369 kms away from Guwahati, the capital city of Assam, with an area of 2668 sq. kms. The area is located in the upper Brahmputra valley and bordered by Brahmputra River, Lakhimpur and Dibrugarh district in the North and East, Arunachal Pradesh in the East, Arunachal and Nagaland in the South and Jorhat district in the West. The whole district is comprises of 3 Sub-divisions, 16 Thanas, 6 Revenue Circle, 9 Development Blocks and 118 Gaon Panchayat. The district has a total rural area of 2668(2637.85) sq. kms. It is separated from the Jorhat district by the river Janji on west and is connected with Guwahati mainly by 37 No National Highway.

2:1:2-Physiography: In Sivasagar district, certain variations in the nature of topography are distinctly observed. It is a part of the alluvial plain in the Southern bank of the river Brahmputra. The height of the region varies between 200-400 feet above mean sea level. The whole region has a general slope from South East to North-West. The direction of the flow of the major rivers very well points to the slope of the region. The marginal areas of the North fall in the active flood plain which is infested by Swamps, Marshes and *Beels*. The region adjacent to the foothills of the Naga Hills is highly undulating in

LOCATION OF STUDY AREA IN THE MAP OF ASSAM



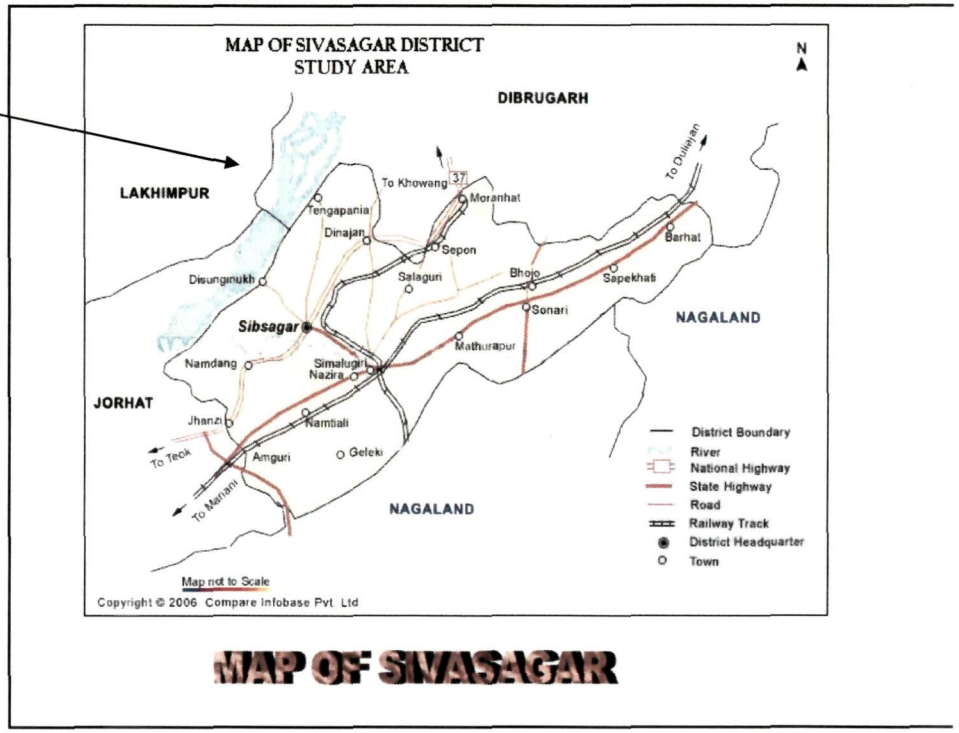
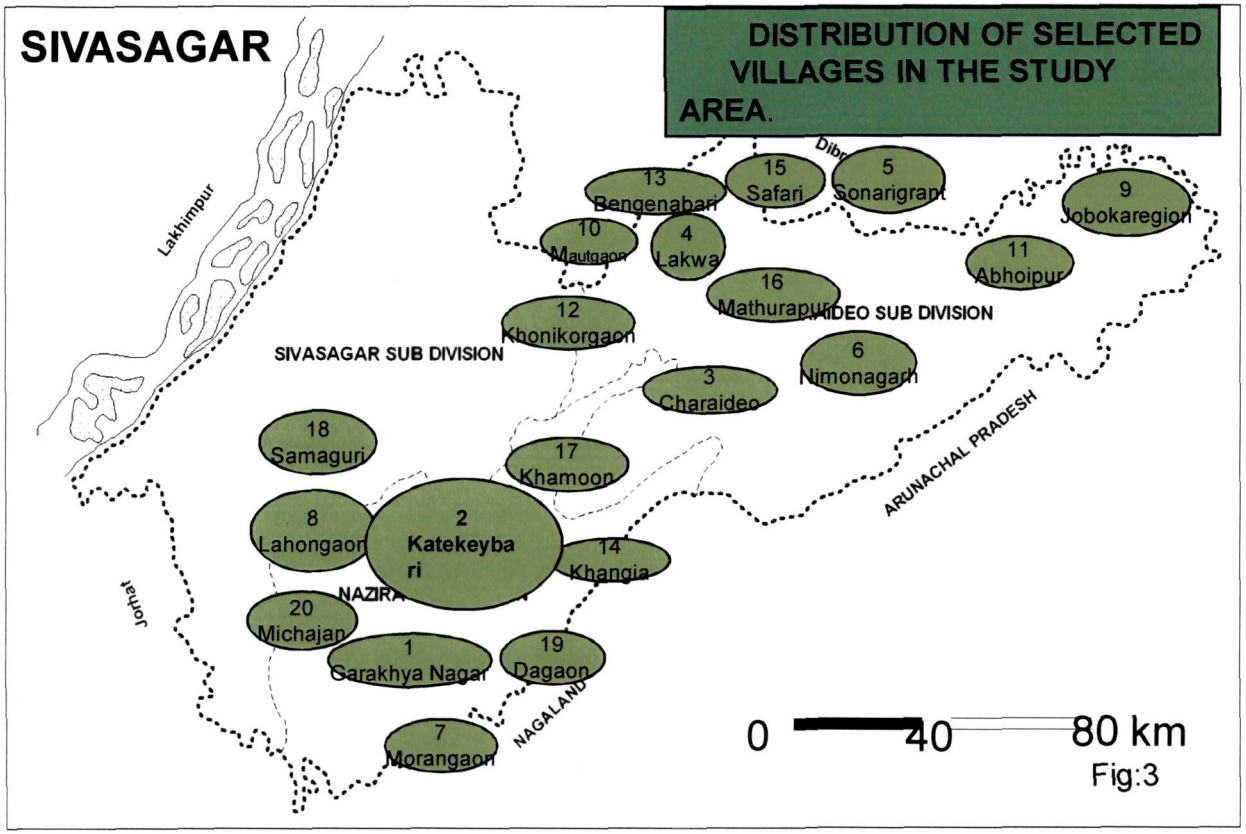


Fig: 2


SIVASAGAR
DISTRIBUTION OF SELECTED VILLAGES IN THE STUDY AREA.
Lakhimpur
Dibr
13 Bengenabari
15 Safari
5 Sonarigram
9 Jobokaregion
10 Mautgaon
4 Lakwa
11 Abhoipur
16 Mathurapur
12 Khonikorgaon
SIVASAGAR SUB DIVISION
DEO SUB DIVISION
6 Nimonagarh
3 Charaideo
18 Samaguri
17 Khamoon
ARUNACHAL PRADESH
8 Lahongaon
2 Katekeybari
14 Khangia
NAZIRA
Johat
20 Michajan
1 Sarakhya Nagar
19 Dagaon
NAGALAND
7 Morangaon
0
40
80 km
Fig:3

LOCATION OF SIVASAGAR

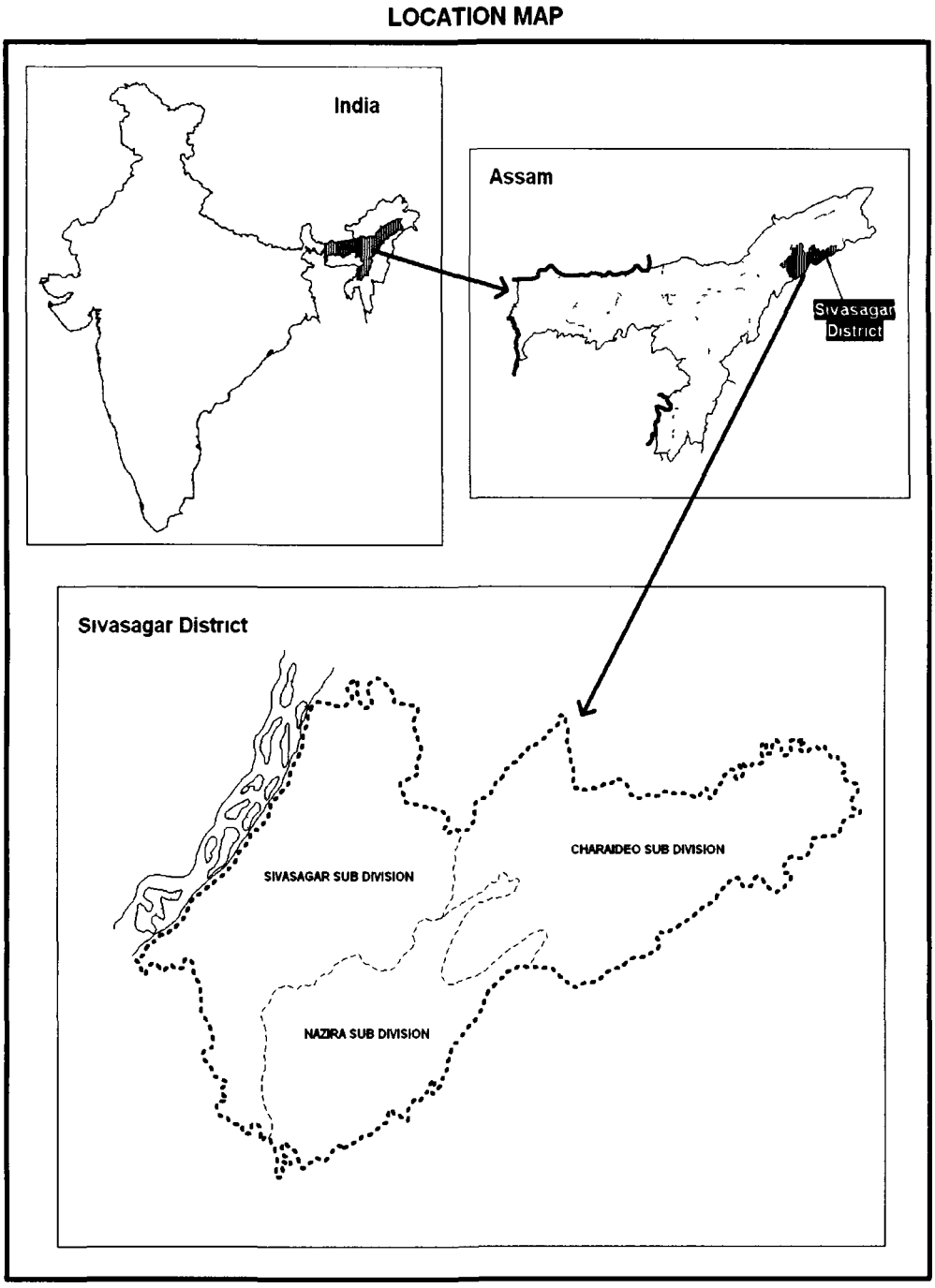


Fig:4

nature. On the basis of physiographic characteristics, the region may be divided into three major physiographic divisions. These are –

1) The active flood plain of the Brahamputra,
2) The middle built up plain and
3) The foot hill zone.

The active flood plain extends from the Saivasagar district to Gelabil grants of Dergaon and continues to Kaziranga National Park. The region mostly composed of new alluvial soil covered with thick riverborne silt and makes a good seasonal agricultural field. It is known for production of crops like spring and summer rice, mustard, vegetables and as rich pastures.

The middle plain region is relatively large. The middle plain is composed of old alluvium soil. This plain is of immense human significance as a built-up area with high density of settlements and a field of intensive agriculture. Winter rice, tea, vegetable, fruits are the major products of this plain.

The foothill region is the south of the district and is composed of high grounds and isolated hillocks which are mostly occupied by tea plantations and limited forests.

Although main features of the land in the region is fairly flat, small tea gardens and tea estates are very often located on relatively higher lands and on low *teelas* especially in Charaideo and Sonari areas. The entire region is composed of old alluvium except the riverine low lying lands which is mostly formed of recent alluvium.

2:1:3 –Drainage: The entire State of Assam is drained by the dense networks of two river systems viz. the Brahmputra and Barak systems. In general, the Brahmputra is very much extensive, while the Barak system is relatively small. The Sivasagar district is a

small segment of the riverine track of the mighty Brahmputra and is intricately dissected by enumerable north-west flowing tributaries and sub-tributaries. Though the tributaries are perennial, in winter, the volume of discharges dwindles considerably, but in rainy seasons they remain almost in spate for more than three months; consequently floods are common during monsoon. Being a low land, the drainage is not satisfactory. The important tributaries of the Brahmputra which meander in serpentine course – through the region are the Dikhow, Namdang, Janji, Darika, Dimow, and Disang, Dikhow and Disang river are the main tributaries of the Brahmputra river system. It flows in the south-western direction.

2:1:4 – Climate: Assam lies in the regime of monsoon climate of the sub-tropical belt. It enjoys heavy summer rainfall, winter drought, high humidity and relatively low temperature during a year. Sivasagar district also cannot be exception from it. The climate of Sivasagar district is characterized by warm, humid, rainy summer and cool dry winter. The rainy seasons begins from June and continue till early September. The normal rainfall in the district is 2244.5 mm. The pre-monsoon weather is marked by rising temperature and occasional mild to severe thunder storms. The winter is mild and morning and evening fogs are common. The most pleasant weather of this region is found during the month of October and November. Annual monthly variation of temperature, humidity and rainfall of Sivasagar district is shown in the table –1:1

Table: 2:1**Variation of Temperature, Humidity and Rainfall of Sivasagar District, 2005.**

Month	Temperature		Humidity (%)	Rainfall(mm)	Number of rainy days
	Min	Max			
Jan	7.2	22.3	74.5	35.9	3.16
Feb	11.9	24.0	68.5	46.7	4.26
March	15.6	27.5	67.5	146.4	10.33
April	19.1	28.6	77.0	376.3	14.16
May	21.9	29.9	74.5	407.0	15.88
June	24.2	31.6	80.5	525.7	17.00
July	24.7	36.2	81.5	809.7	21.66
August	24.7	34.1	81.5	494.6	16.35
September	24.0	31.7	83.5	535.9	17.83
October	21.1	29.4	83.5	149.2	9.16
November	15.3	26.4	80.0	58.0	2.20
December	10.7	23.4	77.5	19.5	2.25
Total				3607.15	136.34

Source: - Soil and water management, Toklai.

Occasionally, unusual draught condition prevails in the pre-monsoon period which adversely affects the winter crops, summer paddy and above all the tea plantation.

In Sivasagar district most of the tea gardens experiences an annual rainfall of 200-225cm. However in the gardens located close to the Naga Hills, it varies from 225-250 cm. The prospect of tea production depends upon short cold weather early and uniform rainfall.

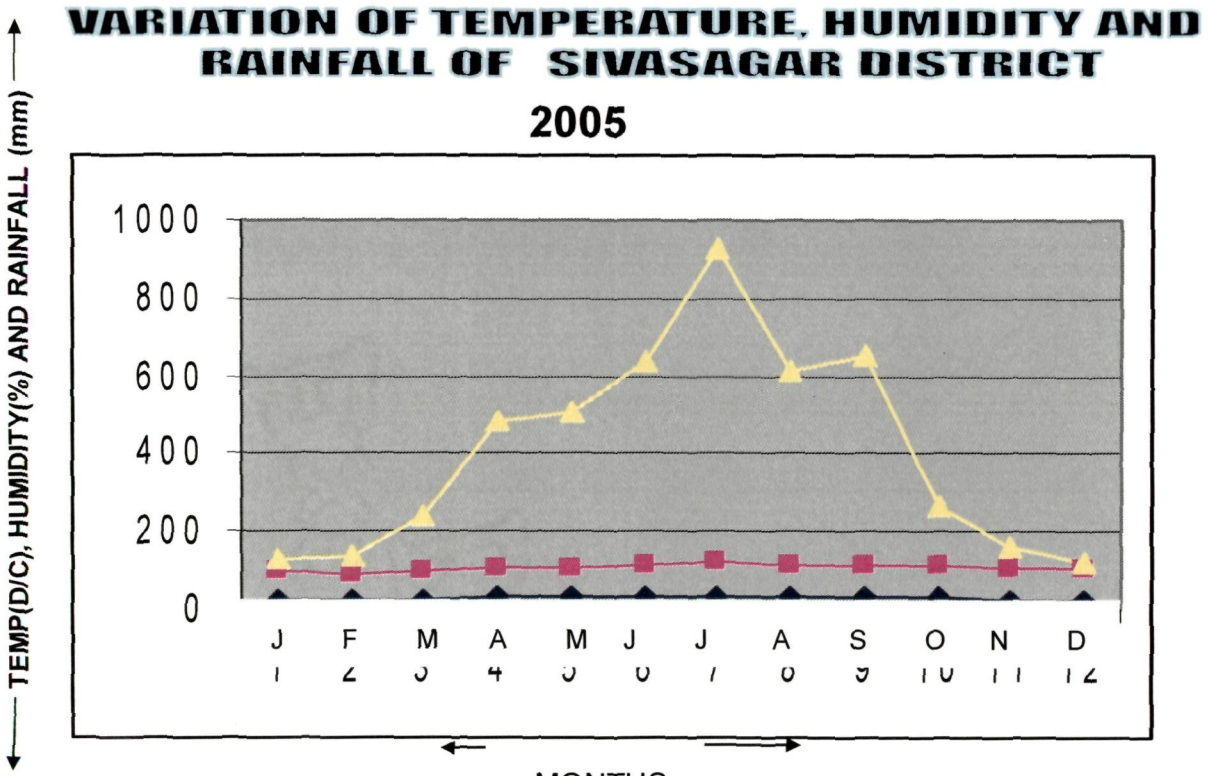

VARIATION OF TEMPERATURE, HUMIDITY AND RAINFALL OF SIVASAGAR DISTRICT
2005
TEMP(D/C), HUMIDITY(%) AND RAINFALL (mm)
1000
800
600
400
200
0
J F M A M J J A S O N D
1 2 3 4 5 6 7 8 9 10 11 12
MONTHS

Fig:5

2:1:5 – Soil: Sivasagar district falls under the upper Brahmputra valley agro-climatic zone. The soil of the Sivasagar district in broad sense may be classified in to three categories. These are –

a) Alluvial soil

b) Late rite soil

c) Hill soil

Out of these three types, alluvium soil is the most fertile and extensively distributed through the plain region of the district. The alluvial soil is divided into two types - new and old alluvial soils. The new alluvial soil varies mostly from clayey to sandy loam in texture and slightly acidic in reaction. It is deficient in phosphoric acid, nitrogen and humus, but rich in lime and potash. In the river banks the new alluvial is less acidic, sometimes neutral or slightly alkaline. Apart from the active flood plains of the Brahmputra and other tributaries, this soil is found in the middle plain centering Nazira extending between Charaideo and Namtula region. The old alluvium is more clayey and dark coloured. An elongated narrow patch of it occurs along the middle plain stretching from east to west of the district. The regions highly fertile alluvial soils are varied in nature and salt contained in the materials drawn from different rocks of the southern hills and quality of being very fine grained, highly porous and light, facilitating easy ploughing. The soil is responsive to fertilizers and manures and capable of fixing nitrogen rapidly through leguminous crops. Wide varieties of crops such as rice, sugarcane, banana, jute, oilseeds etc. grows well in the alluvial soil. Tea is abundantly grown in the acidic alluvial soil, rich in phosphoric acid. The old tea soils i.e. soil devoted to tea for a

long period are, in general, relatively poor in nitrogen and organic carbon contents in comparison with their virgin counterparts.

Laterite soil is generally deficient in nitrogen, potash, phosphoric acid and lime. But such soils are easily responses to nitrogen and phosphorate and hence capable of producing good crops. Laterite soil is of two types – high level and low level laterite. High level laterite is thin and gravelly with little capacity to retain moisture and is poor in nutritive substances. Its colour varies from reddish brown to yellowish. Low level laterite is of dark coloured and finer in texture. Wherever it is associated with heavy loams and clayey which produces good yield of crops like rice, sugarcane, banana and tea. Small patch of this soil is found along the hill slopes in south western part of Sivasagar district.

The quality of hill soils differs greatly in different regions in physical texture, chemical composition and fertility. Generally they are dark coloured fertile loams and can produce under irrigation excellent crops like vegetables, fruits especially orange and pine apple. This type of soil is found in the slopes and ridges of southern hills, bordering Sivasagar district.

2:1:6 – Natural Vegetation: The growth of natural vegetation of any region depends upon the interaction of soils, physiography and hydrology. The natural vegetation of Sivasagar district represents tropical monsoon vegetation. The high rainfall accompanied by humidity and temperature is favorable for the growth of wet tropical and monsoonal vegetation. The various type of vegetation in the district may be classified as follows:-

a) The Assam tropical evergreen type.

b) Mixed evergreen and Deciduous type and

c) The Savanna type.

The important species of Assam tropical evergreen tree types are Hollong (Dipterocaropus, Macrocapus), Makai (Shorea assamica), Amari (Amora Waiichii), Mango (Mangifera indica), Nahar (Mesua ferra), Khoir (Acacia Catechu), Bhomra, Gamari, (Cmelina arborea), Tita Sopa (Michelia chamoala), Banbagari Ziziphus oenoplia), Jackfruit (Artocapus) and and different species of Bamboos. The important species class (2) are Amari (Amoora Wallichii), Bansum (Dalbargia Sissoo), Simul (Bombax malabaricum) etc. Ekha (Eriamthes revenae), Khagari (Saccarum Sponteneum), Nal ((Phragmites karks), etc. are the example of Savana type of vegetations. Apart from these above mentioned species, there are various kinds of herbs; shrubs, climbers, algae, fungi, bryophyta and teridophyta are found in different forest of the district.

2:2 – Socio-economic Background of the study area: From the socio-economic point of view, Sivasagar district is an important district of Upper Assam. A study of its socio-economic background is essential to understand the present problem in a proper perspective.

2:2:1 –Population Growth: Population growth is the fundamental demographic process with which all demographic attributes are directly or indirectly associated. It determines density, distribution pattern and composition of population.

Population growth refers to the growth of human population in a particular area during a specific period of time. Sivasagar now presents a very promising place in respect of education, commerce and industry. According to 2001 census the area of Sivasagar district is 2668 sq. kms with a total population of 10,52,802 out of which 5,46,565 males and 5,06,237 females. It constitutes 3.95% of the total population of Assam State as per 2001 census. The population density of the district is 395 per sq. kms as against 340 per

sq.km. in Assam as per 2001 census. The population of the district has increased at tremendous rate. The percentage of decadal variation in population of Sivasagar district from 1901 – 2001 is shown in the following table.

Table: 2:2-**Decadal Variation of population of Sivasagar District-1901 -2001:**

Year	Percentages of decadal variation
1901 - 1911	+13.41
1911 – 1921	+20.46
1921 – 1931	+14.44
1931 – 1941	+15.64
1941 - 1951	+15.98
1951 – 1961	+23.36
1961 – 1971	+19.47
1971 – 1981	-
1981 – 1991	+38.76
1991 – 2001	+15.95

Source:-Census of India, 2001

So far sex ratio of the district is concerned, it is found to be almost equal as compared to all Assam figure (932 females /000). The literacy rate of the district is 68%. In this male literacy rate is 82.08% and female is 75.33% as per 2001 census.

Percentage decadal variation in population of Sivasagar district is evident that the above analysis of growth rate between 1961 and 1991 was very high. Perhaps it may be due to migration of population from other parts of the country, especially with the establishment of O.N.G.C's offices.

2:2:2:-Distribution of population: The study of any population is concerned not only with its size and characteristics but also with how it is distributed in various spatial

DECADAL VARIATION OF POPULATION OF SIVASAGAR DISTRICT
1901 -2001

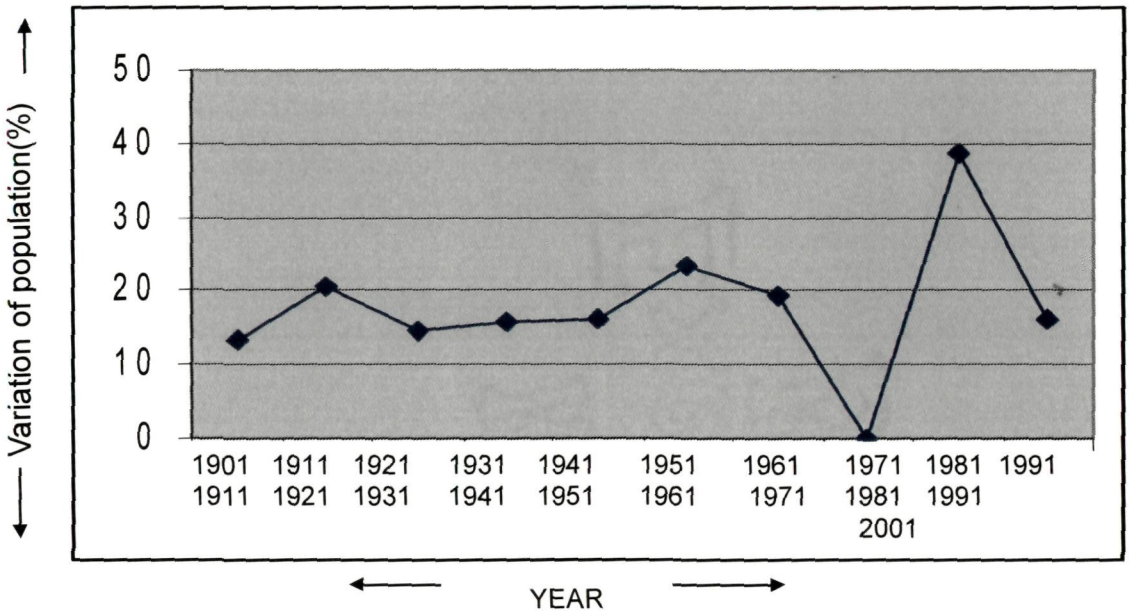


Fig:6

divisions and the changes that occurs in the patterns of population distribution over the year. However, in Sivasagar district, population is not evenly distributed. Concentration of population is comparatively high in the district and sub-divisional head quarter, i.e. Sivasagar, Nazira and Charaideo. According to 2001 census sub-division wise distribution of population are shown in the table 2.3.

Table – 2:3 - **Distribution of population** (Sub-division wise)

Population	Ref. Year.	Sub-divisions			Total (Sivasagar dist.)
		Sivasagar	Nazira	Charaideo	
A) Total population	2001	435360	208544	407832	1051736
i) Male	-do-	226235	108064	211177	545476
ii) Female	-do-	209125	100480	196655	506260
B) Rural population	-do-	374509	195497	384551	954557
i) Male	-do-	192626	100981	198442	492049
ii) Female	-do-	181883	94516	186109	562508
C) Urban Population	-do-	60851	13047	23218	97179
i) Male	-do-	33609	7083	12735	53427
ii) Female	-do-	27242	5964	10546	43752
D) Density per sq.km.	-do-	689.65	189.98	434.30	394.20
i) Rural	-do-	605.30	179.41	415.07	361.87
ii) urban	-do-	4848.68	1630.87	2425.10	3223.18

Source: Census of India, 2001

2:2:3- Pressure of population on land: The total geographical area of the district is 2668.0 sq. kms and total population is 1,051,736 as per 2001 census. Therefore, the land per capita share is 0.25 hectare in the district. The State as a whole is 0.29 hectare. But all lands are not available and suitable for agriculture. For example, the riverine areas, low lands and hills are not suitable for cultivation. Such a low per capita availability of agricultural land is accountable for overwhelmingly high rural population and very high

growth rate of population in Assam. The problem of surplus labour has been created by the excessive pressure of rural population on cultivable land.

2:2:4- Literacy Pattern: Literacy rate and educational attainment are considered to be the basic ingredients of socio-economic development and transformation of any society, as the quality of human population can be judged through the educational attainment (Kar and Sharma, 1997). Moreover, it influences other attributes of population like fertility, mortality, mobility and occupation etc.

In 2001 census, the literacy rate of Sivasagar district is high (75.33%) as against 64.28% in Assam. It was 64.46% in 1991 as against 52.89% in Assam. There is again a significant male-female and rural-urban disparity in the district. In 1991 male literacy rate was 71.91% but in 2001, it increased to 82.08 percent. In 1991 female literacy rate was 56.14% and in 2001 it is 68.0%. During 1991–2001 male and female literacy had increased.

2:2:5 – Educational attainment: Real progress in education in an area is reflected by educational level or attainment among the literate population. It became the quality and skill of the literates which count much rather than mere quantity. The people of the area occupy a better position in terms of educational attainment. Perhaps education can bring about significant changes in nonmaterial culture. With the progress in education, literacy rate too have increased in the area. Most parents send their children to English medium and private schools instead of the traditional govt. run schools located nearby. It is worth mentioning that a good number of people in the area attained graduate and post graduate degrees. This is however true in case of young generation, showing progress and prosperity.

2:2:6- Economic characteristics:

2:2:6:1 –Agriculture: The district Sivasagar comprises four agricultural subdivisions namely Sivasagar, Charaideo, Nazira and Amguri. Based on topography, soil type, availability of irrigation and cropping pattern of the district has been divided into five agro-ecological situations as stated in the table 2:4.

Agriculture and allied activities are the most important sources of employment. As per 2001 census, 27.32% workers to the total population are recorded in the district. Agriculture is playing a very important role in the economy of Assam that contributes more than 50% of the net state domestic product. But it is handicapped by many impediments, such as small and un-economic farm units, low crop intensity, low productivity, lack of proper irrigation facilities and inadequate credit, excessive rains, floods and sometimes drought conditions here and there. The total cultivated area of the district stood 1, 47,286 hectares in 1999-2000, which is 48.35% of the total geographical area of the district.

Table 2:4 – **Agro-ecological division of Sivasagar District:**

Sl No	Agri-ecological situation	Principal crops	Blocks
1	Alluvial flood free	Rice, sugarcane, Tea, Vegetables	Amguri, Sivasagar, Nazira, Sonari, Pachimabhoipur, Lakwa, Sapekhati
2	Alluvial flood prune	Rice, wheat, mustered, Vegetables	Amguri, Sivasagar Nazira, Dimow, Gourisagar, Lakwa
3	High land	Rice, Pulses, Tea, Horticulture, Citronella, Medicinal Plants	Amguri, Nazira, Sonari, Pachimabhoipur, Sapekhati
4	Hills area	Maize, Vegetables, Horticulture	Amguri, Nazira, Sonari, Pachimabhoipur, Sapekhati
5	Char like areas	Rice, wheat, Mustard Pulses, Vegetables	Sivasagar, Gourisagar, Dimow

Source: District level statistics 2004-05, Sivasagar district.

2:2:6:2- Industry: In spite of being blessed with a very high potential for development of industries, the place of industrialization in Sivasagar is not satisfactory. The table 2.5 gives an idea of industrial situation of the district.

Table:-2:5-**Different types of Industry in Sivasagar district according to 2003:**

Industrial Infrastructure	Type of Industry	No
	Industrial estate	1
	Commercial estate	2
	No of sheds constructed	44
No of existing S.S.I. Unit	Food Processing	17
	Handicrafts unit	167
	Printing	14
	Cement crafts	2
Registered under D.I.C. Sivasagar	Miscellaneous	20
	Misc. Manufacture	27
	Repairing and Servicing	82
Khuddar and Village Industries	Bee Keeping	4
	Khaddar and Cotton, Muga, Silk and Erie Weaving Centre	5
	Muga yarn Spinning Centre	3
Small Tea Industry (Professional)	Tea Estate	97

Source:-District at a Glance Sivasagar -2003, Published by Office of the Deputy Director of Economics and Statistics, Sivasagar

2:2:6:3-Transport and Communication: As per records of Directorate of Economics and Statistics, 2006, the Sivasagar is relatively developed in transport and communication. The total PWD road length of the district is 1922.63 kms. National High ways covers 85.01 kms, other PWD roads covers 1795.59 kms. The district is relatively well served by the railways. The total length of the railways route is 153 kms.

CHAPTER –III

GROWTH OF SMALL SCALE TEA CULTIVATION IN ASSAM

3:1: Birth of Indian Tea: Tea was introduced in England during early or mid – 17th century. From then onwards, tea drinking gradually got popularized in England. China was the main source of tea for England till then. During thirties of nineteenth century, due to adverse political relationship with England the trade link got cut-off between China and England.

By this time tea drinking in England had well developed. By the seventh decade of the 18th century, British East India Company had consolidated most part of Northern India. In 1778, Sir Joseph Bank was asked to the cultivation of new crops, and in turn he advocated the cultivation in India.

Perhaps it was due to superficial observation in the similarity of climate and soil in many part of India with China that led many scholars to hope the possibility of tea cultivation in India.

Birth of Indian Tea industry was marked by the discovery of indigenous tea plants in Assam in 1823 by Robert Bruce. Reference to this was made by Major Edward Gait in his authoritative history of Assam in 1926[7]. In 1835, some seeds of China variety sent by Gordon were planted in Calcutta (now Kolkota), and 4200 plants were distributed in Assam, the Himalayas and the Nilgiri. In 1859, tea was extended to Surma valley.

---

[7] *Benerji, G. (1996) - Tea Plantation Industry between 1450 and 1992- Structural Changes, Guwahati; Page-19*

About in 1856 plantation began in Darjeeling. During the period of 1862-67 tea cultivation started in Chittagong and Chutanagpur. Ultimately the tea cultivation started in many districts of India, wherever there was a little hope of success. Now India along with Srilanka started to dominate the world tea market[8]. Today India is regarded as the tea garden of the world[9].

3:2:1: Development of Tea cultivation in Assam: The development of tea cultivation in Assam can be divided in to two major periods viz., (A) Pre independence period and (B) Post independence period.

A) Pre-independence period : Tea plantation of pre-independence period can be divided in to five periods –1) Experimental period during 1823 – 1839, 2) Period of rapid growth during 1850-1890, 3) The period of stability during 1890-1918, 4) Inter war period during 1918 – 1937 and 5) The period of prosperity during 1937-1950.

1) Experimental period : This period ran up to 1839 from 1823. The introduction of large scale tea cultivation coincided with refusal of the Chinese government to renew the agreements granting the East India Company appointed a committee under Lord Bentinck in 1834 to study and suggest effective measures to introduce tea cultivation in India particularly in Assam.

In 1835, tea seeds were procured from China. This was followed by the scientific study of indigenous tea plants. The study proved that plants found in Assam were of the same quality as the seeds imported from China. The seeds from China were cultivated at an experimental level in Assam with Dehradun and Nilgiri hills.

---

[8] *Benerji. G. (1996) –Tea Plantation Industry between 1450 and 1992 – Structural Changes, Guwahati; Page-21*

[9] *Monoharan, S. (1974) – 'Indian Tea. A Strategy for Development' – S. Chan and co. pvt.ltd. New Delhi*

2) The period of rapid growth: This period was continued up to 1890 from 1850. In this period expansion of tea cultivation in upper Assam followed the British administrative consolidation. With the absorption of Sibsagar (now Sivasagar) and Lakhimpur tract, the cultivation was thrown open to private enterprises. Companies were formed in Calcutta and London in 1839 and were later amalgamated as the "Assam Company". Jorhat Tea Company was incorporated in 1859. The state policies were conducive for large scale tea cultivation in the region. In the history of tea plantation of Assam, 1850 is a significant year because; Assam Company had succeeded in producing saleable tea at a profit. New gardens were opened in Darang and Kamrup district in 1850. Tea was planted Barak Valley in 1856 and Surma Valley in 1859. The growth and development of tea plantation during this period may be attributed to many factors like favourable government plan and policies to encourage plantation of tea by offering various incentives by the governments to planters. The emergence of private entrepreneurs in cultivation of tea, introduction of improved method of manufacture etc. has brought growth of tea industry in Assam.

3) Period of stability: This period ran up to 1920 from 1890. In this period, the area under tea cultivation increased by 81 percent showing an average annual growth rate of 3.8 percent. Production is increasing and yield per hectare is improving day by day. Many factors are responsible to this accelerated growth of tea industry in Assam. The important among these are setting up of tea research laboratory, Indian tea museum in Calcutta, enactment of Tea Chess Act (TCA) in 1903, by the government of India, construction of Assam Bengal meter gauge railway line in 1990, shifting of tea research station from Calcutta to Jorhat in Assam in 1911, and expansion of domestic market etc.

4) Inter war period during 1920 – 1950: In this period area under tea cultivation had declined and production has increased. First International Tea Agreement (ITA) was signed in 1933 and the Tea Control Act, 1933 was introduced. The International Tea Committee (ITC), Tea Chess Committee (TCC), 1937, Indian Tea Market Expansion Board was constituted in this period.

5) Period of prosperity during 1939-1950: Gradual prosperity can be seen in tea plantation of Assam after 1940-1950. The Second World War, introduction of bulk purchase scheme, further expansion of tea agreement, creation of central tea board etc. lead to the prosperity of tea industry in this period.

B) Post independence period: After independence from 1951 the five year economic planning came in to force. During the first two five year plan tea plantation in Assam had experienced a gradual progress. The period between 1961-1970 records a limited increase of area under tea cultivation. This period was marked by two external aggressions viz. Chinese aggression in 1962 as well as Pakistani aggression in 1965. These two aggressions had a negative impact on the tea plantation in Assam as it disrupted the regular supply of essential raw materials to plantations as well as the transportation of made tea from them. But significant development of this period was the setting up of first auction center at Guwahati in 1970 to cater the needs of the tea plantation in Assam and North East states. In 1973, government of India passed the Foreign Exchange Regulation Act (FERA) which provided facilities for diluting the foreign equity capital. In 1974 the Indian Tea Industry Development Association (ITIDA) was set up to rehabilitate and provide financial assistance to sick and closed gardens. The period between 1981 to 1991 is covered by the sixth and seventh five year plan. During this period efforts were made

from different perspective to accelerate the growth of tea industry. Priority was on research and development activities and the new tea clones developed at Toklai experimental station in Jorhat, Assam. The most important development that can be observed in this period was the importance given to small tea growers.

3:2:2: Small scale tea cultivation in Assam: Tea is traditionally grown in Assam since 1840. After the introduction of tea in Assam, by the British it has transformed the traditional tea cultivation into an organized agro-based industry by planting tea in large areas. These were eventually termed as estate. Modern method of tea husbandry was innovated to achieve high yields. Most drastic changes were brought to processing of tea leaf. Machines were developed to replace the indigenous manual methods of tea processing and drying. Modern concept of business management and marketing of tea were introduced to convert the unorganized business in to an organized industry. All these changes were taken place in Assam during this decade. But it took 150 years to catch the farmers of Assam to cultivate tea, even cultivation of tea in small holdings were already exist in many parts of the world including a few states of India like Tamil Nadu, Kerela, and Himachal Pradesh etc. The concept of **Small scale tea cultivation** by common farmers in Assam is very new. It is an infant stage considering the 160 years old tea industry of the country. It was initiated during the seventies by the then Janata Government of Assam. The honorable Minister of Agriculture of Assam, Sri Someswar Borah, mooted the idea of tea cultivation in homestead garden and utilizing land along with other crops and sale the green leaf to the existing big factories for family income. With the encouragement of the government patronage, a group of farmers of Sivasagar district initiated tea cultivation in the high lands, with an area ranging from 0.13 to 3.0

hectares. The pioneers faced both social and economic hurdles. During the end of eighties, the department of Tea Husbandry and Technology of Assam Agricultural University surveyed the possibilities of growing tea in small scale and an Advisory Cell was established to promote the concept of small scale tea cultivation in Assam. In 1987, **'All Assam Small Tea Growers Association'** was formed, which was a land mark for extension of small scale tea cultivation in Assam. Since then, both the organizations worked together to popularize tea in small sector. In 1991, Advisory Cell was reconstituted as **'Small Tea Growers Advisory Program'.** The Small Tea Growers Advisory Programme (STAP) of Assam, Agricultural University has made tremendous impact by providing not only technical guidance to small tea growers but also served as a main centre for spreading tea cultivation among the farmers on small scale.

3:2:3: The Growth of Small scale Tea Cultivation in Assam:- During the last two decades of the previous century, the rural areas of Assam experienced a phenomenal growth of tea cultivation. The growth was very conspicuous in the five districts of upper Assam. The initial were laid during the eighties and slowly the growth picked up abruptly during the last decade largely because tea was found to be more profitable than other crops[10]. It was revealed by Boruah and Taparia, that there were 657 growers in Assam in 1990[11]. It is increased to 40,000 in the year 2005[12]. During the last 12 years i.e. 1993 – 2005 there was eight fold increases in the number of growers. The rate of growth was maximum during the year 1999 i.e. 95.60% owing to sudden rise of price of green leaf

---

[10] *Saikia, T (1994) – Economics of Production And Processing of Small Scale Tea Cultivation in Dibrugarh and Golaghat district of Assam, MSc Thesis (Unpublished), Department of Agricultural Economics and Farm Management, A A U Jorhat, Assam*

[11] *Boruah, S and Taparia M (2005) – Small Tea Growers of Assam Status And Strategies – Part-I, Assam Review and Tea News January- 2005*

[12] *Sharma, M M (2005) – Asomat Khudra Chah Khetikishu sambhawana,- Article published in Basundhara 6 March-2005*

GROWTH OF SMALL SCALE TEA CULTIVATION IN ASSAM
1993 – 2005

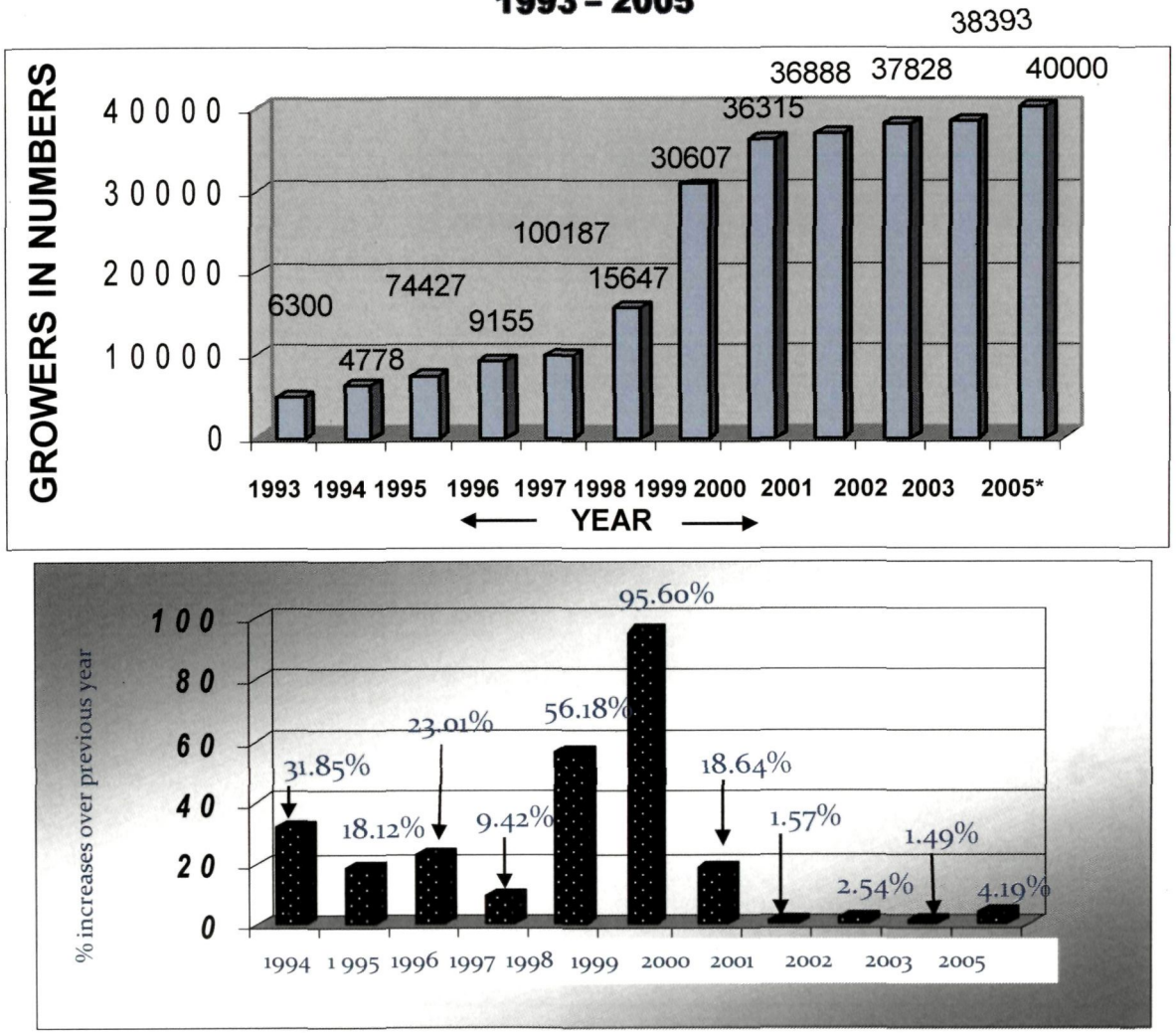


Fig:7

during 1998 and 1999. With the sharp fall in price of green leaf, the growth abruptly fell down to 1.49% during 2003 and again it has risen to 4.19% in the year 2005.

Table:3:1-**Estimated Growth of Small Tea Growers in different district of Assam**(1993-2003)

District	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Tinsukia	528	609	738	951	1342	2153	7088	8386	8398	8427	8438
Dibrugarh	1635	1998	2499	2940	3846	5856	8983	10700	10802	11523	11625
Sivasagar	***1005***	***1236***	***1320***	***1551***	***2049***	***2232***	***3450***	***4140***	***4222***	***4247***	***4258***
Jorhat	639	804	975	1401	1869	2502	3966	4561	4700	4799	5150
Golaghat	837	1221	1383	1536	1698	1881	3686	4607	4727	4732	4774
KarbiAnglong	63	66	75	90	96	102	508	610	626	630	631
Nagaon	09	18	39	48	63	81	207	248	251	257	266
Marigaon	06	07	16	18	20	20	42	45	45	45	45
Kamrup	01	03	18	18	71	77	115	120	121	123	123
Nalbari	-	-	-	-	-	-	25	30	30	30	30
Goalpara	-	216	216	216	219	222	461	465	465	465	465
Kokrajhar	01	01	02	02	03	04	27	30	39	39	40
Dhubri	-	-	02	03	03	04	10	13	14	14	14
N C Hills	-	-	-	-	-	-	12	12	12	12	12
Hailakandi	-	-	-	-	-	-	17	20	20	20	20
Darang	03	06	09	126	129	132	330	396	425	418	418
Sonitpur	24	63	78	165	177	189	345	392	392	392	406
N. Lakhimpur	24	42	54	57	63	69	918	964	1015	1029	1052
Dhemaji	-	03	03	03	28	46	225	247	262	272	272
Cachar	03	07	15	30	40	77	160	271	271	271	271
Bongaigaon	-	-	-	-	-	-	32	58	61	83	83
Total	4778	6300	7442	9155	10018	15647	30607	36315	36888	37828	38393

Source: Annual Report, Small Tea Growers Advisory Programme – 2005 - 06

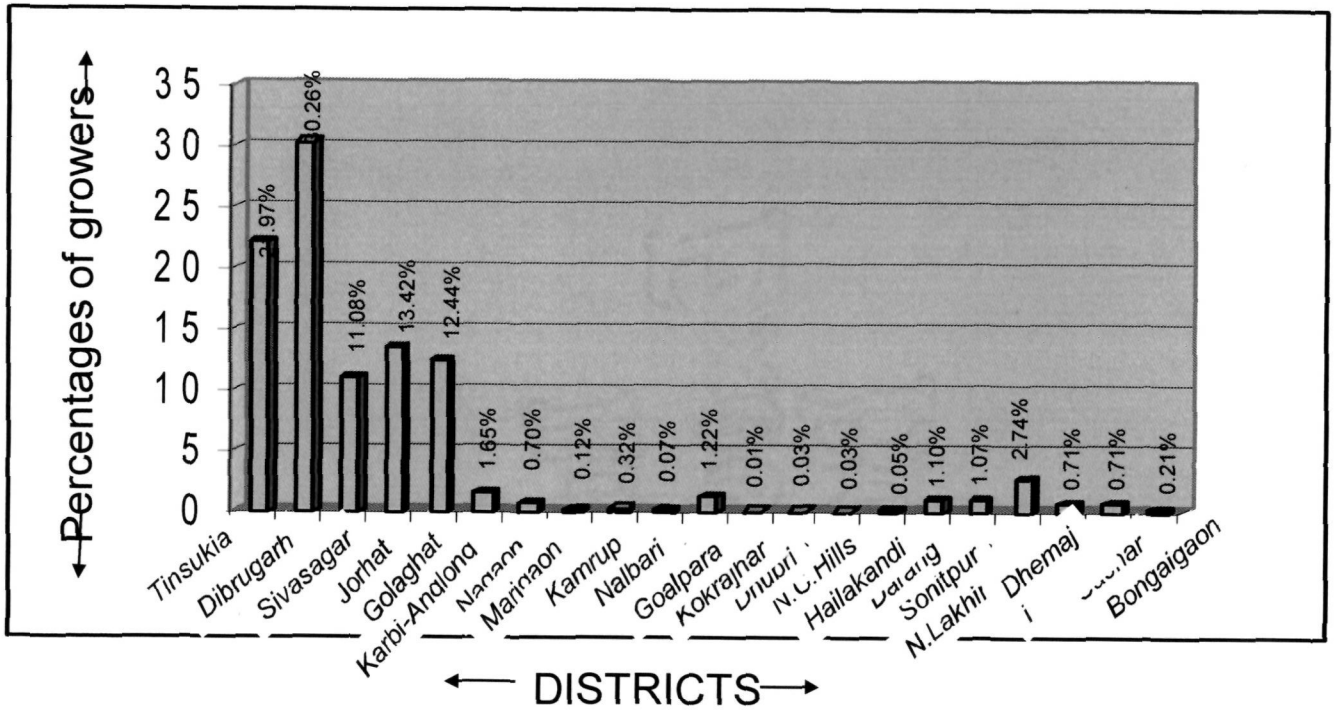
Table -3:2-**Growth of Small Scale Tea Cultivation in Assam During 1993 to 2005**

Year	Nos. of growers	% increase over previous year
1993	4778	-
1994	6300	31.85
1995	7442	18.12
1996	9155	23.01
1997	10018	9.42
1998	15647	56.18
1999	30607	95.60
2000	36315	18.64
2001	36888	1.57
2002	37828	2.54
2003	38393	1.49
2005*	40000	4.19

Sources: - Assam Review and Tea News – December' 2004

** Data for 2005 – Basundhara – A weekly Assamese magazine, 6 March, 2005*

DISTRICT WISE DISTRIBUTION OF SMALL TEA GROWERS GARDENS IN ASSAM - 2003



Source:- Small Tea Growers Advisory Programme, AAU, Jorhat, Assam.

Fig:8

The growth of tea cultivation is highest in the districts of Tinsukia, Dibrugarh, Sivasagar, Golaghat and Jorhat. The small tea grower's accounts for 90% in these districts and the rest of 10% are spread over the remaining 16 districts of Assam. Presently the concept of growing tea in small scale has percolated down even to the non-conventional districts like Kokrajhar, Nalbari, Karimganj and Marigaon. This sector has since emerged as a contributory force in the plantation economy of Assam. This highly un-organized sector of small tea growers produces approximately 150 m.kg, which is almost 18% of the total production of the country[13]. The growth of small tea growers in this region has been monitored by the Tea Board Sponsored scheme – The Small Tea Growers' Advisory Programme (STAP), Department of Tea Husbandry and Technology, Assam Agricultural University, which has registered 9720 small tea growers of Assam, up to December 2003. It was 10,361up to March 2005 and 10,617 up to march 2006.

Table 3:3 –A - **District wise distribution of small tea growers in Assam (2003)**

Sl. No.	District	No. of Growers	Percentage of Total
1	Tinsukia	8438	21.97
2	Dibrugarh	11625	30.26
3	*Sivasagar*	*4258*	*11.08*
4	Jorhat	5150	13.42
5	Golaghat	4774	12.44
6	Karbi-Anglong	631	1.65
7	Nagaon	266	0.70
8	Marigaon	45	0.12
9	Kamrup	123	0.32
10	Nalbari	30	0.07
11	Goalpara	465	1.22
12	Kokrajhar	40	0.01
13	Dhubri	14	0.03
14	N C Hills	12	0.03
15	Hailakandi	20	0.05
16	Darang	418	1.10

[13] *Mandal, K. (2004) – Tea sector still in dark on budget sops. Business Line Financial Daily. The Hindu group of Publications, Friday, February'06, 2004.*

17	Sonitpur	406	1.07
18	N. Lakhimpur	1052	2.74
19	Dhemaji	272	0.71
20	Cachar	271	0.71
21	Bongaigaon	83	0.21
	Total	38393	100.00

Source:- Annual Report, 2005 – 06 , Small Tea Growers Advisory Programme, AAU, Jorhat, Assam.

Table- 3:3(B) - **The five districts having highest small tea gardens (2003)**

District	Number of Growers	Percentage of Total
Dibrugarh	11625	30.26
Tinsukia	8438	21.97
Jorhat	5150	13.42
Golaghat	4774	12.44
Sivasagar	4258	11.08
Others	4148	10.83
Total	38393	100.00

Source:-The Assam Review and Tea News, December-2004

Out of the five concentrated districts, the highest number of growers is in Dibrugarh district. Dibrugarh and Tinsukia district accounted 50% of the total small tea growers of Assam. The highest concentration of plantation in upper Assam is due to already available infrastructure with existing big tea gardens (market, planting materials, skilled workers and un-used or under exploited suitable high land).

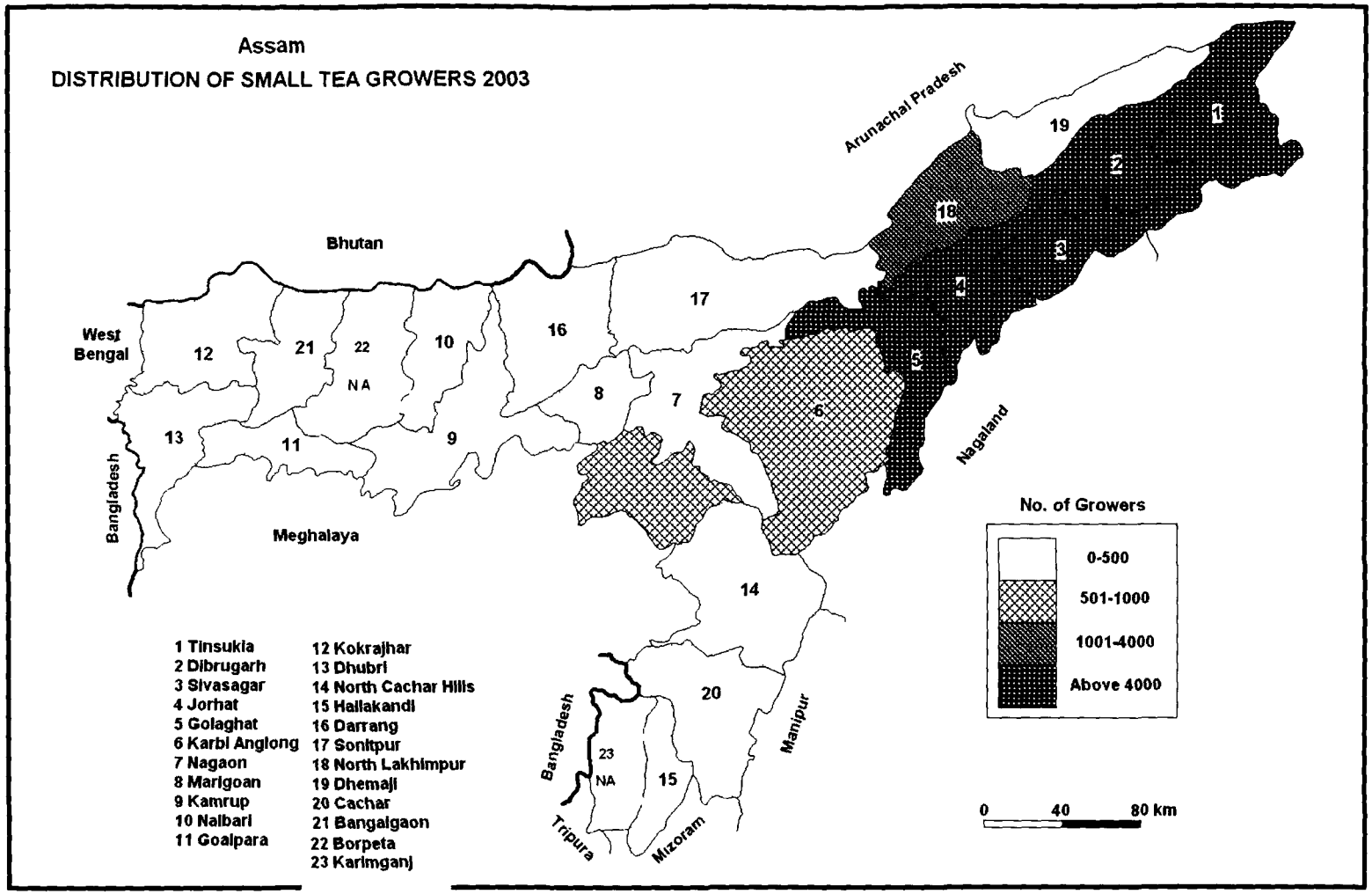
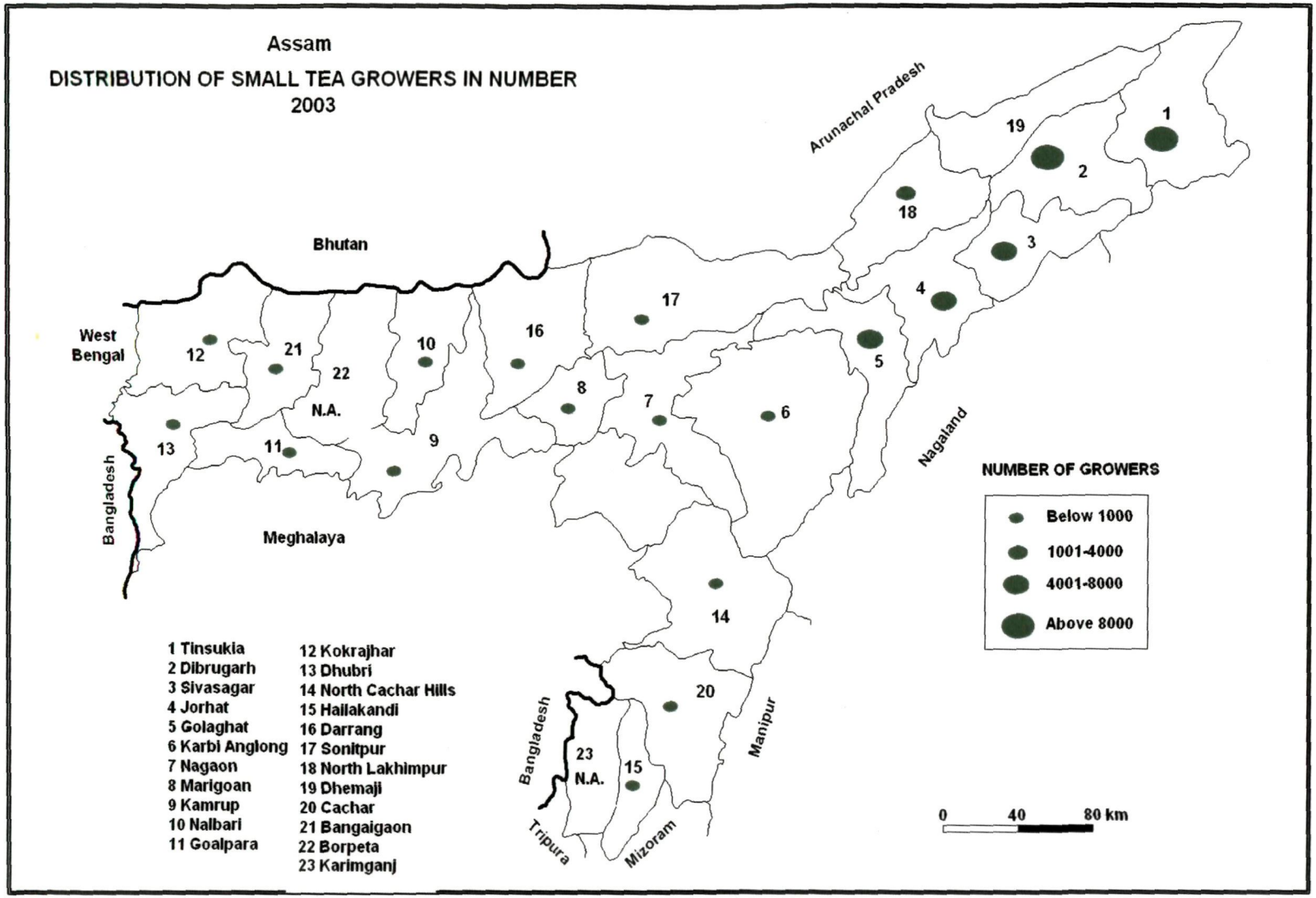

Assam
DISTRIBUTION OF SMALL TEA GROWERS 2003
Arunachal Pradesh
Bhutan
West Bengal
Bangladesh
Meghalaya
Nagaland
Manipur
Tripura
Mizoram
Bangladesh
No. of Growers
0-500
501-1000
1001-4000
Above 4000
0 40 80 km
1 Tinsukia
2 Dibrugarh
3 Sivasagar
4 Jorhat
5 Golaghat
6 Karbi Anglong
7 Nagaon
8 Marigoan
9 Kamrup
10 Nalbari
11 Goalpara
12 Kokrajhar
13 Dhubri
14 North Cachar Hills
15 Hailakandi
16 Darrang
17 Sonitpur
18 North Lakhimpur
19 Dhemaji
20 Cachar
21 Bangaigaon
22 Borpeta
23 Karimganj
NA
NA

Fig:9 - A



Source:- Small Tea Growers Advisory Programme, AAU, Jorhat, Assam. Fig:9 - B

Table:-3:4- Small tea garden registered with STAP during the year 2005 - 06

Sl. No	District	April 2005 to March 2006	Up to March 2005	Total up to March 2006
1	Tinsukia	26	1167	1193
2	Dibrugarh	21	3616	3637
3	Sivasagar	21	1190	1211
4	Jorhat	92	2282	2362
5	Golaghat	32	963	995
6	Karbi-Anglong	19	55	74
7	Nagaon	-	104	104
8	Marigaon	-	15	15
9	Kamrup	-	86	86
10	Nalbari	-	11	11
11	Goalpara	-	83	83
12	Kokrajhar	-	18	18
13	Dhubri	-	03	03
14	N C Hills	-	01	01
15	Hailakandi	-	02	02
16	Darang	-	59	59
17	Sonitpur	23	128	151
18	N. Lakhimpur	23	380	388
19	Dhemaji	08	93	101
20	Udalguri		39	39
21	Bongaigaon	-	66	66
22	Baska(BTAD)	06	-	06
23	Nagaland	25	486	511
24	Arunachal Pradesh	-	78	78
	Total	281	10,925	11,206

Source: - Annual Report, Small Tea Growers Advisory Programme – 2005 - 06

Table: 3:5 - Small tea garden registered with the Tea Board up to October, 1999

District	No. of small tea growers	Registered area(in hectare)
Tinsukia	78	301.16
Dibrugarh	100	328.66
Sivasagar	75	218.96.
Jorhat	64	150.69
Golaghat	193	566.53
Karbi-Anglong	35	325.37
Nagaon	12	43.45
Marigaon	7	7.35
Kamrup	1	7.23
Nalbari	1	1.93
Kokrajhar	1	4.01
Dhubri	1	1.04
Barpeta	1	1.51
Darang	11	67.98
Sonitpur	58	155.27
N. Lakhimpur	8	32.58
Dhemaji	1	8.95
Cachar	12	58.96
Total	659	2281.63

Source: Tea Board of India

3:2:4- Small Tea Growing Areas and Land Holdings: It is evident that around 71% of the total small tea growers are under 2.66 hectares and over 85% are less than 3 hectares, much below than the optimum size of small tea plantation in North East condition.[13] However, the break-even analysis in respect of area, yield, production and price have revealed that these farms, although small in size, have been operating much above the

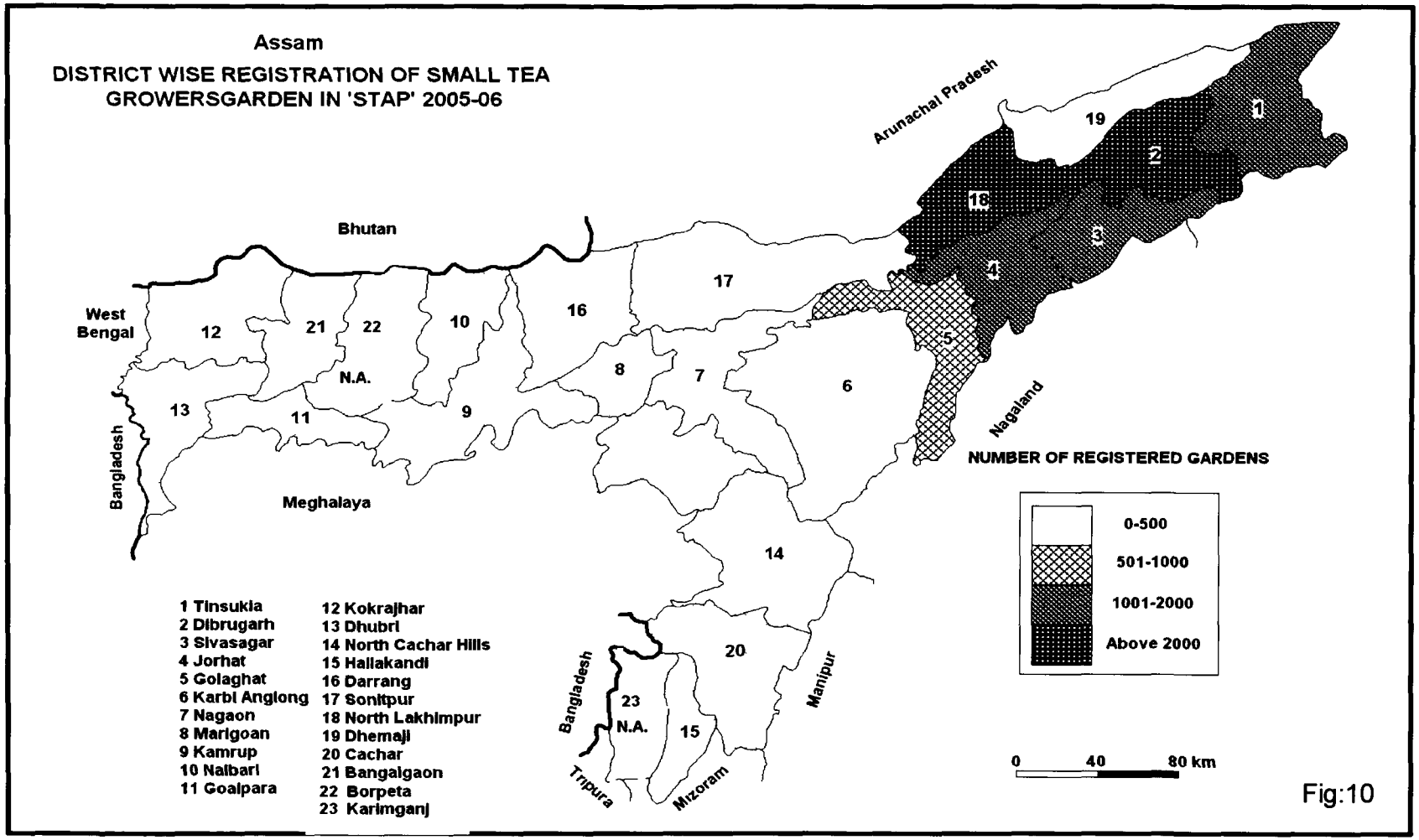
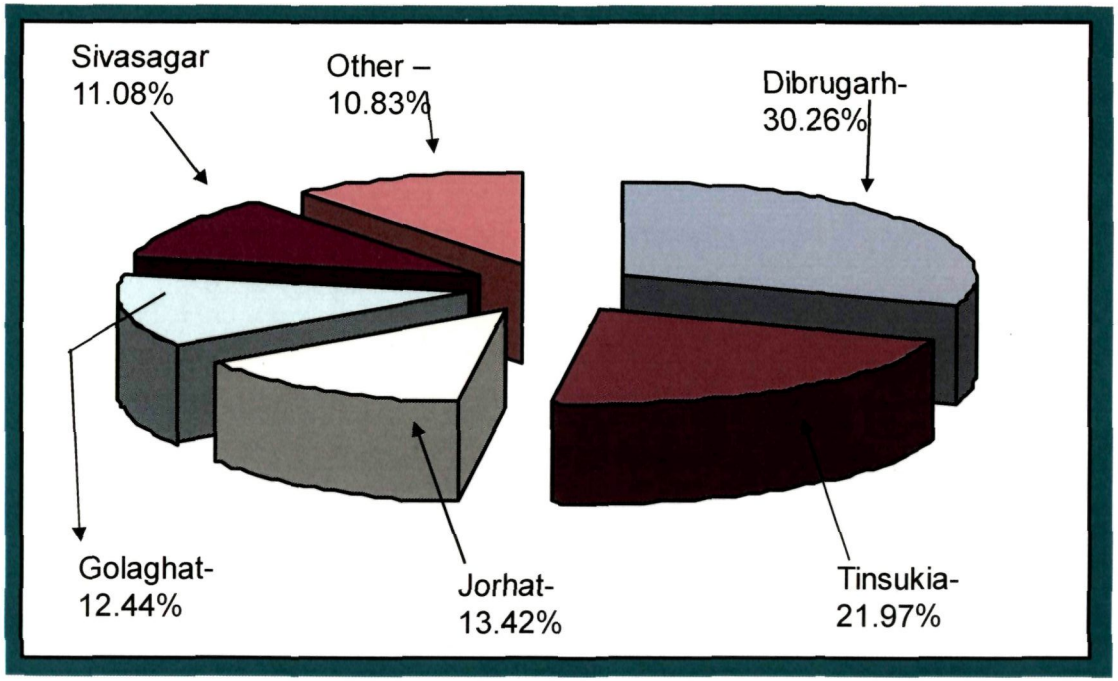

Assam
DISTRICT WISE REGISTRATION OF SMALL TEA GROWERSGARDEN IN 'STAP' 2005-06
Arunachal Pradesh
Bhutan
West Bengal
Bangladesh
Meghalaya
Nagaland
Manipur
Tripura
Mizoram
N.A.
N.A.
NUMBER OF REGISTERED GARDENS
0-500
501-1000
1001-2000
Above 2000
0 40 80 km
1 Tinsukia
2 Dibrugarh
3 Sivasagar
4 Jorhat
5 Golaghat
6 Karbi Anglong
7 Nagaon
8 Marigoan
9 Kamrup
10 Naibari
11 Goalpara
12 Kokrajhar
13 Dhubri
14 North Cachar Hills
15 Hailakandi
16 Darrang
17 Sonitpur
18 North Lakhimpur
19 Dhemaji
20 Cachar
21 Bangalgaon
22 Borpeta
23 Karimganj

Fig:10

Five districts having highest small tea growers



Source:-*The Assam Review and Tea News, December-2004*

Fig: 11

break-even level, thus indicating that the smaller farms are economically viable[14]. Tea as an important crop within a farming system for the small tea growers, a small holding even less than 1.0 hectare can provide major contribution to the family farm income. The situation of the farm holdings of small tea growers is shown in the table given below.

Table – 3:6 - **Small Tea Growers of Assam under different holding size.**

Holding size in *bighas*	Holding in hectares	Percentages
Less than -5	0.67	10.28
5-9	0.67 - 1.2	25.63
10-19	1.2 - 2.5	34.68
20-29	2.5 – 3.87	14.17
30-39	3.87 – 5.2	6.37
40-49	5.2 – 6.67	4.32
50-59	6.67 – 8.0	2.32
60-69	8.0 – 9.33	1.49
70 and above	9.33 and above	0.74
Total		100.00

Source: - The Assam Review and Tea News, December-2004

So far area under tea is concerned out of total 57,000 hectares, Dibrugarh and Tinsukia district account for around 51% of the total area where as the five districts of upper Assam account for 88% of the total tea under small sector. The table – shows the estimated area under small tea growers sector in Assam.

[14] *Saikia, T. (1994) – Economics of Production and Processing of Small Scale Tea Cultivation in Dibrugarh and Golaghat district, Assam. M.Sc. Thesis, (unpublished), Department of Agricultural Economics and Farm Management.*

SMALL TEA GROWERS GARDENS UNDER DIFFERENT HOLDING SIZE

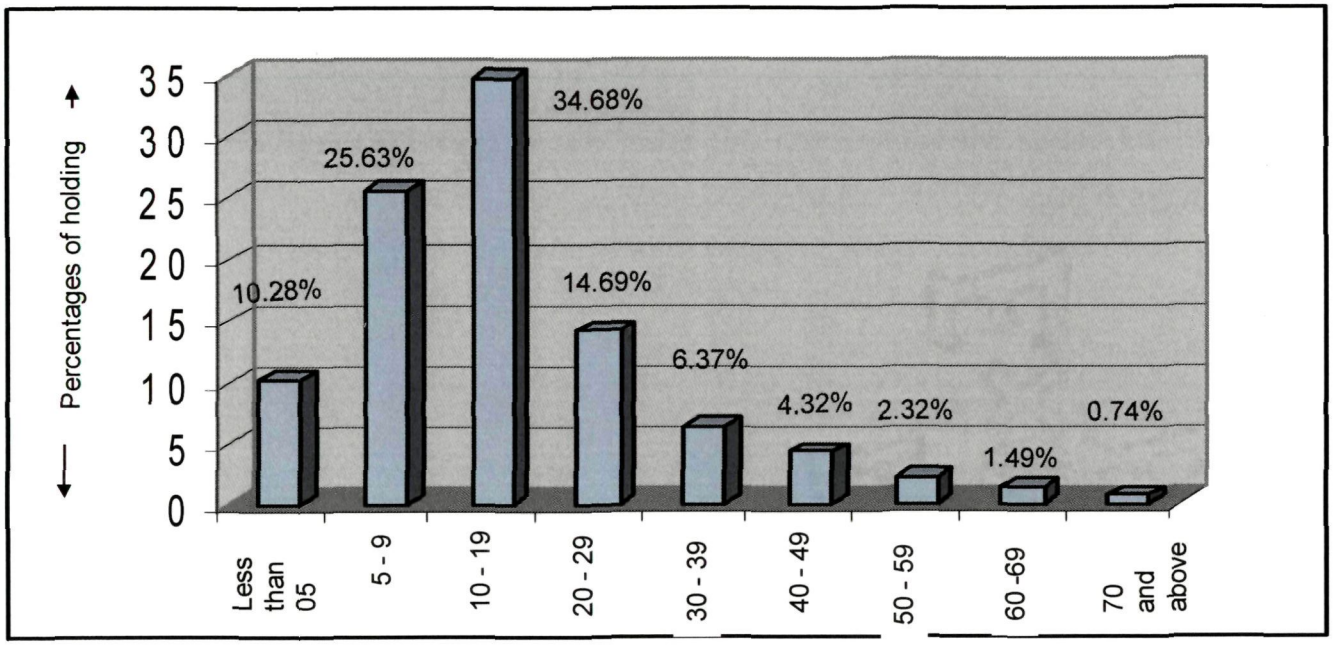


Fig : 12-A

Source: - The Assam Review and Tea News, December-2004

SMALL TEA GROWERS GARDENS UNDER DIFFERENT HOLDING SIZE

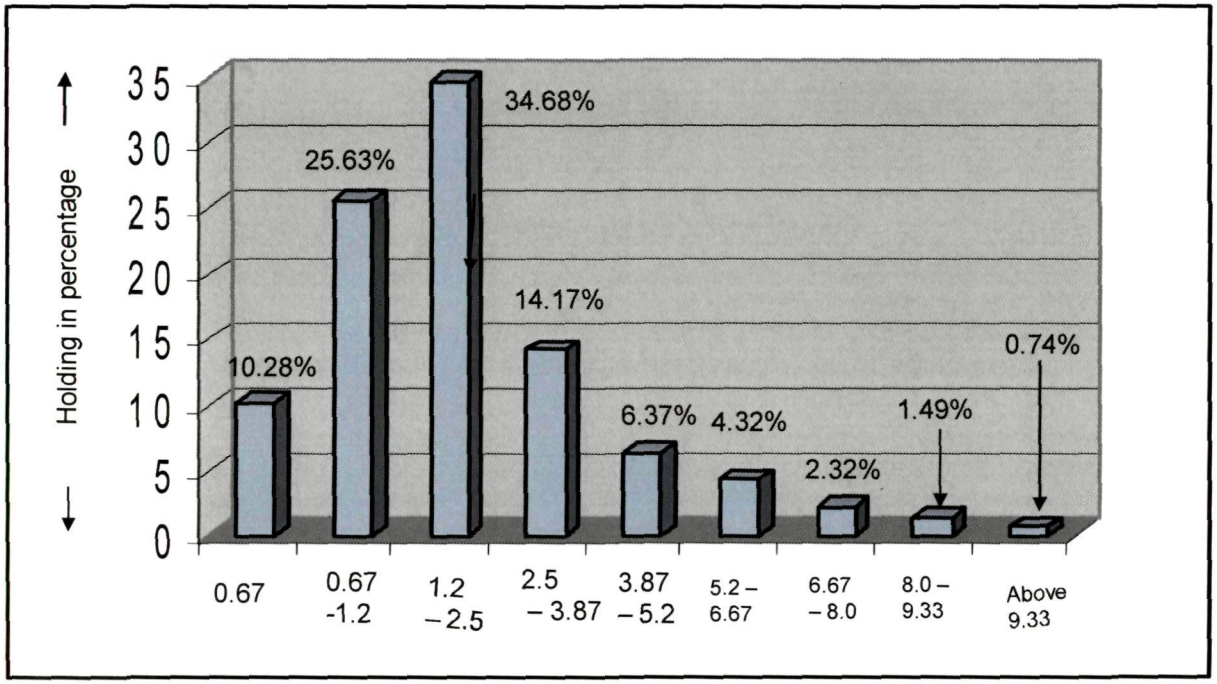


Fig :12-B

Source: - The Assam Review and Tea News, December-2004

Table – 3:7- **Estimated area under small tea growers sector in Assam.**

Sl. No	Districts	Area(Hectare)(1999)	Area(Hectare) (2003)
1	Tinsukia	3287	12657
2	Dibrugarh	5919	17438
3	Sivasagar	3192	6387
4	Jorhat	2343	7728
5	Golaghat	3671	7161
6	Karbi-Anglong	220	1262
7	Nagaon	202	216
8	Marigaon	23	45
9	Kamrup	195	185
10	Nalbari	23	22
11	Goalpara	344	697
12	Kokrajhar	5	42
13	Dhubri	10	15
14	N. C. Hills	1	7
15	Hailakandi	3	7
16	Darang	251	627
17	Sonitpur	437	609
18	N. Lakhimpur	810	1579
19	Dhemaji	216	408
20	Cachar	170	190
21	Bongaigaon	N.A.	90
	Total	21322	56871

Source:- For 1999 – Small Tea Growers Advisory Programme, AAU, Jorhat, Assam

For 2003 - Assam Review and Tea News, December, 2004

3:2:5 - Agro-Climatic Condition for Small Tea Cultivation of Assam: Tea is grown on both the banks of the river on flat land between 50 and 150 meter (160-400 ft) above the mean sea level in the Brahmputra Valley. The south west monsoon causes heavy precipitation throughout the valley during the summer months, but during the winter and early spring the rainfall is less. The total annual rainfall varies from 2100 mm to 2900 mm in different part of the valley. Normally the rainfall is more in upper Assam than the central part. The monthly average temperature fluctuates between 22^0 and $28^{0\,c}$ during the cropping period from April to September and it rises up to 37^0 c. During the coldest months also mean maximum temperature does not fall below 22^0 c and minimum remain around 10^0 c. Some times it is fall to about 70 c.

The wind velocity in the valley is low due to shelter effect of hills on both sides of the valley, the Himalayan on the North and the Naga hills on the South. In the summer month as the ambient temperature is as high as 37^0 c, growing of shade trees in the tea plantation of Assam is necessary to keep down the leaf temperature. Unlike the other tea growing areas of the world, inter-planting of shade in the tea plantation in Assam is an integral part of tea culture. Soil of Brahmputra valley where tea is grown is mostly alluvial and varies widely in texture. Some of the soils on the north bank are usually very sandy and poor in plant nutrients. There are small areas in Sonitpur district, which are mostly rich loam, suitable for tea cultivation. Most of the soils are deposited from the nearby hills by the tributaries of Brahmputra and these areas are extensively used for tea cultivation.

In the Barak valley, tea is mostly grown on low hillocks (*teelas*) which are the natural topography of the region, and to some extent on the flat lands surrounding the

teelas and the *beels*. The *beels* are the drained peat of the area, which are very rich in organic matter and nitrogen. The texture of these soils varies from sand to heavy clays. Annual rainfall varies from 3000 to 5000 mm but the distribution is uneven and sever winter drought is common. The plucking season in Assam is about 9 months.

3:2:6- Production of Green Leaf: The small tea estates are mainly producing green leaves only as they don't have their own factories. Out of the total area in the small sector, 10% tea is in the formative stage. The estimated production of green leaf from small tea sector in 1999 was 3187.72 million kgs. This is about 15% of the total tea production of Assam.

The figure shows that the estimated production of green leaf in the year 1999 was highest in Dibrugarh district which was 887.85 lakh kgs. (made tea-197.30 kgs.) followed by Golaghat 532.28 lakh kgs. (116.87 lakh kgs. made tea) and Sivasagar district 478.80 lakh kgs. (106.40 made tea). The small sectors are contributing about 84.9 million kgs. of made tea which is about 20% of the total tea production of the state. There is a wide variation in yield of green leaf in different districts of Assam due to various reasons. The variation is attributed mainly due to choice of planting material, variation of soil fertility, adoption of cultural practices, use of fertilizer and other chemicals and also climatic factors. The yield per hectare varies widely from 7500 kgs. to 22000 kgs. of green leaf annually depending on adoption of scientific method.

Table:-3:8-**The estimated production of green leaf in the year** 1999:

District	Estimated production of Greenleaf(Lakh kg)	Total made Tea (lakh kg) 1999	Total made Tea 000 kg 2003
Tinsukia	525.92	116.87	20505.60
Dibrugarh	887.85	193.30	28251.00
Sivasagar	478.80	106.40	9198.40
Jorhat	351.45	78.10	11129.60
Golaghat	532.29	118.28	10312.00
Karbi-Anglong	55.30	6.28	1363.20
Nagaon	28.28	9.70	312.00
Marigaon	2.76	0.16	64.00
Kamrup	19.50	4.33	250.50
Nalbari	2.30	0.51	28.00
Goalpara	37.84	8.40	100.80
Kokrajhar	0.50	0.11	60.80
Dhubri	1.00	0.22	20.80
N. C. Hills	1.10	0.02	7.80
Hailakandi	.03	0.06	7.80
Darang	27.61	6.13	1130.00
Sonitpur	52.44	11.65	1096.00
N. Lakhimpur	129.60	28.80	284.00
Dhemaji	33.48	7.44	662.40
Cachar	20.40	7.44	255.00
Total	3187.72	708.38	85039.30

Source: Small Tea Growers Advisory Programme, AAU, Jorhat, Assam.

In North East India yield of tea appears to have reached around 400 kgs. per hectare under the best condition of plant and soil. However the average yield for the region as a whole is less than half of this quantity. In order to push the average level of yield up, a concerted effort is necessary that involves a systematic approach to identify

the crop reducing factors, natural constraints, planning of man power and financial resources[15].

Table: - 3:9 **Estimated production of made tea under small tea growers sector in Assam**-2003

Sl.No	Districts	Production of made tea(000kg.)
1	Tinsukia	20505.60
2	Dibrugarh	28251.00
3	Sivasagar	1998.40
4	Jorhat	11129.60
5	Golaghat	10312.00
6	Karbi-Anglong	1363.20
7	Nagaon	312.00
8	Marigaon	64.00
9	Kamrup	250.50
10	Nalbari	28.00
11	Goalpara	100.80
12	Kokrajhar	60.80
13	Dhubri	20.80
14	N. C. Hills	7.80
15	Hailakandi	7.80
16	Darang	1130.00
17	Sonitpur	1096.00
18	N. Lakhimpur	284.00
19	Dhemaji	662.40
20	Cachar	255.00
21	Bongaigaon	120.00
	Total	84863.70

Source: Assam Review and Tea News, December -2004

3:2:7 – Employment Generation: Tea industry appears to be the 2nd largest employer in the organized sector in India. It is the largest single employer in the organized industrial sector in Assam too, where they are employing around 6.5 lakh workers daily, in these

[15] *Chakravartee, J. (2000)- Toklai Experimental Station: Its Contribution and current activities -Article – Published in " Cha-Tsing"- by All Assam Small Tea Growers Association – Melamora conference-2000.*

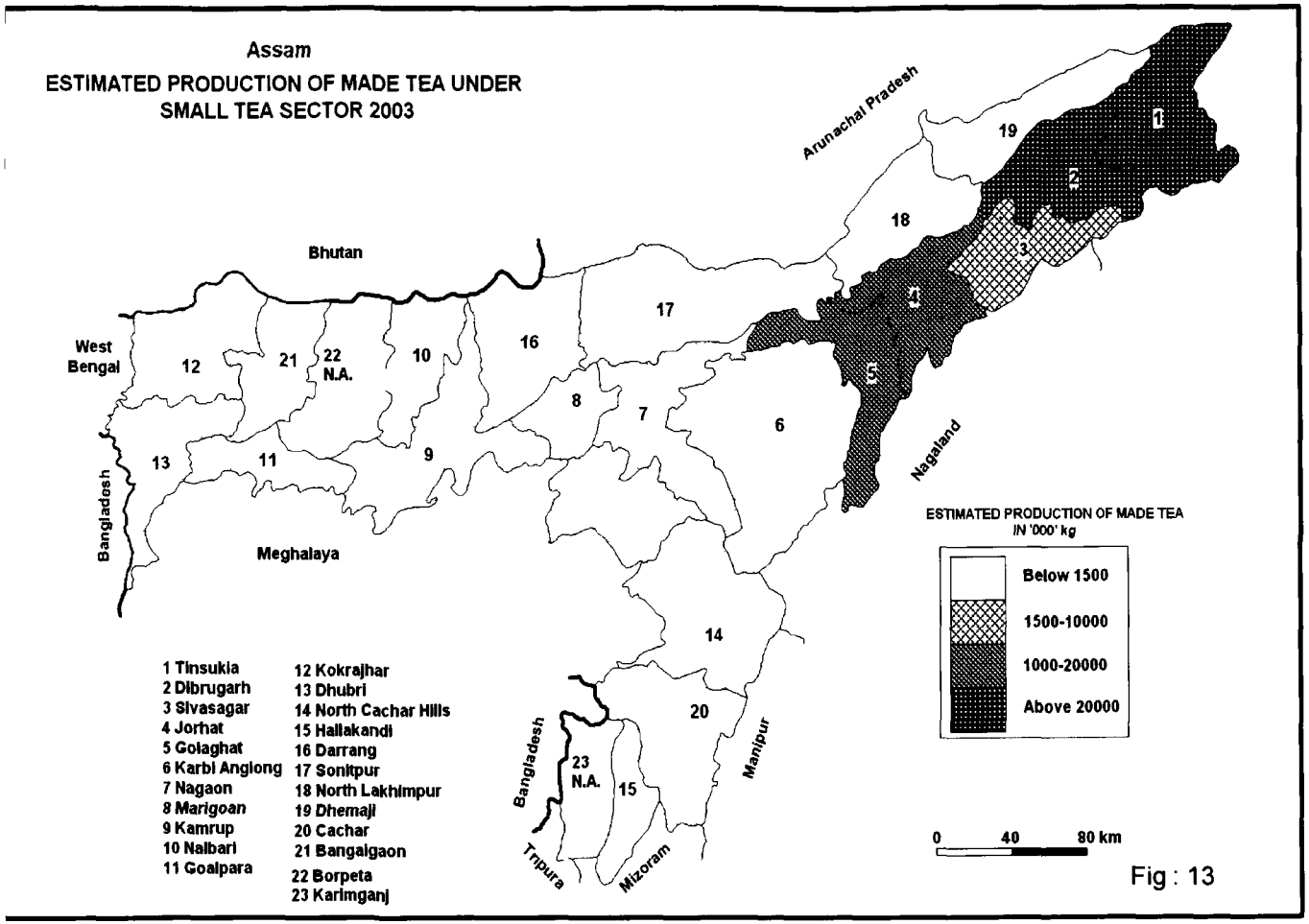

Assam
ESTIMATED PRODUCTION OF MADE TEA UNDER SMALL TEA SECTOR 2003
Arunachal Pradesh
Bhutan
West Bengal
Bangladesh
Meghalaya
Nagaland
Manipur
Tripura
Mizoram
1 Tinsukia
2 Dibrugarh
3 Sivasagar
4 Jorhat
5 Golaghat
6 Karbi Anglong
7 Nagaon
8 Marigoan
9 Kamrup
10 Nalbari
11 Goalpara
12 Kokrajhar
13 Dhubri
14 North Cachar Hills
15 Hailakandi
16 Darrang
17 Sonitpur
18 North Lakhimpur
19 Dhemaji
20 Cachar
21 Bangaigaon
22 Borpeta
23 Karimganj
ESTIMATED PRODUCTION OF MADE TEA IN '000' kg
Below 1500
1500-10000
1000-20000
Above 20000
0 40 80 km

Fig : 13

women workers constitute more than 50% of the total working force[16]. The small tea growers sector also employs a sizeable numbers of workers. In true sense small scale tea cultivation is an agricultural enterprise rather than a simple farming. It provide ample avenue for self employment, engaging family members directly with the enterprise. It is estimated that more than 2.40 lakh workers are engaged in this sector of tea cultivation. Table-3:12 and 3:13 shows the estimated total of direct employment in the small tea cultivation.

Total geographical area of the state is 78 lakh hectares, where land per capita is below 0.5 hectare. Such a low per capita availability of agricultural land is accountable for overwhelmingly high rural population and very high growth rate of population in Assam. The most important aspect of the growth of small scale tea cultivation is that it has successfully stopped the migration of rural workers to urban centers especially in upper Assam region. Most of the ex-tea garden workers family members are getting direct employment opportunities in this sector. Besides the direct employment, it has created indirect employment in the field of manufacturing and supply of green tea leaf and agro-chemicals. The small tea cultivation has become popular among the educated unemployed youth, especially in the rural areas of upper Assam. Thus it has created various skilled and unskilled job opportunities to the rural educated and uneducated youths, earlier those who go to the neighbouring cities looking for petty jobs. Employment in these small tea gardens pays them well with a guaranteed regular income. Therefore most youth are engaged in this sector and contented.

[16] *Deka, A. (2001) – Tea industry in Assam – Edited by Thakur, A.C., published by Directorate of Extension Education, AAU, Jorhat, April' 2001*

Table:-3:10- **District wise estimated total direct employment** - 1999

Districts	Estimated total direct employment
Tinsukia	27,260
Dibrugarh	56,050
Sivasagar	29,704
Jorhat	23,583
Golaghat	28,062
Karbi-Anglong	1,745
Nagaon	1,491
Marigaon	192
Kamrup	1,294
Nalbari	166
Goalpara	2,679
Kokrajhar	168
Dhubri	306
N. C. Hills	35
Hailakandi	54
Darang	1,997
Sonitpur	3,182
N. Lakhimpur	6141
Dhemaji	1,498
Cachar	1,071
Total	1,86,440

Source: - Small Tea Growers Advisory Programme, AAU, Jorhat

Table – 3:11 - **Estimated engagement of workers in small sector:**

Sl.No	Category	Nos. of workers
1	Engagement of Family members	81,792
2	Additional Worker	1,45,692
3	Engagement of sub/staff categories	11,520
4	Total direct employment	239004

Source: - Assam Review and Tea News, January, 2005

3:3:1: Socio-Economic Background of Small Tea Growers: Small tea growers have come from diverse background with identity. Depending on their socio-economic background they are categorized into five groups. These are (I) Sedentary cultivator, (II) Educated rural youth, (III) Educated youth from urban areas, (IV) In-service personal, (V) Ex-tea gardens workers.

Sedentary Cultivator: This category has adopted tea cultivation with an objective of augmenting their income besides ensuring production of various crops which can be safely grown to give an adequate, varied and palatable (acceptable) year round diet for the family. In this category labours are from within the family, where family members are engaged mostly. At the time of need when family labours are inadequate to maintain the gardens then they go for hired labours to meet the additional requirements.

Educated Rural Youth: These groups of growers are from urban backgrounds and have more affinity to urbanization. They are more enterprising with managerial and management oriented attitude towards the development and profitability of tea cultivation is concerned. They aren't interested in growing of other petty crops except tea as cash crop cultivation.

Educated Youth from Urban Area: They are educated unemployed youths from urban areas those who are already engaged in various business activities. The cultivation of tea for them is to expand their business bases from typical urbanized business to non-traditional way of looking at business. They look at tea as enterprising industry and they like to develop this industry as their passion and business. Therefore they are more motivated; less bound by conventions, more capital investment since they are from a high

income group and can afford to take risk in innovation and investment in expansion and setting up of tea processing factories, marketing etc.

In Service personal: The small tea growers under this category usually take this enterprise for personal satisfaction; personal hobby and passion rather than income. They feel this is an investment for their future generation and make themselves engage and busy after retirement till they could go on. Growers of this category have little time to devote themselves for farm operation and management. They lack manpower, machinery, technology and supervision, therefore usually suffer from inefficiency and low productivity.

Ex-Tea Garden Workers: - The retired workers of tea estates have started tea cultivation in and around the vicinity of their work place to utilize their expertise and lifelong experience in this field. Although they have wide experience of tea cultivation acquired during the service period, it doesn't certainly give them advantage of being perfect tea growers. Growers of this group have definite mind-set, which doesn't allow percolation of new ideas into their enterprise. These lack them new technology and going for expansion of production.

3:3:2 – Socio-Economic Characteristics of Small Tea Growers: With the aim of understanding their social setting, land holding structure, land use pattern, production pattern, employment generation and income level of the small tea growers of Sivasagar district, a survey was carried out through scheduled questionnaires. It has been mentioned that 243 (5% of total) gardens are selected as sample from small tea growers from three sub-divisions of the district. The selection was done in such a way so that it represents all small tea growers those who are farming tea on their own cultivable land and government

land. Socio-economic factors influence a considerable extent on the entrepreneurial development of a region or an area. Enterprises based on which industries are developed also substantially contribute towards the development of that area. Such entrepreneurial development depends on largely on the level of education in developing managerial ability and selection of appropriate technologies relevant and utility.

3:3:2:1 – Distribution of population according to age and sex composition of the Small Tea Growers: Table 3:12:A shows the family wise distribution of population of small tea growers. Table 3:12:B shows that the average size of the family of the small tea growers which is 6.58 in number. The size group IV (*garden's area of 1.01 – 2.00 hectares)* has the largest average family size of 8.03 in number. The size group II (garden's area of 2.01– 3.00 hectares) has also larger average family size than the sample average.

Table:-3:12:A-**Family wise Distribution of Population of Small Tea Growers**:

Group	No. of Sample family	Total population		
		M	F	Total
I	80	258	222	480
II	69	236	218	454
III	57	183	184	367
IV	37	160	137	297
Total	243	837	761	1598

Source: - Field Survey, 2006.

Table:3:12:B-Distribution of Population according to Age and Sex Composition:

(in numbers)

Group	Average size of family	Below 15 years			15 – 60 years			Above 60 years			Total population		
		M	F	Total	M	F	Total	M	F	Total	M	F	Total
I	6.00	102	52	154	120	89	209	36	81	117	258	222	480
II	6.58	71	75	146	120	107	227	45	36	81	236	218	454
III	6.44	60	68	128	97	68	165	26	48	74	183	184	367
IV	8.03	76	71	147	72	52	124	12	14	26	160	137	297
Total	6.58	309	266	575	409	316	725	119	179	298	837	761	1598

Source: - Field Survey, 2006.

Table: 3:12: C: **Distribution of Population according to Age and Sex Composition of Small Tea Growers** (in percentages):

Group	Below 15 years			15 -60Years			Above 60 years			Total population		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
I	102	52	154	120	89	209	36	81	117	258	222	480
	21 25	10 83	32 08	25 00	18 54	43 54	7 5	16 86	24 37	53 75	46 25	100
II	71	75	146	120	107	227	45	36	81	236	218	454
	15 64	16 52	32 16	26 43	23 56	50 00	9 11	10 11	17 84	51 98	48 02	100
III	60	68	128	97	68	165	26	48	74	183	184	367
	16 35	18 53	34 88	26 43	18 53	44 99	7 08	13 08	20 16	49 86	58 14	100
IV	76	71	147	72	52	124	12	14	26	160	137	297
	25 59	23 90	49 49	24 24	17 51	41 75	4 04	4 71	8 75	53 87	46 13	100
Total	309	266	575	409	316	725	119	179	298	837	761	1598
	19 34	16 64	35 98	25 59	19 77	45 37	7 45	11 20	18 65	52 38	47 62	100

Source: - Field survey, 2006

Data reveals that 35.98 percent of the sample populations are below 15 years of age, of which 19.34 percent are male members and 16.64 percent are female members.

Inter group analysis shows that in all size groups there are more male members than female members below the age group of 15 years. The average age group of 15 – 60 years shows that 45.24 percent of the populations are in this group of which 25.59 percent are male members and 19.65 percent are female members.

Inter group (*groups, according to size of the garden*) analysis shows that in all the size groups there are more male members in the age group of 15 – 60 years. The average age groups of 60 years are above 18.77 percent of which 7.45 percent are male members and 11.33 percent are female members. The findings divulge that maximum population are in the age group of 15 – 60 years, which constitute the main working group and in the size group below 15 and 15 – 60 years, Male members outnumbers the female members.

3:3:2:2- Demographic Structure of Small Tea Growers by Educational Status: Table 3:13:A and 3:13:B reveals the level of education of the small tea growers and their family members, in terms of numbers and percentages.

Table 3:13: A - **Demographic structure of the small tea growers according to the educational status** (in numbers):

Size Group	Educational Status															Total Population
	Illiterate			Primary Level			High school level			Graduate Level			Post graduate			
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	
I	45	49	94	25	24	49	130	105	235	52	39	91	06	09	15	480
II	57	53	110	18	41	59	85	96	181	50	40	90	06	06	12	454
III	37	39	76	44	29	73	73	73	146	18	33	51	08	09	17	367
IV	10	09	19	19	17	36	120	53	173	26	29	55	08	08	16	297
Pooled	149	150	299	106	111	217	408	327	735	146	141	287	28	32	60	1598
	9.32	9.39	18.71	6.63	6.39	13.59	25.53	22.06	45.99	10.52	90.48	17.96	1.75	2.00	3.75	100.00

Source Field survey, 2006

Table: 3:13: B - **Demographic structure of the small tea growers according to the Educational Status** (in percentage):

Size Group	Educational Status															Total
	Illiterate			Primary Level			High school level			Graduate Level			Postgraduate level			
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	
I	3.96	16.04	20.00	3.96	5.00	8.96	27.09	21.87	48.96	10.83	8.13	18.96	1.25	1.87	3.12	100
II	12.99	11.67	24.67	3.96	9.03	12.99	18.72	21.16	39.88	11.01	8.81	19.82	1.32	1.32	2.64	100
III	10.9	10.9	21.81	11.99	7.9	19.89	19.89	19.89	39.78	4.9	8.99	13.89	2.18	2.45	4.63	100
IV	3.37	3.7	7.07	5.05	5.72	10.77	40.41	17.84	58.25	8.75	9.76	18.52	2.69	2.69	5.39	100
Pooled	9.32	9.39	18.71	6.63	6.39	13.59	25.53	22.06	45.99	10.52	9048	17.97	1.75	2.00	3.75	100.00

Source. Field survey, 2006

DEMOGRAPHIC STRUCTURE OF SMALL TEA GROWERS ACCORDING TO EDUCATIONAL STATUS

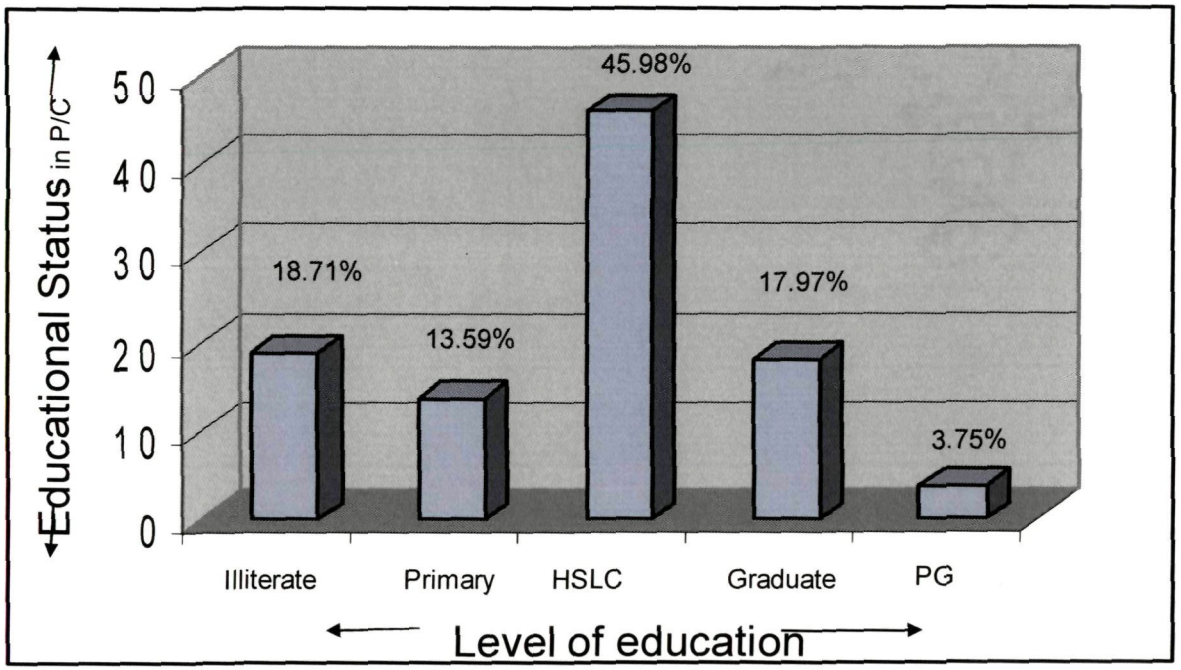


Fig:14

It is observed that 81.29 percent of the small tea growers are literate in the study area. The level of literacy **13.59** percent has primary education, **45.99** percent has high school education, **17.97** percent has graduate and **3.75** percent has post graduate level education. Inter group (*groups, according to size of the garden*) analysis of percentage literacy reveals that the size group IV (*garden's area of 3.00 hectare sand above)* has the highest literacy percentage of **92.93** percent followed by size group I (*garden's area of .00 hectare to1.00 hectare)* with **80.00** percent and III(*garden's area of 2.01 –3.00 hectare)* has **78.19** percent. From the above analysis it is clear that the rate of literacy is high among the small tea growers in the study area as compared to the overall literacy rate of Assam, which is 64.28 percent (Census Report – 2001).

The findings of Boruah *et. al.* (1999) and Boruah and Taparia (2004)[17] have observed that a high percentage of small tea growers have academic qualification above high school level.

Table indicates that the literate section of the farmers have ventured to set-up small tea gardens in Assam. Since more than 90% of the small tea growers are literate, it is likely to help them understand the highly technical aspects of scientific tea production. The entry of highly educated persons in small scale tea cultivation also reveals the status and standard of living which has increased.

3:3:2:3 – Family Type: All the 243 small tea growers follow the patriarchal system of family structure, i.e. father is the head of the family and his authority is undisputed. The field survey reveals that among all the small tea growers the system of joint/extended

[17] *Boruah. And Taparia(2004) Small Tea Growers of Assam, Status and Strategies, Part 1 and 2 published in the Assam Review and Tea News – Vol.-11,12, December 2004 and January 2005.*

family structure which is widely prevalent about 30 years back has been gradually breaking down. However, the system is still prevalent to some extent.

3:3:2:4 – Family Working Force and its Occupational Pattern: The family members are categorized based on the availability of work force. These are full time workers, part time workers and non-workers. Table 3:14:A shows the working force and its occupational pattern of the farm families of small tea growers of different size groups.

Table: - 3:14: **A-Occupational Structure of the Small Tea Growers of different categories** (According to age group):

Categories Of family members		No of family members	Members engaged in tea cultivation		Members engaged in else where			Total workers	Total non workers
			Full Time	Part Time	Agri	Business	Service		
<15yrs	M	309(20.22)	00	00	00	00	00	00	309(19 34)
	F	266(16.64)	00	00	00	00	00	00	266(16 64)
	Total	575(**35.98**)	00	00	00	00	00	00	575(35 98)
15-60 yrs	M	409(6.55)	133(8.32)	120(7.5)	87(5.44)	40(2.94)	22(1.38)	402(25.16)	07(0.44)
	F	316(19.77)	24(1.50)	98(6.13)	63(3.94)	29(1.81)	83(5.19)	297(18.58)	19(1.19)
	Total	725(45.37)	157(9.82)	218(13.5)	150(9.37)	69(4.32)	105(6.57)	699(43.74)	26(1.63)
>60 yrs	M	119(8.19)	47(2.94)	35(2.19)	12(0.75)	19(1.19)	06(0.38)	119(7.45)	00(00.00)
	F	179(11.20)	21(1.31)	21(1.31)	07(0.44)	22(1.38)	00(0.00)	71(4.44)	108(6.76)
	Total	298(18.65)	68(**4.26**)	56(**3.50**)	19(**1.20**)	41(**2.56**)	06(**0.38**)	190(**11.890**	108(**6.76**)
All	M	837(52.37)	180(11.26)	155(9.70)	99(6.19)	59(3.69)	28(1.76)	521(32.60)	316(19 77)
	F	761(47.63)	45(2.82)	119(7.45)	70(4.38)	51(3.19)	83(5.19)	368(23.03)	393(24 59)
	Total	1598 100.00	225 **14.08** 100.00	274 **17.15** 100.00	169 **10.57** 100.00	110 **6.88** 100.00	111 **6.95** 100.00	889 **55.63** 100.00	709 44 37 100 00

Source: Field survey, 2006 (Figure in bracket indicates the percentages)

The table shows that on an average the total working force constitutes about 55.63% of the total population of sample small tea growers in the study area. The remaining 44.37% are non workers. Out of 55.63% total workers, 14.08% engaged in full

OCCUPATIONAL STRUCTURE OF TEA FARMERS

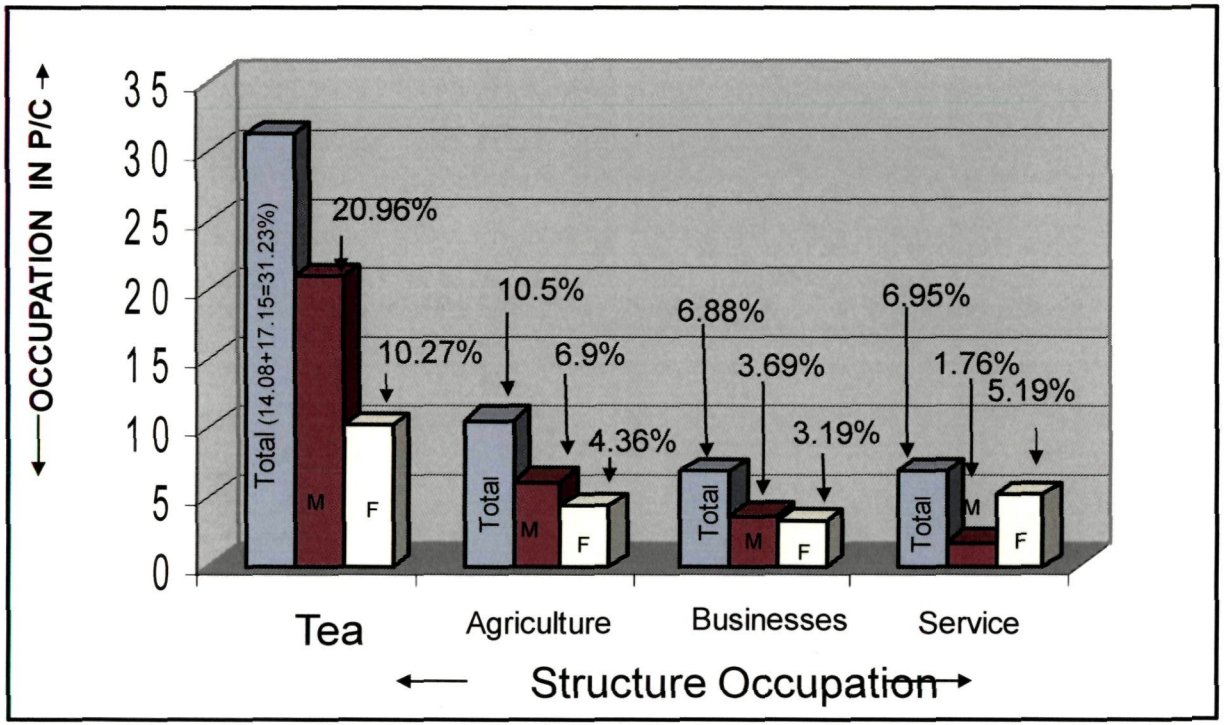


Fig:15

time tea farms, 17.15% engaged in part time tea farms, 10.57% engaged in agriculture, 6.88% engaged in business and 6.95% engaged in various services. The farming work force comprised of 11.26% full time male farm workers and 2.82% full time female farm workers. Besides these full time farm workers, there are 9.70% part time male farm workers and 7.45% part time female farm workers also observed in the study area. It was also observed that female working force in all the categories are very meager and constitutes 23.03% of the full time family members are working in the small tea farms. The remaining 82.61% are full time male family members working in the tea farm.

Category wise analysis shows that total work force are highest in group – II, i.e. age groups of 15 - 60 (43.74%) and is lowest in group – I (0%) only, because children's are under to this group. The findings from this table suggest that no child labour has been engaged in the small tea gardens for any sort of activity. The divisions of family members engaged in full time and part time basis in the small tea farms suggest that higher the level of education of the farmers, lower is the full time engagement in the farms. The non-working force which constitutes about 44.37% of the total sample population comprised of 19.77% male and 24.59% female population. The occupational pattern of the working force shows different categories according to age groups. There are 31.23% of the total work force are engaged in tea cultivation followed by agriculture (10.57%,), service (6.95%) and business (6.88%). The farm workforce comprised of full time and part time workers. Again full time workers are comprised of male and female workers. The part time workers also comprised of male and female workers. In the age group of 15 – 60 years, 14.08% of family members are engaged in full time in the small tea cultivation. The low percentage of family members engaged in full time basis in the small

tea gardens, suggest that higher the level of education of the farmers, lower is the full time engagement in the gardens.

The occupational pattern of the work force is different in different size groups. On an average 31.23% the total sample populations are engaged in small tea cultivation followed by service and business, 6.95% and 6.88% respectively. The tea farming work force comprised of 14.08% full time workers and 17.15% are part time workers comprising of both male and female. Service and businesses are also very important form of occupation in the different size groups. Female work force constitutes 23.03% of total population.

Table:3:14:B: **Farm family working force and occupational structure in different size group of small tea growers:**

Size Group	Total Population	Working force					Non workers		
		Tea cultivation	Other agriculture	Services	Business	Total	M	F	Total
Group I	480	165 (34.37)	47 (9.79)	25 (5.21)	17 (3.54)	254 (52.92)	93 (19.37)	133 (27.71)	226 (47.08)
Group II	454	143 (31.50)	55 (12.11)	39 (8.59)	30 (6.61)	267 (58.81)	83 (18.28)	104 (22.91)	187 (41.19)
Group III	367	119 (32.42)	32 (8.72)	23 (6.26)	35 (9.54)	209 (56.95)	69 (18.80)	89 (24.25)	158 (43.05)
Group IV	297	72 (24.24)	35 (11.78)	24 (8.08)	28 (9.42)	159 (53.53)	71 (23.90)	67 (22.56)	138 (46.46)
Total	1598	499 (31.23)	169 (10.57)	111 (6.95)	110 (6.88)	889 (55.63)	316 (19.77)	393 (24.59)	709 (44.37)

Source - Field survey, 2006

3:4 – Utilization of Resource in Small Tea Cultivation:

3:4:1 – Land Resource: The most commonly accepted term "land" refers to the solid portion of the earth surface. In modern times the concept of land has become quite important. It involves location in regards to market, geographical features and other resources of the country. The concept of land is important because of highly conditioning influence on human activities and attitudes relating to land use.

Land is the first and foremost resource in agriculture. Land use of an area is the cumulative outcome of historical events, the interaction of economic forces with the natural environment, and the values of society. Despite the significant influence of the natural environment, on original distribution of the use of geographical area, subsequent adjustment of land use to the cultural ecology are clearly evident. The term land utilization actually denotes the inner character of the land that means whether a land remains barren or forest covered or covered with cultivated crops or roads etc.

It has already been mentioned that 243 numbers of small tea grower's gardens of Sivasagar district were considered for sample survey. There are about 4862 numbers of small tea gardens in the district, which occupies near about 6,666 hectares of land. The total areas of surveyed small tea gardens are 503.16 hectares. The average land holding size is 2.07 hectares. The most of the small tea gardens of Sivasagar district range in between 0.87 – 2.06 hectares.

Table:15 - **Distribution of size, area owned and average size of holdings.**

Group	No of Sample	Area owned (hectares)			Average size of holding(hectare)		
		Tea	Other crops	Total	Tea	Other crops	Total
1	2	3	4	5	6	7	8
I (0-1 hectare)	80	71.54 (27.21)	191.35 (72.79)	262.89 (100.00)	0.89	2.39	3.29
II (1.01-2 hectare)	69	119.37 (40.22)	177.38 (59.78)	296.75 (100.00)	1.73	2.57	4.30
III (2.01-3 hectare)	57	153.98 (52.84)	137.44 (47.16)	291.42 (100.00)	2.70	2.41	5.11
IV (3 And Above)	37	158.27 (53.87)	135.52 (46.13)	293.79 (100.00)	4.28	3.66	7.94
All Total	243	503.16	641.69	1144.85	2.07	2.64	4.71

Source: - Field Survey, 2006.
(Figure in bracket indicates the percentages)

From the field observation it is seen that 503.16 hectares of land is devoted to tea cultivation. Out of which 71.54 hectares fall under group - I (*small tea cultivated area of 1 and below 1 hectare*), 119.37 hectares fall under group - II (*small tea cultivated area of 1.01 to 2.00 hectare*), 153.98 hectares fall under group - III (*small tea cultivated area of 2.01 to 3.00 hectare*) , and 158.27 hectares fall under group - IV (*small tea cultivated area of 3.00 hectare and above*). Data gathered were in respect of variety of clones, yield of such clones according to year and per hectare size of seedling/clones to be planted; size of pits, distance between the pits and plants, number of bushes per hectare, type of fertilizers, pesticides, weedicides etc. if any , used during pre and post planting period.

From the sample small tea gardens of the study area it has been come to notice that the small tea growers' gardens are fragmented. More than 50% small tea growers

have two to three plots and their sizes are ranging from 0.4 – 1.33 hectares. The age difference of each plot of tea garden is also one of the important characters of small tea gardens of Assam. The tea growers of the area use scientific methods and techniques in newly developed plots of gardens where new varieties of tea have been planted. The good quality high lands are mostly occupied by the big tea Estates in Assam; the small tea growers have started their tea cultivation on their own cultivable land, fallow land and on the hill slopes in recent times. Most of the tea growers reorganize cultivable high land for small tea cultivation. The location of small tea gardens of sample region is plains and hills. Near about 30% of land used for small tea cultivation in Nazira and Charaideo Sub-division of Sivasagar district is hill slopes. The high land used for tea cultivation are *own bari,* ex-tea labour's land and government reserved land. More than 30% of small tea growers of Galekey and Charaideo utilized government reserved land and ex-tea labour's land whose farm sizes are above 2.67 hectares. About 30% of the small tea growers of this region occupy Galeky (Nagaland border) government reserved land, Charaideo Pahar, Pachim Abhoipur Reserve Forest and Lakwa Reserve Forest. The small tea gardens of the border areas of Nagaland and Arunachal Pradesh of Nazira and Charaideo Sub-division where thousands of *bighas* of government reserved land utilized by the small tea growers for small tea cultivation. Good productions of green leaf are in the hill slopes of this area. From the field survey it has been seen that about 2.67 hectares of land is the common nature of small tea growers of hilly part of this region. The youth who occupies more than 5.33 hectares of land as tea garden shows as co-operative, where members of the garden are mainly father, sister, brother, relatives and others. This is one of the important characters of small tea sector in Assam.

Plate – 1 – A - Small tea growers use two – three plots of land as gardens

Plate – 1 - B - Small tea growers use two – three plots of land as

Plate – 1 – C - Small tea growers use two – three plots of land as

Plate – 1 – D - Small tea growers use two – three plots of land as

Plate – 2 – A

Plate – 2 –B

Gardens are generally of own cultivable land

Plate – 2 – C

Plate – 2 - D

Utilization of Hill slopes

Plate – 3 – A - Homestead Garden

Plate – 3 – B - Homestead Garden

Plate – 4 –A

Plate – 4 –B

Small cultivable *Bariland*

Plate – 5 –A

Plate – 5 – B

Small cultivable *Bariland*

The youths of this area trying to get permission from the government to occupy reserved land for small tea gardens and the government of Assam is also taking necessary steps in this regard.

Land holding size of small tea garden in own *bari* is also an important character of small tea growers of this region. The size of small tea gardens in high land areas where small tea growers have started plantation in their own *bari* ranges from 0.13 – 4 hectares. Most of the small tea gardens range between 0.93–2 hectares.

Re-organization of cultivable high land is one of the important characters of small tea growers of upper Assam, especially in the plain areas where the plantation started. Fragmentation of land holding in small tea sector with small plot of garden is the most common character of rural habited areas of this region. The lands which are previously utilized for sugarcane, mustard, bamboo, rabi crops etc. are converted to small tea farms where profit level is more than other cultivations. Some of the tea growers purchased land for small tea cultivation with minimum capital investment. In Lakwa, Sonari, Sapekhati and Borhat, many hectares of high lands are now utilized for the small tea gardens where land value was very less.

Among the small tea growers, the land acquisition and ownership pattern are varied. Land resource of the farms are own land, grazing land, ceiling surplus land and government land both allotted and encroached. The proportion of own land, grazing land, ceiling surplus land and government land vary from farm to farm. The land holding pattern of different categories of small tea growers are presented in the table 3:16. The table shows that the proportion of own land was found to be highest in all groups than the government land, grazing land and ceiling surplus land. The government land and ceiling

surplus land was not found in group I (*garden's area of 0.00-1.00 hectare)*, while grazing land also vary nominal in the group I (*garden's area of 0.00 – 1.00 hectare)*. The government land is not available in the group II (*garden's area of 1.01 – 2.00 hectares)*. However govt. land is highest in group III (*garden's area of 2.01 –3.00 hectares).*

Table:3:16 - **Land Holding in Different Size Group of Small Tea Growers**(in hectare):

Size group		I (0 -1 ha)	II (1.01 -2 ha.)	III (2.01 -3 ha)	IV (3 and above)	Total
Own land	Up Land	22.44	29.64	27.07	35.42	114.57(14.73)
	Mid Land	105.06	114.61	194.83	42.7	457.20(58.78)
	LowLand	25.11	62.18	67.68	51.07	206.04(26.49)
	Total	**152.61**	**206.43**	**289.58**	**129.19**	**777.81(67.94)**
Govt. land	Up Land	08.04	31.03	1.02	74.16	114.25(100.00)
	Mid Land	00.00	00.00	00.00	00.00	00.00
	Low Land	00.00	00.00	00.00	00.00	00.00
	Total	**08.04**	**31.03**	**1.02**	**74.16**	**114.25(9.98)**
Grazing land	Up Land	40.14	10.63	00.00	30.27	81.04
	Mid Land	31.77	28.35	0.82	44.96	105.90
	Low Land	14.37	04.53	00.00	00.00	18.9
	Total	**86.28**	**43.51**	**0.82**	**75.23**	**205.84(17.98)**
Ceiling surplus land	Up Land	2.25	4.45	00.00	4.09	10.79
	Mid Land	6.69	2.25	0.00	8.21	17.15
	Low Land	7.02	9.08	00.00	2.91	19.01
	Total	**15.96**	**15.78**	**0.00**	**15.21**	**46.95(4.10)**
Total holding	Up Land	72.87	75.75	28.09	143.94	320.65(28.01)
	Mid Land	143.52	145.21	195.65	96.05	580.25(50.68)
	Low Land	46.5	75.79	67.68	53.98	243.95(21.31)
	Total	**262.89(100.00)**	**296.75(100.00)**	**291.42(100.00)**	**293.79(100.00)**	**1144.85(100.00)**

Source: - Field survey, 2006.
(Figure in bracket indicates the percentages)

3:4:2 – Utilization of human Labour: One of the major imputes in most farming activity is labour. The farm labour resources have several characteristics. First, typically

labour comes in discreet units. The composition of labour force on an individual farm varies according to the type, size and location of the farm. Major sources of labour on an individual farm include:

1. Families
2. Hired labours
3. Regular (year round, full time)
4. Seasonal
5. Casual (part time)

Tea cultivation is highly labour intensive enterprise. It needs year round supply of labour for various operations in varying quantities depending on the nature of operation. Of the total supply of labour in any farm, besides tea, operation for other activities are also to be accomplished with the available labour supply. Human labour utilization in various size groups in tea garden has been worked out for three periods.

a) January to April,

b) May to August and

c) September to December.

Human labour requirement in the small tea farms in all the three periods are essential but in different size groups in small tea growers.

Table–3:17- **Human Labour in Different Size Groups of Small Tea Growers**

Month	Group – I	Group – II	Group – III	Group – IV
Jan – April	1040 (20.31)	1311 (22.09)	912 (19.75)	888 (20.00)
May – Aug	2400 (46.87)	2553 (43.02)	2223 (48.15)	2183 (49.17)
Sept – Dec	1680 (32.820	2070 (34.89)	1482(32.10)	1369 (30.83)
Total	5120 (100.000	5934(100.00)	4617 (100.00)	4440 (100.00)

Source: - Field survey, 2006.
(Figure in bracket indicates the percentages)

From the table it is evident that family labour is the major sources of labour in group –I (up to 1 hectare). However it shows decrease with the increase in farm size. In larger categories of farms, permanent hired labour provides the major labour force. Share of permanent hired labour increases with the increase in farm size. Labour supplied by family and permanent hired labours is not adequate for the peak season. So, farmers use to hire casual labour according to their requirement during peak period.

From January to April, labour is needed to complete the pruning, irrigation, mulching and plucking. But the demand for labour reduces during this period. The peak season is May and August in which plucking starts and at the same time pests and disease attacks. Consequently the demand for labour is highest during this season. During September to December the yield of tea leaf declines. Practically, no plucking is done during the month of December. The demand for labour is low during this part of the year. The table reveals that the engagements of labour in all the size groups are highest during May to August. In the size group – I, (*garden's area of 0.00-1.00 hectare)* 46.87%; size group – II (*garden's area of 1.01-2.00 hectare)*, 43.02%; size group- III (*garden's area of 2.01-3.00 hectare)*, 48.15%and IV (*garden's area of 3 hectare and above)* – 49.17% of labour utilized in

small tea holdings. Minimum labour required during the January to April in all size groups.

The utilization pattern of family and hired labour in various size groups of small tea garden is shown in the table – 3:18

Table: 3:18-**Utilization of family and hired labour in small tea growers**
(Man days per hectare and percentage)

Category of labour	Group-I	Group-II	Group-III	Group-IV	pooled
Family labour	272(52.82)	215(41.59)	135(27.95)	99(20.67)	180.25(36.16)
Permanent hired labour	41(7.96)	76(14.70)	86(17.80)	81(16.91)	71(14.34)
Casual hired labour	202(39.22)	226(43.71)	262(54.25)	299(62.42)	247.25(49.59)
Hired total	243(47.18)	302(58.41)	348(72.05)	380(73.33)	318.25(63.84)
Grand total	515(100.00)	517(100.00)	483(100.00)	479(100.00)	498.5(100.00)

Source: - Source: - Field survey, 2006.
(Figure in bracket indicates the percentages)

The above table indicates that 7.96 percent of the total labour are regularly hired in size group – I. Besides, 39.22 percent are casual hired labours. In the size group I (*garden's area of 0.00-1.00 hectare)*, 52.82 percent are labours belonging to the family labour. Similarly in the size group II (*garden's area of 1.01-2.00 hectare)* – 41.59 percent, size group III (*garden's area of 2.01-3.00 hectare)* – 27.95 percent and size group IV (*garden's area of 3.00 hectare and above)* – 20.67 percent belonging to the family labour. It is clear from the farm family labour that in small tea farms this has increased in number, but family labour utilization have declined due to the increase of status of small tea growers.

Data from all size groups also reveals that average 14.34 percent of the total labour comprised of regular hired labours. Inter group analysis shows that the percentage of regular hired labours have increased in farm size group – I to group IV. It is highest in group – III. However in the largest size group III, 17.80 percent of the total work force comprised mainly permanent hired labours.

The above table indicates that average 49.59 percent of the total labours are casual and hired. The condition is also same in the case of regular hired labours. It is seen that average 62.42 percent of the total labours are casuals. The hired labour size groups – I, II. III and IV percentages are 39.22 percent, 43.71 percent, 54.25 percent and 62.42 percent respectively.

Plucking is the most labour intensive operation in a small tea farm. Plucking of tea leaves, in North East India is not done throughout the year due to climatic conditions. The peak plucking season in Assam is from July to September. There is a considerable increase in employment among people during this period. The employment thus generated is mostly seasonal in nature. The peak plucking season also coincide with the transplantation of paddy which is the principal crop in Assam. Labourers are often pre-occupied in transplantation of rice during this period. Under the above circumstances, the utilization of casual hired labour in the small tea farms assumes importance because plucking has to be maintained regularly during this season. However, during lean period there is less demand for labour. Employment guarantee is thus not uniformly spread out throughout the year.

Inter group analysis of total labour utilization shows that as the size of small tea farms increases, the number of total labour decreases. Specifically the use of hired labour

is relatively less in the smaller size groups and family labour is relatively more in this group. This may be because of the increase in efficiency of labour as the farms became mere organized with increase in size. The table also reveals that overall 63.84 percent of the total labours were hired (permanent and casual). The growing season is short due to climatic condition of the place; the rush of leaf at the peak season becomes so heavy that, on occasion's upto 1.5 percent of the crops are plucked in a single day. To keep crop intake in this magnitude needs to put more strain on labour since very few estates can afford to maintain a permanent labour force large enough to cope with the crop on peak days[18]. Hence, prime emphasize is given on hiring of casual labours. Total data of all the size groups of farms reveals that total labour utilization is 498.5 in a year (1.66 per hectare per day on a hypothesis of 300 working days. The findings of Kulasagaram (1980) shows estimated labour requirement of 1.5 per hectare per day. But the findings substantiate the Techno-economic survey of the Darjeeling Tea Industry (2001) and Techno-Economic and Socio-Economic survey of Kerela Tea Industry (2001) done by the Tea Board of India where the permanent labour and casual labour per hectare was estimated at 2.50 and 0.80 per hectare, that is over all labour force of 3.30 per hectare.

3:4:3: Employment structure of small tea growers: The small scale tea cultivation is a component of the large scale tea industry of the state. The farmers of small tea cultivation are able to bring remarkable changes in the socio-economic scenario of rural Assam. Apart from self employment, farm employment and firm income are some of the important contributions of this development of small tea gardens. It has give opportunities for indirect employment in the field of manufacturing, supply of green leaf,

[18] *Boruah, D.N. (1989). Science and practice in Tea Culture. Tea Research Association, Calcutta, pp.360*

supply of garden materials, transportation of the tea to the factory, thus tea cultivation opened up wide vistas of business opportunities. Introduction of bio-fertilizer in small tea gardens could bring bigger change the entire system of agro economy.

The educated unemployed youth in the rural area of Assam is the most vulnerable group, which can bring youth back to the right direction who have been mislead in their life through the employment opportunities of such otherwise unemployment is very high in this region. Engagement of unemployed youth in this remunerative tea cultivation is one of the significant contributions of this industry. It has also creates ample opportunity to absorb the rural agricultural workers throughout the year otherwise agriculture in Assam is a seasonal activity.

The workers populations in the existing tea estates are increasing every year, whereas the capacity employ people in the tea estates are gradually decreasing over the years. The excess workers population is additional burden to the estates management for various reasons. The creation of small tea cultivation has successfully relieved the corporate sector in this regard which have taken care of the excess workers.

The additional material inputs with the establishment of small tea gardens have warranted establishment of small industries for agricultural implements, leaf carrying bags etc. Further the agro-chemicals markets have also expanded to a great extent. Many businessmen have taken interest in transporting green leaf from grower's fields to factory. Thus they become a transporters of green leaf in this sector where factories not within their reach.

The 243 sample small tea grower's gardens from Nazira, Charaideo and Sivasagar sub-division are considered in this study. The total population of the surveyed area is

1598, out of which 35.98% are below 15 years of old. The total workers of the sample small tea gardens are 889(55.36%). Among the total workers, there are 58.61% male and 41.39% are female workers. Again, out of 55.36% workers there are 31.23% engaged in tea cultivation. Besides engaging family members in the gardens, there are so many hired labours engaged in the gardens. These workers are appointed on the basis of daily, weekly, monthly and permanent. Most workers engaged in the small tea growers on daily and weekly basis. Since small tea growers produce only green leaf, employments of permanent workers are limited. Family members involve directly or indirectly as workers in their gardens. The gardens which are within the village or nearby villages, the numbers of family workers are comparatively more than the gardens of hilly areas. The salaries of daily workers are fixed at Rs. 55/- to Rs. 60/- per day. For female workers it is fixed at Rs. 45/- to 50/- per day. Most small tea gardens of Assam, unable to appoint permanent workers in their gardens. The labours are deprived of facilities like medical, housing, schooling of children etc. It has solved quite a lot of unemployment problems of rural areas of the district, especially poor sections. There are possibilities in near future that small tea growers of Assam will be able to produce made tea in their farms and will be able to generate more employment opportunities.

Plate – 6 –A

Plate – 6 –B

Collection of green leaf

Plate – 6 – C

Plate – 6 – D

Collection of green leaf

3: 5 : Cost structure of the small tea growers:

3:5:1 - Cost of cultivation: The cost of cultivation of tea comprised of variables and fixed cost which include the investment cost and operational and maintenance cost.

3:5:1:1 – Establishment cost: To start a small tea cultivation require considerable amount of capital investment till its production stage. Bearing stage in tea cultivation starts from the third year onwards and after attaining eight years of establishment the yield remains more or less stabilized up to the end of its economic life. The cost incurred during the first two years of tea cultivation has been considered as establishment cost after which the profit begins to pouring. The table 3:19:A shows the establishment cost per hectare of small tea cultivation for different size groups of farms.

Table – 3:19: A-**Establishment Cost of Cultivation of Tea in various size groups of small tea growers. (Rs** Per hectare and percentage of total)

Particulars	Group- I	Group – II	Group – III	Group – IV	Polled
1)Variable cost A) Human labour cost	27192.00 (36.04)	27297.60 (35.28)	25502.40 (33.50)	25291.20 (33.76)	26320.80 (34.65)
i)Family labour cost	14361.60 (19.03)	11352.00 (14.67)	7128.00 (09.36)	5227.20 (06.98)	9517.2 (12.53)
ii) Hired labour cost	12830.40 (17.01)	15945.60 (20.61)	18374.40 (24.14)	20064.00 (26.79)	1680.60 (22.12)
B) Material cost i) Fertilizer	7312.50 (09.69)	7518.75 (09.72)	9150.00 (12.02)	7406.25 (09.89)	7846.87 (10.33)
ii) Plant protection chemicals	3241.00 (04.30)	3949.36 (05.10)	3366.43 (04.42)	4186.70 (5.59)	3685.92 (4.85)
iii) Herbicide	2149.20 (02.85)	2889.90 (03.73)	2607.52 (03.42)	2613.33 (3.49)	2564.98 (3.38)
iv) Fencing material	695.00 (00.92)	665.00 (00.86)	620.00 (00.81)	735.00 (0.98)	678.75 (0.89)
v) Planting Material (Tea seedling)	27325.78 (36.23)	27260.85 (35.23)	27192.05 (35.72)	27175.60 (36.28)	27238.57 (35.86)
vi) Planting Material (Shade)	500.00 (00.66)	590.50 (00.76)	598.20 (00.78)	515.50 (0.69)	551.05 (0.72)
C) Land Revenue	169.65 (00.22)	169.65 (00.22)	169.65 (00.22)	169.65 (0.23)	169.65 (0.20)
E) Interest on working capital (10%)	6858.13 (09.09)	7034.16 (09.09)	6920.62 (09.09)	6809.32 (9.09)	6905.56 (9.09)
Total cost (Establishment)	75439.46 (100.00)	77375.77 (100.00)	76126.87 (100.00)	74902.55 (100.00)	75961.16 (100.00)

Source: Field Survey, 2006 (Figure in bracket indicates the percentages)

As illustrated in table – 3:19:A, the establishment cost of tea cultivation in the analysed data is found to be Rs. 75961.16 per hectare and total cost was found to be Rs. 83261.16 per hectare. The analysis highlights the fact that tea cultivation is not only a capital intensive but also a labour intensive. The relatively higher utilization of labour in the lower size groups could be attributed due to the availability of more family labour. Besides, relatively higher labour utilization in the lower category of farms are the main reason for the higher establishment cost per hectare compare to the larger category of farms.

Table – 3:19:B - **Cost of Cultivation of Tea in various size groups of small tea growers.**

(Rs. Per hectare.)

Particulars	Group- I	Group – II	Group – III	Group – IV	Polled
1)Variable cost	27192.00	27297.60	25502.40	25291.20	26320.80
A) Human labour cost	(32.86)	(32.24)	(30.57)	(30.77)	(31.61)
i)Family labour cost	14361.60	11352.00	7128.0	5227.20	9517.2
	(17.36)	(13.40)	(8.55)	(6.36)	(11.42)
ii) Hired labour cost	12830.40	15945.60	18374.40	20064.00	1680.60
	(15.50)	(18.84)	(22.02)	(24.41)	(20.19)
B) Material cost	7312.50	7518.75	9150.00	7406.25	7846.87
i) Fertilizer	(8.84)	(8.89)	(10.98)	(9.01)	(9.43)
ii) Plant protection	3241.00	3949.36	3366.43	4186.70	3685.92
chemicals	(3.92)	(4.65)	(4.03)	(5.09)	(4.43)
iii) Herbicide	2149.20	2889.90	2607.52	2613.33	2564.98
	(2.60)	(3.41)	(3.13)	(3.17)	(3.08)
iv) Fencing material	695.00	665.00	620.00	735.00	678.75
	(0.84)	(0.77)	(0.75)	(0.88)	(0.81)
v) Planting Material	27325.78	27260.85	27192.05	27175.60	27238.57
(Tea seedling)	(33.03)	(32.18)	(32.59)	(33.06)	(32.71)
vi) Planting Material	500.00	590.50	598.20	515.50	551.05
(Shade)	(0.60)	(0.73)	(0.71)	(0.67)	(0.66)
C) Land Revenue	169.65	169.65	169.65	169.65	169.65
	(0.21)	(0.20)	(0.20)	(0.20)	(0.20)
E) Interest on working	6858.13	7034.16	6920.62	6809.32	6905.56
capital (10%)	98.28)	(8.31)	(8.29)	(8.27)	(8.29)
Total Variable cost	75439.46	77375.77	76126.87	74902.55	75961.16
	(91.18)	(91.38)	(91.25)	(91.12)	(91.23)
2) Fixed cost	7300.00	7300.00	7300.00	7300.00	7300.00
i) Rental value of land	(8.82)	(8.62)	(8.75)	(8.88)	(8.88)
Total fixed cost	7300.00	7300.00	7300.00	7300.00	7300.00
	(8.82)	(8.62)	(8.75)	(8.88)	(8.88)
Total(1 + 2)	82739.46	84675.77	83426.87	82202.55	83261.16
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Source: Field survey, 2006

(Figure in bracket indicates the percentages)

Cost structure of small tea cultivation

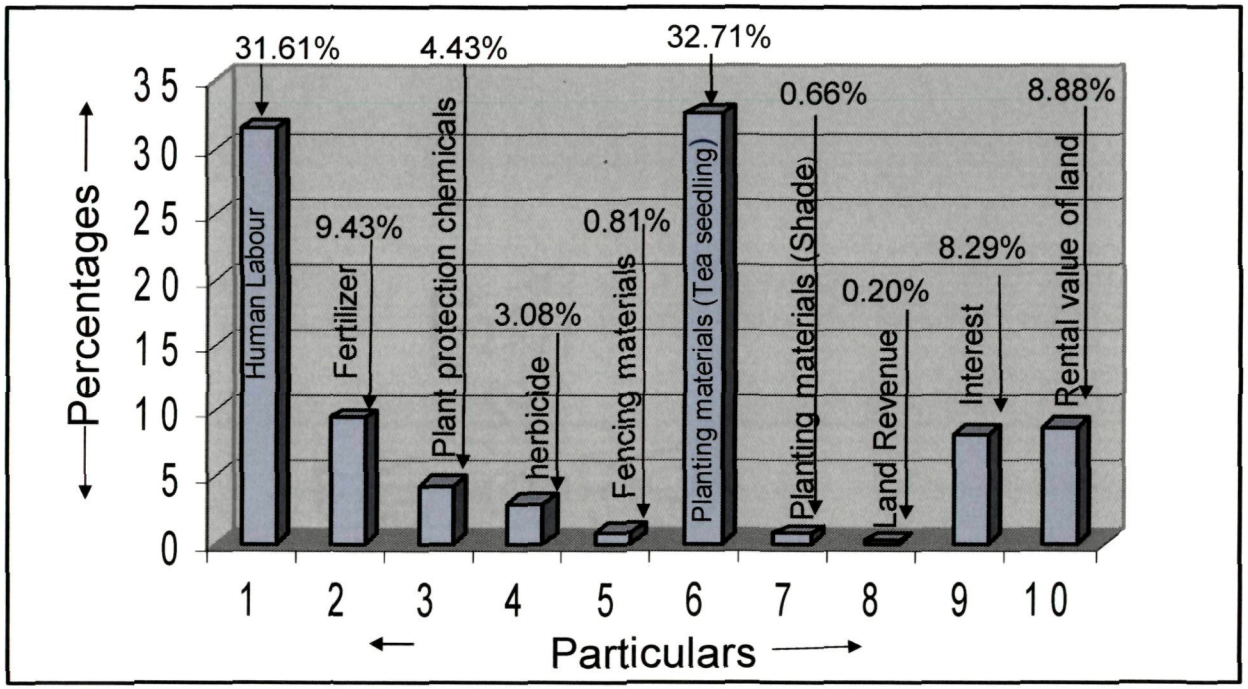


Fig - 16

From the observation it has been seen that total average cost of cultivation is - Rs. 83261.16 of which human labour formed the major component, followed by expenditure on manures and fertilizers, fencing materials, plant protection chemicals and herbicides. The proportional share of various items in the total establishment cost per hectare in different farm sizes also reveals similar trend as shown in the average data. However, the relative share of expenditure on human labour decreases when the farm size increases. But plant protection chemicals shows increasing trend with of farm size. There is no difference in the total cost of cultivation among the various size groups although variations among the groups are observed in some cost components. In tea plantation, the labour cost constitutes a significantly higher amount of the total expenditure that is required in all size groups.

3:5:1:2 – Operational and Maintenance Cost: The cost incurred by the small tea farms on labour and materials expenditure incurred was considered as operational and maintenance cost to carryout day to day operations. Item wise cost of maintenance per hectare and per farm for different farm sizes are shown in the table 3:20. The composition of operational and maintenance cost per hectare for different size groups indicates that high quantum of cost incurred in the lowest size group – I (*tea cultivated land up to 1.00 hectare)* and group– II *(tea cultivated land from 1.01 to 2.00 hectare).*

3:5:1:3 – Operational and maintenance cost per hectare: Table 3:20 indicates the item wise operational and maintenance cost per hectare in different farm size groups. Average data reveals that among the various items cost of human labour accounts for largest share.

Table-3:20 - **Operational and maintenance cost of small tea cultivation in different size groups of small tea growers** (Per hectare).

Particulars	Group – I	Group – II	Group – III	Group – IV	Polled
1)Cost of human	27192.00	27297.60	25502.40	25291.20	26320.80
Labour	(66.99)	(64.50)	(61.83)	(62.86)	(63.89)
A) Family labour	14361.60	11352.00	7128.00	5227.20	9517.20
	(35.38)	(26.82)	(17.28)	(12.99)	(23.10)
B) Hired labour	12830.40	15945.60	18374.40	20064.00	16803.60
	(31.61)	(37.68)	(44.55)	(49.87)	(40.79)
2) Material cost	7312.50	7518.75	9150.00	7406.25	7846.87
a) Fertilizer	(18.02)	(17.77)	(22.18)	(18.41)	(19.05)
b) Plant protection	3241.20	3949.36	3366.43	4186.70	3685.92
chemicals	(7.99)	(9.33)	(8.16)	(10.41)	(8.95)
c) Herbicide	2149.20	2889.90	2607.52	2613.33	2564.99
	(5.29)	(6.83)	(6.32)	(6.50)	(6.23)
d)Fencing materials	695.00	665.00	620.00	735.00	778.75
	(1.71)	(1.57)	(1.50)	(1.82)	(1.89)
3) Operational Expenses	26228.30	30968.61	34118.35	35005.28	31680.13
a)Without family labour	(64.62)	(73.18)	(82.72)	(87.07)	(76.90)
b) With family labour	40589.9	42320.61	41246.35	40232.48	41197.33
	100.00	100.00	100.00	100.00	100.00

Source: Field survey conducted by Researcher.

Inter group analysis shows that without the involvement of family labour, the per hectare operational cost increases with corresponding increase in farm size from Rs. 26228.3 (64.62%) in size group – I (*tea cultivated land up to 1.00 hectare)* to Rs. 35505.28 (87.07%) in size group – IV (*tea cultivated land from 3.00 hectare and above)* farm. This trend however was not observed when family labour was included in the cost. Data also reveals that the cost of fertilizer was the other expensive item, which involved Rs. 7846.87(19.05%) of total operational expenses. Then come the plant protection chemicals

Rs.3685.92 (8.95%), herbicides Rs 2564.99(6.23%) and fencing materials Rs. 778.751.89%). The findings has a partial agreement with the findings of Mahesh et.al (2002) who observed similar results for plant protection chemicals but higher cost for fertilizers.

Comparison among various size groups on different components of operational cost reveals no definite trend for cost of fertilizers and cost of fencing materials. This might be due to the fact that the small tea grower resorts to application of varying doses of fertilizers irrespective of farm size. On the other hand cost of plant protection chemicals shows a tendency to increase with increase in size of farms. Of course cost of herbicides did not show such trend. Cost of herbicides on total cost per hectare was lowest in the smallest size group - I Rs.2149.20 and highest Rs.2889.90 in the largest size group – IV. It was intriguing to observe that 6.83 percent of the total cost was on herbicides in size group – II, which was higher than the larger farm– size group III and IV, which might be due to reliance mostly on usage of herbicides rather than other manual methods of weed control.

3:5:1:4 – Operational and maintenance cost per farm: The operational and maintenance cost per farm is shown in the table – 3:21.

Table: 3:21-**Operational and maintenance cost in different groups of small tea growers** (Rs. Per garden)

Particulars	Group – I	Group – II	Group - III	Group - IV	Pooled
1)Cost of Human labour	26014.32 (66.91)	51046.51 (64.50)	71406.72 (61.83)	94335.43 (62.86)	60723.24 (63.31)
i)Family labour	13787.14 935.46)	21228.24 (26.82)	19958.40 (17.28)	19497.46 (12.99)	18617.81 (19.41)
ii)Hired labour	12227.18 (31.45)	29818.27 (37.68)	51448.32 (44.55)	74838.72 (49.87)	42105.62 (43.90)
2)Material cost i) Fertilizer	7020.00 (18.06)	14060.06 (17.77)	25620.00 (22.18)	27625.31 (18.41)	18581.34 (19.37)
ii) Plant protection	3111.57 (98.00)	7385.30 (9.33)	9426.00 (8.16)	15616.37 (10.41)	8884.81 (9.26)
iii)Herbicides	2063.23 (5.31)	5404.11 (6.83)	7301.06 (6.32)	9747.72 (6.49)	6129.03 (6.39)
iv) Fencing materials	667.20 (1.72)	1243.55 (1.57)	1736.00 (1.50)	2741.55 (1.83)	1597.07 (1.67)
3)Operational Expenses i) Without family labour	25089.18 (64.53)	57911.29 (73.18)	95531.38 (82.71)	130569.67 (87.00)	77297.68 (80.59)
ii) With family labour	38876.32 (100.00)	79139.53 (100.00)	115489.78 (100.00)	150066.38 (100.00)	95915.49 (100.00)

Source: Sample survey, 2006.

(Figure in bracket indicates the percentages)

Data from all size groups suggest that Rs.60723.24 (63.31%) of the total operational expenses of Rs.95915.49 was the cost of human labour per garden. Of this Rs.42105.62 (43.90%) was the cost of hired labour and Rs.18617.81 (19.41%) was the cost of family labour per farm in the study area. The cost of fertilizer was Rs.18581.34 (19.37%) per garden which was highest among the cost of material components. The

other items cost were cost of plant protection chemicals and cost of fencing materials, which were Rs.8884.81 and Rs.1597.07 respectively per garden.

Inter group analysis reveals that the larger size group of gardens spent more on all the items, even higher than the sample average showing increased use of all the components of cost with increase in farm size.

It is clear from the table 3:19 and 3:20 that human labour, manures and fertilizers, plant protection chemicals, herbicides and fencing were the major items constituting operational and maintenance cost per hectare. Human labour was the dominating component accounting for 63.31 percent of operational and maintenance cost for all the growers together followed by manures and fertilizers, plant protection chemicals, herbicides and fencing which constituted 19.37, 9.26, 6.39, and 1.67 percent of total operational and maintenance cost. However, the relative share of human labour shows an increasing trend with the decrease in size of farms while those of manures and fertilizers, plant protection chemicals herbicides shows an increasing trend with increase in farm size with rare deviation. One deviation was the comparatively low cost on fertilizers in size group – II*(tea cultivated land from 1.01 to 2.00 hectare)* gardens(17.77%), which could be due to the more professional approach in management in the elite group.

The other deviation was the cost of herbicides in size group – II *(tea cultivated land from 1.01 to 2.00 hectare)* gardens (6.82%), which was probably the result of high use of herbicides in this size group. The study indicates the fact that the operational and maintenance of small tea gardens are not only costly, but highly labour intensive as well. The usage of comparatively more labour per hectare in smaller garden is attributed to the

availability or utilization of higher percentage of family labour. In the larger size groups the percentage of hired labour increases and family labour declines.

3:6: Capital and its Sources: Tea is highly capital as well as labour intensive crop. It requires considerable amount of fund for establishment as well as operation and maintenance. Financing of tea crop wholly from small grower's equity capital seemed to be inadequate since the grower at one time was a common farmer dealing with seasonal / annual field crops. The savings of these farmers were not enough to start tea cultivation even on smaller scale. Hence the small tea growers had to depend on borrowed fund from various institutions. Initial investment of tea cultivation is relatively more compared to working capital requirement in subsequent years.

3:6:1 – Investment of Capital Requirement: Capital investment here implied the establishment cost incurred during the first two years of tea plantation. Table 3:22 shows per hectare and per garden investment capital requirement for different size group of small tea growers for starting tea cultivation.

It is seen from the table that on an average, per hectare capital investment was 0.82 Lakh. The different size groups of gardens and cost of their establishment capital per hectare varies. The lower investment capital per hectare in large group of gardens could be attributed due to spread of investment cost over large areas as compared to smaller size group of gardens.

Table – 3:22- **Requirement of per hectare and per farm investment capital in different size groups of small tea growers (Rs.** in Lakh)

Size group of gardens	Investment capital per hectare	Investment capital per garden
Group- I	0.82	0.79
Group- II	0.84	1.58
Group- III	0.83	2.33
Group- IV	0.82	3.07
Average	0.82	1.94

Source: Field Survey, 2006

3:6:2 - Sources of Working Capital: Generally there are two sources of working capital which is required for the small tea growers. One is equity capital and another is non-equity capital. Capital which is raised from own sources is called equity capital and capital raised from other sources like borrowing etc. is called non-equity capital. Borrowing may be from institutional and non-institutional agencies. The institutional borrowing may be from bank, government, co-operatives etc. and non-institutional borrowing may include borrowing from money lenders, friends and relatives and others. Table 3:23 – reveals the per hectare working capital requirement of the small tea growers according to sources of funding.

Table 3:23 - **Distribution of working capital requirement per hectare of small tea growers by sources of funding** (per hectare.):

Sources of capital	Group - I	Group - II	Group - III	Group - IV	Pooled
A)Equity capital	19,175.00	23,845.00	26,779.00	31,595.00	25,348.50
Or own fund	(73.12)	(77.00)	(78.49)	(90.26)	**(80.27)**
B)Non equity capital	7,051.00	7,123.00	7,338.00	3,408.00	6,230.50
Or Borrowed fund	(26.88)	(23.00)	(21.51)	(9.74)	**(19.73)**
i)Commission/Agent/Factory	1250.00	1200.00	-	-	612.50
	(4.77)	(3.87)			(1.94)
ii) Friends & Relatives	4596.00	4500.00	5584.00	1362.00	4010.50
	(17.52)	(14.53)	(16.38)	(3.89)	(12.7)
Iii) Kith & kin	1205.00	1423.00	1754.00	2046.00	1607.00
	(4.59)	(4.59)	(5.14)	(5.85)	(5.09)
Total	26226.00	30968.00	34117.00	35003.00	31578.00
	100.00	100.00	100.00	100.00	100.00

Source: Field survey, 2006

(Figure in bracket indicates the percentages).

Table shows that the working capital requirement per hectare of the sample area data was Rs.31578.00 per hectare, of which Rs.6230.50 (19.73%) was borrowed from various sources. The breakup of the borrowed working capital requirement was Rs. 612.50 (1.94%) from the agent/factory, Rs 4010.50(12.70%) from friends and relatives and Rs.1607.00 (5.09%) from kith and kin of the small tea growers.

Inter group analysis reveals that with increase in size group of the small tea farms, there was a decrease in percentage borrowing. The borrowed fund in size group- I *(tea cultivated land up to 01 hectare)* was Rs.7051.00 which was 26.88 percent of the total working capital requirement. Borrowing decreased with increase in farm size to Rs.7123.50 per hectare in size group – II (*tea cultivated land from 1.01 hectare to 2.00*

SOURCES OF WORKING CAPITAL OF SMALL TEA GROWERS

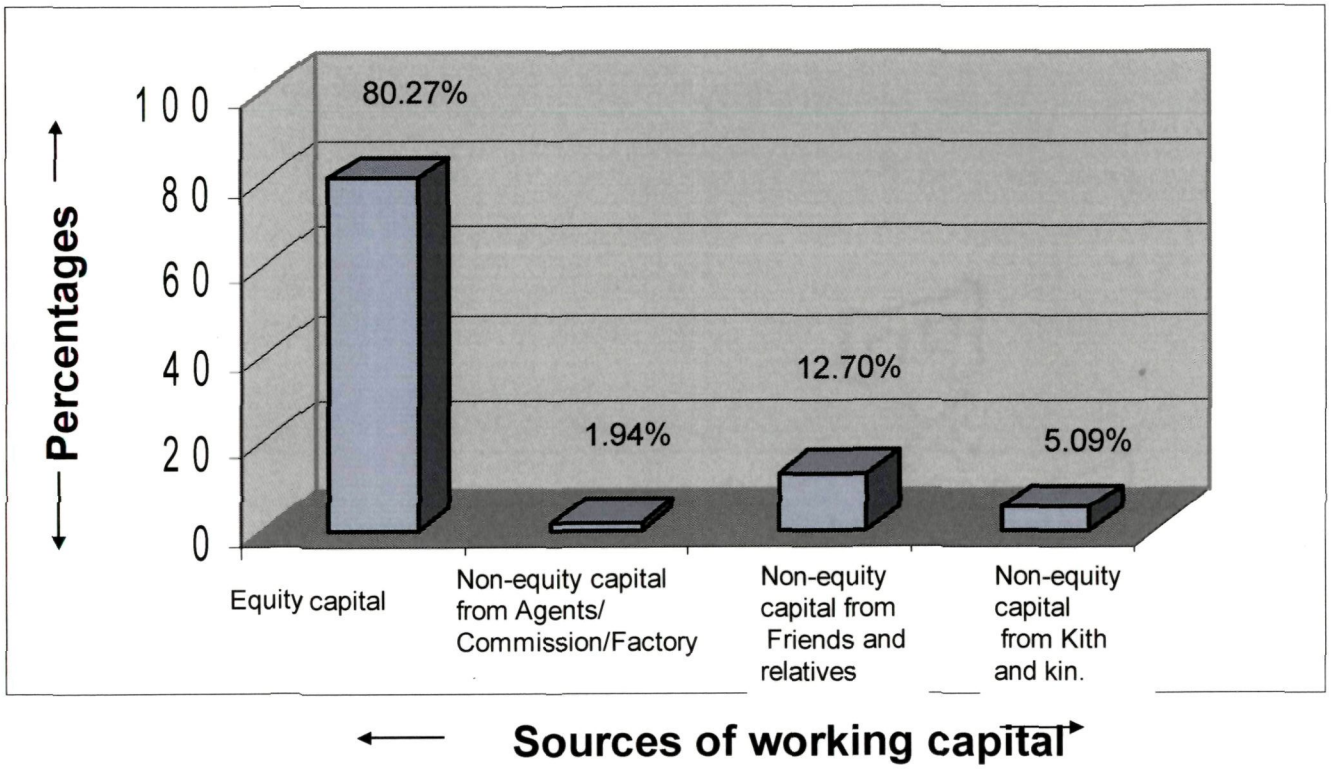


Fig - 17

hectare), Rs. 7338.82 per hectare in size group III (*tea cultivated land from 2.01 to 3.00 hectare)*and Rs. 3409.72 in size group IV*(tea cultivated land from 3.00 hectare and above)*. It is also observed that working capital requirement per hectare increased in linear manner with increase in farm size from Rs.26228.30 in size group I *(tea cultivated land up to 01 hectare*) to Rs. 35005.28 in size group IV *(tea cultivated land from 3.00 hectare and above)*. Similarly, utilization of own fund increases in linear trend from Rs. 19175.50 in size group- I *(tea cultivated land up to 01 hectare*), to Rs 31595.56 in the largest size group IV*(tea cultivated land from 3.00 hectare and above)*. Analysis of sources investment of capital indicated that own sources, friends and relatives, money lenders, and other agents. Inter group analysis of different farm sizes pertaining to share of various sources of investment capital shows that own sources was dominant in all size group of farms followed by non-institutional sources and institutional sources.

3:6:3 – Marketing of green leaf by small tea growers:

3:6:3:1 – Production of green leaf: Now small scale tea units are exclusively engaged in production of green leaf and dispose off their produce to existing factories belonging to different tea companies or the bought leaf factories. Now small tea cultivation contributes nearly 84.9 million kgs. of made tea which is about 20 percent of total tea production of the state. Due to the choice of planting materials, variation of soil fertility status, adoption of cultural practices such as pruning, drainage and use fertilizers and plant protection methods, the average yield varies in different districts. The estimated production of green leaf in the Sivasagar district of Assam was 9198.40 lakh kg. (2005).

It has been observed that production of green leaf had increased from 1,000 kgs. in the first year to 1,800 kgs. in the 2nd year, 2,600 kgs in the 3rd year, 4,000 kgs in 4th year and 10,000 in the 5th year. The growth of production of green leaf is depicted in the table given below.

Table: - 4:13-**Year wise production of green leaf per hectare:**

	Green leaf per hectare(kg)
1st	1,000
2nd	1,800
3rd	2,600
4th	4,000
5th	10,000
All Years	19,400

Source: - Field survey 2006

Few number of tea growers of Sivasagar district reached around 4000 kg. per 0.13 (*bighas*) hectare. In order to push the yield level of the small tea growers of this region need to adopt scientific methods and systematic planning. Most of the small tea growers of Sivasagar district have got satisfactory production from their small tea gardens. This is because of literacy among the small tea growers and adoption of scientific methods. It is seen from the field observation that yields of green leaf in Nazira and Charaideo is around 2500 kg.per 0.13 (*bighas*) hectare annually. The yield of green leaf varies from hill slopes to plains in this region. It is seen that production of green leaf in plains are comparatively more than hill regions. The satisfactory production of green leaf is seen in the garden sizes are below 2.67 hectare (20 *bighas*). This is because of management and applying of proper methods.

Production of green leaf has started just after two years of plantation. In case of cutting plant, production of green leaf is more satisfactory. So, most of the small tea

YEAR WISE PRODUCTION OF GREEN LEAF (Per hectare)

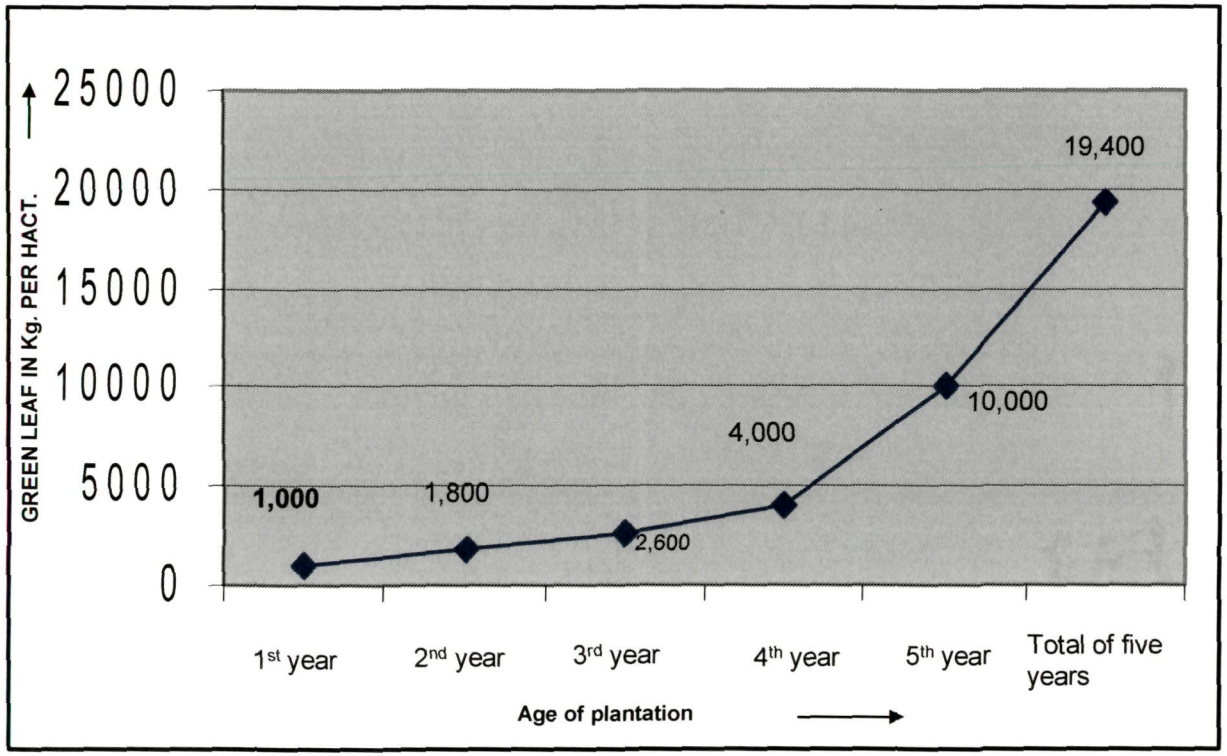


Fig: 18

growers of this region prefers cutting plants. It is observed from the practical field that the production of green leaf ranges from 1300 – 1900 kg. just after three years of plantation. In the first plucking year the production of green leaf ranges from 100 kg. to 300 kg. per 0.13 hectare(one *bigha*) per annum. It is mainly depend upon high yielding varieties of tea plant, soil conditions, irrigation system adoption at garden, application of fertilizer etc. As the small tea growers' farms are small in size, most of the tea growers of this region take care from all side to increase their production. In the Sivasagar district of Assam most of the small tea growers appears to reach satisfactory production per 0.13 hectare (one *bigha*) per annum after five years.

3:6:3:2 – Plucking practices adopted by small tea growers: The average number of plucking days per week and plucking rounds per year was also studied in all the size groups. It is seen from the study that the number of plucking days per week was 3(Three). However, a definite trend was observed that increase in the number of plucking days per week with the increase in size group indicates that in the larger groups plucking was more frequent. More than 70 percent of small tea growers plucked 20 to 30 rounds and other 30 percent of small tea growers plucked less than 20 rounds

3:6:3:3 – Marketing practices of small tea growers: Tea being an essential commodity in our country, the government of India is anxious to ensure that this beverage is available to the common man at reasonable prices, and their by keeps a close watch and monitors the movements of price of tea. About 25 percent of the tea produced in the country is exported and balance is sold in the Indian Market. Under the marketing control order 75 percent of the tea produced by any manufactures is required to be sold through

public auctions in India after excluding exports and the tea sold in packets. Out of the total tea consumed in the country, approximately 40 percent is sold in packets and form.

Defective marketing system of green leaf is one of the major problems of small tea growers of Assam. Due to absence of regulation of green leaf markets, the small tea growers are in the mercy of the big gardens and factory owners. The big tea estates and newly coming up brought leaf factories are the outlet of green leaf produced by the small tea growers. Small tea growers of Assam sold their leaf either directly or through intermediaries or vendors. It has become like a buyers markets rather than seller's market. The price of green leaf is regulated by the middle man.

According to All Assam small tea grower's association report (2001), the full productive small tea gardens of Assam has covered near about 21,322 hectares of land in 1999. According to annual report of All Assam small tea growers association (2005-06), it is 56,871 hectares. The small tea grower of Assam has able to produce 318 million kg. of green leaf, at an average production of the state 14,950 kg. per hectare, which is 15 percent of the total green leaf production of the state. It is estimated that the cost of production of per kg. of green leaf is Rs.4.66/- excluding tax and Bank interest. The average rate of Rs.10/- per kg. of green leaf in the market, a small tea growers can able to earn near about Rs.79,833/- per hectare. The estimated cost for establishing a hectare of tea plantation is Rs.93261.16/-(83,261.16 +10,000/-), which can be compensated on 5^{th} years. Therefore, on an average Rs.70,000/- to 80,000/- is left with growers as profit per hectare.

It is seen from the data that 45.83 percent of the small tea growers sold their green leaf to the commission agents followed by 29.17 percent to the else where i.e. sub agent

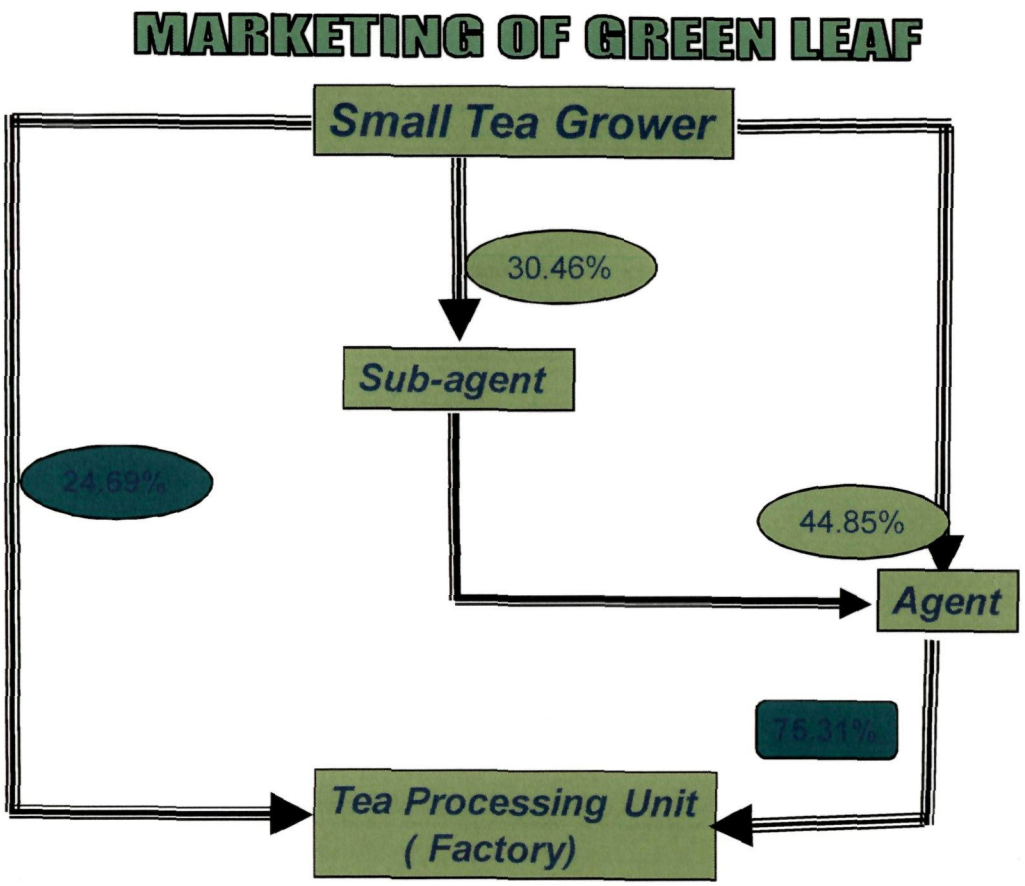

MARKETING OF GREEN LEAF
Small Tea Grower
30.46%
Sub-agent
24.69%
44.85%
Agent
75.31%
Tea Processing Unit
(Factory)

Fig: 19

and 25 percent directly to the tea processing unit(factory). The most common mode of transportation of green leaf followed was found to be manually drawn carts, jeep, truck and bicycle. Among the different modes of transportation, jeep was found to be the most popular through which almost 69.96 percent of small tea growers transported their green leaf followed by truck and bicycle. It was also observed in the study area that 12.5 percent of the small tea grower's transportation cost borne by them, while middle men bears 75 percent of transportation expenses and the factory owners pays 25.5 percent to the small tea growers.

Plate – 7 –A

Plate – 7 -B

Mode of transportation (jeep)

Plate – 7 – C

Plate – 7 – D

Mode of transportation (jeep)

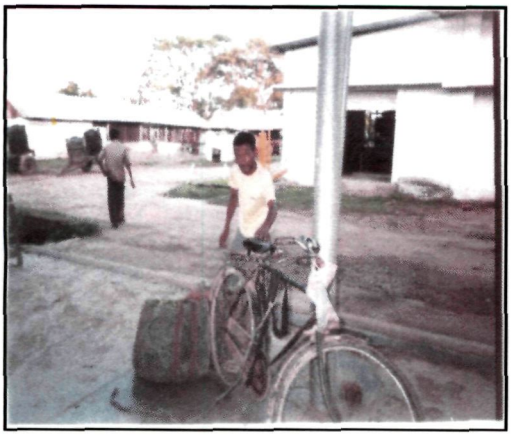


Plate – 8 –A

Plate – 8 -B

Mode of transportation (bicycle)

Mode of transportation (jeep)

factories offer better price. The factories don't opt to buy small quantities of leaf from individual growers. The factories thus enter in to contracts with leaf collection agents.

Table:- 3:25 - **Response of small tea growers to marketing of green leaf**:

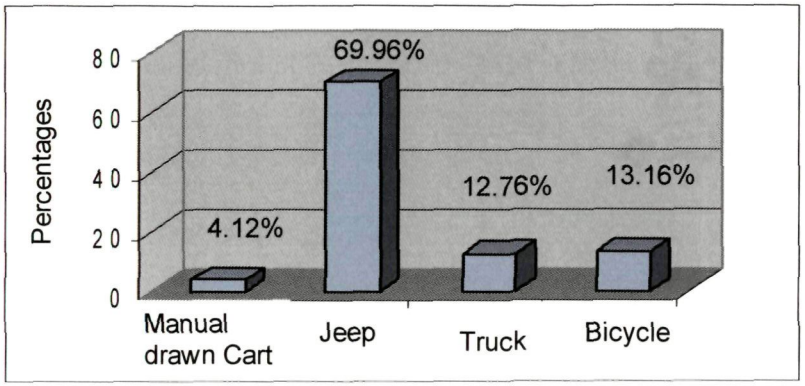
Particulars	Group-I	Group-II	Group-III	Group-IV	Pooled
1)Selling of green leaf to i) Factory	05 (6.25)	09 (13.04)	28 (49.12)	18 (48.65)	60 (24.69)
ii) Commission Agents	39 (48.75)	22 (31.88)	29 (50.88)	19 (51.35)	109 (44.85)
iii) Elsewhere	36(45.00)	38(55.07)	0(00.00)	0(00.00)	74(30.46)
Total	**80(100.00)**	**69(100.00)**	**57(100.00)**	**37(100.00)**	**243(100.00)**
2)Transportation of Greenleaf) Manually drawn carts	10(4.11)	0(00.00)	0(00.00)	0(00.00)	10(4.12)
ii) Jeep	27(33.75)	69(100.00)	47(82.45)	27(72.97)	170(69.96)
iii)Truck	11(13.75)	00(00.00)	10(17.54)	10(27.02)	31(12.76)
iv) Bicycle	32(40.00)	00(00.00)	00(00.00)	00(00.00)	32(13.16)
3) Cost of transportation born by i) Self	20(25.00)	22(31.88)	0(00.00)	09(24.32)	48(19.75)
ii) Agent	60(75.00)	47(68.12)	57(100.00)	28(75.68)	195(80.25)

Source: Field survey, 2006

(Fig in bracket indicates the percentage)

The small tea growers have not got proper value for per kg. of green leaf. In 1996, the rate of per kg. of green leaf was Rs.6.79/-, in 1997 it was Rs.7.50/-, in 1998 it was around Rs.10.50/-, in 1999 it was Rs.11.60/-. In the year 2000-2001, the rate of green leaf was directly fall down to Rs.5.00/- to Rs.6.00/- per kg. which has discourage the small tea growers to further plantation and development their gardens. It is because mainly responsible for the defective government policy, conspiracy of big tea grower's estates and poor quality of green leaf produce by the small tea growers of Assam. Again the rate per kg. raised to Rs..8/- in 2002, in 2003 it was Rs.7.75/- , in 2004, it was around Rs.10/-, in 2005 Rs.8/- and in 2006 it is Rs10/- to 10.5/-.

MARKETING OF GREEN LEAF



← **Mode of Transport**

Fig – 20 - A

The most common mode of transportation of green leaf followed was found to be manually drawn carts, jeep, truck and bicycle.

44.85% of the small tea growers sold their green leaf to the commission agents followed by 30.46% to else where i.e. sub agent and 24.69% directly to the tea processing unit (factory).

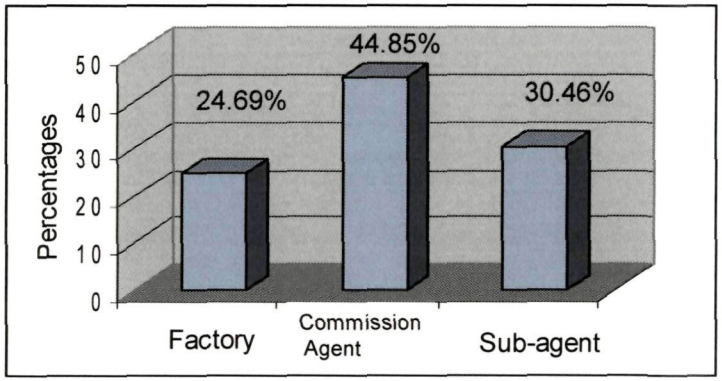


Fig – 20 - B

← **Selling to** →

PRICES OF GREEN LEAF FROM 1996 - 2006

(In Rupees)

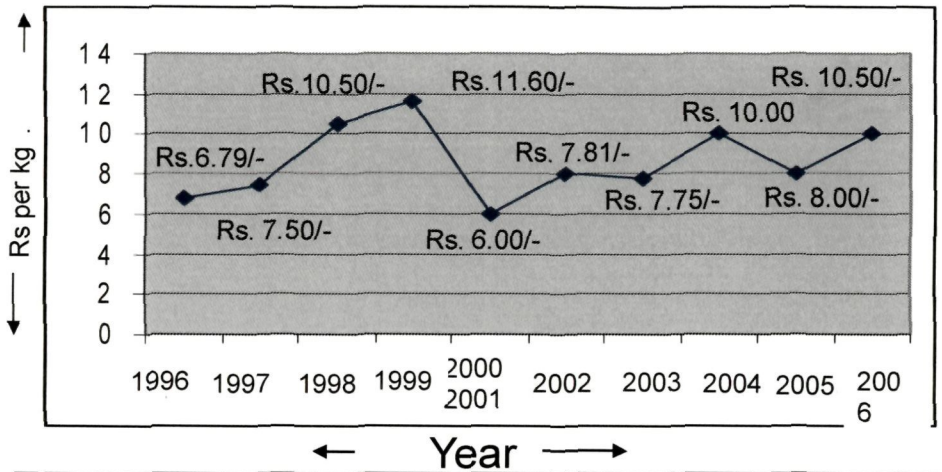


Fig – 21- A

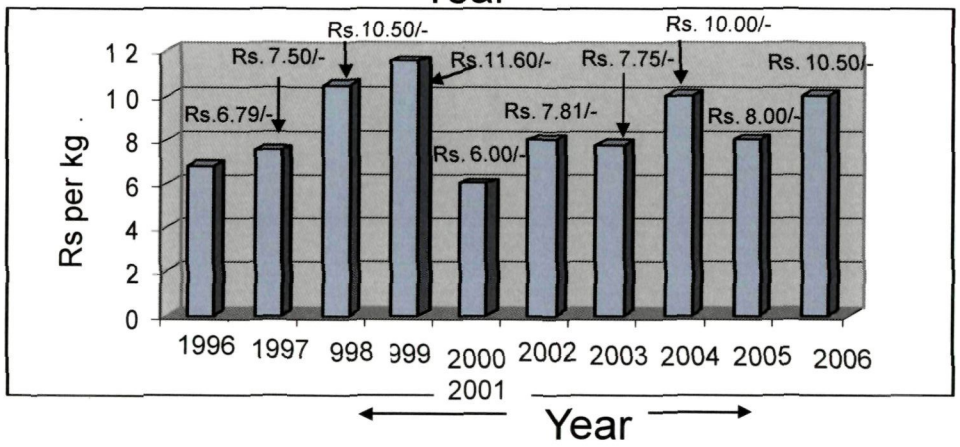


Fig – 21- B

In the marketing of green leaf the role of middle man is notable in the small tea gardening sector where many young youths of this region involves directly. The middle man collected green leaf from small tea growers and sell to the nearby tea estates which are within 20 kms distance from the gardens. It is seen that 80 percent of small tea growers of Nazira and Charaideo subdivision of Sivasagar district has wanted to establish co- operative factory. Due to lack of capital and government support to small tea growers of Assam, a big tea grower of Assam is getting the benefit from the small tea growers.

3:7: Problems faced by small tea growers of the study area: There are many problems faced by small tea growers in the study area. These were identified as follows.

(1) In many areas, the unsuitable lands and marginal lands were utilized for tea cultivation which affects the quality as well as productivity of the plantations. In many cases, production of green leaf from small tea growers is not matched with the demand of tea markets.

(2) As the small tea growers of this region produce only green leaf and have no factories, they depend on big tea estates. The green leaf of small tea grower's sale their produce to big tea estates factory through the middle man. The green leaf price varies from factory to factory and time to time within the same district. Within three years of observation, it has seen that the rate of per kg. of green leaf has been fall down from Rs.11.00 to Rs.7.00/8.00. This is most important notable problem of small tea growers of Assam at present time.

(3) Another important problem of this study area is the shortage of water supply to various gardens specially the gardens of hill slopes.

(4) Investigation reveals that there are wide differences in technological gap between the trained and untrained small tea growers. There are certain areas drainage, manuring, weed control, pest control, bringing up of young tea etc. where the farmers needs through training to enhance the productivity

(5) Ecological imbalance is an problem created by small tea growers. The village wood lots have been cleared, bamboo forest and other plantation have been vanished, and many commercial crops like orange, pine apple, sugarcane have been replaced by tea cultivation. The traditional farming system of the area has been collapsed due to unsystematic growth of the small tea units. The indiscriminate uses of pesticides and agrochemicals have brought rivers and riverine population to a disastrous situation. For more economic gain, the small tea growers of this region destroy the bio-diversity.

(6) The entire growth and development of small scale tea cultivation have been made by finance. The whole capital is arranged by small tea growers themselves. Very few numbers of small tea growers have availed government helps. Majority of the small tea growers of this area depend upon their family and relatives for finance. This is another most important problem of small tea growers of this area.

(7) The cultivation of tea on government lands and its allotment to small tea growers is another major problem of small tea cultivators. The men who are economically sound and educated have occupied government reserved land in their own name or their family members' name that are unemployed. This problem is not only in Sivasagar district but also in various small tea cultivated district of Assam.

8) Most small tea growers occupy government lands and later they get allotment. Those who are economically sound and educated have occupied and captured most government reserved lands in the pretext of unemployed youth.

CHAPTER – IV

GENERAL LAND USE PATTERN OF SIVASAGAR DISTRICT:

4:I – Land use pattern: Land use present an extremely complex pattern, falling in to different types. This complex land use pattern is the result of centuries of human settlement and development representing the interaction of physical, historical, social and economic factor.

Land use is an important aspect in geographical studies, particularly relevant to agricultural geography. This aspect of agricultural geography is studied with the help of land use surveys. The most commonly accepted term "Land" refers to the solid portion of the earth's surface. In modern times the concept of land has become quite important. It involves location with regards to markets, geographical features and other sources of the country. The concept of land is important because of highly conditioning influence on human activities and an attitudes relating to land use. Land is meaningful only in relation to man.

Land use of an area is the cumulative outcome of historical events, the interaction of economic forces with the natural environment and the values of society. Despite the significant influence of the natural environment on original distribution of the use of the geographical area, subsequent adjustment of land use to the cultural ecology is clearly evident. This suggest that it is relevant to appraise the relationship between land use and environment. It needs field study and land use surveys the two most commonly used approaches to the study of land use geography.

According to Davis, the term land utilization actually denotes the inner character of the land that means whether a land remains barren or forest covered or covered with cultivated crops or roads etc.

4:2 – Land classification: Land classification means dividing the land in to different categories or classes according to the use of land. However, no generally accepted scheme of classification is there despite many years of land use studies. In most such schemes, activity on the land has been the major criterion for classifying land use which is essentially a qualitative rather then quantitative variable.

The detailed statistics of land utilization in India are almost continuously available since 1884. The total area of the country has been classified in to different categories on the basis of its various uses. In 1890 – 91, a five fold classification of total geographical area of the country was made and the land was put under the categories of - i) Forest, ii) Area not available for cultivation , iii) Fallow lands, iv) Other uncultivated land excluding the fallow lands v) Net sown area. Till the 1949 - 50, this classification had been followed in India. It was however a broad outline of land use in the country and in 1948, the Technical Committee on Co-ordination of Agricultural Statistics by the ministry of Food and Agriculture recommended a new land use classification. The new classification has been introduced by all the states except West Bengal and Manipur where agricultural data are still recorded on the basis on the old classification. According to this classification, land of Assam is classified under nine categories. These are – i) Forest, ii) Barren and uncultivable land , iii) Land put to non-agricultural uses, iv) cultivable waste land, v) Permanent pastures and grazing lands, vi) Lands under

miscellaneous tree crops, vii) Current fallow lands, viii) Fallow lands and ix) Net area sown.

For the analysis of land utilization pattern of the Sivasagar district, the data are collected from the Statistical Hand Book, Assam – 2004 and 2006 and Economic survey of Assam, 2004 - 05. Table 4:1 shows the general land use pattern of Sivasagar district of Assam.

Table – 4:1-General land use pattern of Sivasagar district, 2004(Area in hectare and percentage).(Total area and classification of area of Sivasagar district)

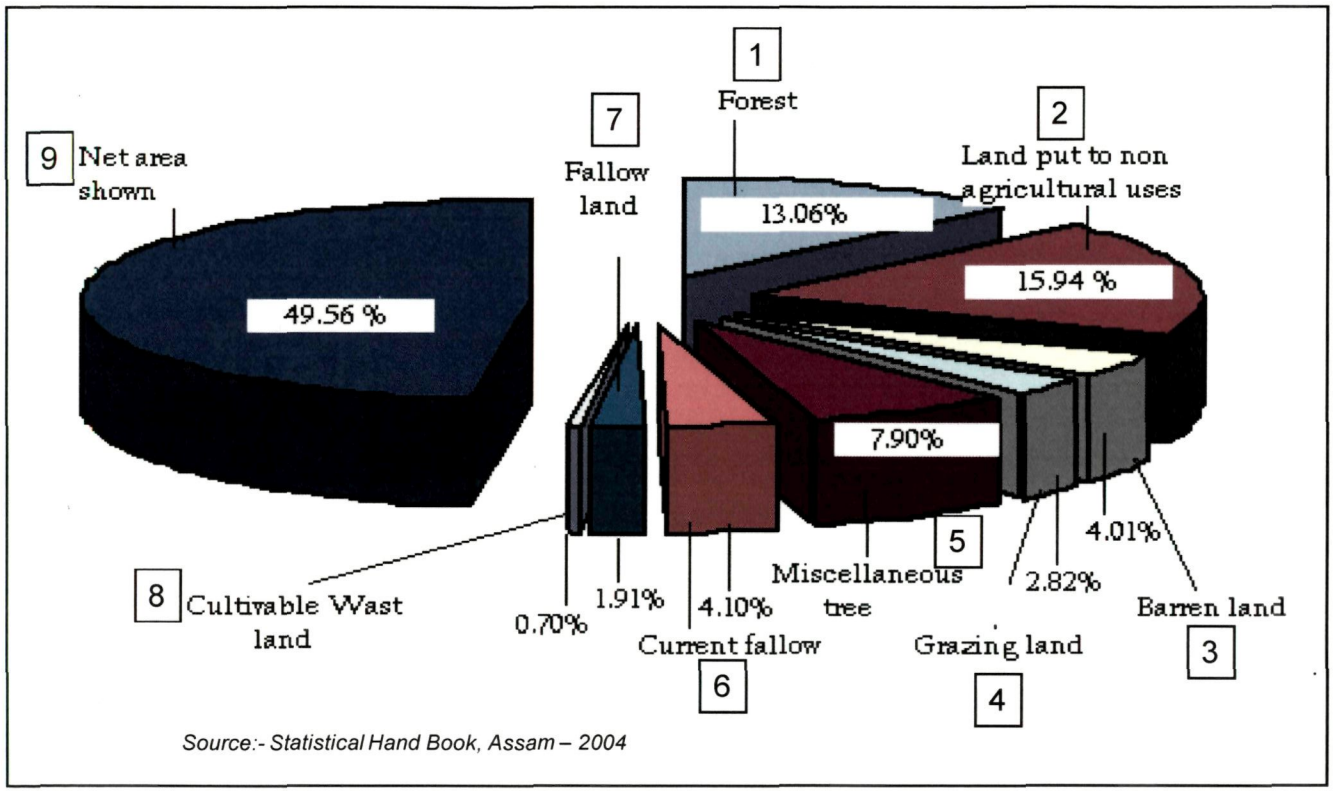
Sl. No.	Classification	Area in hectare	
		Assam	Sivasagar district
1	Forest	1931631(24.61)	33981(13.06)
2	Land put to non-agricultural Uses	1069891(13.61)	41480(15.94)
3	Barren and un-cultivable land	1461034(18.61)	10447(4.01)
4	Permanent pastures and other grazing land	162968(2.08)	7330(2.82)
5	Land under miscellaneous tree Crops	234206(2.90)	20569(7.90)
6	Current fallow lands	110401(1.41)	10686(4.10)
7	Fallow land other than Current fallow	65291(0.83)	4984(1.91)
8	Cultivable waste land	80194(1.02)	1820(0.70)
9	Net area sown	2734461(34.83)	128993(49.56)
	Total	7850077(100.00)	260290(100.00)

Source:- Statistical Hand Book, Assam – 2004

4:2:1 – Forest : Area under forest includes all forested areas or land classed or administered as forest under any legal enactment dealing with forest whether state owned or private (Hussain, 1996).

Forest land occupies 33,981 hectares of land in the Sivasagar district. The percentage share of forest land in the district has been estimated 13.06 percent. In the state as a whole the forest land covered around 35 percent of the total land as per latest

GENERAL LAND USE PATTERN OF SIVASAGAR DISTRICT,ASSAM 2004



Source:- Statistical Hand Book, Assam – 2004

Fig - 22

assessment by the Forest Survey of India. The forest land of the district are extremely versatile, stable and self renewable resources capable of producing wide range of goods and services through uses. The forest of the district is mostly deciduous types. Sal(Sharea robusta), Arjurna (Terminalia arjurna), Sishu(Dalbergia), Palas(Butea frondesa), Khoir(Accacia latcchu), Gomari(Gmelina abroia) etc. are the common varieties found in the forest land of the district.

The spatial distribution of forest land is uneven in the three physiographic zones(excluding the reserve forest). Among these, the middle flood plain zones bear a high and rich position. The second rank in forest land cover can be found in the foothill area and finally the forest land use is available in the old alluvial plain region. The nature of old alluvial plain area is homogeneous flat alluvial land mass facilitate maximum plot of land to be used in agriculture and the forest cover becomes least.

4:2:2 – Barren and un-cultivable land: Barren and un-cultivable land of the region is 10447 hectare(4.01%). This category of land includes uncultivable land like mountains, hills, river beds etc. .In the middle flood plain zone, the high percentage of barren and uncultivable land is owing to the large scale deforestation in one hand and the presence of scattered hillocks on the other. Erosion due to running water, especially flash flood of the tributaries and their sandy deposition extends the area of barren and uncultivable land in the foothill tracts.

4:2:3 – Land put to non agricultural uses: The category of land put to non-agricultural use constitutes 41480 hectares (15.94%) of the total area. Due to the resettlement roads and communication, social institutions etc., percentage of share under this category in old

alluvial plain is high. Same evidence can be found in the foot hill tract, proportionately a less arrangement of such performance is obtained in the middle zone.

4:2:4 – Cultivable Waste land: This category of land belongs to other uncultivated land excluding fallow land. Cultivable waste land includes land which can be brought under cultivation but which has not yet been cultivated or had been cultivated for some times and now not cultivated for some times or not been cultivated successively for more than five years. This category of land constitutes 1,820(0.70%) hectares of the total land area of the district. These lands are widely scattered in the district with natural handicaps, the reclamation of which needs heavy expenditure. However this category of land can be used for the productive purposes with a little effort.

4:2:5 – Permanent pasture and other grazing land:

This category of land also belongs to other uncultivated land excluding fallow land. The area under permanent pastures and other grazing lands in the region accounts to 7,330 hectares(2.82%) . In the state of Assam, the percentage share under this sub-category has been estimated at 1,62,968 hectares(2.08%). There are two types of grazing lands in the district – one is the village grazing lands and the other is professional grazing reserves. It was formerly a government policy to preserve these reserves in order to feed the village cattle. But with the increasing pressure of population some of these lands are encroached upon by the land less people. Due to such rampant encroachment, the government has changed the policy and in some areas allowed retention of such lands by the encroachers to the extent of once hectare per house hold. This has reduced the extent of the permanent pastures and grazing lands in the later part of the Seventies (Das and Dutta, 1986).

4:2:6 – Land under miscellaneous tree crops: Land under miscellaneous tree crops has been estimated 20,569 hectares that is 7.90 percent of the total land. But this amount has been reducing with time. As this category includes tree crops, it is quite necessary to increase the land under this category for day to day use of the people.

4:2:7 – Current Fallow Land: The term fallow is applied to land not put under cultivation at the time of reporting, but which had been cultivated in the past. The duration of period for which a land remains fallow is different in different parts of the country. The area under current fallow in the district has been estimated at 10,686 hectares that is 4.10% of the total land use of the district. In the state if Assam the percentage share of the land under this category has been calculated as 1.41% of the total geographical area.

4:2:8 – Fallow land other than Current Fallow: There are two types of fallow viz, current and other fallow land is considered by the census. One is current fallow land and another is fallow other than current fallow. Fallow lands other than current fallow in the district has been estimated at 4,984 hectares that is 1.91 percent. The percentage share under this category in the state has been estimated at 0.83 percent. This type of land remains fallow because of natural calamities, prolonged illness of the peasant, frequent attack of wild animals or land abandoned after two or three years in a Jhum cycle.

4:2:9 – Net area sown: This category of land and the fallow land together constituted extent of crop land in any region and there fore, is of vital significance in studies relation to agricultural geography. The net area sown is the actual area under crops. In Sivasagar district, the area under this category has been estimated at 1,28,993 hectares that is 49.56 percent. In the state of Assam the area under this category has been estimated at 34.83

percent. From the estimated percentage, it is clear that the percentage of net area sown in the district is higher compared to the state percentage. Intra-district land utilization statistics reveals that other uncultivated land excluding fallow land is highest in Sivasagar district. The fallow land is also highest in the study area.

The land used by the small tea growers is classified by the **Small Tea Growers Advisory Programme** (STGAP), Jorhat, Assam, under the following heads.

(1)Virgin land (under natural condition) (2) Bamboobari (3) Arecanut field (4) Sugarcane field (5) Orange Orchard (6) Pineapple garden (7) Thatchbari (8) Citronella cultivation (9) Government grazing land (10) Ceiling surplus land (11) Government forest villages (12) Deforested area (13) Vegetable cultivation (14) Disputed interstate foothills under shrub vegetation (15) Paddy nursery (16) Ahu land (17) Lowland which are filled up (18) Shallow land of sandy area (19) Degraded land used for various industrial purposes.

4:3 – Land use pattern of small tea growers of Sivasagar district: Land used by the small tea growers of Sivasagar district for different purposes is shown in the following table.

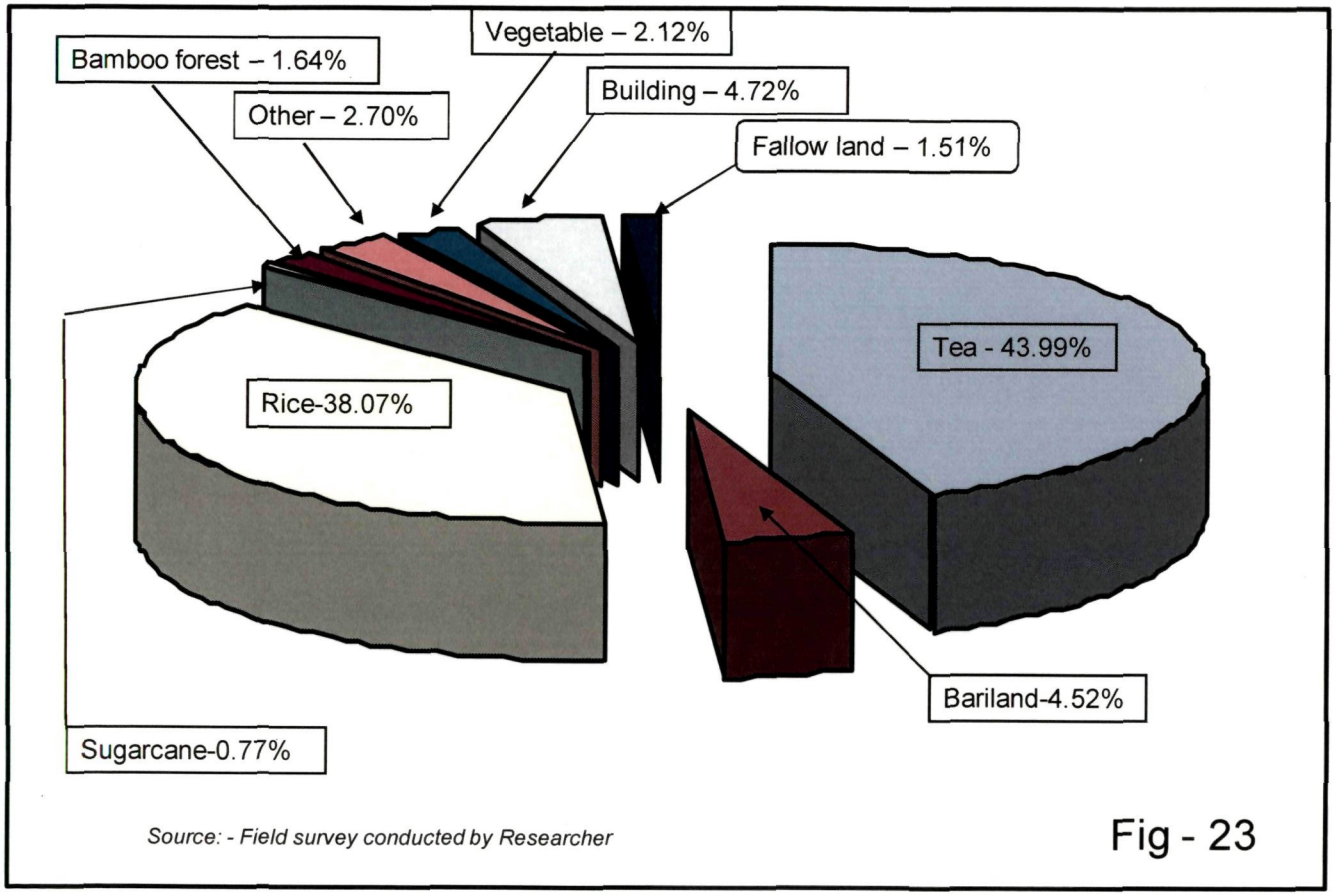
Table: 4:2:A - **Land use categories of tea farmers of Sivasagar by land holding size** (*in* hectares).

	Area under	Group – I N=80	Group – II N=69	Group – III N=57	Group – IV N=37	Total(hectare) N=243
1	Tea	71.54(27.2)1	119.37(40.22)	153.98(52.84)	158.27(53.87)	503.16(43.99)
2	Homestead (forest and Thatch)	16.45(6.26)	13.09(4.41)	11.09(3.80)	11.16(3.80)	51.79(4.52)
3	Rice	139.40(53.02)	122.04(41.13)	84.93(29.15)	89.48(30.46)	435.85(38.07)
4	Sugar cane	1.94(0.74)	2.08(0.70)	3.74(1.28)	1.01(0.34)	8.77(0.77)
5	Bamboo Forest	4.12(1.57)	6.41(2.16)	5.80(1.99)	2.47(0.84)	18.8(1.64)
6	Other Highland crops	2.84(1.08)	8.40(2.83)	9.39(3.22)	10.28(3.50)	30.91(2.70)
7	Vegetable	5.34(2.03)	6.54(2.20)	6.93(2.38)	5.52(1.88)	24.33(2.12)
8	Built up areas	14.69(5.59)	13.83(4.66)	12.01(4.12)	13.4(4.56)	53.93(4.72)
9	Fallow land	6.57(2.50)	4.99(1.69)	3.55(1.22)	2.20(0.75)	17.31(1.51)
Gross		262.89((100)	296.75(100)	291.42(100)	293.79(100)	1144.85(100)

Source: - Field survey 2006.
Fig in bracket indicates the percentage

The above table reveals that land under tea and rice are the two most dominant forms of land use in the region. It is seen from the table that, on an average, about 43.99 percent of the total land holding are utilized for tea cultivation followed by 38.07 percent for rice cultivation. The remaining 17.94 percent of the total land holding consisting of land under *Bariland* [(forest and thatch bari)(4.52%)], sugarcane field(0.77%), bamboo forest(1.64%), mustard, orange, pineapple(2.70%), vegetable(2.12%), other minor crops, fishery and building(4.72%) and fallow land(1.51%). The observations, that rice was the other important crop with tea in terms of land utilization pattern conform to the findings of Saikia *et al.*(2003), who observed similar trends in the small tea growers farms in the Rajgarh and Naharkatia regions of Dibrugarh district, Assam. The findings also corroborate the findings of the Techno-Economic Survey of small tea growers of Assam,

LAND CATEGORIES OF TEA FARMERS OF SIVASAGAR (in Percentage)



Source: - Field survey conducted by Researcher

Fig - 23

where it was observed that only 40 percent of the area was utilized for tea. It is shown in the diagram very clearly.

Table – 4:2:B - **Land utilization pattern in small tea cultivation of Assam:**

Sl. No.	Crop/Other activities	Percentage to total land availability
1	Tea	35.38
2	Paddy	45.69
3	Vegetables	3.62
4	Fruit orchard	1.40
5	Forest/Bamboo	3.34
6	Fishery	1.10
7	Hullah	1.40
8	Nursery	0.27
9	House building and court yard	7.80

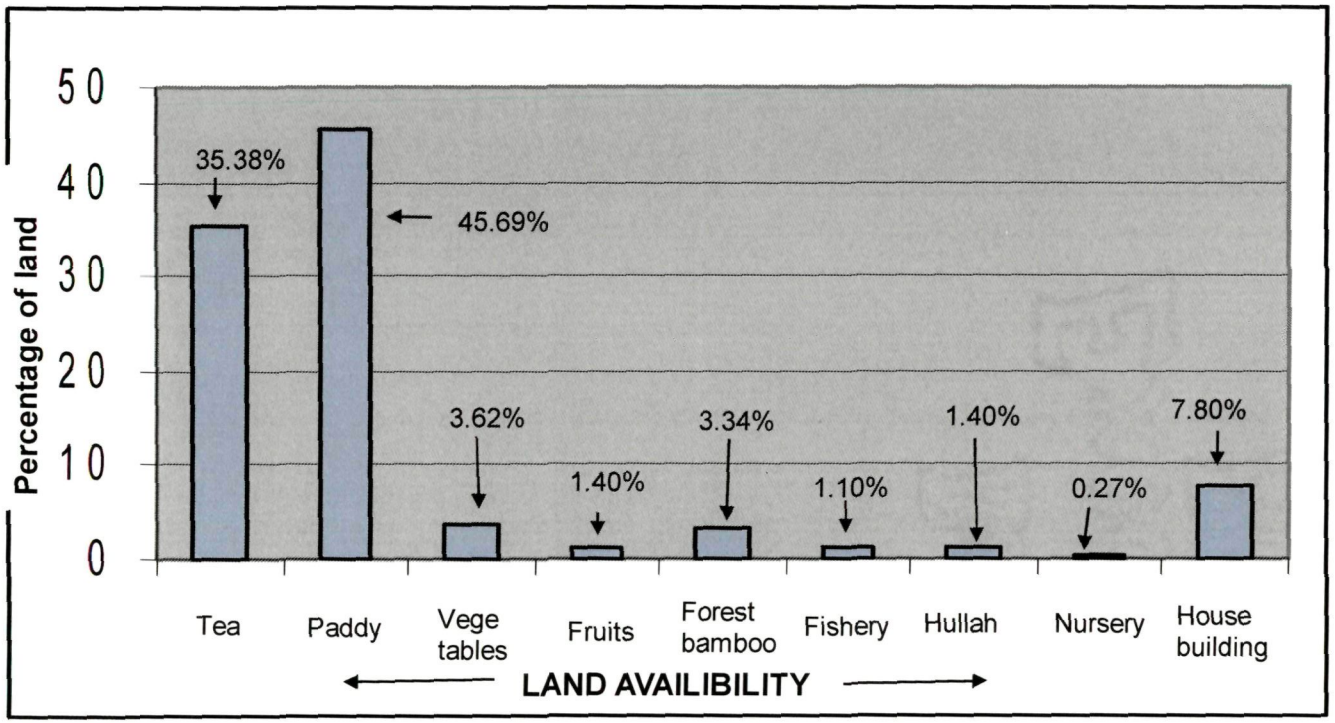
Source: Annual Report of Small Tea Growers Advisory Programme, Department of Tea Husbandry and Technology, Assam Agricultural University, Jorhat, Assam – 2005 – 06

Table-4:3-**Operational holding vis-à-vis holding under tea in the small tea growers:** (in hectare.)

Particulars	Group-I	Group-II	Group-III	Group-IV	Total(in hectare)
Gross Area	262.89	296.75	291.42	293.79	1144.85
Tea	71.54(27.21)	119.37(40.22)	153.98(52.84)	158.27(53.87)	503.16(43.99)
Bariland (forest and Thatch)	16.45(6.26)	13.09(4.41)	11.09(3.80)	11.16(3.80)	51.79(4.52)
Rice	139.40(53.02)	122.04(41.130	84.93(29.15)	89.48(30.46)	435.85(38.07)
Sugar cane	1.94(0.74)	2.08(0.70)	3.74(1.28)	1.01(0.34)	8.77(0.77)
Bamboo Forest	4.12(1.57)	6.41(2.16)	5.80(1.99)	2.47(0.84)	18.8(1.64)
Other Highland crops	2.84(1.08)	8.40(2.83)	9.39(3.22)	10.28(3.50)	30.91(2.70)
Vegetable	5.34(2.03)	6.54(2.20)	6.93(2.38)	5.52(1.88)	24.33(2.12)
Building & Fishery	14.69(5.59)	13.83(4.66)	12.01(4.12)	13.4(4.56)	53.93(4.72)
Fallow land	6.57(2.50)	4.99(1.69)	3.55(1.22)	2.20(0.75)	17.31(1.51)
Operational Area	221.06(84.09)	258.43(87.07)	258.97(88.86)	264.56(90.05)	1003.02(87.61)
Percentage of tea area to operational area	37.79	46.19	59.45	59.82	51.36

Source: - Field survey 2006.
(Fig in bracket indicates the percentage)
(Operational area included area of tea, rice, sugarcane, vegetable and other highland crops)

LAND UTILISATION PATTERN IN SMALL TEA SECTORS OF ASSAM 2005 – 06



Source: Annual Report of Small Tea Growers Advisory Programme, Department of Tea Husbandry and Technology, Assam Agricultural University, Jorhat, Assam – 2005 – 06

Fig - 24

Inter-group comparisons of utilization of land under various crops are shown in table – 4:3. Analysis in the table indicates a gradual increase in percentage area under tea cultivation with increase in farm size. Of course, it is not applicable for group IV (tea *cultivated area from 3.00 hectares and above).* It might be due to the large holding size under up-land category. The lower percentage area under tea in the largest farm size group might be attributed to fact that until the start of the small tea grower movement in Assam during the early part of the last decade, lowland was suitable for rice cultivation and such land was a priority among the elite farmers of the state. This group of farmers was involved in large scale production of rice prior to taking up small scale tea cultivation. High land areas, *(*now on which tea is grown) literally had no such value. The table also indicates that growers under smaller land holdings still consider rice as their main crops. The percentage of operational area was found almost to be similar in all size groups. Of the total operational area, 51.36 percent was put to tea which was the basis for categorizations of small tea growers according to size group in the present study. Operational holding of tea varied in different size groups ranging from 84.09 percent in group – I (*tea cultivated land from1.0.00 to 1.00 hectare)* and as high as 90.05 percent in group – IV *(tea cultivated land above 3.00 hectares).*

Table: 4:4-**The land available for extension of tea cultivation(** in hectare)

Area under	Group-I	Group-II	Group-III	Group-IV	Pooled
Tea	71.54 (27.21)	119.37 (40.22)	153.98 (52.84)	158.27 (53.87)	503.16 (43.99)
Bariland(forest and Thatch)	16.45 (6.26)	13.09 (4.41)	11.09 (3.80)	11.16 (3.80)	51.79 (4.52)
Rice	139.40 (53.02)	122.04 (41.13)	84.93 (29.15)	89.48 (30.46)	435.85 (38.07)
Sugar cane	1.94 (0.74)	2.08 (0.70)	3.74 (1.28)	1.01 (0.34)	8.77 (0.77)
Bamboo Forest	4.12 (1.57)	6.41 (2.160	5.80 (1.990	2.47 (0.84)	18.8 (1.64)
Other Highland crops	2.84 (1.08)	8.40 (2.830	9.39 (3.22)	10.28 (3.50)	30.91 (2.70)
Vegetable	5.34 (2.03)	6.54 (2.20)	6.93 (2.38)	5.52 (1.88)	24.33 (2.12)
Building & Fishery	14.69 (5.59)	13.83 (4.66)	12.01 (4.12)	13.4 (4.56)	53.93 (4.72)
Fallow land	6.57 (2.50)	4.99 (1.69)	3.55 (1.22)	2.20 (0.75)	17.31 (1.51)
Area available for extension of tea cultivation	37.26 (14.17)	41.51 (13.99)	40.50 (13.90)	32.64 (11.11)	151.91 (13.27)
Gross Area	262.89 (100.00)	296.75 (100.00)	291.42 (100.00)	293.79 (100.00)	1144.84 (100.00)

Source: Field survey 2006
Fig in bracket indicates the percentage).
* Extension area included area of *Bariland* and other highland crops

The table 4:4 reveals that the proportion of land under rice in different size groups, when compared, decreased along with increase in farm size from 53.02 percent (size group-I) to 29.15 percent (size group-III). In size group II *(tea cultivated land from 1.01 – 2.00 hectares)*, there is an increase in area (41.13 percent). It indicates that rice cultivation still enjoys the first priority among marginal farmers. The table also indicates that on an average 13.27 percent of the total area may be used for future extension of tea cultivated area. Inter group analysis of available area for tea extension reveals that 11.11 percent to 14.17 percent of the total land was available for extension of tea plantation. Area under residence(*including area covered by fishery*)is highest in size group –I(*tea cultivated land up to 1.00 hectare)*, which is 5.59 percent and lowest in size group – III (4.12%). This might be

due to the fact that, mostly the elite farmers are from this group. These farmers have their farms away from home, not contiguous to their residence. Another reason may be that, a minimum area is required for homestead. So, percentage of total holding is likely to decrease with increase in farm size. Table - 4:5 shows the per farm land use pattern of small tea growers of Sivasagar district.

The land use pattern of the small tea growers for all size groups have been worked out on per farm basis in the table 4:5. The table reveals that the tea area per farm was the lowest in size group – I (0.894 hectare) and it is highest in the size group – IV (4.28 hectares). Data indicates that an area of 2.05 hectares (average) per farm was utilized for tea cultivation, 0.13 hectare for other high land crops (Mustard and other minor crops),1.79 hectares for rice, 0.21 hectare for *Bariland(forest and thatch)*,0.08 hectare for bamboo, 0.10 hectare for vegetable and 0.22 hectare used for fishery and Buildings. The average operational holding for the pooled data was 87.68 percent of the gross area.

Table:4:5 - **The per farm land use pattern of small tea growers(** in hectare**).**

Area under	Group – I	Group – II	Group – III	Group – IV	Average
Tea	0.894 (27.26)	1.73(40.24)	2.70 (52.94)	4.28 (53.91)	2.07 (43.95)
Bariland(forest and Thatch)	0.205 (6.25)	0.19 (4.42)	0.19 (3.72)	0.301 (3.79)	0.21 (4.46)
Rice	1.74 (53.05)	1.77(41.77)	1.49 (29.20)	2.41 (30.35)	1.79 (38.000
Sugar cane	0.024 (0.73)	0.030(0.70)	0.065 (1.27)	0.03 (0.38)	0.04 (0.85)
Bamboo Forest	0.051 (1.55)	0.092(2.14)	0.101 (1.98)	0.07 (0.88)	0.08(1.70)
Other Highland crops	0.035(1.07)	0.121(2.8)	0.164(3.21)	0.28(3.53)	0.13(2.76)
Vegetable	0.066(2.01)	0.094(2.19)	0.121(2.37)	0.15(1.89)	0.10(2.12)
Building & Fishery	0.183 (5.58)	0.200 (4.65)	0.210 (4.12)	0.36 (4.53)	0.22 (4.67)
Fallow land	0.082 (2.5)	0.072 (1.37)	0.062 (1.21)	0.06 (0.76)	0.07 (1.49)
Operational Area	2.76 (84.15)	3.74 (86.98)	4.54 (88.84)	7.15 (90.05)	4.13 (87.68)
Percentage of tea area to operational area	(32.39)	(46.26)	(59.47)	(59.86)	(50.12)
Gross Area	3.28	4.30	5.11	7.94	4.71

Source: Field survey 2006
Fig in bracket indicates the percentage)
(Operational area included area of tea, rice and other highland crops)
(* Average percentage of gross area.)

Among the different size groups, operational area ranged from 84.15 percent per farm in the small size group- I *(up to 1.00 hectare)* to 90.05 percent per farm in the size Group- IV *(3 hectares and above)*. Data pooled from all size groups reveal that 50.12 percent of the operational area per farm was utilized for tea cultivation by the small tea growers.

Table 4:6 shows the average size of tea holding for different size group of small tea growers. The average size of holding under tea for the entire sample was found to be 2.07 hectare in general. In the size groups I*(up to 1.00 hectare)*, II *(tea cultivated land from 1.01 to2.00 hectares).*, III *(tea cultivated land from 2.01 to 3.00 hectares).* and IV(*tea cultivated land from 3.00 hectare and above*) estimated average size of holding was found to be 0.894, 1.73, 2.70 and 4.28 hectares respectively. The observations hold well in the light of previous authors, vis. Boruah et. al (1999) who affirmed that majority of the small tea growers were in the 1.33 – 2.66 hectare area category and Boruah and Taparia(2004) who observed that 71.00 percent of the small tea growers had farm holdings of less than 2.66 hectares. Saikia *et.al.* (2003), however opined that on an average a small tea grower had 1.27 hectare land under tea.

Table:4:6-**Average size of tea holding for different size groups of small tea growers**

Sl.No	Size group (in hectare)	Growers in number/s	Total land under tea(in hectare)	Average size of holdings(in hectare)
Group -1	Below 1.00	80 (32.92)	71.54 (14.22)	0.894
Group - 2	1.01 – 2.00	69 (28.39)	119.37 (23.72)	1.73
Group - 3	2.01 – 3.00	57 (23.46)	153.98 (30.60)	2.70
Group - 4	3.01 and above	37 (15.23)	158.27 (31.45)	4.28
	Total	243 (100.00)	503.16 (100.00)	2.07

Source:- : Field survey 2006.
Fig in bracket indicates the percentage)

It is thus clear that tea and field crops were two groups of crops competing for available land as well as other resources of the small tea growers in the study area. Tea was relatively more important for the larger farm size groups while field crops were relatively more important for lower size groups of small tea growers. This trend, however, did not hold true for the largest farm size group. Besides, the smallest size group and largest size group of growers had relatively greater scope of extension planting in their tea farms because of greater availability of land suitable for tea cultivation. The cause may be of such available land smallest size the inability of the small farmers to bring the land under tea owing to financial constraints, the elite group has either possibly remained undecided whether to substitute other plantation crops such as oranges with tea, or opted for other crops with higher returns. Another reason for this may the attitude of the farmers towards risk. Tea being a new crop, the decision of the farmers to substitute other crops by tea would largely depend upon their risk aversion or otherwise. However no, detailed examination of this aspects was carried out in the present investigation.

CHAPTER – V

SMALL SCALE TEA CULTIVATION AND LAND USE CHANGE

5:1 – Land use change: Land use is a dynamic concept, which changes over space and time. The study of changing land use patterns both space and time is important in geographical studies. The nature of land use in an area reflects the levels of socio-cultural and economic development of people under different physio-cultural milieu. The changing land use pattern clearly indicates the rapid transformation of a region.

The changing dimension of the economic condition of the rural people may be viewed in connection with the recent innovative agricultural development system, which refers to agricultural restructuring.

The rapid flow of people has changed the whole demographic pattern and land use of the study area. There is considerable variation in land use pattern both in time and space. It is found that there has been an increasing trend in cultivated area in varying degree in different agricultural extension circles. An attempt has been made in this chapter to carryout a detailed analysis of land use change by impact of small tea cultivation in the district. The study is confined within the period of 1993 – 2006.

5:2-Small scale tea cultivation and land use change in the Sivasagar district: In the beginning, when small scale tea cultivation started in Assam was done on suitable high lands only. However with the increase in numbers of growers, it has started cultivating in all types of high lands, whether it belongs to their family or to government.

Most of the land used by the small tea growers may be considered as second grade land for growing tea. Some of them grow tea in ceiling surplus land, some of them in grazing land or government land allotted or encroached or on their own land which are under utilized or un-utilized. Table 5:1 shows the land use pattern of different size groups of small tea growers from 1993-94 to 2005-06.

Table: 5:1: A- **Land use pattern of different size groups of small tea growers of Sivasagar district from 1993-94 to 2005-06**

A – 1993-94

Area under	In percentage
Tea	23.00
Bariland(forest cover and thatch bari)	7.48
Rice	43.13
Sugarcane	4.72
Bamboo forest	4.08
Other highland crops	4.01
Vegetable	4.09
Fishery & Building	4.40
Fallow land	5.09
Operational Area	83.09
Percentage of tea area to operational area	28.54
Gross area	100.00

Source: Field survey 2006. For 1993- 94, Report of the IWDP under DRDA, Sivas agar district, Government of Assam 2005-06

(Operational area included area of tea, rice and other highland crops)

(*Average percentage of gross area.)

B – 2005 - 06

Area under	Group – I	Group – II	Group – III	Group – IV	AverageIn ha
Tea	71.54 (27.21)	119.37 (40.22)	153.98 (52.84)	158.27 (53.87)	503.16 (43.99)
*Bariland(*forest and Thatch)	16.45 (6.26)	13.09 (4.41)	11.09 (3.80)	11.16 (3.80)	51.79 (4.52)
Rice	139.40 (53.02)	122.04 (41.13)	84.93 (29.15)	89.48 (30.46)	435.85 (38.07)
Sugar cane	1.94 (0.74)	2.08 (0.70)	3.74 (1.28)	1.01 (0.34)	8.77 (0.77)
Bamboo Forest	4.12 (1.57)	6.41 (2.16)	5.80 (1.99)	2.47 (0.84)	18.8 (1.64)
Other Highland crops	2.84 (1.08)	8.40 (2.83)	9.39 (3.22)	10.28 (3.50)	30.91 (2.70)
Vegetable	5.34 (2.03)	6.54 (2.20)	6.93 (2.38)	5.52 (1.88)	24.33 (2.12)
Building & Fishery	14.69 (5.59)	13.83 (4.66)	12.01 (4.12)	13.4 (4.56)	53.93 (4.72)
Fallow land	6.57 (2.50)	4.99 (1.69)	3.55 (1.22)	2.20 (0.75)	17.31 (1.51)
Operational Area	221.06 (84.09)	258.43 (87.07)	258.97 (88.86)	264.56 (90.05)	1003.02 (87.61)
Percentage of tea area to operational area	(37.79)	(46.19)	(59.45)	(59.82)	(51.36)
Gross Area	262.89 (100.00)	296.75 (100.00)	291.42 (100.00)	293.79 (100.00)	1144.84 (100.00)

Source: Field survey 2006.
Fig in bracket indicates the percentage)
(Operational area included area of tea, rice and other highland crops)(* Average percentage of gross area)

Table: 5:1:B – **Per farm Comparison of land use pattern 1993-94 and 2005-06**

(Average in percentage)

Area under	1993-94(Average in p/c)	2005-06(Average in p/c)
Small Tea cultivation	23.00	43.99
*Bariland(*Forest and Thatch)	7.48	4.52
Rice	43.13	38.07
Sugarcane	4.72	0.77
Bamboo forest	4.08	1.64
Other highland crops	4.01	2.70
Vegetables	4.09	2.12
Fishery and Building	4.40	4.72
Fallow land	5.09	1.51
Total	100.00	100.00

Source. Field survey 2006
For 1993 – 94, Report of the IWDP under DRDA, Sivasagar district, Government of Assam – 2005-06

LAND USE CHANGE FROM 1993-94 to 2005-06

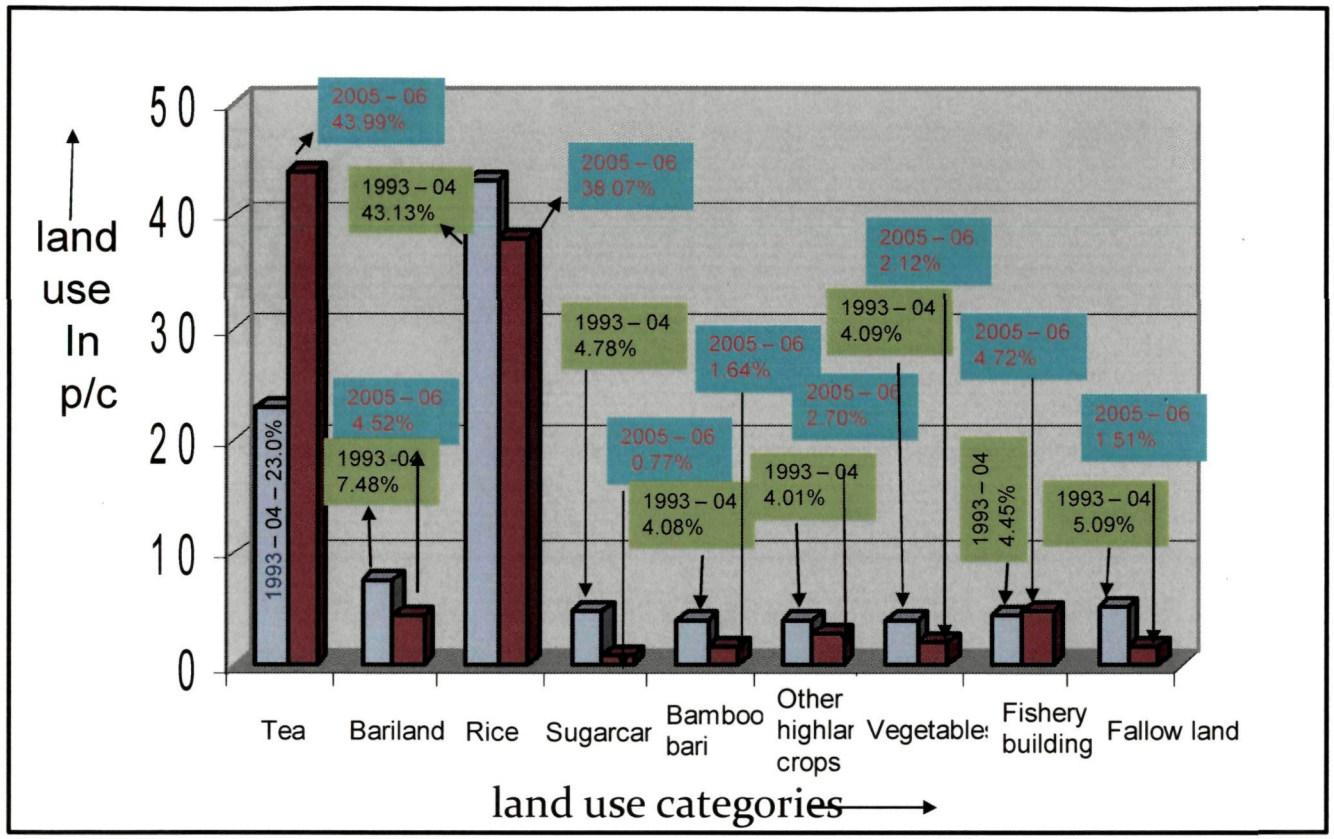


Fig - 25

Plate – 9 –A Plate – 9 -B

In the beginning, when small scale tea cultivation

started in Assam was done on suitable high lands only.

Plate – 9 – C Plate – 9 - D

With the increase in numbers of growers, it has started cultivating

in all types of high lands, whether it belongs to their family or to government.

Plate – 10 –A

Conversion of Orange field to small tea cultivation is one of the important character of small tea growers of upper Assam.

Plate – 10-B

Re-organization of Thatchbari is one of the important character of small tea growers of upper Assam.

Plate – 11 –A

Small scale tea cultivation has brought changes in the pattern of agricultural land use even rice cultivation also in upper Assam.

Plate – 11 -B

Rice field converted to tea cultivation.

Plate – 12 –A

Plate – 12 -B

The land which are previously utilized for sugarcane, mustard, Bamboo, Robi crops etc. are converted to small tea farms where income generation is more than other cultivation.

Plate – 12 –C

Plate – 12 -D

There has been a reduction of the forest cover in the study area. In two phases of 1993-94 and 2005-06 it shows reduction by 2.96%. There are many interior areas of the district where forest cover decreasing in an alarming rate only because of small tea plantation.

The present area under tea, in most of the small tea growers were brought from other field cropped area mainly sugar cane field, cultivable fallow land and land under bamboo forest, areca nut, miscellaneous trees etc. Bulk of the present area under tea came from cultivable fallow land followed by land previously occupied by bamboo, miscellaneous tree and other plantation crops and land occupied by sugar cane. Group wise analysis also shows that present area under tea brought mainly from fallow land, bamboo and forest land and land occupied by sugarcane in all categories of farms. Table 5:2 shows the changing percentages of area under different fields of sample small tea growers of Sivasagar district.

Table-5:2-A-**Changes in different categories of land use in study area:**

Area under	Percentages of Area		Difference in percentages of area
	1993-1994	2005 - 2006	1993-94 to 2005-06
Tea	23.00	43.99	+20.99
Bariland(Forest and Thatch)	7.48	4.52	-2.96
Rice	43.13	38.07	-5.06
Sugarcane	4.72	0.77	-3.95
Bamboo forest	4.08	1.64	-2.44
Other high land crops	4.01	2.70	-1.31
Vegetables	4.09	2.12	- 1.97
Fishery and building	*4.40*	*4.68*	*0.28*
Fallow land	5.09	1.51	-3.58
Total	100.00	100.00	-

Source: Field survey 2006.

Table: 5:2:B - **Diversion to tea land in small tea sector in study area:**

Land Category	1993-04(Land in percentage)	2005-06(in percentage)	Converted to tea cultivation
Bariland	7.48	4.52	2.96
Rice cultivated land	43.13	38.07	5.06
Sugarcane land	4.72	0.77	3.95
Bamboo forest	4.08	1.64	2.44
Other highland crops	4.01	2.70	1.31
Vegetables	4.09	2.12	1.97
Fallow land	5.09	1.51	3.58
Total(Other then tea)	-	-	21.27- 0.28=20.99

Source: Field survey 2006.

DIVERSION OF LAND TO SMALL TEA SECTOR IN SIVASAGR

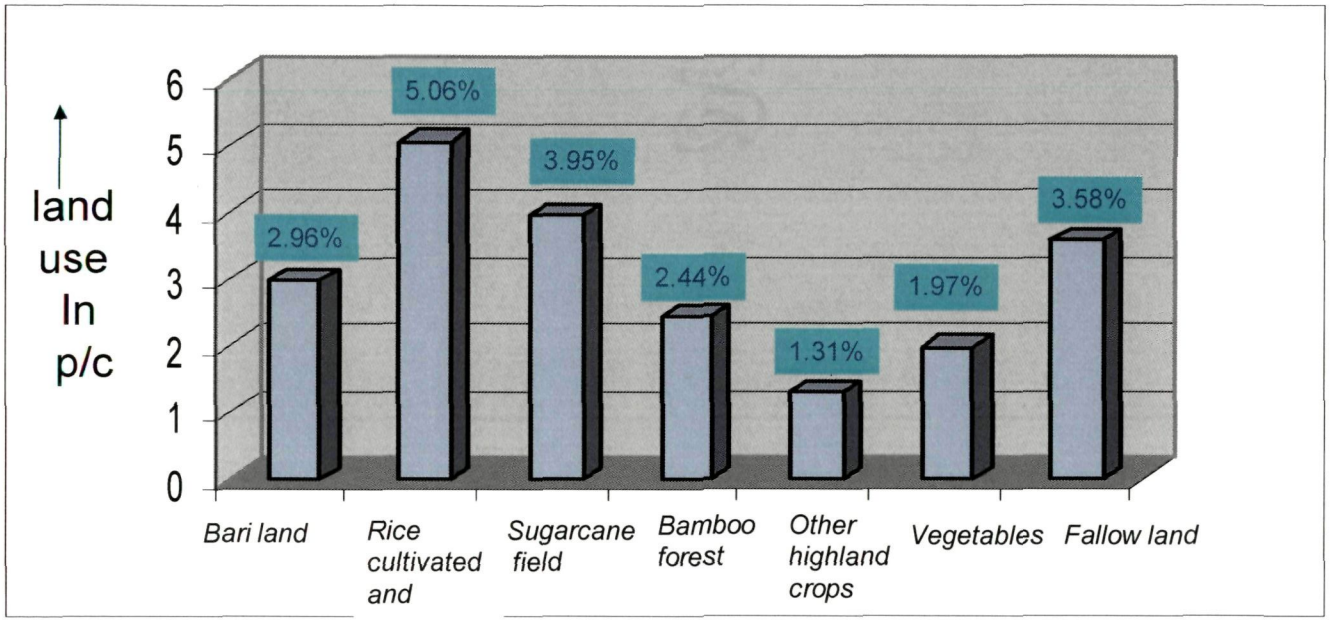


Fig - 26

Table 5:2 shows that there has been a reduction of the Bariland (forest and thatch *bari*) in the study area specially rural areas of the region. In the two phases of 1993-94 and 2005-06, it shows reduction by 2.96 percent. Of course, this decrease of forest cover is not uniform throughout the area. In foothill zone, the decrease of forest cover is highest. Accordingly the old alluvial plain region the decrease in forest cover increasing. Again the forest cover in the middle flood plain is a bit different.

The data reveals that there has been steady decrease of forest cover with an alarming rate in the foot hill zone especially in Charaideo region and Gala key region of the district. Besides these two regions there are many interior areas of the district where forest of own Bariland is decreasing in an alarming rate only because of small tea plantation. Data also shows that tea has been replacing sugarcane in some places of the district which were uncountable in the district level survey. We have seen from the table that in 1993-94, the total sugarcane area was 4.78 percent, vegetables area was 4.09 percent, and other highland crops was 4.01 percent, and it is reduced to 0.77 and 2.12 percent and 2.70 percent respectively in 2005-06.

Similarly in bamboo areas also, it is noticed that there are many small tea gardens in the area which are previously covered by bamboo grooves. Especially in the Ketekey bari, Garakhyanagar, of Nazira Sub-division, Charaideo, Bengenabary, Safari of Charaideo Sub-division and Lahan gaon , Namti, Khangia , Mezenga and Nimonagarh region of Sivasagar Sub-division. In two phases study of 1993-94 and 2005-2006, it is seen that, it has reduced at alarming rate. The same is with the mustard and other minor crops also. It is important to note that most of the *Bariland*(forest and thatch bari) including fallow land of these areas has been brought under tea cultivation. Of course, in

absence of proper land survey many of these are yet to get registration from the land statistics of Assam. Besides these, government forest land has also been brought under tea cultivation in Pangery and Sonari region of Charaideo Sub-division of the district.

From the field observation, it is seen that fallow lands have been brought under productive uses of tea cultivation. However as a whole district data is not available as to what proportion of this land has been used under different productive uses. But it is clear from the investigation of small tea growers that overall reduction of fallow land among the sample small tea growers was by 18.95 percent during 1993-94 to 2005-06. It is also important to note that the study area is rich in livestock and requires a considerable share of the land use in the category of permanent pastures and grazing land. But due to pressure from other land uses in the economic pursuit people are more for agriculture. It is evident from the study that during last 10 years pastures and grazing land decreased in the study area and it had been added to tea cultivation. Even there are many villages where there were available pastures and grazing land, but now in those areas of grazing land are less especially in Namti region of Nazira sub-division under Nazira and Amguri development Block.

The fallow land comprising of old and current, gives an important picture of the pattern of land use change during 1993-94 to 2005-06 of the area. Fallow lands have been steadily decreasing in the study area. It is observed that, from 1993 – 94 to 2005 – 2006 total 37.97(18.97%) hectares (*Percentage of fallow land is calculated from the total land excluding tea and building covered land)* of fallow land and government grazing land converted to small tea cultivation in study area. During 1984-85 to 1993 - 94, some portion of fallow lands were used for sugarcane cultivation. From 1993-94 onwards, the same has been

brought under tea cultivation. The efforts to bring more land under tea cultivation continued in the 1993-94 to 2005-06. Consequently there was a decrease of fallow land and converted to small tea cultivation. It is also very important to note that only 3rd and 4th group of farmers has occupied the government grazing land and fallow land for small tea cultivation.

From the above discussion it is clear that there is reduction of forest cover, Bariland, Thatch bari, Sugarcane field, bamboo forest, permanent pasture and grazing land, miscellaneous tree crops and groves and fallow land. On the contrary, reduction of forest cover, uncultivable land, permanent pasture and grazing land and fallow land were balanced by increases in area of small tea cultivation.

Land used by the small tea growers can broadly be classified in to following categories:

1) Virgin land
2) Crop replaced land
3) Marginal land
4) Unsuitable land.

Virgin land: Degraded forest land allotted or encroached, government fallow land are included in this category. This category of land remained unutilized for agricultural activities.

Crop replaced land: This category of land occupies major portion of the area under small scale tea cultivation. These area includes replacement of bamboo, areca nut, some trees, sugarcane, orange, pine apple, thatch bari, vegetable cultivation etc.

Marginal land: Government grazing land paddy nursery, high land paddy area, barren land of various nature can be included in this category of land. This category of land requires suitable rehabilitation before bringing under tea. However, in practice it was not followed.

Unsuitable land: In some cases, it is found that tea was introduced in such areas where the land is not at all suitable for growing tea commercially. Such as filled up low land, shallow land and sandy areas, degraded land used previously under various industrial purposes.

The data on land use pattern throughout the state is not available. However, the study of land use pattern of Sivasagar district reveals that the tea growers are still growing different crops along with tea. While studying the diversion of land to tea, it reveals that around 14.06 percent of the total holding under tea were Bariland, 16.36 percent rice cultivated land, 18.94 percent fallow land including govt. grazing land and the rest were sugarcane field, bamboo and other highland crops.

Table 5:3 –**percentages of different categories of land converted to tea cultivation**

Land Category	Converted to tea cultivation(in p/c)
*Bari land(*Forest and Thatch)	2.96
Rice cultivated land	5.06
Sugarcane	3.95
Bamboo forest	2.44
Other highland crops	1.31
Vegetables	1.97
Fallow land	3.58
Total	21.27 - 0.28=20.99

Source: Field survey 2006.

It has been seen that most of the land used for small tea growers in Assam previously used for other purposes. But it is very important to note that the traditional high land crops are facing threat, specially in upper Assam region. Because small tea cultivation is more popular than other cultivation, which is only because of high income generation. Of course it is observed that small tea growers of Assam has utilized their farm land in proper scientific way. Though highland crops are facing threat, the tea growers applies the method of multistoried farming in their farm land. Plantation of Kadam, Sashi and Neem tree in the boundary of gardens, which is an unique feature of the small tea gardens of Assam. It is also important to note that the government grazing land, deforested area, Ceiling surplus land and low productive paddy nursery and *Ahuland* are used for small tea garden is a good sign of proper land use in Assam. The tea growers of Assam are maintaining the balance of ecosystem through proper scientific advice of small tea growers Advisory Cell to generate more profit from their farm land.

5:2:1- Change in Agricultural land use pattern in Sivasagar district: With an area of 2668 sq. kms Sivasagar district becomes an important district of Assam as far as the agricultural production is concerned, paddy, pulses, wheat, oilseeds are the important agricultural crops grown and produced in the district. Agriculture is the most important economic activity of the people of the district upon which more than 75% directly or indirectly depend for their livelihood. In recent years agricultural activities have been changing rapidly within the district and with the change of area, where production has also been changing every year. Variation in land use pattern and production of the district has been observed during the study period.

From the table 5:4, it is clear that the area under food crops slightly increased in the district during 2000-2001 to 2004-2005, while on the other hand area under non food crops declined during the same period.

Table 5:4-**Chang in area under major crops in the Sivasagar district:**(Area in hectare)

Name of crops	2000-01	2001-02	2002-03	2003-04	2004-05
Summer paddy	444	286 (-35.59)	180 (-37.06) *(-59 06)*	252 (28.57) *(-43 24)*	198 (21.43) *(-55 40)*
Winter paddy	97210	97255 (0.05)	97649 (0.40) *(0 45)*	97710 (0.06) *(0 51)*	96974 (0.75) *(0 24)*
Autumn paddy	2245	2014 (-10.29)	2023 (0.44) *(-9 89)*	1488 (26.44) *(-33 72)*	1488 (26.44) *(33 72)*
Oil seeds	2050	1945 (5.12)	1778 (-8.57) *(-13 27)*	1064 (-40.16) *(-48 10)*	1024 (-3.75) *(-50 05)*
Pulses	771	746 (3.24)	489 (-34.45) *(-36 58)*	471 (-3.68) *(-38 91)*	409 (-13.16) *(-46 95)*
Vegetables	4931	4531 (8.11)	4629 (2.12) *(-6 12)*	4669 (0.86) *(-5 31)*	4823 (3.19) *(-2 19)*
Sugarcane	196	111 (-43.38)	109 (-44.39) *(-44 39)*	111 (1.8) *(-43 38)*	120 (7.5) *(38 77)*
Banana	1980	2035 (2.70)	2081 (2.21) (4.85)	2062 (-0.91) (3.98)	1782 (13.58) (10.00)
Areca nut	4347	4356 (0.21)	4353 (0.07) (0.14)	N.A.	3913 (10.11) (9.98)

Source District Level Statistics – 2004 – 05, District Agricultural Office, Sivasagar
(Fig in bracket indicates the percentage)
* *Percentage is calculated from previous year*
* *Percentage in italic is calculated from 2001-01 year*

CHAPTER – VI

CHANGE IN OCCUPATIONAL STRUCTURE AND INCOME LEVEL

Occupation is the basis of livelihood. Occupation pattern, according to economic activities influence the total life of a society. The occupation of an individual refers to his trade, profession and type of work. The occupational structure of a society is the products of a number of intimately related factors. The nature and variety of physical resource base, of course, lays down the basic foundation in the form of good land for agriculture, indented coast for fishing, thick vegetable cover for forestry, rich geological strata for mining etc. When the primary resources are utilized on a commercial scale, it generates diversification of occupational structure. That is why as long as the world agriculture remained at subsistence level; there was not much diversification of occupation. The diversification process gets further impetus from industrialization, because industrialization generates a variety of traditional jobs. Advancement of science and technology introduces elements of specialization in the occupational composition by creating highly specialized types of jobs. These entire development together breed a new urban culture which is more service oriented. This modifies the occupational structure considerably (Chandana,2004).

In Assam, even today 80% of total population is dependent on agriculture. Due to increased agricultural production, our villagers are now not as poor as they were in the past. They have been encouraged to run small scale tea cultivation. The villagers are now

becoming economically better. Urbanization is now having its own impact on the villages.

The change in occupational and income level of the people of Sivasagar district has been analyzed primarily on the basis of field data and secondary data. For this purpose, social characteristics like literacy and education, family type, etc. and economic characteristics like income and expenditure pattern, work participation and occupational structure, housing condition and land holding size have been considered.

6:1 – Occupational pattern of the Sivasagar district: According to census report of 2001, total main workers of the Sivasagar district is 2,87,319 with male workers of 2,17,934 and female workers of 69,385. The district has a total rural workers of 2,54,159 with male workers of 1,89,037 and female workers of 65,122 and has a total urban workers of 33,160 with male workers of 28,897 and females workers of 4263. Besides these there are 1,43,204 marginal workers with 62,150 male and 61,054 female workers in the district. Table 6:1 shows the distribution of workers in the district.

From the table 6:1, it is clear that according to 2001 census there are 59.06 percent of the total people of the district is non workers, 14.49 percent cultivators, 2.83 percent agricultural labour and 23.62 percent other workers. It is seen that there are exists a remarkable spatial variation in the distribution of workers in different sectors of occupation in the study area.

6:2: Occupational Pattern of the Small Tea Growers: The occupational composition is observed among the sample small tea growers of the study area. Table 6:2 shows the group wise distribution of workers in the study area during 1993-94 to 2005-06.

Table – 6:1-**A- Distribution of workers in the Sivasagar district**

Sl.No.	Items	Total Number	Percentage of Total
1	Total Main workers	287319	
	Male workers	217934	
	Female workers	69385	
2	Total main rural workers	254159	
	Male workers	189037	
	Female workers	65122	
3	Total urban workers	33160	
	Male workers	28897	
	Female workers	4263	
4	Total marginal workers	143204	
	Male workers	82154	
	Female workers	61054	
5	**Total Non workers**	**621213**	**59.06**
	Male workers	265392	25.23
	Female workers	355821	33.83
6	**Total cultivators**	**152422**	**14.49**
	Male workers	89430	8.50
	Female workers	62992	5.99
7	**Total agricultural labour**	**29810**	**2.83**
	Male workers	15283	1.45
	Female workers	14527	1.38
8	**Total other workers**	**248291**	**23.62**
	Male workers	175391	16.69
	Female workers	72920	6.93
	Total	1051736	100

Source: Census of India, 2001

Table – 6:1- B - Distribution of workers in the Sivasagar district

Category of workers	Total workers	Male	Female	Total population
Main Workers	2,87,319(27.32)	2,17,934(20.72)	69,385(6.60)	
Marginal workers	1,43,204(13.61)	82,150(7.81)	61,054(5.80)	
Non Workers	6,21,213(59.06)	2,65,392(25.23)	3,55,821(33.83)	10,51,736

Source: Census of India, 2001

(Fig in bracket indicates the percentage)

PATTERNS OF WORKERS OF SIVASAGAR DISTRICT-2001

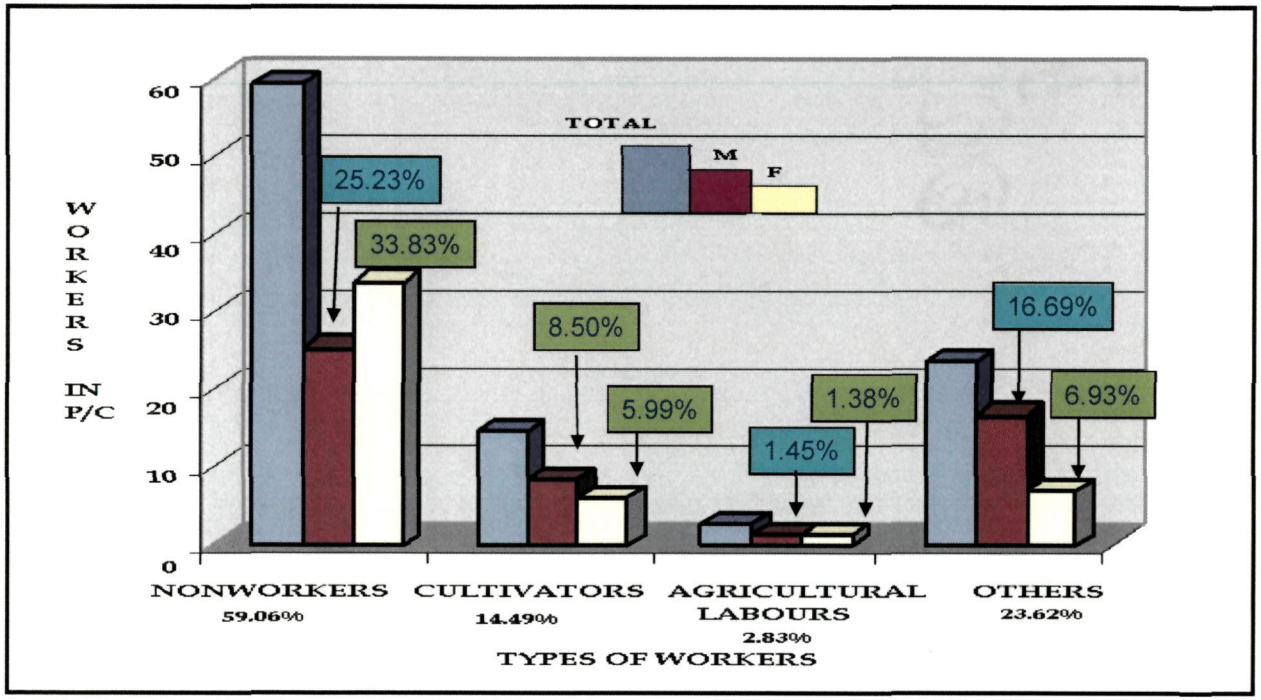
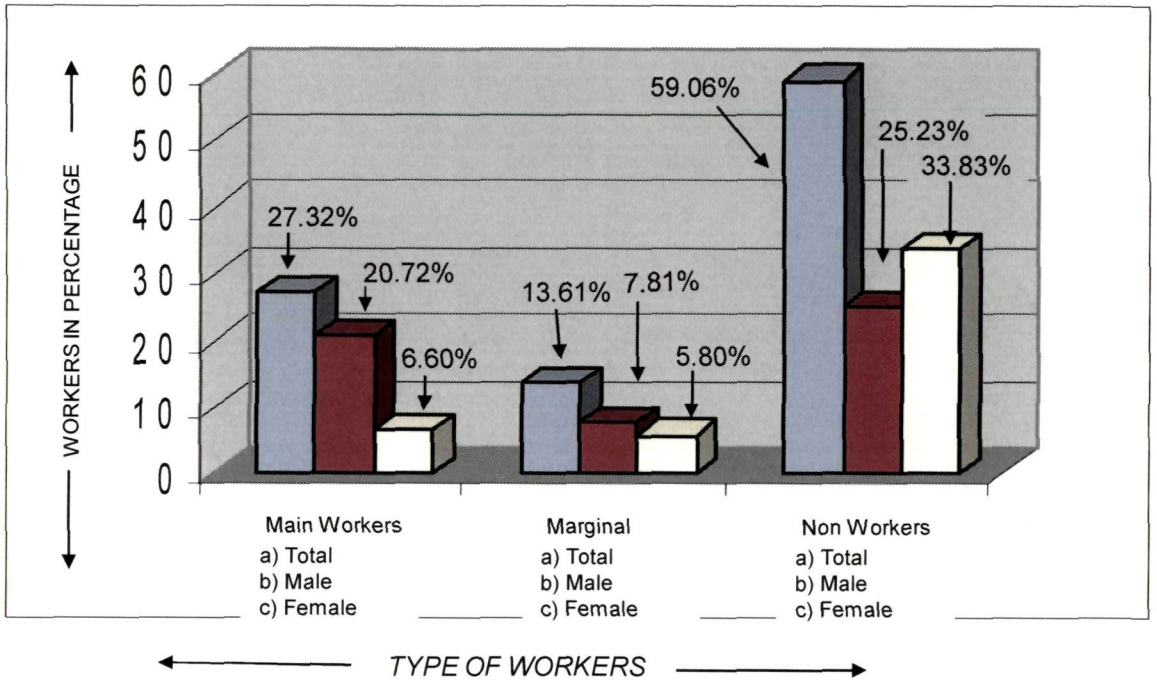


Fig - 27

Source: Census of India, 2001

DISTRIBUTION OF WORKERS OF SIVASAGAR 2001



Source: Census of India, 2001

Fig - 28

Table 6:2- A - **Distribution of workers among the various size group of small Tea growers** (2005-06):

Size group	No of Family member	Engaged in Small Tea cultivation			Agriculture	Business	Service	Total workers	Non workers
		Part time	Full time	Total					
I	480	77 (4.82)	69 (4.32)	146 (9.14)	53 (3.32)	35 (2.19)	33 (2.06)	267 (16.71)	213 (13.33)
II	454	64 (4.00)	71 (4.45)	135 (8.45)	48 (3.00)	29 (1.82)	40 (2.51)	252 (15.77)	202 (12.64)
III	367	42 (2.63)	78 (4.88)	120 (7.51)	36 (2.25)	25 (1.56)	23 (1.44)	204 (12.76)	163 (10.20)
IV	297	42 (2.63)	56 (3.50)	98 (6.13)	32 (2.00)	21 (1.31)	15 (0.94)	166 (10.39)	131 (8.20)
Total	1598	225 (14.08)	274 (17.15)	499 **(31.23)**	169 **(10.57)**	110 **(6.88)**	111 **(6.95)**	889 (55.63)	709 (44.37)

Source: Field survey 2006.
(Fig in bracket indicates the percentage)
** Percentages are calculated from total population of small tea growers.*

Table: 6:2:B-**Percentage of workers among the various size group of small tea growers (2005-2006)**

(Percentage is calculated from total working population of small tea growers)

Size group	No of Family member	Engaged in Small Tea cultivation			Agriculture	Business	Service	Total workers
		Part time	Full time	Total				
I	480	8.66	7.76	16.42	5.96	3.94	3.71	30.04
II	454	7.20	7.99	15.18	5.40	3.26	4.50	28.35
III	367	4.72	8.77	13.5	4.04	2.81	2.59	22.94
IV	297	4.72	6.30	11.02	3.60	2.36	1.69	18.67
Total	1598	25.31	30.82	**56.13**	**19.01**	**12.37**	**12.49**	100.0

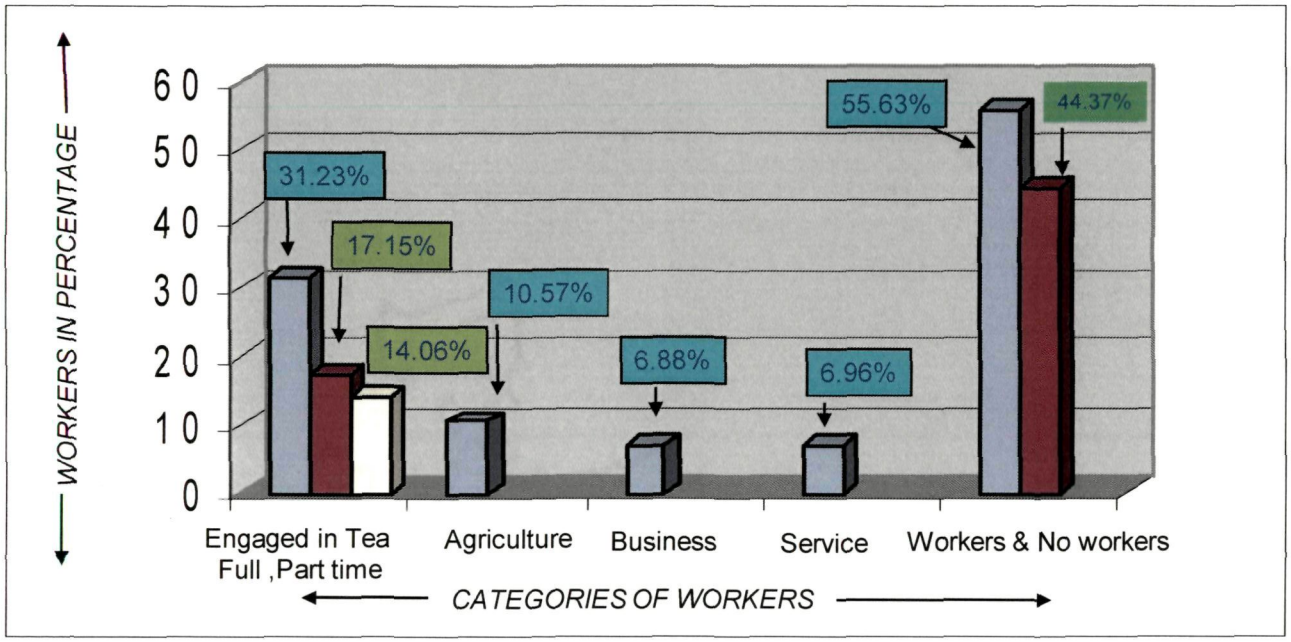
Source: Field survey 2006 .
(Fig in bracket indicates the percentage)

Table: 6:3-**Distribution of Workers in Revenue Villages** (1993 - 94): (In percentage)

Engaged in Small Tea cultivation	Engaged in Other Cultivation	Engaged in Business	Engaged in Service	Total Workers	Non workers
14.83	16.37	12.53	7.35	51.09	48.9
29.06	*32.04*	*24.53*	*14.39*	*100.00*	1

Source: Report of the IWDP, Under DRDA, Sivasagar district, Government of Assam.
(Percentage calculated from total population of surveyed Revenue Villages)
(Percentage is in Italic calculated from Total working population)

Distribution of workers among small tea growers (2005-06):



Source: Sample survey conducted by Researcher (Percentages are calculated from total population of small tea growers.)

Fig - 29

Table: 6:4 - **DISTRIBUTION OF WORKERS** (1993-94 & 2005-06): (In percentage)

Engaged in Small Tea cultivation		Engaged in Other Cultivation		Engaged in Business s		Engaged in Service		Total Workers	
1993-94	2005-06	1993-94	2005-06	1993-94	2005-06	1993-94	2005-06	1993-94	2005-06
14.83	31.23	16.37	10.57	12.53	6.88	7.35	6.95	51.09	55.63

Source: Field survey 2006
Percentages are calculated from total population of small tea growers
For 1993-94, Report of the IWDP, Under DRDA, Sivasagar district, Government of Assam.

The observation is showing a significant change of the working population from business, services and traditional highland crops to small tea cultivation. While the participation rate in small tea cultivation during 1993-94 was 14.83 percent, it is increased to 31.23 percent during 2005-06. On the contrary, the percentage of other workers i.e. business, agriculture and service sectors decreased from 1993-94 to 2005-06. During 1993-94, the percentage of workers engaged in agriculture was 16.37 percent of total working population. But it has decreased to 10.57 percent during 2005 - 06. It shows that from 1993 – 94 to 2005 – 06, the percentage of workers engaged in small tea sector was gradually increasing. But during the same period the percentage of workers engaged in other sectors like business and highland agriculture have decreased.

The shifting of workers from other sectors to small tea sector, specially among the rural people of the study area is mainly associated with scarcity of services, due to already available infrastructure with existing big tea gardens such as market, planting materials, skilled workers and unused or underexploited suitable high land for tea cultivation. Moreover, tea is one of the most profitable cash crops which remain remunerative for a long period. It has caught fancy of the educated unemployed youths who have taken up this profession by choice not by chance, which is possible due to status attached to growing tea. It is noticed that during last two decades small scale tea

cultivation has become popular among the common farmers of Assam. Later it became a significant development in the history of 160 years of tea cultivation in Assam. Table 6:5 shows the percentage of variation of workers in various sectors.

Table:6:5 - **Percentage of Variation of Workers in Various Sector**

(1993 – 94 to 2005 – 06)

Tea			Agriculture			Business			Service		
1993 -94	2005 -06	Varia tion	1993 -94	2005-06	Variation	1993 -94	2005 -06	Varia tion	1993 -94	2005 -06	Varia tion
29.04	56.13	27.09	32.04	19.01	-13.03	24.53	12.37	12.16	14.39	12.49	1.90

Source: Field survey 2006
For 1993-94- Report of the IWDP, Under DRDA, Sivasagar district, Government of Assam, 2005-06.

6:3:-Occupational Composition Among the Small Tea Growers According to Villages: The occupational pattern of the small tea growers according to villages are shown in the table 6:6, where work participation rate of the sample villages are 56.63% of the total population. According to 2001 census, work participation rate of the district was 40.94%. Within the district again, the work participation rate varies significantly among the sample villages. It is varying from 51.58% in Mautgaon to 60.82% in Safari region. From the field investigation it is seen that Charaideo sub-division is the highest tea cultivated area in Sivasagar district. It is because this region has considerably large holding sizes of tea and existence of large tea gardens.

However, there exists a remarkable spatial variation in the distribution of workers in different sectors of occupation among the sampled villages. Safari, Nimonagarh and Bengenabary region have recorded the highest proportion of workers in the small tea cultivation sector. The percentages recorded are 40.82% in Bengena bari, 41.24% in Safari and 41.41% in Nimonagarh region (Table:6:6:A).

CHANGE OF OCCUPATIONAL PATTERN IN VARIOUS SECTORS OF SMALL TEA GROWERS (1993-94 TO 2005-06)

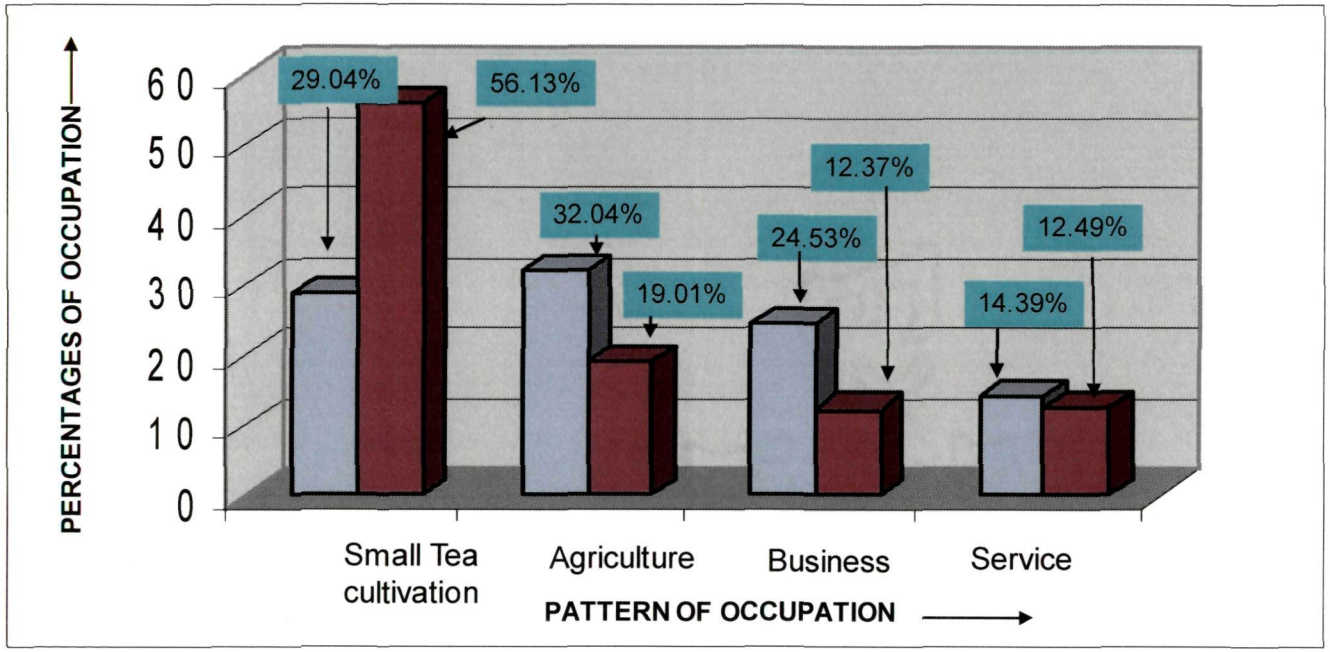


Fig - 30

Table 6:6 - **Distribution of Workers Among Villages :**

Sl No	Name of the villages	Number of small tea garden surveyed	No of population of sample growers	No of workers	No of non workers
1	Garakhya Nagar	10	69	39 (56.52)	30 (43.48)
2	Katekeybari	10	67	37 (55.22)	30 (44.78)
3	Charaideo	15	98	53 (54.08)	45 (45.92)
4	Lakwa	11	79	46 (58.22)	33 (41.78)
5	Sonarigrant	15	94	53 (56.38)	41 (43.62)
6	Nimonagarh	15	99	57 (57.57)	42 (42.43)
7	Moran Gaon	10	69	38 (55.07)	31 (44.93)
8	Lahan gaon,	10	65	34 (52.31)	31 (47.69)
9	Jabaka region	15	89	50 (56.18)	39 (43.82)
10	Mautgaon	10	66	34 (51.58)	32 (48.48)
11	Abhoipur	15	87	47 (54.02)	40 (45.98)
12	Khanikor gaon	10	64	33 (51.56)	31 (48.44)
13	Bengenabary	15	98	59 (60.20)	39 (39.80)
14	Khangia	10	69	38 (55.07)	31 (44.93)
15	Safari	15	97	59 (60.82)	38 (39.18)
16	Mathurapur	15	95	53 (55.79)	42 (44.21)
17	Khamoon	10	69	38 (55.07)	31 (44.93)
18	Samaguri	10	66	36 (54.54)	30 (45.46)
19	Dagaon	10	69	39 (56.52)	30 (43.48)
20	Michajan	12	89	46 (51.68)	43 (48.32)
	Total	243	1598	889 (55.63)	709 (44.37)

Source: Field survey 2006
(Fig in bracket indicates the percentage)

Table:6:7: – **Distribution of workers in various sectors according to village (in percentage):**

Name of the village	P/C of working population	Engaged in various sector			
		Tea cultivation	Other agriculture	Business	Service
Garakhya Nagar	56.52	28.98	11.59	7.25	8.69
Katekeybari	55.22	20.89	11.94	14.92	7.46
Charaideo	54.08	25.51	9.18	10.20	9.18
Lakwa	58.22	26.59	11.39	10.13	10.13
Sonarigrant	56.38	35.11	7.45	7.45	6.38
Nimonagarh	57.57	41.41	6.06	5.05	5.05
Moran Gaon	55.07	30.43	11.59	7.25	5.78
Lahan gaon,	52.31	23.08	9.23	6.15	13.85
Jabaka region	56.18	33.71	10.11	6.74	5.62
Mautgaon	51.58	21.21	13.64	9.09	7.58
Abhoipur	54.02	32.18	10.34	6.90	4.60
Khanikor gaon	51.56	20.31	14.06	7.81	9.37
Bengena bari	60.20	40.82	10.20	5.10	4.08
Khangia	55.07	24.64	17.39	7.25	5.80
Safari	60.82	41.24	10.31	4.12	5.15
Mathurapur	55.79	36.84	9.47	4.21	5.26
Khamoon	55.07	31.88	11.59	5.80	5.80
Samaguri	54.54	22.73	13.64	6.06	12.12
Dagaon	56.52	26.23	10.14	4.35	5.80
Michajan	51.68	33.71	7.86	4.49	5.62
Total	55.63	31.23	10.57	6.88	6.95

Source: Field survey 2006

As expected, the work participation rate in other sectors like service, business and other highland agriculture have been found to be low in the entire sample villages. It is due to crisis of jobs opportunity in various government and non-governmental sectors due to the growing population of the region.

6:4: Family work force and its occupational pattern: The work force and its occupational pattern of the sample farm families of sample small tea growers of different size groups are given in the table 6:8. Sample family members were categorized based on the available work force i.e. full time workers, part time workers and non workers.

The table shows that on an average the total work force constitutes about 55.63% of the total population of small tea growers in the study area. The remaining 44.37% were none workers. Out of 55.63% total workers, 14 08% engaged in full time tea farm, 17.15% engaged in part time tea farm,10.57% engaged in agriculture, 6.88% engaged in business and 6.95% engaged in various services. The farm work force comprised of 25.08% (calculated out of total 889) full time male farm workers and full time female farm workers are 5.74%. Besides these full time farm workers, there are 14.17% part time male farm workers and 11.14% part time female farm workers are also observed in the study area. It was observed that female working force in all the categories was very meager and constituted 18.61% of the full time family members working in the small tea farms. The remaining 81.39% are full time male family members working in the tea farm . Table 6:6 shows the occupational pattern of the farm family working force of the small tea growers.

The findings from this table suggest that no child labours are engaged in the small tea gardens for any sort of activity on a regular basis, but 7.11% child labours are noticed among the part time farm workers. The division of family members engaged in full time and part time basis in the small tea farms suggests that higher the level of education of the farmers, lower is the full time engagement in the farms.

6:5: Income Pattern: Income and expenditure data are considered important as they clearly reflect the economic condition and prevailing standard of living among the people of a region. "While income is no longer considered an exclusive measure of well being, per capita domestic product is one of the three components of the human development index. This is because income is an important determinant of asset. Income provides the means that allows people to attain well-being, but income alone is not an indicator of well-being. Nor do per capita income figures necessarily reflect social well-being. Whether income gets translated into long and healthy lives, higher education levels and better standard of living, is dependent on the choice that people, societies and government makes"[19].

[19] *Assam H.D.R.C. 2003, Government of Assam – P – 21*

Table 6:8-**Occupational Pattern of the Farm Families of Small Tea Growers of different categories** (According to age group):

Categories of family members		No of family members	Members engaged in tea farms		Members engaged in else where			Total workers	Total non workers
			Full Time	Part Time	Agri	Business	Service		
<15yrs	M	309 (19.34)	00 (00.00)	16 (7.11)	00 (00.00)	00 (00.0)	00 (00.0)	16 (7.11)	293 (41.32)
	F	266 (16.64)	00 (00.00)	00 (00.00)	00 (00.00)	00 (00.00	00 (00.00)	00 (00.00)	266 (37.52)
	Total	575 (35.98)	00 (00.00)	16 (7.11)	00 (00.00)	00 (00.00)	00 (00.00)	16 (7.11)	559 (78.84)
15-60 yrs	M	409 (25.59)	166 (60.58)	92 (40.88)	86 (50.89)	37 (33.64)	28 (25.22)	409 (46.01)	00 (00.00)
	F	316 (19.77)	27 (9.86)	91 (40.44)	64 (37.87)	33 (30.00)	83 (74.78)	298 (33.52)	18 (2.54)
	Total	725 (45.37)	193 (70.43)	183 (81.32)	150 (88.76)	70 (63.64)	111 (100.0)	707 (79.53)	18 (2.54)
>60 yrs	M	119 (7.45)	57 (20.80)	18 (8.00)	19 (11.24)	20 (18.18)	00 (00.00)	114 (12.60)	05 (0.99)
	F	179 (11.20)	24 (8.76)	08 (3.55)	00 (00.0)	20 (18.18)	00 (00.0)	52 (5.85)	127 (17.91)
	Total	298 (18.65)	81 (29.56)	26 (11.55)	19 (11.24)	40 (36.36)	00 (00.00)	166 (18.67)	132 (18.62)
All	M	837 (52.38)	223 (81.39)	126 (56.0)	105 (62.13)	57 (51.82)	28 (25.22)	539 (60.63)	298 (42.03)
	F	761 (47.62)	51 (18.61)	99 (44.0)	64 (37.87)	53 (48.18)	83 (74.78)	350 (39.37)	411 (57.97)
	Total	1598 (100.00)	274 (100.00)	225 (100.00)	169 (100.0)	110 (100.0)	111 (100)	889 (100)	709 (100)

Source: Field survey, 2006
(Fig in bracket indicates the percentage).

Table 6:8:-**Contribution of different sectors in income pattern** (group wise and %):

Size group	No of sample house hold	No of sample population	Agricultural income			Non-agricultural income			Total
			Tea	Other crops	Total agricultural income	Business & other profession	Services & Wages	Total non agricultural income	
I	80	480	4865095 (81.45)	297497 (4.98)	5162592 (86.43)	140385 (2.35)	670264 (11.22)	810649 (13.57)	5973241 (100.00)
II	69	454	6812036 (86.05)	268364 (3.39)	7080400 (89.44)	136161 (1.72)	699807 (8.84)	835968 (10.56)	7916368 (100.00)
III	57	367	6532688 (89.91)	174224 (2.40)	6706912 (92.31)	76223 (1.05)	482746 (6.64)	558969 (7.69)	7265881 (100.00)
IV	37	297	5702424 (88.63)	126105 (1.96)	5828529 (90.59)	75277 (1.17)	530158 (8.24)	605435 (9.41)	6433964 (100.00)
Total	243	1598	2391224 3(**86.67**)	866190 (**3.14**)	24778433 (89.81)	428046 (**1.55**)	2382975 (**8.64**)	2811021 (10.19)	27589454 (100.00)

Source: Field survey, 2006
(Fig in bracket indicates the percentage).

INCOME PATTERN OF SMALL TEA GROWERS

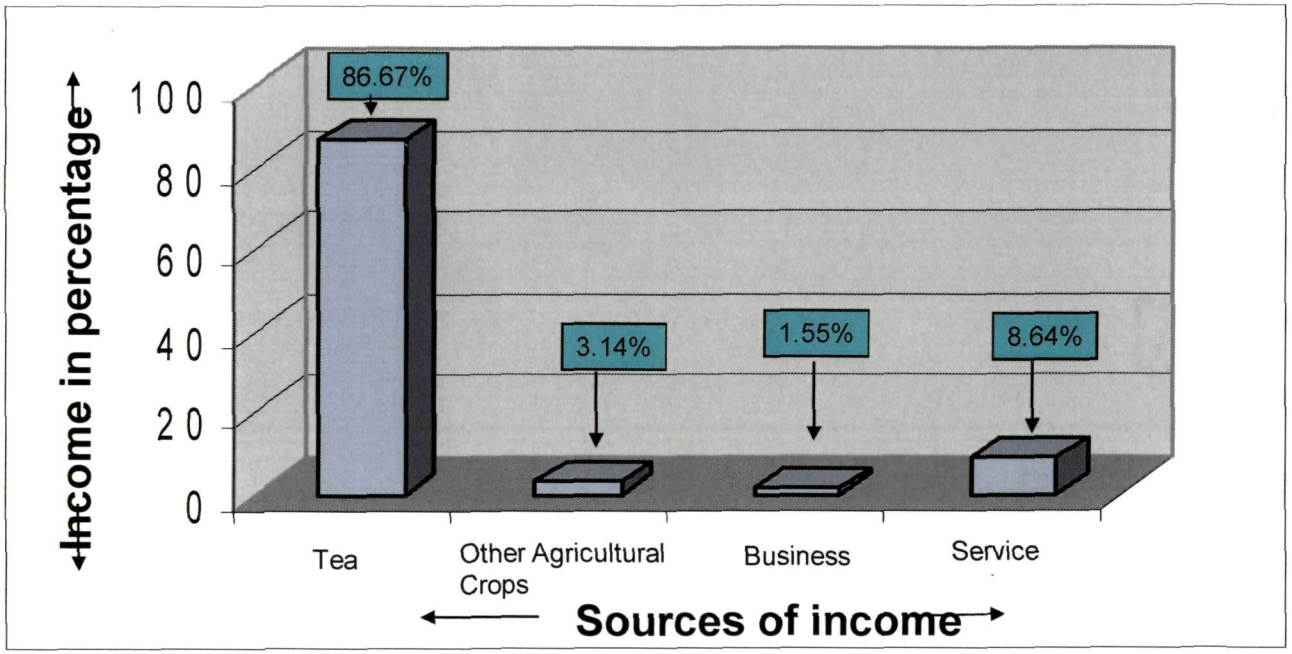


Fig - 31

Table 6:8 shows the average monthly household income of sample small tea growers of the study region. The major sources of income of the sample small tea growers come from agricultural and non-agricultural sources. Major activities from which agricultural income generated are cropping activities besides selling of green tea leaves. The sources of non-agricultural income are mainly business and services. Among different sources in all the size groups, agriculture and its allied activities have the highest share in the total income comprising of 89.81% income.

Table – 6:8-**Average annual income of small tea growers**
(per house hold)

Size group	Total income	Average annual income per household	Average monthly income per household
I	Rs.5973241	Rs.74,665.51	Rs.6,222.12
II	Rs.7916368	Rs.114,729.97	Rs.9,560.83
III	Rs.7265881	Rs.127,471.60	Rs.10,622.63
IV	Rs.6433964	Rs.173,890.92	Rs.14,490.91
All	Rs.27589454	Rs.113,536.85	Rs.9461.40

Source: Field survey, 2006

The study also reveals agriculture is the major and the most important source of income in the area. The most households are dependent mainly on agriculture to maintain their livelihood. Among the agricultural income sources, tea has the highest share comprising of 86.67% of total income of the study area. Very few people are engaged in salaried jobs. Due to lake of technical skill and know-how among the rural population and development of rural infrastructure, non existent of rural industries except some furniture, shops, rice mills etc. are the main factors for more dependent on agriculture. Required raw materials for setting up of rural industry are also not available. Hence, the households had to depend mainly on agriculture as the primary source of income, more

particularly tea cultivation at present. With the adoption of tea cultivation, growers are motivated to adopt improved cultural practices to some extent for the important field crops like rice where use of material inputs like HYV seeds, fertilizers, pesticides etc. have been noticed. Besides rice, rabi crops are also cultivated in small areas. Among different size groups, income from tea cultivation varies from 81.45% in group – I to 89.91% in group – III, and compared to other crops varies from 4.98% in group – I to 1.96% in group – III.

Next important source of income found to be salaried jobs and wages with a percentage share of 8.64% to total income. Among different size groups, percentage share of salaried jobs and wages are found to be highest being 11.22% in group – I and lowest being 6.64% in group – III.

In this business means shops, cottage industries, carpentry, government contracts, Tea Estates business, transport business etc. and these together contribute on an average 1.55% to total income. All other sources are found to be less important. Growers in the study area possesses few number of cows, three to five numbers of ducks and three to five numbers of hen and goats and these are just for their self consumption. Non agricultural sources are found to be 10.19% which include income from business and profession and services.

The study of the income pattern reveals that average income per household has increased with the increase in farm size. Average annual income per household is estimated to be Rs. 1, 13,536.85 and it varies among groups from a minimum of Rs. 74,665.51 in group – I to a maximum of Rs. 1, 73,890.92 in group – IV. It shows an increasing trend with the increase in farm size. Thus, small tea cultivation plays a

significant role in increasing the household income of the farm family and thereby helping the socio-economic development of the farmers to improve their standard of living.

6:6: - Education and Development: Literacy and education together are considered to be the basic ingredients of socio-economic development and transformation of any society. Because, the quality of human population of any society can be judged through its educational attainment.

"Education is a fundamental element of human development. It opens new worlds and provides access and mobility, in the process enlarging opportunities and choices. Every human being, especially every child has a right to education, to knowledge and to learning. The acquisition of knowledge and information helps and individual to improve her own quality of life as well as to participate meaningfully in community life"[20].

[20] *Assam HDRC, 2003, Government of Assam, p-21*

Table:6:9:A- **Educational status** (in numbers):

Size Group	Educational Status															Total Population
	Illiterate			Primary Level			High school level			Graduate Level			Post graduate			
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	
I	45	49	94	25	24	49	130	105	235	52	39	91	06	09	15	480
II	57	53	110	18	41	59	85	96	181	50	40	90	06	06	12	454
III	37	39	76	44	29	73	73	73	146	18	33	51	08	09	17	367
IV	10	09	19	19	17	36	120	53	173	26	29	55	08	08	16	297
Pooled	149	150	299	106	111	217	408	327	735	146	141	287	28	32	60	1598
	9.32	9.39	18.71	6.63	6.39	13.59	25.53	22.06	45.99	10.52	9048	17.96	1.75	2.00	3.75	100.00

Source: Field survey 2006.

Table: 6:9: B-**Educational Status of small tea growers** (in percentage):

Size Group	Educational Status															Total
	Illiterate			Primary Level			High school level			Graduate Level			Postgraduate level			
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	
I	3.96	16.04	**20.00**	3.96	5.00	**8.96**	27.09	21.87	**48.96**	10.83	8.13	**18.96**	1.25	1.87	**3.12**	100
II	12.99	11.67	**24.67**	3.96	9.03	**12.99**	18.72	21.16	**39.88**	11.01	8.81	**19.82**	1.32	1.32	**2.64**	100
III	10.9	10.9	**21.81**	11.99	7.9	**19.89**	19.89	19.89	**39.78**	4.9	8.99	**13.89**	2.18	2.45	**4.63**	100
IV	3.37	3.7	**7.07**	5.05	5.72	**10.77**	40.41	17.84	**58.25**	8.75	9.76	**18.52**	2.69	2.69	**5.39**	100
Pooled	9.32	9.39	**18.71**	6.63	6.39	**13.59**	25.53	22.06	**45.99**	10.52	9048	**17.97**	1.75	2.00	**3.75**	100

Source: Field survey 2006

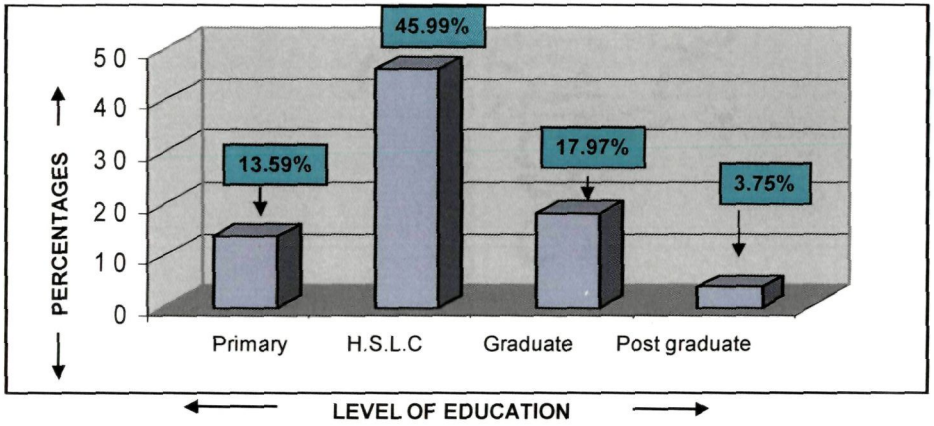
It was observed that 81.29 percent of the populations are literate in the study area. In regards to level of literacy, it was observed that 13.59 percent had attained primary level of education, 45.99 percent high school level of education, 17.97 percent graduate level and 3.75 percent had post graduate level of education. The ratio of male to female literates among the population was observed to be 1.19 percent. From the field data, it was clear that the rate of literacy was high among the small tea grower's family in the study area as compared to the overall literacy rate of Assam, which is 64.28 percent (Census of India – 2001). Field data also revealed that percentage of children reading in private schools are higher than that of reading in government schools. From this, it is clear that small tea growers prefer to send their children to private educational institutions than the government run educational institutions, though the cost of education is higher in the private sector. It is only possible for the economically better of parents to send their children to private institutions. Table 6:10 shows the number of children studying in government and private institutions.

Table: 6:10 - **Children Studying in Government and Private sector** (in p/c):

Level of education	Sectors	Group- I	Group- II	Group- III	Group- IV	Total
Primary	Govt.	12 (24.49)	09 (15.25)	00 (00)	00 (00)	21 (9.67)
	Pvt.	37 (75.51)	50 (84.75)	73 (100.00)	36 (100.00)	196 (90.33)
	Total	49 (100.00)	59 (100.00)	73 (100.00)	36 (100.00)	217 (100.00)
HSLC/HSSLC	Govt.	95 (40.42)	50 (27.62)	41 (28.08)	45 (26.01)	231 (31.43)
	Pvt.	140 (59.57)	131 (72.27)	105 (71.92)	128 (73.99)	504 (68.57)
	Total	235 (100.00)	181 (100.000	146 (100.00)	173 (100.00)	735 (100.00)

Source: Field survey 2006
(Fig in bracket indicates the percentage).

LEVEL OF EDUCATION OF SMALL TEA GROWERS (PERCENTAGE)



CHILDREN STUDYING IN VARIOUS SECTORS

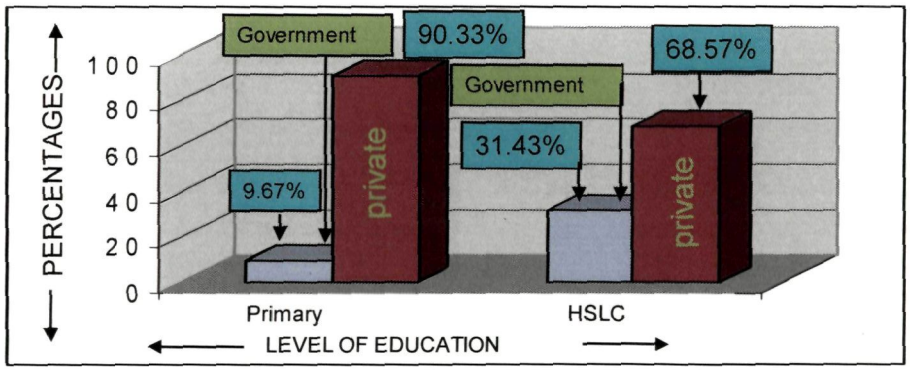


Fig - 32

6:7 – Expenditure Pattern: In the present study, both cash expenditure and value of domestic agricultural product consumed at home have been considered as total expenditure of a house hold. Expenditure pattern of sample house hold of small tea growers are presented in the table 6:11. There are total eight components which have been identified as major head of expenditure for an average household. These are food items, non-food items, ceremonial expenditure, loan repay, education, medical treatment, magazine, newspaper, television and telecommunication etc.

A food items constitute major expenditure covering 39.56 percent of the total expenditure. Expenditure on non-food items like kerosene, electricity, timber logs, cloths, household utensils etc. are the second major items of expenditure constitutes about 13.91 percent of the total expenditure. Education was the third major item of expenditure covering 12.33 percent of the total expenditure. Loan repay was the fourth major item covering 12.20 percent of the total expenditure of the sample small tea growers. Expenditure on consumer durables like radio, bicycle, motorcycle, scooter, motorcar, television, telephone etc are found to be 11.52 percent and ceremonial expenditure, medical treatment, magazine, newspaper etc are found to be 10.48 percent of the total expenditure.

Group wise analysis shows that as the income increases expenditure on food items also have decreased. While expenditure on other items like ceremonial expenditure, education, consumer durables, loan repayments etc. are found to have increased with the increase in income. The study thus supports the empirical hypothesis, often called "Engel's Law", which described the changing disposition of income at different levels of income (as income rises, the percentage spent on food and housing decreases on clothing

and household operation remain about constant, on education, heath and recreation expand)[21].

Table: 6:11-**Annual Expenditure pattern (in percentage) for the year – 2006**

Items	Group-I	Group-II	Group-III	Group-IV	Total
No of sampled household	80	69	57	37	243
No of population	480	454	367	297	1598
Food items	45.29	41.91	37.34	33.59	39.56
Nonfood items(kerosene, electricity, utensil etc..)	16.21	13.16	14.22	11.99	13.91
Ceremonial expenditure	1.91	6.41	2.83	6.00	4.28
Loan repay	6.43	9.04	15.22	18.25	12.20
Education	12.34	12.33	12.65	12.04	12.33
Medical treatment	2.14	1.84	1.86	3.82	2.45
Magazine, newspaper etc.	3.89	4.49	3.31	3.32	3.75
T.V. Radio etc.	11.79	10.82	12.58	10.98	11.52
Total	100 '5800.01'	100 '5488.69'	100.00 '6468.36'	100.00 '9308.75'	100.00 '6511.50'
Average household expenditure	34800.06	35982.39	41647.14	74721.60	42820.47

Source: Field survey, 2006, '– 'indicates the per capita expenditure.

For group I, II, III and IV, per capita expenditure are found to be Rs. 5800.01, 5488.69, 6468.36 and Rs. 9308.75 respectively. It was also found to have increased per capita income with the increase in size of land holdings as well as income. It is seen from the table that relatively smaller size group of growers generally had less opportunity to increase their source of income. But in case of larger size group of small tea growers, the surplus income was used for possessing articles of comfort and luxury. It is observed that higher the income per household, higher was the standard of living and higher the possession of house hold properties. Also large size groups of small tea growers incur a huge amount for hiring of labourers, purchase of machinery and implements etc.

[21] *Akley, G.(1969), Macroeconomic Theory, The Macmillan company, New York.*

ANNUAL EXPENDITURE OF SMALL TEA GROWERS – 2006

(in rupees)

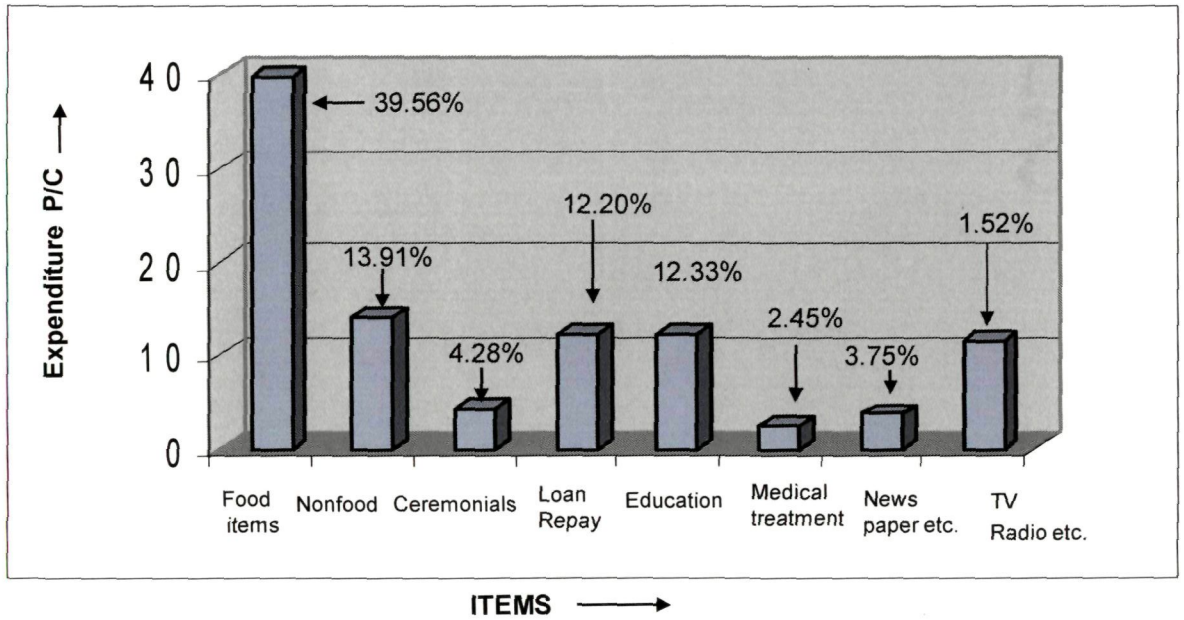


Fig - 33

6:8: Change in housing condition: The housing character is considered as an index to understand the socio-economic condition of a family in a particular region. The type of house and housing condition vary significantly according to the economic condition of the inhabitants. Of course, in rural context, physical and social factors become equally important.

Four categories of houses are found in the rural areas of Assam. These are - i) hut, with thatched roof and mud floor, ii) Assam type, kutcha with tin roof and mud floor, iii) Assam type pucca with tin roof, brick wall and concrete floor and iv) R.C.C.. The data reveals that the majority of the areas are Assam type houses. From the table 7:12, it is seen that 62.14 percent of small tea growers live in such type of houses. The corresponding figures for the growers are 29.63 percent about 10 to 15 years back. It is also seen from the table that hut type of houses are not present at present. But it was 12.34 percent about 20 years back. It is clear from the table that R.C.C. is totally uncommon among the growers in the past and now it is found to be 29.63 percent. The data reveals that majority of the people are found to be medium size houses. The housing conditions are better than that of other cultivators. This is largely due to better economic condition of the people in the trade.

Toilet type also reflects the economic condition and living standard of the people. Basically rural people use to have four different types of toilets like kutcha, semi kutcha, sanitary and open. The data reveals that the majority of the people use sanitary toilet. From the table 7:12, it is also clear that the proportion of the households using sanitary toilet among the small tea growers have increased from 25 percent to 75 percent during the period of 15 years. It is found that none of the growers use open space as toilets.

Table 6:12- **Distribution of house type among small tea growers**

		Type of Houses	Percentage
HOUSING TYPE	1993-94	Hut	12.34
		A.T.(k)	58.02
		A.T.(P)	29.63
		R.C.C.	00
	2005-06	Hut	00
		A.T. (k)	8.23
		A.T.(P)	62.14
		R.C.C.	29.63
KITCHEN	Within living room		4.12
	Attached in living room		49.79
	Separate		46.09

Source: Field survey 2006.
** For 1993-94, Report of the I.W.D.P. Under D.R.D.A, Sivasagar, Assam*

6:9: Change in basic Amenities: Availability of basic household amenities which reflect the standard of living of a family is greatly depend on economic conditions. Increase in basic amenities over time is indicative of improvement in socio-economic well-being.

Table: 6:13 - **Distribution of Toilets used in study area:**

	Type of Toilets	Percentage
2005 - 06 (Present)	Made of Bamboo	4.11
	Semi Sanitary	20.58
	Sanitary	75.31
	Open	00
1993 – 94* (Past)	Made of Bamboo	37.86
	Semi Sanitary	44.03
	Sanitary	18.11
	Open	00

Source: Field survey 2006.
**Report of the I.W.D.P. Under D.R.D.A, Sivasagar, Assam*

CHANGE OF HOUSING TYPES

Distribution of house type among small tea growers

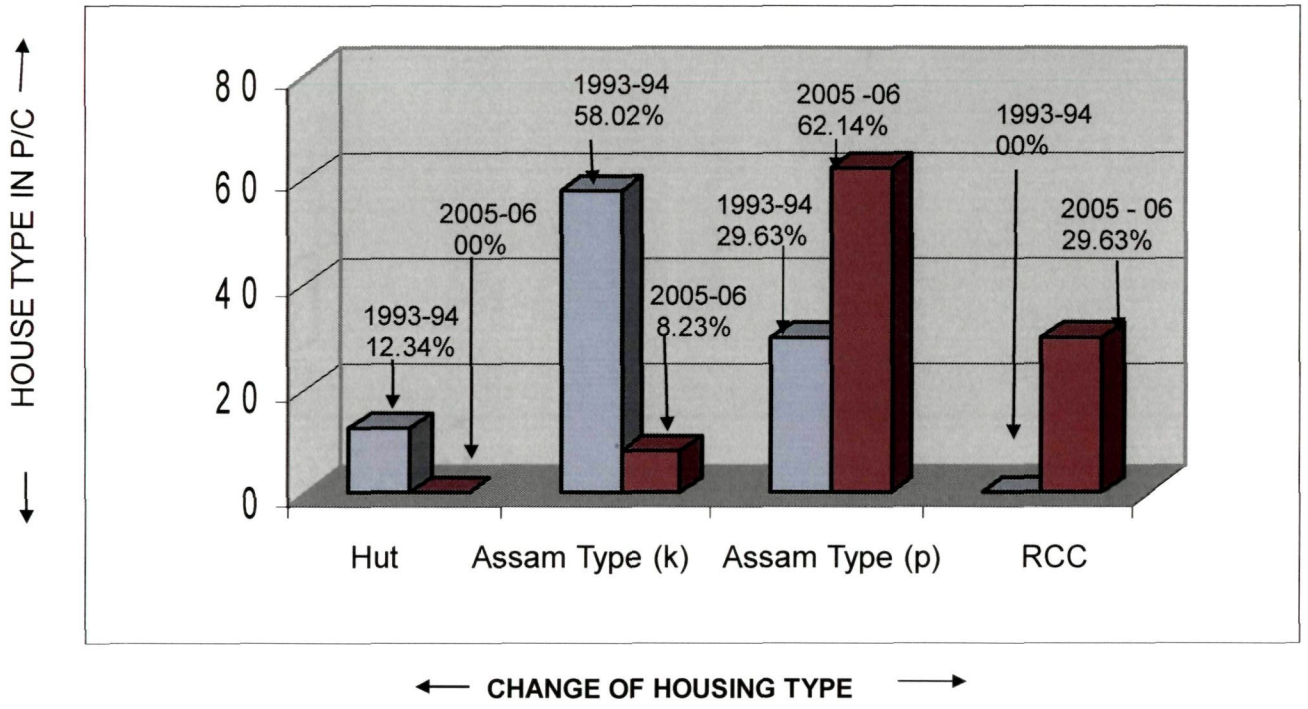


Fig - 34

TYPES OF TOILETS AVAILABLE AMONG SMALL TEA GROWERS

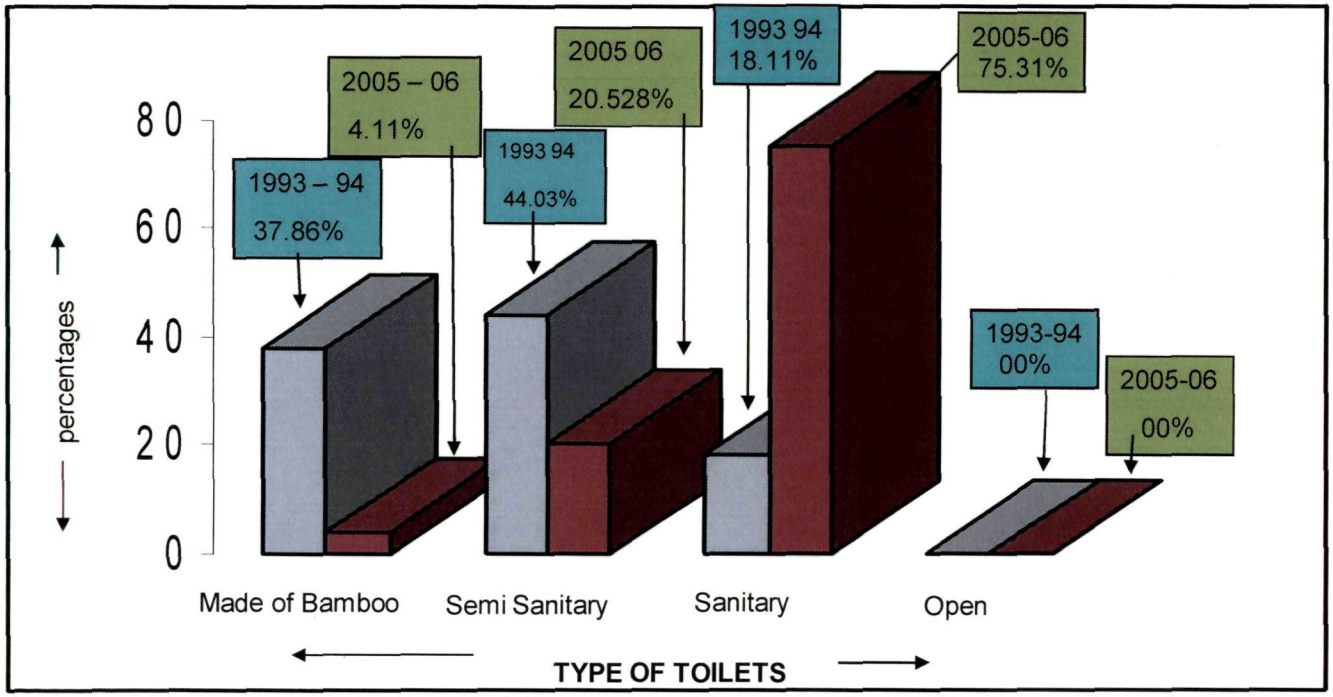


Fig - 35

The amenities like source of fuel for cooking, source of light, household gadgets etc. are considered here. So far the cooking is concerned, it is observed that a large numbers of families among the small tea growers use LPG as fuel for cooking. Very few families among the small tea growers still use fire wood as the fuel.

Table:6:14:**Fuel consumption among the of Study area:**

Fuel		Total
1993-94*	LPG	20.16%
	Fire wood	79.83%
	Kerosene	00%
	Cow-Dang etc.	00%
2005-06	LPG	87.65%
	Fire wood	12.35%
	Kerosene	00%
	Cow-Dang/Cake wood	00%

Source: Field survey 2006.
**Report of the I.W.D.P. Under D.R.D.A, Sivasagar, Assam*

Table 6:15- **Household Amenities among small tea growers:**

Household amenities	Group –I	Group –II	Group –III	Group–IV	Total
Radio/Tap	75 93.75%	63 91.30%	52 91.23%	31 83.78%	221 90.95%
TV/VCR	73 91.25%	59 85.51%	55 96.49%	36 97.30%	223 91.76%
Bicycle	78 97.5%	64 92.75%	56 98.24%	34 91.89%	232 95.47%
Scooter/ Motorcycle	48 60.00%	54 78.26%	49 85.96%	31 83.78%	182 74.90%
Car/Bus etc.	06 7.50%	17 24.64%	13 25.0%	11 29.73%	48 19.75%
Electrification	80 100.00	69 100.00	57 100.00	37 100.00	243 100.00%
Telephone	41 51.25%	66 95.65%	57 100.00%	37 100.00%	201 82.72%
Inverter	08 10.0%	11 15.94%	27 47.36%	15 40.54%	61 25.10%
Newspaper/magazine	72 90.00%	67 97.10%	57 100.00%	37 100.00%	233 95.88%
Water filter	80 100.00	69 100.00	57 100.00	37 100.00	243 100.00%
Refrigerator/washing machine	37 46.25%	48 69.56%	41 71.93%	37 100.00%	163 67.09%
Agricultural machine	70 87.5%	54 78.26%	57 100.00%	37 100.00%	218 89.71%

FUEL CONSUMPTION AMONG SMALL TEA GROWERS

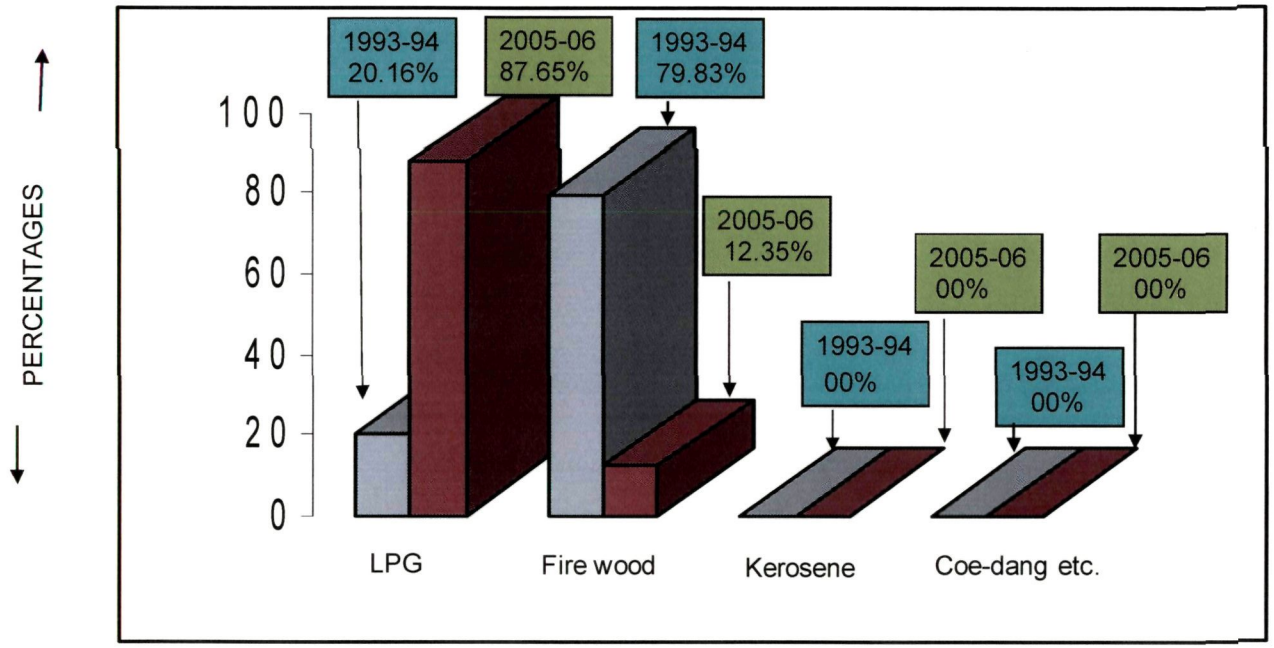


Fig - 36

Source: Field survey 2006.

It may be mentioned here that there is a lot of difference between present and the past on the availability of household amenities among different small tea growers of the study area. In the past, about 15 years back, some household amenities like refrigerator, washing machine, vacuum cleaner, inverter, telephone, car, motorcycle etc. were almost out of the reach most of the people in the area. The better economic condition, combined with impact of urbanization and modernization has also brought a considerable change in the household amenities and thus change in way of life. While analyzing the basic amenities enjoyed by the people of the area, survey data reveals that radio, tape, T.V., V.C.R., bicycle, motorcycle are almost common to all the small tea growers of the study area depending on their income the buy accordingly. However, in the past, only a few families possessed such articles. These were confined to few families only, that means, these amenities were not common to all. Table 7:13 shows the household amenities of the small tea growers of the study area. In addition, many houses now have well furnished drawing room, dining room, bed room etc., which was unthinkable in the past. This is indicative of the prevalence of the degree of modernity and social change. This is more visible among the small tea growers. This reflects the standard of living that is improving among small tea growers due to tea cultivation.

For acquiring and disseminating knowledge and information about the society, economy and policy, the newspaper and magazines are very important. The field data reveals that about 95.88% small tea grower's family regularly keep newspapers and magazines.

6:10: Social Transformation and Changes: Social change is a process in itself. Though change brings about modifications and alteration, it is never a 'break point' between old and new. Change is not a separating wall between the old order and new order. Rather the process of change is the intermediately continuity between the old social order and new social order. Through the process of change, the old structure gets transformed to suit to the new conditions of living. The process of change helps the existing social structure to maintain its identity. For "in the face of new circumstances a social system may need to adopt its structure to some extent in order to survive. Change, in the structure of the system may enable it to maintain its integrity as a distinguishable system, where as if it maintains the same structure too long it may looses its integrity as a system altogether."[22]

The social life of the small tea growers has also changed from their mode of existence. As it has already been mentioned that the concept of small scale tea cultivation was initiated during the seventies by the Janata government of Assam. During the end of the eighties, the department of 'Tea Husbandry and Technology' of Assam Agricultural University, Jorhat, an Advisory Cell was established to promote the concept of small scale tea cultivation.

6:10:1: Growth of Social Organization: When a community becomes aware of their exploitation and deprivation, to fulfill their needs, they organized under the leadership of enlightened and motivated persons. The growth of social organization among small tea growers started with Small Tea Growers Advisory Cell. It was established during the end of eighties. In October, 1987' the 'All Assam Small Tea Growers Association' was

---

[22] *JENA,D.N.(2003), Social change: Themes and perspectives, Kalyani publishers, Ludhiyna, New Delhi, Noida,U.P.*

organized. The founding president and secretary was Tulshi Kurmi and Gongadhar Saikia respectively. Mr. Gongadhar Saikia was a large scale sugarcane grower in the beginning. The activities and the influence of the organization were not limited among the growers only, but also they devoted themselves in social works of areas beyond Assam. This organization is an active organization and deeply involved in transforming the small tea growers by looking into their needs. Many eminent persons like Mr. Someswar Borah, the former Agricultural and Co-operative Minister of Assam, Tulshi Kurmi, founder president of AASTGA, etc. were involved in the organization. Between 1998 and 2000, different branches were opened in different parts of Assam to strengthen the organisation.

These are like – Salaguri Tipomia Regional committee (1999), Jariguri Regional Small Tea Growers Association (1998), Lengeri- Nachani- Nokhat Regional Committee (2000), Mahmora Regional committee (1998), Dhaman- Salmarri Regional committee (1997), Tingkhang Regional Committee (1989), Dimow Regional committee, Jorhat district small tea growers association, etc. All these organization were not limited only to the growers but also they involved many social activities of the surrounding areas. As for example, according to official record of 'Tingkhang Regional Small Tea growers Association', from 09/02/92 to 2001, Rs 1,87,031/- donated to various social organizations like – Maina Parijat, Puja committee, Club, Sports Association, Cricket Association, Sahitya Sabha, Non-recognized Primary Teachers Association, Student's Union, Temple, Child Development Centre, for development of Town, Woman Association, Srimanta Sankar dev Sangha, MOBC Council, Hospital etc. These organizations also helped financially to the physically handicapped and economically backward persons. They also contributed to development of rural roads, for development

of education to educational institutions, Felicitation to students who able to get first position in various examinations.

It may be mentioned here that customs and social practices do change with change of time. Old customs sometimes slowly and rapidly yield places to the new ones. Changes in respect of dress pattern, food habits, housing conditions, sources of fuel consumption, sources of drinking water etc. are taking placed among the growers in the area, of course with considerable variation in degree and kind.

CHAPTER – VII

SUMMERY AND CONCLUSION

The present work is on small scale tea cultivation and its impact on land use and socio-economic condition of the people of Sivasagar district of Assam. The study has been carried out in seven chapters.

The first chapter contains the introduction, statement of the problem, significance of the study, objectives, hypothesis and methodology adopted for the present study. A brief review of certain works connected with the problem has been incorporated in this chapter.

An introduction to the study area has been given in the chapter two. This chapter includes the physical background of the area, physiography, drainage, climates, soil, vegetation and socio-economic situation of the study area.

The third chapter devoted to the concept and present status of small scale tea cultivation in Assam. Extension and growth of small scale tea cultivation and how it helped in utilization of human labours and employment of sizeable number of workers are analyzed. This chapter is also associated with the Socio-economic characteristics of small tea growers of Sivasagar district.

The fourth chapter deals with the general land use pattern of the study area. The land use pattern has been discussed in to two phases – i) general land use pattern of the Sivasagar district and ii) land use pattern of selected small tea growers of the study area. Land used by small tea growers can broadly be classified in to four groups – i) virgin land, ii) crop replaced land, iii) marginal land and iv) unsuitable land.

Chapter five deals with the small scale tea cultivation and land use change. Most of the land used by the small tea growers for small tea cultivation in Assam was previously used for other purposes or waste lands. There has been reduction of the forest cover, sugar cane field,

bamboo forest, even paddy fields. Small scale tea cultivation has replaced the existing cropping pattern to mono cropping of tea. All these are elaborated in this chapter.

Chapter six studied the changes in occupational structure and income level of the people. The study reveals that the small scale tea cultivation has brought significant changes in occupational pattern and economic levels among the rural people of the area.

Summary of the entire work is put in the chapter seven.

The major findings of the study are summarized as under:

Small scale tea cultivation was initiated in Assam during the seventies and during the eighties in rural areas of Assam, especially in upper Assam. It has experienced a phenomenal growth in last decades. Initial foundation was laid during the eighties, but growth has picked up abruptly from 1990 to 2005. The rate of growth of small tea garden was at its peak during the year 1999 (95.60%) which was due to sudden rise in price of green leaf and profit. Small tea growers are distributed in five districts of upper Assam, viz, Tinsukia, Dibrugarh, Sivasagar, Jorhat and Golaghat which is about 90% of the total. The rest 10% percent were spread over to the remaining 16 districts of Assam.

A small tea estate produces only green leaf. They don't own factories or processing units. Small sector contributes about 85.15 million kgs. of made tea which is about 20% of the total tea production in the state. Total 56,871 hectares of land areas are under small tea cultivation in Assam and 6387 hectares alone in the study area.

Small scale tea cultivation provides ample avenues for self employment and engagement of family members directly in the production process. More than 2.40 lakh workers including family and hired are engaged in this sector. The positive effect of the emergent of small tea cultivation is controlling of migration from rural to urban centers. The growth of small tea

garden has created more job opportunities to the rural unemployed youths especially in upper Assam region. Thus it has stopped migrating youths to urban areas in search of petty jobs. Besides the direct employment it has also created many indirect employment opportunities in the field of manufacturing and supply of garden implements, transportation of green leaf and agro-chemicals required for these gardens.

Small tea growers were categorized into five groups on the basis of their socio-economic back ground.

a) Sedentary cultivator – adopted tea cultivation with an objective to augment their income.
b) Educated rural youth –more urbanized in engaging growing tea.
c) Educated youth from urban areas already engaged in various businesses.
d) In service personal –engaged as a hobby rather than income as motive.
e) Ex-tea garden workers –already trained in tea cultivation and settled within tea areas.

The total population of the study area is about 1598 persons, covering 243 small tea gardens (*one garden means one grower*). The average family size of a small tea grower is 6.58 percent. Percentage of literacy rate is high among the small tea growers compared to non growers. About 81.29% of people are engaged in tea cultivation which is above the state average of 64.28% (2001). The working force constitutes about 55.63% of the total population. The remaining 44.37% are non workers. The work force constitutes farming, services and business. Out of 55.63% total workers, 14.08% engaged in full time tea farming activities, 17.15% engaged as part time in tea, 10.57% engaged in agriculture, 6.88% engaged in business and 6.95% engaged in various services. The farming work force comprised of 11.26% male working as full time farmers and 2.82% female as full time farm workers. In the study area total area of small tea gardens are 1144.85 hectares, which comprises of own land, grazing land, ceiling surplus land and government land (both allotted and encroached). The average land holding sizes

are 4.71 hectares. The proportion of own land was found to be highest compared to government land, grazing land and ceiling surplus land. The small tea growers' gardens are highly fragmented; about 50% of small tea growers own 03 – 08 *bighas* of land in place (0.13–1.07 hectare). The high lands which are used for tea cultivation in this region are mostly *bariland* and govt. reserved land.

The types of labours engaged in individual farms are -

a) Family members as supervisors,

b) Hired labours (regular, seasonal and casual)

Family labours are the major sources of labour in smaller size group of farms (up to 01 hectare). Hired labours are the major labour force in larger size group of farms and share of permanent hired labours increases with increase in farm size. May and August is the peak plucking season and in this period more casual labours are hired. Though employment opportunity is not uniform throughout the year, but most people are engaged.

The cost of operating or establishing small tea cultivation comprised of variable and fixed assets and investments. The average cost of managing one hectare tea garden is about Rs. 83,000.00. The human labour (31.61%) formed the major component followed by expenditure on manures and fertilizers (9.43%), fencing materials (0.81%), plant protection chemicals (4.43%), herbicides (3.08%) etc. The relative cost of human labour increases with the decrease in farm size.

The personal savings of a farmer is not sufficient enough to start tea cultivation. Hence, the growers borrow money from various sources.

The most common mode of transportation of green leaf is by jeeps, trucks and bicycles. Jeeps are most popular and commonly used mode of transportation for carrying green leaves.

Three major marketing channels through which the small tea growers market their green leaf are- direct sale to factory, through commission agent and sub-agent. The marketing cost increases if the length of channel is increased. Large size gardens sell green leaf directly to the factory. Whereas the middle man have the privilege of purchasing green leaf from the small tea growers and sub-agent purchases green leaf on behalf of the middle man.

Land under tea and rice are the most dominant forms of land use among small tea growers. About 43.99% of the total sample gardens land holdings are for tea cultivation followed by 38.07% rice cultivation. Remaining 17.94% of the total land holdings are under 4.52% *bariland*, sugarcane (0.77%), bamboo (1.64%), mustered (2.70%), vegetable (2.12%), buildings (4.72%) and fallow land (1.51%).

In the beginning, small scale tea cultivation in Assam was done on suitable high lands only. But with the increase in numbers of growers, it has started occupying all type of high lands, whether it belongs to their family or government. Bulk of the present area under tea have been brought from cultivable fallow lands, sugarcane fields and land under plantation crops, bamboo forest etc. People are replacing the high land crops even rice with tea as single dominant crop. From 1993-94 to 2005-06, the forest covered area has decreased by 2.44% in the study area. In the foothill zones, especially in Charaideo area of Charaideo Sub-division and Galekey area of Nazira Sub-division shows maximum decrease in forest areas, since foot hills are ideal for tea cultivation. Fairly large area was covered by sugarcane but it has been reduced to 0.77% in 2005-06 from 4.78% in 1993-94. There are many small tea gardens in the area which were previously bamboo forest. Most of the rural farmers converted their high land crops fields to small tea cultivations. More than 90% fallow lands of this area were brought under tea cultivation including government forestlands. Overall reduction of fallow land is 70.33 % during 1993-94 to

2005-06. During the last ten years pastures, grazing land decreased remarkably in the study area which is added to tea cultivation. From 1993-94 to 2005-06, 3.58 hectares of fallow land are converted to tea cultivation. It is also noticed in the study area that tea growers have applied the method of multistoried farming in their farm land. Plantation of Kadam, Sashi and Neem trees in the boundary of gardens are the typical character of small tea cultivation. The government grazing land, deforested area, ceiling surplus land and low productive paddy land and *ahuland* are used for tea cultivation.

From the field observation it is clear that the large proportions of workers are engaged in the small tea sector. The percentages of variations in the small tea sectors are between 1993-94 to 2005-2006 are 27.09%. It is also noticed that large number of working population from business and other agricultural sector are migrating to small tea sector in rural areas. The work participation rate in small tea sector is more than agricultural crops, business and services. Work participation rate is 31.23 % (both for full time and part time) in tea farms as against 10.57 % in other agricultural crops, 6.88 %, in business and 6.95 % in service sectors.

The major source of income is agriculture and its allied activities with a share of 89.81 percent. Agriculture is the most important source of income. Among the agricultural income tea has the highest share of 86.67% of income of small tea growers of the study area. Very few people are engaged in service sectors. This share is 8.64 % and business (shops, cottage industries, carpentry, govt. contractors, tea estates business, transports etc.) contribute 1.55% of the total family income. Average income per house hold has increased with the increase in farm size. Significant socio-economic changes have taken place among the small tea growers of the area. Among the social attributes, literacy and education, has gained high. Parents belonging to

tea grower's family could afford to send their children to private schools, where cost of education is high.

Occupational pattern of the study area is reflecting the prevailing economic character. The work participation rate has increased during 1993 – 2005. However, there is a spatial variation of distribution of workers in different sectors. The major shift of working population has taken place from other high land crops to tea cultivation.

The primary data of income pattern reveals that the average monthly income is significantly higher among the small tea growers than the other sectors. They could afford to spend major share of their income by the small tea growers for children's education, food, clothing, and health etc. besides other entertainments and recreational expenditures.

Large section of the people use LPG fuel for cooking which was not the case before they took up tea cultivation. The urban atmosphere is slowly emerging among the rural people of the area due to better income and attainment of education. Better economic condition combined with the increasing impact of urbanization has also brought considerable change in the house hold amenities. In the past some household amenities like refrigerators, washing machines, vacuum cleaners, inverters, telephone, car etc. were almost out of the reach of the people in the area, but today many of them possesses all such gadgets. Though small scale tea cultivation has brought many changes in socio-economic conditions of the rural people of Assam, it has also created many problems and disadvantages.

1) In many districts, the unsuitable lands and marginal lands were utilized for tea cultivation which affects the quality as well as productivity of the plantations. In many cases, productions of green leaf from small tea growers are not matched with the demand of tea markets.

2) As the small tea growers produce only green leaf and have no factories, they depend on big tea estates in Assam. The green tea leaf growers' sale their leaves to large tea estates through middle man. The price of green leaf varies depending on the factory and time of the year within the same district. Within three years of observation, it has seen that the rate of per kilogram of green leaf varies from Rs. 11.00 to Rs. 7.00/8.00. Such variation creates many unwanted problems to small tea growers of Assam. Such problems are-

a) The shortage of water supply in hill slope garden is a major concern.

b) There are wide technological gap between the skilled and unskilled small tea growers. Management of drainage, manuring, weed control, pest control, nursing of young tea plants etc. need skilled labours which enhances the productivity of tea.

c) There is ecological imbalances due to destruction of village woods, bamboo forests and other plantations in an around the villages. Many commercial crops like orange, pine apple, sugarcane have been replaced by tea. The traditional farming system has been replaced by unsystematic growth of the small tea units. The indiscriminate use of pesticides and agro-chemicals has polluted the rivers and water bodies. Thus destruction of bio-diversity is continuing with this small tea cultivation.

d) The growth and development of small scale tea cultivations are self financed and self motivated. Most of the tea growers are from low income groups and depend upon their family and relatives for finance.

e) In absence of marketing strategy and management most tea gardens depends on factory owners for selling of green leaf. Thus profit margin is always low. The problem is further compounded by the fact that some of the small tea growers tend to supply green leaf of inferior quality, which is also a deterrent factor for the buyers. The transportation of

green leaf is another associated problem where an agent who collects green leaves from the small tea gardens makes more profit out of this.

f) Most small tea growers occupy government lands by illegal means and later they get allotment.

g) The small tea growers' faces problems of non-allotment of land ownership documents and occupancy rights by the government to their allotted land, even on their own land for which they faces the problem of registration with Tea Board and thus they are deprived of credit facilities and subsidies provided by the Tea Board and Commercial Banks. The simplification of rules and regulations in getting registration could be taken up by the government. This will help the tea growers in particular and the industry in general.

h) If Tea Board set up nurseries and supply of suitable planting materials to the small tea growers will help in improving the current production.

i) Ceiling surplus land from large tea estates could be reallocated to the unemployed youths for tea cultivation in small holdings.

j) Subsidized supply of fertilizers, plant protection chemicals, agricultural machinery and implements for the small tea growers through co-operatives and state agricultural department may help them to do better.

k) To make the large growers independent the government can take measures to provide financial assistance and credit facilities to small tea growers intending to establish tea factories on co-operatives basis or under private ownership.

l) To identify associated problems with the production, productivity and quality of tea produced by small tea growers study need to carried out.

Conclusion: The introduction of small scale tea cultivation may be considered as a boon to the rural economy of Assam. It has brought remarkable changes in socio-economic scenario of rural Assam, particularly in urbanization, literacy and occupational pattern. Apart from self employment, the small tea cultivation has opened wide vistas of business opportunities, which provide not only direct employment but also indirect employment with steady income. The increasing number of small tea gardens in Assam and satisfactory production of green leaf indicated that this venture is more popular in rural Assam, especially in upper Assam. The study further reveals that land use change has also taken place in rural areas of Assam. Most of the rural farmers recognized their high land crops fields for small tea cultivation. Hundreds of hectares of sugar cane field, pineapple gardens, homestead gardens and bamboo forests disappeared from Assam due to tea cultivation. Most of the educated unemployed youths came forward for small tea cultivation without any help from government. Most of the poor cultivators of Sivasagar district became economically better due to tea cultivation. It is clear from the study that there is a considerable benefit from the small tea cultivations in raising income and the socio-economic status of the rural people.

BIBLIOGRAPHY

Benerji, B. (200) *TEA- Production and processing-* Oxford and IBH Publishing Co-pvt. Ltd. New Delhi.

Bhagawati A.K et.al (2002) *Geography of Assam*, Rajesh Publication, New Delhi, 2nd edition.

Borah, B.B. (1984) Impact of Technological Innovation in the Tea Industry: A case study of Jorhat sub division, unpublished M Phil Dissertation Guwahati University, Guwahati, Assam.

Barman, H.P. (2005) *Khudra Chah Kheti,* an article published in Basundhara, an Assamese Sunday magazine: 6th March, p.6.

Borthakur B.N. (2004) *Sociological Aspects of Economic Development*, Upasana Publishing Academy, Dibrugarh, Assam.

Borthakur, M (1965) *A study of Economic Geography of Lakhimpur District,* unpublished Ph. D. thesis, Guwahati University, Guwahati, Assam.

Boruah S. & Taparia (2005) *Small Tea Growers of Assam, Status and Strategies* Part -1 & II, published in the Assam Reviews and Tea News Vol. - 11, 12, December 2004 and January 2005.

Boruah, P.C (1968) Report of the P.C. Boruah Committee on Tea Industry, Government of India.

Boruah, S. Deka & Sarma (1999) *Status of small Tea Cultivation in Assam-* National Seminar on Plantation economy of North East India with special

reference to the small tea garden movement in Assam held on 10th to 12 Nov., G.U.

Chakra borty B.G (2005) *Small Tea Growers of North Bengal*, - Article, Published in The Assam Review & Tea News"- October 2005, Page No-18

Das H.P, (1970) *Geography of Assam,* National; Book Trust India, New Delhi.

Das M.M, (1984) *Land Holding Structure- A problem in peasant Agriculture in Assam*, Konark Publishing Pvt. New Delhi.

Das M.M. & Dutta L (1986) *Regional variation in land use and Agriculture, North East India*, North Eastern Geographer, Vol. 18 No. 1, 2, 1986.

Deka A, (2001) *Agricultural in Assam*, Edited by Dr. A.C. Thakur, published by Directorate of Extension Education, AAU- Jorhat

Deka, P & Bhagawati, A (1994) *Geography, Economic and Regional,* Wiley eastern Limited, Sept.

Monoharan (1947) *Indian Tea- A Strategy for Development,* S. Chand and Co. Pvt. Ltd.

Griffith, P.(1967)*The history of the Indian Tea Industry*, Weidenfeld and Nicholson, London.

Borthakur, M (1965) *A study of Economic Geography of Lakhimpur District,* unpublished Ph. D thesis, Guwahati University, Guwahati, Assam.

Sing, D.K.(1971)*Dibrugarh and its Environs*, unpublished doctoral thesis, Guwahati University.

Barman H.P.(2005) *Khudra Chah Kheti*, An articles published in Basundhara (an Assamese Sunday Magazine:, 6march 2005, page no:-6

Sarma , M.(2005) *Asomat Khudra Chah Kheti kishu sambhawana*:- An Article published in Basundhara- 6 March 2005, Page No-9.

Nath D.(2002) *Importance of small Tea Gardening & utilization of Human Resource in Assam:*, Minor Research Project sponsored by UGC (NER), Page No-2

Chakra borty B.G (2005) *Small Tea Growers of North Bengal*, - Article, Published in The Assam Review & Tea News"- October 2005, Page No-18

Hanan. A. (2002) *Constraints in the Growth of Small Tea plantation in North Bengal* an article published in the Assam review & Tea news, December- 2002 page- 10

Boruah, P.C(1968) Report of the P.C. Boruah Committee on Tea Industry, Government of India.

Halayya, M. (1969) *Small units in Indian Tea Industry*, Journal of Agricultural Economics, 24 (4) 213- 230

Borah, B.B. (1984) *Impact of Technological Innovation in the Tea Industry. A case study of Jorhat sub division, Assam*, unpublished M Phil Dissertation Guwahati university.

Paul,A. K.(1978) *Role of the Tea Plantation Industry in the economic Development of North East India*- B.R. Publishing Co-operation, New Delhi.

Phukon, U.(1976) *Socio- Economic Problem of Ex-Tea Garden Labour Population in Assam,* Ph.D. Unpublished thesis, Guwahati University.

Govt. of Assam, Gazetteer of India, Assam State, Sivasagar district, 2004.

Govt. of Assam, Census- 2001, Assam District Census Hand Book, Sivasagar District 2002.

Dutta, B.B. (Ed)(1986) *Land use pattern in North East India*, Gagaon Publishing, Ludhiyna.

Kaur D. (1991) *Changing patterns in Agricultural land use*, Rawat Publication, New Delhi.

Kothari, S. (1999) *Agricultural and land use and population: A geographical Analysis,* Shiva Publications and distributors, Udaipur.

Vaidya, B.C. (1997) *Agricultural land use in India*, Manak publishing (pvt) Ltd., New Delhi.

Ponniya, S.V.C. (1975) *An Appraisal of the small Tea holding in Nilgiri District- A sample study*. M.Sc. Thesis, Assam Agricultural University, Jorhat (unpublished)

Ngali, M., (1979) *Small holders will dominate in Kenya. The planters Chronicle*, 124 (6): 258-259.

Kulasagaram, S. (1980) *Technical Development in Tea Production*, The Tea Quarterly 49 (3): 157-183

Srinivas, M.N. (2001) *Social change in Modern India*, Orient Lengman Limited, Reprinted.

Hussain M (1999) *Systematic Agricultural Geography*, Rawat Publications, Jaipur and New Delhi, 1999.

Das M.M,(1984) *Land Holding Structure- A problem in peasant Agriculture in Assam*, Konark Publishing Pvt. New Delhi.

Singh. J. & Dhillon S.S. (1994) *Agricultural Geography,* Tata Mc. Grow- Hill Publication Co- New Delhi.

Boruah, S. Deka & Sarma (1999) *Status of small Tea Cultivation in Assam,* National

Seminar on Plantation economy of North East India with special reference to the small tea garden movement in Assam held on 10th to 12 Nov., G.U.

Bhagawati A.K et.al(2002)- *Geography of Assam*, Rajesh Publication, New Delhi, 2nd edition.

Das H.P,(1970) *Geography of Assam,* National; Book Trust India, New Delhi.

Go swami P.C.(1994) *The Economic Development of Assam,* Kalyani publishes, 3rd edition .

Taher M. (2001) *Geography of North East India*", Moni Manik Prakashan, Guwahati, 2nd edition , March.

Jhawar, R.S (2000) *Tea- The Universal Health Drink*, USB Publishers Distributors Ltd.

Negi B.S.(1962) *Rural Geography*, Kedernath Ramnath.

Deka, P & Bhagawati, A (1994) *Geography, Economic and Regional,* Wiley eastern Limited, Sept.

Das M.M & Dutta L (1986) *Regional variation in land use and Agriculture, North East India*, North Eastern Geographer Vol. 18 No... 1, 2.

Benerji B.(2002)*TEA- Production and processing*, Oxford and IBH Publishing Co-pvt. Ltd. New Delhi-2002

Deka A, (2001) *Agricultural in Assam*, Edited by Dr. A.C. Thakur, published by Directorate of Extension Education, AAU- Jorhat

Boruah S & Taparia (2005), *Small Tea Growers of Assam, Status and Strategies* Part -1 & II, published in The Assam Reviews and Tea News Vol. - 11, 12, December 2004 and January 2005.

Shirjoposht, A.H.A.(1996) *Scope of Automation in the Iranian Tea Industry,* an Unpublished M.S.C. Thesis, AAU, Jorhat.

Harlalka. S.S.(1975) *Tea garden Labour of Assam,* People publishing house, Dhubri Assam.

Sharma G.(2002) *Tea cultivation to conserve Hill Ecosystem,* Article published in *The Assam reviews and Tea News*, Jan/2002

Borthakur B.N.(2004) *Sociological Aspects of Economic Development* ,Upasana Publishing Academy, Dibrugarh.

Saikia T.(1994) *Economics of Production and processing of small scale Tea cultivation in Dibrugarh and Golaghat district of Assam.* M.Sc. Thesis (unpublished), Department of Agricultural Economics and farm management, AAU, Jorhat, Assam.

Gosal, G.S.(1961) *Occupational Structure of Punjab's rural population*, - The Indian Geographical Journal, Vol.40(1), p.40.

Rawal,V. (2008) *Ownership Holdings of Land in Rural India: Putting the Record Straight,* - Economic And Political Weekly, Vol. XLIII No 10

Gogoi, J. K.(1999) *Boom in Indian Tea Industry and Small Tea Growers of Assam,* - Paper presented in the National Seminar on Plantation Economy of the North-East with special reference to Small Tea Garden Movement in Assam. November 12th and 13th , 1999, North-East Foundation, Guwahati.

Sing, D.K.(1971)*Dibrugarh and its Environs*, unpublished doctoral thesis, Guwahati University.

Borthakur B.N. (2004) *Sociological Aspects of Economic Development*, Upasana Publishing Academy, Dibrugarh, Assam

The chronology
(From discovery till the beginning of 20th century)

2737 BC

Accidental discovery of tea by Emperor Shen Nung in China

Late 6th century AD

Tea is Taxed and first book of tea is written by Luvo

1368-1644

Traditional style of green, block and Oolong teas made their first appearance.
Under the MING DYNASTY

Early 17th century

Tea arrives in the west

Mid 17th century

Tea arrives in New World(New Amsterdam)

1669

East India Company bring first tea shipment to England

1773

Te Boston Tea Party

1810

First planting of Taiwan Tea

1823

Birth of Indian tea . The Assam plant was found growing wild in either side of Brahamputra river in the North East.

1834

The Tea Committee was formed by lord William Bentinck

1838

The first consignment of boxes of Assam tea was exported to England

1839

The first consignment of 8 chest and Assam tea was put for auction in Calcutta

1856

Tea cultivation expanded to Nilgiri and Kerela

1869

First export of Formosa Oolong

1881

The Indian Tea Association(ITA) was born

1888

Import of Indian tea in to Britain exceeded China and continued to be so till now

1894

United Planers Association of Southern India(UPAS) was formed

1897

U.S. Tea Act to ensure quality standards of all tea imported in to the states

1908

The tea bag invented in America.

Source: GOURMET RETAILER, Jan 1999.
(Original not seen)

II

APPENDIX – I

INTERVIEW SCHEDULE FOR THE SMALL TEA GROWERS

Name of the Village:

Sub-Division :

1) Personal data of the small tea growers :

A) Name of the small tea growers : Mr./Mrs.----------

B) Cast/Community : ----------

C) Educational Qualification : ----------

D) Present Address : ----------

---

2) Identification data of the garden :

A) Name of the garden if any : ----------

B)The gross area of the garden : ----------

C) Planted area : ----------

Old plantation(started in which year) : ----------

New plantation(started in which year) : ----------

3) Cultivated area other than tea (in bighas) : ----------

A) Nursery : ----------

B) Rice : ----------

C) Bamboo : ----------

D) Forest : ----------

E) Sugarcane field : ----------

F) Mustered : ----------

G) Vegetable : ----------

H) Other minor crops : ----------

I) Fishery (if any) : ----------

J) Shed and Building : ----------

4) Particulars of the family members of small tea growers:

Sl no	Name	Sex		Age	Relation with garden	Education qualification	Occupation	Remarks
		M	F					
1								
2								

5) Land holding structure of small tea growers:

A)

No of gardens	Total area	Size of Garden (in Bighas)	Age of plantation	Location of land			Land type	
				Up	Low	Middle	Govt.	Own bari

III

B) i) Garden is irrigated / not irrigated :----------

ii) Garden taken on lease or mortgaged

If leased, from whom : ----------

Mortgaged to whom : ----------

iii) Garden is co-operative/private
If private, chair of land holding : ----------
iv) If land holding is govt. reserved, any permission taken/not taken/applied for

6) Pattern of plantation

i) Do you applied scientific method ? : Yes/No
ii) Have you done any training ? : Yes/No
iii) From where you collected tea plants ? : Own nursery/Govt. nursery Private nursery/Nearby Estate
iv) Which verities of tea you have planted : a) ----------
b) ----------
c) ----------
d) ----------
v) Do you applied chemical fertilizers ? : Yes/No
vi) Do you applied Bio-fertilizer ? : Yes/No
vii) Do you applied pesticides ? : Yes/No
vii)Do you test your soil of your garden ? : Yes/No

7) Do you received any financial assistance : Yes/No
If yes, from where : State govt./Central Govt./ Co-operative/Private Tea Estate/Bank/from others

8) Present employment structure of the growers(2006) :

A)

Pattern of Workers	Non workers		Salary in Rs.		Total daily labour	Remarks
	M	F	M	F		
Daily Basis						
Weekly Basis						
Monthly Basis						
Permanent Basis						
Total						

B) i) Have you engaged any qualified labour in your garden ? : Yes/No
If yes, for what type work ? : ----------
ii) No of qualified labour : ----------

C) Is there any scope/ necessity for employment of more permanent labour/ workers in your garden ? : Yes/No
If yes, state the approx. no : ----------

D) What is the basis of fixing number ?
Number of labour in the garden : ----------

E) For how many months the temporary IV Labours are employed in the garden ? : ----------

F) Total labour population of your garden :

Adults		Children		Total
M	F	M	F	

G) Employment of labours in various fields :

Year	Factory		Garden		Management	
	M	F	M	F	M	F
2006						

H) Employment of total labour in the following:

Year	Permanent	Temporary	Total
2006			

9) Cost of plantation of tea

A) Cost of labours

Particulars	1st year	2nd year	3rd year	4th year	5th year	Total
Total days						
Average labour cost						

B) Cost of Materials

Items	1st year	2nd year	3rd year	4th year	5th year	Total
Planting material (Shade)						
Planting Materials(Tea seedling)						
Plant Protection Chemicals						
Herbicide						
Fertilizer						
Fencing Material						
Other						

Total cost of production per bighas in : Rs.----------

Cost of maintenance : Rs. ----------

10) Production structure :

i) Production of green leaf (2005 -06) :

Size of Garden In hecto	Age of Plantation	Production of green leaf	Total Productive land	Rate of green Leaf per kg.	Total income

v

ii) Total production of green leaf (last three years)

Year	Total productive land in bighas	Total production
2004		
2005		
2006		

iii) After how many years you have got production? : ----------

iv) Have you produce any agricultural products from your garden? : Yes/No

If yes, Name of the products : ----------

Average extra annual income : Rs.----------

v) Do you think that small scale tea cultivation is more profitable ? : Yes/No

11) Do you sell your products ? : Yes/No

If yes, i) Sell green leaf : Directly/through middle man

ii)Do you sell green leaf near by estates ? : Yes/No

iii) Present rate of green leaf per kg. : Rs.----------

iv) Do you think that present rate of green leaf is satisfactory ? : Yes/No

v) Distance from the garden to the market : ----------km.

vi) Annual carrying cost : Rs.----------

vii) Do you think that government should take necessary step for marketing of green leaf ? : Yes/No

12) a) Annual family income:

Source of Income	Income in Rs.	Total annual Income
Agriculture		
Service		
Business		
Tea garden		
Other		

b) Annual Expenditure:

Items	Average expenditure	Total Expenditure
Food and Clothing		
Education		
Medicine		
Social ceremonies		
Magazine/paper etc.		
T.V./Radio/Telephone etc.		
Other		

13) Family structure:

Family member	Relation with family head	Age	Sex	Family type	Educational Qualification	Occupation
1						
2						
3						

14) Housing characteristics:

a) Type of house : ----------

b) Size of house : ----------

c) Building materials : ----------

15) Land ownership : i) Own land
ii) Land leased on
iii) Land leased out

16) Land use (in bigha/katha/hect)

a) Bari land : ----------

b) Agricultural land : ----------

c) Forest land : ----------

d) Other : ----------

17) Land use pattern(in bigha/katha/hect) :

a) Tea ----------

b) Nursery ----------

c) Forest ----------

d) Rice ----------

e) Sugarcane ----------

f) Bamboo----------

g) Mustered----------

h) Vegetable ----------

i) Other minor crops ----------

j) Fishery ----------

k) Shed and building ----------

l) Fallow land ----------

18) Facilities available(please tick) : a) Radio/T.V./ Audio

b) Bicycle/Scooter/Motor cycle/Car/Truck/Bus

c) Refrigerator/Washing machine/Electricity

d) Telephone/ News paper/ Magazine

e) Distance to hospital----------, to P.O., ----- to the market --------, to the block office, to Bank, to bus stand.

f)Source of drinking water----------

g)Latrine – Sanitary/kutcha/open.

19) Do you think that your garden has contributed towards the general development of the region? ----- Yes/No

VII

20) Problem faced by small tea growers :

(Problem of marketing/irrigation/social/financial/government/transportation etc.)

a) ----------

b) ----------

c)----------

d)----------

21) What are the major problem faced by the growers?

a)---------- b)----------c) ----------

Signature of the investigator