ABSTRACT OF THE THESIS TITLED

PARTICIPATION OF TRIBAL WOMEN IN AGRICULTURE IN DHEMAJI DISTRICT OF ASSAM

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I, Ms Mainu Goswami, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis of the award of any 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.

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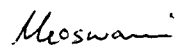

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INTRODUCTION

Women, in the emerging complex social scenarios, have a pivotal role to play. India has 16 percent of the world's population, but only 2.4 per cent of its land, resulting in great pressures on its natural resources. Over 84 per cent of the economically active women of India derive their livelihood from land resources. In rural India, agriculture and allied industrial sectors employ as much as 89.5% of the total female labours.

The tribal population of India constitutes 8.08 per cent of the total population. The tribes in Assam, although seems to be living outside the mainstream of the general population but their villages are not exclusive. Traditionally they have their own socio-cultural life, which is male-dominated and patriarchal and are at varying stages of development. The constraints of more developed societies do not apply for the tribal societies. Due to assimilation with other societies, tribes have adopted Hindu religious practices, but their religious practices are also a mixture of animism and superstitious beliefs.

Agriculture is the dominant sector of the economy of Assam contributing about 56 per cent of the states income and crop production occupies the most important part of agriculture. Assam is a state with wide variation in its inhabitants as also in its physical, economical, cultural and historical conditions. For these reasons, there is no uniform pattern of agricultural practices among different tribes. Female work participation in this sector is also of varied nature and among tribal population; females perform a major role in all the work processes in agriculture.

Dhemaji is the eastern most district of Assam and is the homeland of a large number of tribes namely the Mishings, the Deoris, the Sonowal Kacharis, the Bodos and the Tiwas besides other ethnic groups like the Chutiyas, the Ahoms, the Koch and others. Agriculture is the main occupation of all these tribes where work participation of women is remarkable.

STATEMENT OF THE PROBLEM

Study of women issues assumed great importance in a global context. However, geographical research on participation of women in agriculture, especially in this region is still very limited. In rural economy, women have been playing an important role in the economic sustenance of the families. It is also recognized that the tribal women have significant contribution to the economic development of the family and the society.

Agriculture being a family activity, participation of all family members including the womenfolk is considered to be must so as to provide cheap labour force. In Assam, participation of female in agricultural activity is varied in different communities depending on their environment and ethnic variation. In tribal society, women constitute one of the main sources of agricultural labourers.

While economists and sociologists have evinced much interest in studying female participation in agriculture and their economic contribution, geographers have been late in addressing to such issues. Geographical approach considered the issue in a holistic frame and relates it to the agro-ecological parameters. The present research aims at understanding the female participation in agriculture from the agro-ecological point of view and intends to examine the impact of ethnic factor in differentiating female involvement in work. It is assumed that agro-ecological factors determine the volume of work required in agriculture while the ethnic factor determines the sexual division of labour and socially directed access to different types of work, which the women are permitted to do. This is why the case of tribal

women is addressed directly in this research as the tribal societies are known to be more egalitarian and do not nurture discrimination in the name of gender.

In light of the above facts the present study is conceived to explore the pattern of participation in agriculture by the Mishing, the Deoris and the Sonowal Kachari women in agriculture in Dhemaji district. An attempt was made to have a comparative study among the tribal and non-tribal villages of Dhemaji district. The attempt was directed to examine the extent of work participation, structure of work performed and the nature of sexual division of labour among the tribal women. The case of non-tribal component was also taken into consideration to find out the differences between the two segments of population. The participation rate was examined in different regions of the district so as to permit a meaningful conclusion on the nature and type of female participation in agricultural work among the tribal segment.

OBJECTIVES

The present study is conceived with the following objectives:

1. To undertake a study of the agro-ecological condition of the area that influences the total volume of work in agriculture and animal husbandry in Dhemaji district.
2. To make a comparative study of the participation rate of women in agricultural activities of the Mishings, the Deoris and the Sonowal Kacharis with the non tribal women of the district.
3. To study the nature of sexual division of labour between the tribes and the non-tribes population living in the district.
4. To explain the variation in female work participation in agriculture, among the scheduled tribes and between the tribes and non-tribes.

HYPOTHESES

The present research proposes to test the following hypotheses:

1. Variation in agro-ecological condition influences the extent of variation in female participation in work among the tribes as well as the non-tribal segments of the population.
2. Inter tribal variation in female work participation in agriculture will be minimal in similar agro-ecological units.
3. Sexual division of labour shall be more pronounced between the tribes and the non-tribes. However, the sexual division between the two segments will become insignificant within similar agro-ecological units.

DATA BASE AND METHODOLOGY

The study was undertaken in Dhemaji district of Assam. A total of 20 (twenty) villages were selected from the district considering five villages from the three scheduled tribes dominating and five non-tribal villages. The villages were selected on the basis of the following considerations:

a) Areas where the scheduled tribes constitute more than 80% of the population and are distributed in a contiguous belt.
b) Areas where traditional cultivations are dominant.
c) Areas where cash crops are cultivated.
d) Areas where irrigation facility is available to most farms.

From each village a minimum of 25 (twenty five) households was selected for personal interview to collect primary data with the help of household scheduled questionnaires for 690 households. The primary data thus collected was tabulated and used statistical analysis to determine the female participation rate, sexual division of works and occupational structure etc.

Necessary secondary data for the present study was taken from different Government reports, documents and other published reports. These documents was consulted to collect data on cropping pattern, sexual division of works, female rate of participation in the agricultural sector, female tribal and non-tribal occupational structure and population figures etc.

In the second stage, the validity of the findings was testified with secondary data by comparing the primary data collected through field survey. These were also used to examine the location specific factors responsible for occurrence of specific patterns and attributes.

Agro ecological information such as topography, soil type, climate, irrigation facility etc. was collected from different Government sources like Department of Agriculture, Govt. of Assam, Regional Remote Sensing Application Centre, Guwahati and other published sources.

The data obtained was processed, tabulated and analyzed with suitable and meaningful quantitative techniques. Interpretation and statistical analysis was made using $\chi 2$ tests and also with simple ratio of percentages, post diction method according to method described by Pal (1998) and Hammond and McCullagh (1991). These analyses was supplemented by a number of charts, maps and diagrams to give a clear vision on the patterns of work participation, gender division of labour and occupational structure etc. A conclusion of the study was drawn based on results derived from the study.

AGRO-ECOLOGICAL SETTING OF THE STUDY AREA

The Dhemaji district occupies a unique position amidst complex geologic and physiographic makeup of the state of Assam. The district falls under the upper Brahmaputra valley agro-climatic zone. Geographically situated between the 94^0 12' 18" E and 95^0 41' 32" E longitudes and 27^0 05' 27" N and 27^0 57' 16" N latitudes, the district covers an area of 3237 Sq. Km accounting for 3.36% of the state area and is a basically plain area lying at an altitude of 102 m above the Mean Sea Level. It is bounded on the east by Arunachal Pradesh and partly by Tinsukia district, on the west by Lakhimpur district, on the north by Arunachal Pradesh and on the south by river Brahmaputra. The district has two subdivisions and five revenue blocks with 1205 inhabited villages.

Dhemaji district shelters a population of 5,69,468 as per 2001 census, which includes 294,105 males and 275,363 females, sex ratio being 936 females per thousand males. The average density is 176 per Sq. Km. The Schedule tribe and schedule caste population of the district works out to be 47.29% and 5.33% respectively of the total population. The major tribes of the district include the Mishings, the Bodos, the Sonowal Kacharis and the Deoris. The district has a fair proportion of women engaged in cultivation and agricultural activities (32.9%). The urban population is only 1.85% indicating the rural character of the district. The annual rate of growth of population worked out to be 5.22% compared to the overall state growth rate of 2.62%.

Spatial distribution and density of population in the Dhemaji district is not even. The pattern of population density and distribution can be linked with its

spatially varied environmental conditions as soil type, occurrence of floods, transport and communications etc. Concentration of population is found to be more in the middle part of the district than the other areas. The Jonai subdivision of the district is mostly inhabited by the tribals (66.96% of total population) and the Scheduled caste population of the subdivision is only 2.36% of the total population. Dhemaji subdivision of the district also has a fair proportion of tribal population (36.62% of the total population). The scheduled caste population of the subdivision is 7.64% of the total population.

The present physiographic configuration of the district has taken shape only during the geologically recent times and is still under the influence of the process. Fluvial processes are significantly dominant on the flood plains where alluvial deposition takes place due to erosion of the higher surfaces by rivers and flooding. The erosion and depositional process are intensified by copious rainfall and occasional seismic movements. The topography of the district varies from undulating uplands on the northern foothill belt to low lying plains on the south. The district has a total cropped area of 100237 hectares while 63665 hectares are covered by forestland. The grasslands and grazing lands normally occur along the main rivers and in Char areas. Most of these areas are used as grazing land for cattle. The area under this category accounts for 11.71% of the total land area of the district. The district has altitude ranging from about 35 meters (areas in riverine belts) to 140 meters (areas in the foothill belt) above the mean sea level.

The climatic conditions of the district is hot humid during the summer and cool dry during the winter months. All the tributaries of River Brahmaputra in the district are perennial in nature and originate from the hills of Arunachal Pradesh and

have a shorter course in the plains. These rivers flow through the high rainfall region at the foothill of Assam Himalayas and hence the district acts as a runroff zone for the access water from Arunachal Pradesh. Moreover, they reach the plains at an enormous speed carrying silts especially during the summer months when rainfall is abundant in the encashment areas of the rivers, resulting in flush floods and devastation in the plain regions. Besides the tributaries of the river Brahmaputra, there are numerous channels that drain the district. An extensive area of the district is thus invariably subjected to 3-4 waves of flood during the monsoon season.

The economy of this backward district is mainly agro-based. Lack of good communication system, shortage of power (electricity), lack of proper irrigation and marketing facilities adds to the backwardness of the district. Dearth of any major and small industry worth mentioning is also responsible for multiplying the problem of unemployment, while galloping explosion in the rate of population growth has already shown signs of negative impact.

ANALYSIS:

Assam is the homeland of many ethnic groups with different languages, customs and with different historical, economical, cultural traditions and religious believes. Although, most of them share a common mode of income from agricultural activities, even than there exists variation in the pattern of agricultural practices among different groups. The study of spatial distribution in work participation rate in Assam indicates that this rate is high in the tribal dominated and economically backward districts. The main economic activities of the tribal population in Assam lie in the primary sector of agriculture. In rural areas, agriculture and allied industrial sector employ most of the female workers. The work participation rate of female (percentage of female workers to total female population) in Dhemaji district is 37.94%, which is much higher than state average (18.09%). The percentage of female main workers to total female population in the district is 15.15% against 9.82% for the state of Assam. The corresponding figures in female marginal workers are 22.53% and 10.89% in Dhemaji and Assam respectively (Census, 2001). This indicates that most of the female workers in the district are underutilized.

In Assam, out of the total workers 77% are engaged in agriculture and allied activities and contribution of agricultural sector to state income is as high as 56% (Das, 1984). The agriculture sector employs as much as 85% of all economically active women. In Dhemaji there has been a decline in the number of cultivators over the years with an increase in female agricultural labourers, due to the floods and declining land holding pattern.

In Dhemaji district of Assam the sex ratio of female workers is 490 per 1000 males as compared to the state average of 240 per 1000 males. However, female main workers engaged in sectors other than agriculture is very low (0.53% of total population) as apart from Government jobs there is very little scope of engaging female workers in work categories other than the agricultural or allied sectors. The proportion of female marginal workers is also much higher in Dhemaji district (10.13% of total population) than the state average of 0.43%.

In the main workers category, the increase in other workers category recorded highest annual growth rate (17.4%) followed by agricultural labourer (15.28%), while cultivators recorded an increase of a mere 6.78%. This shift during the last decades can be attributed to various factors like negative impact of population explosion, decreasing land holding pattern, loss of agricultural lands due to floods etc. which also accounts for increased poverty in the district.

There is a considerable variation in the work participation of women in agriculture in different parts of Assam and a same phenomenon is observed between different ethnic groups residing in Assam. However, there exists little difference in work participation pattern among women of different ethnic and tribal population residing within a particular geo-climatic condition. In Dhemaji district of Assam, the female work participation in agriculture is more or less similar among different tribal and ethnic groups with very little variations. Within the district women are not involved in plaughing and are minimally involved in activities like seeding and carrying harvested crops home but are maximally involved in transplanting, harvesting, livestock maintenance and preparation of food. Threshing, previously

done exclusively by women in the tribal dominated areas of the district are now gradually replaced by the use of bullocks and most of the husking process became mechanized. However, a sizeable proportion of the tribal women are still using the manual method of threshing and husking. The process of kitchen gardening and horticulture is found to be minimum for the Mishing tribe followed by the Deori tribe. However, the women of the Sonowal Kachari tribe as well as non tribal groups are found to be involved in kitchen gardening in a moderate degree. It may be due to the fact that the women and girls of these two tribes used to meet their daily necessities through rearing of pigs and poultry in their backyard openly and open grazing system is not feasible for kitchen gardening. Thus it shows that the traditional pattern of participation of women in various activities related to agriculture exists in the district.

To make the evaluation of the agricultural work participation by women purposeful, the sample profile covers information on age, education and landholding etc. Age acquires a special significance as far as efficiency is concerned. Although women's participation in agricultural activity starts at a very early age, the respondents of the present study mainly confined to the housewives, hence their age ranged between 18 to 60 years, comprising 31.88% respondents in below 30 years age group, 37.10% in 30-45 and 31.02% respondents in above 45 years of age group range. The analysis revealed that the age of nearly two third of the respondents ranged between 20 and 40 years.

The percentage of workers of tribal women in Dhemaji district is substantially higher than non-tribal women irrespective of age groups indicating

higher FWPR among the tribal women as compared to non-tribal women. Moreover, women in the district are economically active up to the age of 45 years after which their economic contributions towards family income tends to decline.

It is also observed that many women of low income groups of the Sonowal Kachari tribe residing in the foothill areas near Subansiri River are engaged in wage earning activities in the construction works associated with the Subansiri hydroelectric project. Moreover, many women of all ethnic groups residing in Flood affected areas of Jiadhol are also engaged in wage earning activities.

A woman has very little access to education in the rural areas, which is more pertinent in tribal dominated areas; hence most women are illiterate. The educational level of the respondents in the present study is classified into four categories viz. illiterate, educated up to primary school level, educated up to High School (HS) level and higher educated women (HSLC and above). The study shows illiteracy among the respondents is found to be highest among Mishing women (67.8%) and lowest among non tribal women (43.9%).

Agricultural activity doesn't require lots of skill and training, hence most rural women engage themselves in such activities where education is not a prerequisite. It is observed in the present study that the participation rates of illiterate and primary educated women are more in agricultural activities in comparison to the higher educated women.

In the marginal workers category women participation rate is found to be maximum in all the levels of education since traditionally they are over represented

in this category. The proportion of non workers is almost negligible among Mishing women. A sizeable proportion of Deori and Sonowal Kachari women belonged to the main workers category. In contrast most of the women of the non tribal communities are either non-workers or marginal workers. The statistical analysis of FWPR with that of education level of women reveals insignificant relationship for all the ethnic groups, probably due to lesser job opportunity outside the primary sector within the district.

Economic status of a family has a direct relationship with the women's work participation in agriculture, and thus land holding has a significant relationship with the FWPR of women irrespective of their ethnicity. It is observed that the FWPR increases with the decrease of size of land holdings, which indicates an inverse relationship with the size of land holdings.

The participation rate of women of poor families is higher in the agricultural activity, therefore their economic contributions towards family income is higher than the others families. The work participation of tribal women is higher than their non tribal counterpart irrespective of their age, education and land holding. In general most of the tribal women are self-employed and very few are in formal employment. Moreover, livestock care was more or less a female dominated work. Men's involvements in livestock activities were rather limited to cleaning and milking the cows, thus women play a significant role in livestock management and production. Women takes care the animals, takes them to grazing and collects fodder, cleans animal sheds and helps in milk processing and livestock products.

The socio-economic characteristics of the society also plays significant role in FWPR. The Mishing women are found to be more active than the other two tribes in terms of work participation rate. However, proportions of main workers are higher in Sonowal Kachari and Deori tribes than the Mishings. The FWPR of all the three tribes are much higher than their non tribal counterparts residing within the district.

The above discussions of inter tribal and inter ethnic variations in work participation of women reveals that the FWPR in Dhemaji district (37.94%) is much higher than the state average (18.09%). The percentage of female main workers to total female population in the district (15.15%) is also significantly higher than the state of Assam (9.12%). It is observed that in Dhemaji district, although the women work participation in agriculture is more or less similar among the different tribal and ethnic groups but slight differences are observed in some aspects. It is also observed that there a definite relationship between different socio-economic characteristics as age, education and land holding of women belonging to different ethnic groups with their work participation rate and their economic contributions towards family income. However, it is seen that the agriculture is carried out through traditional customs and it is more labour intensive and low productive.

The working force and the occupational pattern of women are greatly determined by the characters of socio-economic status of a society. Further, the work participation rate, occupational pattern of women and prevalent sex disparity in different economic pursuits certainly reveals the economic status of women and the social system prevalent in the society. Women, besides engaging themselves in a variety of activities, both on the farm and at home, also contribute to the family

income through their wage earnings. Their earnings form a major part of the income of poor households and in fact poorer the farm household, greater is their relative contribution to total income.

Employment in any occupation depends upon various parameters. Any occupation involves certain range of responsibility and functions, which requires education, training and experience. Therefore, a positive co-relation between occupational pattern and education always exists. Experience or expertise substitutes educational requirement of certain occupations. However, it becomes difficult to establish a relationship between women's education and work, although education always plays an important role in diversifying females work participation pattern.

It is observed from the field study that the majority of female literates have only a primary education or even less. Therefore, women's work participation rates in various occupations are low except in the primary and tertiary sector (weaving). Thus diversification of occupational structure of women is almost nil in the district.

The proportion of female workers in Dhemaji district is much higher (18.47%) than the state average (10.03%). This is due to the fact that the district has a substantial population of scheduled tribes, where women work participation rate is always higher than the other ethnic groups including scheduled castes population. The ratio of female workers in Dhemaji district is 714 per 1000 males which is almost double to that of the sate average of 388 per 1000 males. The proportion of female main workers is 388 per thousand male in the district in comparison to the state average of 213 females per thousand males.

The rural urban analysis of the distribution of workers indicates that the difference of work participation of the district with the state average lies only in the rural sector while the urban work scenario is almost similar with that of the state average.

Women are found to be over-represented in the informal sector because the flexibilities of work involved in such activities, especially in home-based works. However, much of their informal works are unrecognized and unpaid, and therefore it is not considered in the standard labour force and employment indicator system.

Services constitute a very heterogeneous economic category and much of the works women typically perform comes under the category of unpaid labour, performed within the household or local community. The care economy dominates in such works. Such work comes dominantly in the form of self-employment, and because most of it is conducted in the informal sector, it is extremely difficult to get reliable estimates of such employment. Thus data inadequacy is certain in FWPR and in determining the occupational structure of women in a region.

In Dhemaji district as high as 80.94% of the workers are engaged in the primary sector, while a mere 19.06 per cent of workers are engaged in other sectors of occupation including the household industries in comparison to the state average of 52.65% and 47.35% respectively in similar occupations. This may be due to the fact that the district has a fair proportion of scheduled tribe population, and as scheduled tribe populations are traditionally linked with land and nature, and thus the proportions of workers are found to be high in primary sector, particularly in

agriculture. Moreover, the district is one of the most backward districts of Assam with very little job opportunity outside the agricultural sector.

The proportion of female workers to total workers involved in agricultural activities in urban areas are 3.46% while 11.96% of urban women are involved in activities other than agriculture against the state average of 0.60% and 14.45% respectively. However, in the rural sector the difference of FWPR in the district with the state becomes prominent where 38.56% of women (of total workers) are involved in agriculture against the state average of 17.87%. The work participation in other sectors including household industry (4.44%) for the rural women of the district is substantially lower than the state average of 11.74%. Kar (2002) also observed that the share of workers in primary occupations, especially of women among the scheduled tribe is significantly higher than the scheduled caste and non tribal groups.

In Dhemaji district as most of the workers are engaged in occupations related to the primary sector hence variation in occupational structure is relatively lower than the state. Lack of industrial and associated infrastructure development is one of the primary causes of over representation of workers in the primary sector in the district. Among the Sonowal Kachari tribe living near the Subansiri Hydro-electricity project peoples' livelihoods are changing. Over the past few years, there is a move from agriculture as the primary livelihood, to a mix of agriculture, small scale tea plantations and off-farm employment as wage labourers in the project sites. More and more people are engaged in wage earning activities among the tribes other than agriculture.

As compared to general females, the tribal females are engaged more as cultivators in agriculture, animal husbandry and weaving. In the past, few women participated in the labour force and their work place was at or nearer to their homes, so that they can simultaneously take care of the family and manage the domestic world. The present women's works become diversified and female employment growth rate has also increased. However, the diversification of occupational structure of women workers in Dhemaji district of Assam is negligible and they prefer to work near to their homes. This may be due to various factors including sense of social insecurity, lack of industrial activities, poor communication systems etc.

In the present study very little variations in occupational structures among different ethnic group respondents residing in Dhemaji district is observed. The assessment of the occupational status of the women reveals that there are not much differences in working status among different ethnic groups of women. Very few of the tribal women of Dhemaji district are involved in activities other than agriculture except weaving and sericulture. Sericulture is recognized as an intensive employment area for women. Sericulture sector is exclusively controlled and managed by women in this district. The sericulture is practiced in many parts of the district by all ethnic groups, while weaving is invariably practiced by almost all the womenfolk of the district.

It is revealing to note that only a negligible proportion of women are found in occupation other than agriculture. The female wage labourers mostly earn their wages through work in agricultural fields and its related activities. There is a growth in the number of female wage labourers over the years due to loss or damage of

agricultural lands of many of the farmers. This damage or loss is caused by devastating floods and sand silting occurring annually over the last decades. The establishment of Subansiri Hydro-electric project also attracted many female workers as it provides better wage structure and regular wage employment. This project is located in an area where Sonowal Kachari tribe is found to be concentrated. This is reason for the growth of wage labourers among Sonowal Kachari women.

It is observed that occupational share of female workers in the primary sector is 88.45% while only 4.07% and 7.48% female workers in the district are engaged in household industry works and other sectors respectively. The corresponding state average in primary sector (56.90%) is lower than the district while it is much higher in household industrial activities (7.89%) and in other sectors (35.21%). Lack of industrial and associated infrastructure development is the primary cause of low share of female workers in both these sectors in the district.

Gender roles are the socially, not biologically ascribed roles of women and men, which can vary between different societies and cultures, classes and ages, and throughout different periods in history. Gender-specific roles and responsibilities are often conditioned by household structure, access to resources, and the specific impacts of the global economy, and other locally relevant factors such as ecological conditions (FAO, 1997).

Throughout the world, rural women have played, and continue to play an important role in farming systems. It is believed by some historians that while men went out hunting, women started gathering the seeds of plants and began cultivating

them to meet their food, fibre and fuel needs (Swaminathan, 1985) and thus women are first to initiate farming by domesticating crop plants. The rural women play key roles in the entire food system, starting from the selection of seeds through sowing, manuring, transplanting, weeding, harvesting, threshing, winnowing, drying, stacking and storing, to feeding the family from the harvested produce. Besides engaging themselves in a variety of activities, both on the farm and at home, the farmwomen also contribute to the family income through their wage earnings. Poorer the farm household, greater is their relative contribution to its total income and contribute a larger share of what they earn to basic family maintenance than men (Mencher, 1987).

Women are also involved crafts like embroidery, weaving etc. Handlooms and textile sector is a major employer of women. The handloom industry is home-based sector employing women. The practice of weaving though handlooms is done in the Dhemaji district as a subsidiary income generating avenue of women. Moreover, women provide most of the services related to personal services such as domestic work, cleaning and cooking services and care of children and the elderly.

There are identifiable patterns in gender division of labour in agriculture, which is not only quite complicated, but also dynamic and subject to change. There were considerable variations in the position of women, caste-wise, region wise and between caste communities and tribal communities. Division of labour in Dhemaji district varies very little in farming system but not among the tribes. Some tasks are exclusively undertaken by men, and some by women. Predominantly male tasks include the felling of trees, ploughing with oxen, digging etc. and market related

activities such as purchase and use of pesticides/ fertilizers, sale of agricultural products etc. Women, besides household tasks usually undertakes transplanting, harvesting, thrashing, crop drying, and other post harvest operations, like - winnowing, fetching water and pig and poultry-rearing. Other tasks, such as weeding, and crop storage, are almost equally undertaken by both women and men. In general, women's workload considerably exceeds than men.

The personal, demographic and socio- economic profile of the women workers of the district reveals that majority of the women belong to low to medium income groups and also low economic status (literacy, land holding, annual family income etc.). The household works (child care and household chores) and economically benefited works (as fetching of water), which are essential for a family, is still a women's responsibility. Women usually do not get any help from their men folk for domestic activities and economically benefited activities. On the whole, distribution of task responsibility is a gender biased and divided along the traditional lines, irrespective of women's work status. It may be because of the cultural point of view that women do the household works and men do the outdoor works (Sethi, 1991). Although many women do additional work outside their home, only a few men are involved in additional work inside their home.

Most of the women in the district work in agricultural fields and during off season they engage themselves in weaving of their dresses. Women are traditionally responsible for the daily household chores. In the past, cultural restrictions were the primary impediments to female employments in formal jobs; now a day, the shortage of job opportunity contributes to low female employments.

Although the district experiences a multifaceted society, a generalized trend in gender division of labour is observable among various regional, religious, social, and economic groups. The society is extremely hierarchical where virtually everyone is being treated according to their caste, class, wealth, and power, though specific customs vary from region to region. There are different standards of behavior for men and women. Women are modest in all actions, which may constrain their ability to perform on an equal basis with men. When family economy is sound women receives a greater educational opportunity but still they remain at home to protect family's moral.

Most of the ethnic groups of the district are living close to each other; hence the pattern of gender division of labour from one ethnic group to another group has lots similarity. It is seen that most of the pre-harvesting operations are taken care by men, especially ploughing, sowing, watering and fertilizing the field. Use of machinery and draught animals are performed by men, but the farm tasks that require direct manual labours are done by women. Harvesting and other post harvest operations like manual thrashing; husking (manual), cleaning etc. were exclusively women's responsibility. However, thrashing with the help of animals and husking with the use of machinery (milling) are performed mainly by men. As a whole woman extends helping hand to men folk in every activity in agricultural production, in addition to their household activities. It is a fact that livestock's cares are more or less women's work. Men's involvements in livestock activities are limited to cleaning, milking and market related and products.

Cash crops are not very popular in the district. However, mustard seed plantation is carried out in many flood affected and sandy field areas. In the family farms where such crops are grown men only takes care of them. In general, men tend to dominate in more remunerative activities in agriculture. Women and children are normally assigned to tedious and time consuming jobs of agriculture. A man takes care of the marketing of high-valued cash crops and cattle, whereas women normally sell their domesticated chickens and pigs. Role sharing and working conditions are not static and are redefined as per social change. Earlier day's agricultural activities were shared by the community by way of helping each other in ploughing, planting and harvesting etc. Now a day these practices are not very common in many areas but still exists in some tribal villages of the state. Technological development in the district is at its rudimentary stage. Hence, the division of labour through technology is less felt in the district.

Due to disintegration of joint family structures, changes are also taking place in the gender division of labour within the family. Work division within the family depends in the size of the family and availability of works requires to be done. The disintegration of the extended family and the transition to the nuclear family often results to shortage of work within the family and thus more involvement of woman in agriculture activity is seen. The changes in family structure are accompanied by willingness and capacity on the part of the men to help the women.

Restructuring the economy of a poor district like Dhemaji needs a comprehensive policy framework emphasizing on increasing agricultural production. The implications of such a framework for women farmers need to be adequately

explored in this flood ravaged district of Assam conforms the actual conditions on the ground. The process of making production cost of cash crops competitive can primarily be done through reducing labour costs, as there is abundance of human resources available in the district. Women in the family farms provide cashless labour force and are also shouldering the tedious tasks involved with cash crop production, wherever such crops are grown.

In the present study the female work participation rate among different ethnic groups of Dhemaji district reveals that the tribal women are involved in a higher proportion in various activities related to agriculture than their non tribal counterpart. The work participation rate of women within Dhemaji district does not differ significantly among different tribal groups and proportion of non workers are comparatively low. However, the non tribal counterpart has shown a lower proportion of main workers and higher percentage of non workers.

Female work participation rate in primary activities are dependant upon various factors including the agricultural production system, local ecosystem and the farming system. Rice being the main crop of the district is typically produced in ecosystems like irrigated land; rain fed land and swamps. However, the district is difficult to partition on the basis of its agro-ecological setup. There are limited irrigation facilities in the district covering only 7.53% of the gross cropped area, due to which most of the lands remain fallow during winter season. Moreover, traditional method of cultivation is practiced in most parts of the district. Developments in the field of agriculture, including the use of HYV, fertilizers and mechanization are yet to make impact in the district. Thus in the context of the present study the sampling

villages are divided into two agro-ecological units (Unit-I and Unit-II) on the basis of irrigation facility. Villages having irrigation facilities (even partly) are grouped in Unit-I and villages without having irrigation facilities are grouped into Unit-II. The data of these two units are used in testing the hypotheses of the present study.

The present study did not reveal any significant relationship of FWPR between the two agro-ecological units for all the ethnic groups, indicating that variation in agro-ecological condition do not determine the extent of variation in female participation in work among the tribes as well as the non-tribal segment of the population.

There is a significant difference of work participation rate among the different ethnic groups rejecting the null hypothesis indicating that inter tribal variation in female work participation in agriculture is not equivalent even in similar agro-ecological units of the district. This may be because of differences of cultural, traditional and historical traditions among different ethnic groups despite the influence of one ethnic group over the other as they used to live in close proximity for decades together. Moreover, as the influence of poverty is an determining factor on FWPR irrespective of ethnicity and as the district is backward in respect of industrialization, communication etc. and as most of the tribal people are dependant on agriculture and allied activities as their sole source of income. Therefore, there are differences in work participation rates of women among the different tribes residing within the same agro-ecological unit.

Dhemaji district has a multifaceted society and customs varies from place to place; but a generalized pattern of gender division of labour is observable among various religious, social, and economic groups. The society is moderately hierarchical and people are moderately ranked relative to others according to their wealth, power and caste. In general women are expected to be chaste and modest and their employment outside the sphere of home and family farmyard is viewed as inappropriate and threat to their chastity and womanly virtue. Women and girls of the economically sound families generally receive a greater educational opportunity but are usually kept at home as a demonstration of the family's morality.

Most of the ethnic groups residing within the district are living at close proximity to each other and there are cross integration of each others cultures, traditions etc. Moreover, inter-caste, inter-tribe and inter-ethnic marriages also are not uncommon in the district. Hence, the pattern of gender division of labour of one ethnic group has definite influence on the other groups resulting in a generalized trend.

The third hypothesis which states that "Sexual division of labour shall be more prominent between the tribes and the non-tribes" is also rejected since there are very little differences in sexual division of labourers, except fetching of fuel or firewood which are carried out by women in the tribal society and man in non tribal communities. Thus the sexual divisions between the two groups are not significant within similar agro-ecological units as well as within the district as a whole.

CONCLUSION

Women make a considerable contribution to agricultural production in developing countries. Women workers in farming may be unpaid family labour or self-employed own-account workers and wage labourers on farms. There needs a clear understanding of the role played by women in agriculture. The recognition that most women in rural areas are farmers necessitates a reorientation in research work related to women and agriculture.

The present research work basically embodies the detailed geographical treatment of the demographic and socio-economic characteristics of women population in the Dhemaji district of Assam. Main focus was given to the female work participation in the primary activities of the Mishing, the Deori and the Sonowal Kachari tribes. An analysis of the pattern of socio-economic characteristics of women at local level was also studied to know the position of women in various socio-economic and cultural situations in the region.

Methods and approaches thought to be appropriate for the present study have been applied including field observations. It may be mentioned here that the analysis of the problem is sometimes constrained due to non availability of adequate data.

Dhemaji is an agricultural district where people depend on agriculture directly or indirectly as it constitutes to be mainstay of the economy. With food being the growing need of the mankind, adequate production and distribution of food has lately become a high priority of the people in the globe. With the changing

agricultural scenario and global competition there is need of exploiting the available resources at maximum level.

In agriculture the factors like high soil productivity, supply of balanced crop nutrients, efficient water management, improved crops, better plant protection, post-production management for value addition and marketing are responsible for higher yield.

Achievements of Indian agriculture like development of HYVs, new hybrids of different crops have strengthened the field. The enormous pressure to produce more food from less land with shrinking natural resources is a task for the farmers. To keep up the momentum of growth a careful economic evaluation of inputs like seeds, fertilizers, irrigation sources etc. are of considerable importance.

Rural women play a vital role in agriculture and participate in all stages of crop production, as they constitute a major part of rural labour force. They contribute in agricultural operations like transplanting, manuring, fertilizing, harvesting, threshing, winnowing and drying etc. For better exploitation of the emerging opportunities, there is need for changed outlook in favour of women, evolving technologies to suit women farmers, increasing the number of women extension workers, educating and training women farmers.

MAJOR FINDINGS OF THE STUDY

1. Dhemaji district has a substantial population of tribes (43.92%). The urban population is only 1.85%, indicating a rural character of the district. The district is situated in one of the heaviest rainfall areas of Assam and thus is most flood prone. The economy of the district is mainly agro based characterized by subsistence level of production and consumption. Sericulture, fishing and driftwood business are also carried out in smaller scales.

2. There exists a small difference in work participation pattern in agriculture among women of different ethnic and tribal population residing within the district. Agriculture is carried out through a traditional lines and customs and thus it is more labour intensive and low in productivity.

3. The proportion of female main workers involved in the agricultural sector is much higher than that of the state average. However, very few female main workers are found outside the primary sector. Similarly the proportions of female marginal workers are also much higher in Dhemaji district (10.13% of total population) than the state average of 0.43%.

4. The FWPR of tribal women are substantially higher than the non-tribal women irrespective of age groups. Women of the district remain economically active up to 45 years of age after which their economic contribution tends to decline. There is a significant relationship between age group and work participation rate in agriculture.

5. There exists an insignificant relationship between education level and FWPR in agriculture sector for all ethnic groups in the district probably due to lesser job opportunity outside the primary sector within the district.

6. Economic status of a family has a direct relationship with the women's work participation in agriculture, and thus land holding, which holds a direct relation to the economic connotation of a family, has shown a significant relationship with the FWPR of tribal women as well as of non tribal women.

7. Mishing women are found to be more active than the other two tribes in terms of work participation rate. However, proportions of main workers are observed to be higher in Sonowal-Kachari and Deori tribes. The FWPR for all three tribes are much higher than their non tribal counterpart residing within the district. There is an increasing trend of shift of women workers engaged in their own family farms to agricultural labourers during the last decades due to damage of agricultural lands by flood and erosion in Dhemaji district. This also indicates increase in landlessness and poverty, although accurate data is not available in this regard.

8. Very little variation in occupational structures among different ethnic groups of respondents residing in Dhemaji district was observed in the present study. Female workers in the district are mainly engaged in primary sector and work variation is relatively lower than the state scenario. As women workers prefer to work nearer to their homes, diversification of occupational structure of women in the district is found to be negligible. The shares of female workers in the primary occupations

among the non-tribal population in the district are considerably lower than the scheduled tribe population.

9. Most of female workers in the district are engaged in the primary sector (88.45%), while negligible proportions of female workers are found to be involved in household industry works (4.07%) and other sectors (7.48) respectively. Lack of industrial and associated infrastructure development in the district is the primary cause for low percentage share of female workers in other sectors in terms employment.

10. Over the years, there is a decline in the number of cultivators and more and more women are engaged as agricultural labourers in the district, mainly due to floods and resultant sand deposition and erosion making the farm lands unusable for cultivation. Moreover, there seems to be moving away from agriculture as the primary livelihood, to mix cultivation, small scale tea plantations and off-farm employment as wage labourers in the western part of the district (Bordoloni block) as subsidiary income-generating activity.

11. As most of the ethnic groups residing within the district are living at close proximity to one another and are interacting with each other for decades together hence, the pattern of gender division of labour of one ethnic group must have influenced the other groups resulting in similarity.

12. As in other cultures and societies, the sociological system of the region is also firmly rooted in a hierarchical system of economic, social and political relations based on the sexual difference between men and women, where male domination and

female submission form the basic structuring principle of society resulting in gender division of labour. Generally tasks related to the public domain and to the generation of family income were assigned to men, while women were assigned tasks of biological and human reproduction that were mostly limited to private, domestic domain.

13. Predominantly male tasks in the primary sector includes the felling of trees, ploughing with oxen, digging, preparation of field, carrying harvested crops to home etc and market related activities such as purchase and use of pesticides/ fertilizers, sale of produce etc. Women, besides household task usually undertake transplanting, harvesting, threshing, crop drying, other post harvest operations, grinding grain, winnowing, fetching water and pig and poultry rearing etc. Other tasks, such as weeding, bagging and crop storage are almost equally undertaken by both women and men.

14. Most of the women of the district work in agricultural fields and also do weaving activities. It was further revealed that livestock care was more or less a female work. Men's involvement in livestock activities was rather limited to cleaning, milking and market related activities of livestock and livestock products. Cash crops are not grown in a generalized way in the district. However, in the family farms where such crops were grown, men tend to be responsible for them.

15. Due to progressive disintegration in joint type of family structures, changes are also taking place on the level of the gender division of labour within the family. The changes in family structure are accompanied by willingness and capacity on the part

of the men to act supportively in works that are previously and exclusively performed by women. However, lack of elementary knowledge of work simplification techniques is increasing the drudgery of rural women's work.

16. The work participation rate of women within Dhemaji district does not differ significantly among different tribal groups and proportions of non workers are comparatively low. However, the non tribal counterpart had shown lower proportions of main workers and higher percentage of non workers.

17. Variations in agro-ecological conditions within the district had no effect on the extent of female work participation rate among the tribes as well as the non-tribal segment of the population.

18. Only a negligible section of the tribal women are involved in activities other than agriculture and weaving in the district and is comparatively lower than that of females in the general population in similar occupations. Sericulture practice is a major source of income for many women of the district. Almost all the rural households of the district have looms for weaving. Sericulture is recognized as an intensive employment area for women. Women are actively involved in silkworm rearing including their feed, silk reeling, spinning etc. Sericulture being a small-scale industry, is a source of subsidiary income in many rural households of the district, and is operated exclusively by women.

SUGGESTIONS:

1. Though considerable attention was paid to identify and calculating the value of women's unpaid work, there was hardly any attention paid to women's work in terms of income in the home based production. As the FWPR of tribal women is always higher than their non tribal counterpart hence, this fact assumes more importance in tribal societies. This is an area where statistical data is not available from official records, except a few. As rural women are becoming increasingly responsible for household activity and food production, development programs must adapt to this changing demographic profile so that rural women can acquire the necessary training on new productivity-enhancing techniques and technologies. The study of this sector assumes importance because most of the income derived from this work frequently provides the very basis for family survival particularly among the extremely poor farmers.
2. There are very few data available on the number of women engaged in home based production due to the lack of recognition of home based producers as workers in most data gathering system. A wide range of productive activities can be included in the home-based work as production of handicrafts, garments, rearing of small animals and poultry, grain cleaning etc. Women often combine their household tasks with income generating work. The hours of work vary from part time work to extended days work. Data on tribal women in this sphere may be gathered, which in turn can be analyzed in a meaningful way for the benefit and economic uplift of the district in general and the tribal societies in particular.

3. Tribes are always associated with the nature and agriculture is the main source of income for them. Tribal women always play a key role in agricultural production and thus there is a need for re-defining the concept of 'worker' and giving a monetary status for these activities. These should also be reflected in Gross National Product.
4. Analysis of rural women's work showed that there was increasing drudgery of the household work because of lack of elementary knowledge of work simplification techniques. This is particularly true for the tribal societies. It is, therefore, necessary to evolve time-saving technologies for these household chores. Non-formal education emphasizing work simplification, time and energy management can considerably reduce the physical labour of work, thereby releasing more time and energy for economically productive activities. Education programs on such areas can be incorporated in rural development programs.
5. Access to science, technology and information improve life for rural women and help to reduce poverty. Basic education for women has been shown to have significant impacts on agricultural production. However, women have lesser access to skill acquisition, skill training and skill up gradation. While women play a predominant role in agriculture and food provisioning women's participation in agriculture extension training and research in next to insignificant. These areas of consideration need immediate attention for uplifting the rural economy of the district.
6. With a commitment to sustainable development, priorities emerged to work with rural and tribal communities which are vulnerable to underdevelopment. Further, a growing realization of the need for a comprehensive process of development,

the significance issues of core areas are addressing Women's Development and Sustainable Agriculture.

7. Tribal women traditionally possess a commendable knowledge about feed value of various fodder plants, indigenous medicinal plants and about organic farming, though they themselves are ignorant about their knowledge. A systemic study of such know-how should be made for their maximum utilization and to promote organic farming so as to increase women's productive role in agriculture, decrease health hazards and avoid the drain of scarce family income to pay for unnecessary chemicals.

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PARTICIPATION OF TRIBAL WOMEN IN AGRICULTURE IN DHEMAJI DISTRICT OF ASSAM

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1. INTRODUCTION

Rural Women form the most important productive work force in the economy of majority of the developing nations including India. Agriculture, the single largest production endeavor in India, contributing 25 per cent of GDP, is increasingly becoming a female activity. Agriculture sector employs $4/5^{th}$ of all economically active women in the country. In India, 48 per cent of self-employed farmers are women. There are 75 million women engaged in dairying as against 15 million men, and 20 million in Animal Husbandry as compared to 1.5 million men.

Beyond the conventional market-oriented narrower definition of 'productive workers', almost all women in rural India today can be considered as 'farmers' in some sense, working as agricultural labours, unpaid workers in the family farm enterprise, or a combination of the two. Over the decades, more and more rural men have migrated from their home places to urban areas in search of better employment opportunity and thus rural India is witnessing a process which could be described as *Feminization of Agriculture.*

India, with a population of 989 million has 120 million women living in poverty. India has 16 per cent of the world's population, but only 2.4 per cent land is available to shelter them, resulting in great pressures on its natural resources. Over 84 per cent of the economically active women in India derive their livelihood from land resources. As per the Indian Planning Commission Mid Term Report 2000, the per capita income in India is only Rs 4285.00 per annum and people living below the

poverty line comprise 44.2% of the total population. The labour force participation rate of women is 22.7%, which is less than half of the men's (51.6%). In rural India, agriculture and allied industrial sectors employ as much as 89.5% out of the total female labour force.

Although women work longer hours and are more arduous workers than men, their work is largely unrecognized. Technological progress in agriculture has a negative impact on the women work force. Even the extension services too overlook women. While women are guaranteed equality under the constitution, legal protection has little effect in the face of prevailing patriarchal tradition. India has a long history of activism for women's welfare and rights and has increasingly focused on women's economic rights. A range of government programmes have been launched to increase economic opportunity for women, although there appears to be no existing programmes to address the cultural and traditional discrimination against women that lead to dismal conditions.

Self-sufficiency in food production is still an overriding social issue and is, to a large degree, due to marginalization and disempowerment of women. Ironically, much of the essential work of household rests in women's hand. Traditionally, women bear primary responsibility for the well being of their families. Yet, they are systematically denied access to the resources they need to fulfill their responsibility, which includes education, health care services, job training, and access and freedom to use family planning services.

Working women are invisible to most of the population. If the activities like maintenance of kitchen gardens and livestock, grinding food grains, collecting water and firewood, household chores etc. are taken into account, then 88 per cent of rural housewives and 66 per cent of urban housewives can be considered as economically productive. Women's employment in family farms or business is rarely recognized as economically productive and incomes generated from these works are generally controlled by men. Such work is unlikely to ensure women's participation in all around financial activities of the family.

Technological progress often displaces women labourers by men. Extension services also tend to reach only men, with women continuing to perform unskilled tasks. A World Bank study in 1991 reveals that the assumptions made by extension workers are that information within a family transmits to women through men. The male dominated extension system tends to overlook women's role in agriculture and proves ineffective in providing technical information to women farmers.

A number of factors perpetuate women's limited job skills: to train women for economic activities requires them to leave their village; this is usually a problem for them. Unequal access to education restricts women's ability to learn skills that require even functional levels of literacy. In terms of skill development, women are impeded by their lack of mobility, low literacy level and prejudiced attitudes towards women.

Violence against women and girls are the most pervasive human rights violation in the present world. The fear of violence is a great concern in the lives of

most women. Fear of violence is a cause of women's lack of participation in activities beyond their home. Within their home, women and girls may be subjected to abuse, punishment and culturally justified assaults. These acts shape their attitude to life, and their expectations to themselves. The insecurity outside the household is the greatest obstacle in the path development to women. Compared to the atrocities outside the house, atrocities within the house are endurable and women continued to accept their inferiority in the house and society. Exposure to and interactions with the outside world is instrumental in determining the possibilities available to women. The situation of women is affected by the degree of their autonomy or capacity to make decisions both inside and outside their own house.

Women continue to have little access to land and property, which is a major source of income and long-term economic security. Transforming the prevailing social discrimination against women will help in improvement of the social and economic status of women. If women receive better education and training, they will be able to contribute substantially to the family income. Generally, women spend their earnings in the welfare of the family including education and health for their children.

The tribal population of India (67.6 million) is greater than that of any other country in the world. In fact, it is almost equal to the tribal population of nineteen countries that have substantial tribal population. Myanmar has a tribal population of 14 million and is the second largest tribal populated nation in the world. India has four times more than Myanmar and six times more than Mexico (10.9 million). The tribal population in India constitutes 8.08 per cent of the total population. They are

the most adversely affected ethnic group due to developmental projects like dams, factories and mines. In fact, they constitute 40 per cent of the displaced persons due to developmental projects. On the other hand, tribal population of Assam is not affected in a similar manner as very little industrial development has taken place in this region.

The tribals in Assam seem to be living outside the mainstream of the general population, but their villages are not exclusive. Traditionally they live in clusters in hamlets, generally in remote areas. They have their own socio-cultural life, which is male-dominated and patriarchal, which are at varying stages of development. Since independence, with more than half a century of efforts by the government to bring them at par with the rest of the society, not much has been achieved. The health status of tribes are poor, educational opportunities have not been taken advantage of, economic activity centres around agriculture for both men and women, and savings are unheard of. Their social life is unique. The constraints of more developed societies do not apply here. Because of contacts with outside society, they have adopted Hindu religious practices, but their original religious practices are a mixture of animism and superstitious beliefs which are retained by many.

Agriculture is the dominant sector of the economy of Assam contributing about 56 per cent of the states income (Das, 1984)[1] and crop production occupies the most important part of agriculture. Agriculture in turn is dependant upon type of soil, rainfall and host of other natural factors. Moreover, the cultivable land is highly

[1] Das, M. M. (1984): *Peasant Agriculture in Assam,* Inter-India Publication, New Delhi

limited due to the peculiar physiographic conditions of the state. Intensity of cropping and yield per hectare are also very low in the state.

Assam is a state with wide variation in its inhabitants and also in its physical, economical, cultural and historical conditions. For these reasons, there are no uniform patterns of agricultural practices among different tribes. Female work participation in this sector is also of varied nature. In tribal society females perform a major role in all work processes in agriculture.

Dhemaji, the eastern most district of Assam, is constituted bifurcating Lakhimpur district and is the homeland of a large number of scheduled tribes namely the Mishings, the Deoris, the Sonowal Kacharis, the Bodos, and the Tiwas besides other ethnic groups like the Chutiyas, the Ahoms, the Koch and others. The bulk of the tribal population of the district is constituted by the Mishing tribe. Agriculture is the main occupation of all the tribes and non tribes residing within the district. The Mishings are mainly riverine dwellers and are found all over the district while the Sonowal Kacharis and the Deoris are mainly confined to the Dhemaji subdivision of the district.

1.1 REVIEW OF LITERATURE

1.1.1. THE TRIBES AT A GLANCE

The tribal communities of Assam constitute 12.82 per cent of the total population. The tribal societies of this region are more or less isolated from outside world and from other similar societies until recent past. However, since independence, the gradual exposure to people of outside societies caused a gradual transition of their work, culture and way of living.

The Mishings are the second largest group of scheduled tribe (plains) of Assam after the Bodos. They are concentrated in the riverine areas of Lakhimpur, Dhemaji, Dibrugarh, Sivasagar, Jorhat, Golaghat, Tinsukia and Sonitpur districts of Assam. Their main occupation is agriculture, which is still at the subsistence level. The agricultural lands are mainly suitable for Ahu paddy. Besides paddy, they cultivate mustard seeds, sweet potatoes, pulses, cotton, maize, banana etc as subsidiary crops. Transplantation and weeding are traditionally the work of the women folk, while ploughing, threshing and carrying the harvested crops home are done by men. The role of the Mishing women in improving the economic conditions of the respective families cannot be underestimated. Most of their necessities like yarn, clothes, cosmetics, ornaments etc are procured from their exclusive earnings derived from rearing of pigs, poultry etc. The population of the Mishing language-speaking people in Assam is 381562 (1.7%).

The Sonowal Kacharis are the third largest scheduled tribe (plains) of Assam. They are mainly concentrated in Dibrugarh district of Assam. Besides Dibrugarh,

Sonowal Kacharis are also found in Lakhimpur, Dhemaji, Sivsagar and Jorhat districts. The number populations of the Sonowal Kacharis are not known as this tribe is included along with the Assamese speaking population in the 2001 census. However, the projected population of Sonowal Kacharis in 1987 as per 1971 census was 318717. Agriculture is the sole means of their livelihood. They are wet rice cultivators of Sali and Ahu paddy. Besides paddy, they also grow mustard, potatoes, sweet potatoes, pulses and winter vegetables. They are very much cognizant of their economic and educational improvement. They like to explore new avenues of employment for which occupational mobility are being taken place (Bordoloi *et. al.*1987)[1].

The Deoris are maintaining their old traditions, religious believes and practices. They are riverine tribe and are pile dwellers. The population of the Deori language-speaking people in Assam is 15955 (0.07%). Agriculture is the principal means of family income. They relish Ahu paddy. Besides paddy they produce mustard seeds, sweet potatoes, pulses, cotton and few varieties of winter vegetables. The majority of the tribe practices traditional method of cultivation. The Deori women enjoy a fair position in the society as they are treated as equal partners in the daily life. Except ploughing and cutting trees or jungles, the women perform all activities as their men.

[1] Bordoloi, B. N.; SarmaThakur, G. C. and Saikia, M. C. (1987): *Tribes of Assam* (Part-I & Part-II), Tribal Research Institute, Assam, Guwahati

1.1.2. A BRIEF RESUME OF GENDER STUDIES

Gender studies in geography are still in its infancy. This type of study actually got attention after the pioneering work of the British group called "Women and Geography study group". Their first book was "*Geography and Gender: An Introduction to Feministic Geography*" wrote in 1984. The *Human Development Report* published by UNDP in 1997 has brought the attention of researchers to the field of feministic study. Although the status issue of women is a dynamic and multidimensional subject, but in most societies it is portrayed as that of motherhood, childrearing and of no economic importance in spite of their direct and indirect contribution to household economy (Rashid, 1994)[1]. Monk and Hanson (1982)[2] also gave emphasis on importance of the study of gender issues in geography while Andrews (1982)[3] and Lee and Schultz (1982)[4] made conceptual and methodological contributions towards understanding the status of women both in absolute and relative terms.

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[1] Rashid, K. B. S. (1994): Commercial activity, Women and Ecology. Key note paper, *International Seminar on Commercial Activity, Women and Ecology*, Dhaka (Souvenir) pp 17

[2] Monk, J and Hanson, S. (1982): On not excluding half of the human in Human Geography. *Professional Geographer.* **34(1):** 11-23

[3] Andrews, A. C. (1982): Towards a Status of Women Index, *Professional Geographer.* **34 (1):** 24-31

[4] Lee, D and Schultz, R (1982): Regional Pattern of female status in United States, *Professional Geographer*, **34 (1):** 32-41

Works on gender geography in India is still very limited. Geographers like Mehta (1967)[1] and Gosal (1973)[2] studied the spatial pattern of occupational structure of female workers in India. The efforts made by Mahadevan (1989)[3] in bringing out the contemporary problems of women in different countries of Asia is also worth mentioning. Raju and Kumar (1989)[4] also focused the gender issues in geography. Nayak (1991)[5] analyzed the participation of rural women in economic activities in selected areas in India where he attempted to explain the nature and extent of female work participation both in spatial and cross cultural terms.

Socio-economic and socio-political studies have also been made by several researchers like Das (1979)[6], Saikia (1987)[7] in North East India. Sharma (1985)[8] tried to examine the spatial pattern of literacy and education and its associated

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[1] Mehta, S (1967): India's Rural female Working Force and its occupational structure, 1961: A geographical Analysis, *The Indian Geographer,* **22 (1&2):** 53-56

[2] Gosal, G. S. (1973): Spatial perspective on progress of Female Literacy in India 1901-71, *Pecific View Point* Vol. **XIV**: 321-22

[3] Mahadevan, K. (1989): Women and Population Dynamics: Perspectives from Asian Countries, Sage Publications, New Delhi.

[4] Raju, S and Kumar, M. S. (1989): Gender and geography: An Overview from India. *Journal of Geography in Higher Education.* **13:** 102-104

[5] Nayak, D. K. (1991): Female participation in Economic Activity in Selected Rural areas in India: A Geographical Analysis. Unpublished Ph. D Thesis, Jawaharlal Nehru University, New Delhi

[6] Das, R. (1979): Women's Education in Assam in Post Independence Period (1947-1971) and its impact on the Social life of the state. Unpublished Ph. D thesis, Gauhati University

[7] Saikia, A (1987): Female participation in Agricultural Operations in Assam- A study of Sivasagar district. Unpublished Ph. D Thesis, Gauhati University

[8] Sharma, H. N. (1985): Sex disparity in Literacy and Social Topography in Assam. In Mukerji, A. B. and Ahmad, A (Eds) *India- Culture Society and economy.* Inter India Publications, New Delhi pp 379-401

correlations in North East India. Kar and Sharma (1998)[1] analyzed the sex disparity in non agricultural activities in North East India. Kar (2002)[2] analyzed the spatial pattern of demographic, social and economic characteristics of women of North East Region of India and their nature and degree of work participation in the agricultural as well as non agricultural activities

1.1.3. GENDER DIVISION OF LABOUR

Information about gender division of labour is useful for identifying the target group for project activities. Division of labour in agriculture is not only quite complicated, but also dynamic and subject to change. A division of labour by gender both paid and unpaid works exists in almost all societies, although the nature of the specialized works done by women and men differs substantially due to place and time. Hence, economic and cultural interpretations require detail analysis in a specific social context incorporating class, race and other structural variables in addition to gender (Tinker, 1990)[3].

There are some existing patterns of gender divisions of labours. For example, cooking, grinding grain, transplantation, harvesting and carrying water are more commonly female activities and ploughing, preparation of field, carrying harvested

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[1] Kar, B. K. and Sharma, H. N. (1998): Sex Disparity in Non Agricultural Activities in North East India: An Ecological Perspective, in Assam. R. M *et. al.* (Eds) *Women, Work and Environment: Studies in Gender Geography,* Bangladesh Geographical Society, Dhaka

[2] Kar, B. K. (2002): *Women Population of North East India: A Study in gender geography.* Regency Publication, New Delhi

[3] Tinker, I. (1990) *Persistent Inequalities: Women and World Development.* New York/Oxford, Oxford University Press.

crops to home etc. are more commonly male activities (Rogers, 1980)[1]. However, flexibility in the gender division of labour is also common.

Division of labour between men and women varies from region to region according to society and social customs. Community wise women's participation in agriculture was highest among the tribal followed by scheduled castes and the degree of participation declines with their positions in the social hierarchy (Majumder, 1975[2]; Kak, 1994[3]).

Unpaid work may be defined as the works done for someone else without remuneration (Delphy and Leonard, 1992)[4]. The housework, child and dependent care were unrecognized and undervalued, unpaid work done predominantly by women. Unpaid works also includes community and voluntary works. Within household and paid work, gender divisions of labours are observed. Women do far more household works, but men specialize in maintenance and outside household tasks.

The nature of the gender division of labour has undergone lot of changes along with the changes in the methods of agriculture and the separation of household works from the field site of works. In agriculture, the impact of modern technology and shift from subsistence to cash cropping largely benefited men, while increasing

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[1] Rogers, B. (1980): *The Domestication of Women: Discrimination in Developing Societies*, London and New York, Tavistock

[2] Mazumdar, V. (1975) Women in agriculture. *Indian Farming*. **.25(8):** 5-7, 64-65

[3] Kak, S (1994): Rural Women and labour Force Participation. *Social Scientist* **22:** 36-59

[4] Delphy, C; and Leonard, D. (1992): Familiar Exploitation: A New Analysis of Marriage in Contemporary Western Societies. Cambridge, Polity Press.

women's work in the family (Boserup, 1970)[1]. The homework constitutes a gendered phenomenon. Women's participation in the paid labour force has shown fluctuations matching the social and economic changes, with their use as a reserve army of labour. Supply and demand factors have led to an increase in women's work participation in agricultural and allied activities and its extent varies according to economic, social and policy factors.

Female dominated occupations are lower waged and are more frequently defined as unskilled irrespective of its content, through the social construction of skill (Phillips and Taylor, 1980)[2]. However, as financial pressures necessitated dual earner households and thus the double burden on women emerged, with women working longer hours than men (Szalai, 1975)[3]. A comparative advantage for women in household work and men in paid work arises either from a belief in biological differences or from the observation that men earn more on an average than women. Specialization of roles, with men doing all or more of the market work and women more of the household and caring work, emerges simply from rational household decision-making. (Folbre, 1982)[4].

The gender division of labour takes the form of horizontal and vertical occupational segregation, with women specializing in occupations in which skills

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[1] Boserup, E. (1970): *Women's Role in Economic Development.* New York, St Martin's Press.

[2] Phillips, A; and Taylor, B. (1980): Sex and Skill. *Feminist Review.* **6:** 44-48.

[3] Szalai, A. (1975): Women's Time: Women in the Light of Contemporary Time Budget Research, Futures. Oxford University Press, London

[4] Folbre, N. (1982) "Exploitation Comes Home: A Critique of the Marxian Theory of Family Labour", *Cambridge Journal of Economics,* **6**: 317-29.

depreciate rapidly. Women are over represented in the secondary sector, with little access to better occupational conditions. This could be due to women having less access to education, training, apprenticeships and professional associations. However, despite many studies, gender specific occupational pattern, their differences between different societies and in the same society over time is yet to be fully understood (Brown and Pechman, 1987)[1].

Due to progressive disintegration in joint type of family structures, changes are also taking place on the level of gender division of labour. The women, besides their traditional household tasks, such as fetching of water and firewood, are more involved in the sort of work for which men were formerly responsible. Work division and organization by gender within the family is closely related to the size of the family and to the amount of work to be done in women's own separate fields. The disintegration of the extended family and the transition to the nuclear family often results in a shortage of work capacity within the family. Woman's help in all aspects of fieldwork is needed and in agriculture generally it takes priority. The changes in family structure are also accompanied by willingness on the part of the men to act supportively.

Distribution of task responsibility and help received for housework and economically extended work was gender biased and divided along traditional lines, irrespective of women's work status. It may be because of the cultural view that

[1] Brown, C; and Pechman, J. (1987): *Gender in the Workplace*. Cambridge, Polity Press. pp 67-75

women do the housework and men do the outdoor work (Sandhu and Dhesi, 1977)[1]. It is a fact that unpaid domestic work is seen as women's work and women's responsibility. It was further observed that women were more involved in livestock care (Rani and Singh, 1982)[2]. Men's involvements in livestock activities were rather limited to cleaning and milking the animals. It is noteworthy to mention that most of the pre-harvesting operations are undertaken by men, especially ploughing, sowing, watering and fertilizing the fields. Operations of machinery and draught animals are performed by men, while women are often seen in works where the farm tasks demand direct manual labour, such as weeding, removing stones or debris from the field with hand.

1.1.4. EDUCATION AND WOMEN

Literacy is one of the major attributes, which determines the character of social well being of women and their position in the society. Moreover, the issue of educational development is so basic and fundamental to human life that its differential levels results in disparities among people and places (Desai, 1994)[3]. Although, India's constitution guarantees free primary school education for both boys and girls even than India has the largest population of non-school-going working girls. Overall, the literacy rate for women is 54.28 per cent against 75.96 per

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[1] Sandhu, H. K.and Dhesi, J. K. (1977): The economic contribution of women to agricultural development. *J Res Punjab Agric Univ.* **14(1):** 96-102

[2] Rani, U. and Singh, C. B. (1982): Economic performance of farm women of weaker sections in dairy enterprise [Labour, income, India]. *Asian J Dairy Res.* **1(3/4)**: 206-212

[3] Desai, S. (1994): Gender Inequalities and Demographic Behavior: India. The Population Council Inc. New York

cent for men. Although substantial progress has been achieved since independence, where less than 8 per cent females are literate, but it is not enough to keep pace with population growth.

The reluctance to educate girls has its roots in the situation of women (Paralikar and Yates, 1987)[1]. It is generally viewed that girls require no formal education for their future roles. A large proportion of the girls are kept at home because of responsibilities in housework. Moreover, parents are often reluctant to send their daughters to schools when they are located at a distance or when girls are expected to study along with boys.

In spite of the efforts of social reforms that included education for women, improvement of general literacy for women has been slow. The disparity between male literacy and female literacy has constantly been at about 25 per cent level. In spite of the sustained growth in female enrolment at tertiary level in recent years, women represented only an estimated 33.8 per cent of students in 1995, as compared to 31.7 per cent in 1989. Their representation in Science and Technology fields remains very low and women represents only 7.7 per cent of scientists and engineers, technicians at 9.5 per cent and auxiliary personnel at 17 per cent (UNESCO, 1997)[2].

In Assam, the situations in regard to education of girls are not so different especially in the rural areas. The overall literacy rate for women in Assam is 34.29 per cent as compared to 49.99 per cent for males. The literacy percentage of women

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[1] Paralikar, K. P. and Yates, B. A. (1987): Education as a household resource. *Int Agric Publ Gen Ser.* **3**: 57-60

[2] UNESCO (1997): Human Development resource centre, UNDP, Bombay

in Dhemaji district is 31.55 per cent as compared to 51.08 per cent for man (Statistical Hand Book, Assam, 2004)[1]. The female literacy among the tribal women in Assam is far better than that of their counterparts in India, but still not significant.

There is a distinctive connection between literacy and population growth and female literacy and education. The most effective effect of education is the late marriage, less fertility rate, less mortality rate etc. As a matter of fact, literacy attainment is a part of larger social change and it needs to be placed in proper perspective, without which the regional distortions as well as gender discriminations will not disappear even as general literacy rates rises (Raju, 1993)[2]

1.1.5. THE STATUS DISPARITY OF WOMEN

Although the constitution provides legal equality for men and women social and economic equality is yet to be achieved. This is the fact why Indian women continue to be recipients of welfare and remain at a lower status with low literacy and poor access to resource and facilities. In most parts of India today, women constitute a disproportionate share of the chronically poor population. As in other parts of the world, Indian women face gender discrimination throughout their life within the family, society and at work place that runs common across the country along all class, caste and religion with varying degrees (Sandhu, and Dhesi, 1977)[3].

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[1] Statistical Hand Book of Assam, (2004): Published by the Directorate of Economics and Statistics. Govt. of Assam, Guwahati.

[2] Raju, S. (1993): Regional disparities in female literacy in Urban India: Problems and Prospects. Nuna, S. C. (ed) *Regional disparities in Educational Development*, South Asian Publishers Pvt Ltd, New Delhi

[3] Sandhu, H. K.and Dhesi, J. K. (1977): The economic contribution of women to agricultural development. *J Res Punjab Agric Univ.* **14(1):** 96-102

Gender division of labour prevails in all sectors of employment. Gender discrimination in India is observed in the fields of education, employment, control over property and resources, participation and influencing decision-making in public and political spheres etc. (Sen, 1985)[1]. Although about 25 per cent of rural households are female headed, which may be due to widowhood, desertion or male out-migration, especially in the hilly and backward areas (Dutt, 1985)[2]; yet, the national focus of policies and programmes, have been more on employment generation for women rather than ownership and control over resources and give least importance in addressing their priorities or involving them in decision-making roles (Purushothaman, 1998)[3].

Women bear the primary responsibility for child education, nutrition, and health, and contribute substantially to the family income through their work participation in various productive activities. The persistence of hunger and poverty in India and other parts of the world can indirectly be linked to the subjugation, marginalization and disempowerment of women. India has exceptionally high rates of women and child malnutrition, because tradition in India requires that women eat last after feeding all the family members (Nath, 1992)[4]. Moreover, females receive

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[1] Sen, G. (1985) Women's work and women agricultural labourers: a study of the Indian census. Paper presented at the Indian Statistical Institute Golden Jubilee International Symposium on Women, Work, and Society, 1982, New Delhi.

[2] Dutt, K. (1985): Women's work and employment belonging to special categories (SC and ST). Jain, D and Banerjee, N (Ed) *Tyranny of the household: investigative essays on women's work.* Shakti Books. pp.87-109

[3] Purushothaman, S. (1998): The Empowerment of Women in India: Grassroots Women's Networks and the State. New Delhi: Sage Publications.

[4] Nath, M. (1992): Women's issues: from the periphery to the centre. *J Rural Dev.* **11(5)**: 515-519

less health care facilities than males. Working conditions and environmental pollution further impairs women's health. In respect of education, it is far less likely to educate girls than boys, and far more likely to pull them out of school to help at home.

1.1.6. WOMEN AND WORK PARTICIPATION

The study of women's work participation is vital to understand the role of women in socio-economic functioning of a region. The participation in work force has the potentiality to raise the quality of living and can exert an effective control on family size. Women work longer hours than men do and they work roughly twice as many hours as men. Women's contribution to subsistence farming or commercial agriculture when measured in terms of the number of tasks performed and time spent is greater than men (Jain and Chand, 1982[1]; Usha *et. al.*, 1983[2]).

Women constitute a significant human resource on rural farm families. The farm activities include hoeing, weeding, harvesting, transplantation, processing, preservation, artisanship etc. Moreover, child bearing and socialization, and household chores as food preparation, house and material cleaning, firewood and water fetching are also carried out by women. (Waghmare and Choudhury, 1989)[3].

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[1] Jain, D. and Chand, M. (1982): Report on a time allocation studies: Its methodological implications. Paper presented at Technical Seminar on *Women's Work and Employment*, New Delhi.

[2] Usha. U; Miglani, S. S.and Singh, A. J. (1983): Female labour participation in Faridkot district (Punjab state). *J Res Punjab Agric Univ.* **20(4):** .525-535

[3] Waghmare, S. K. and Chaudhari, N. V. (1989): *Tribal women in agriculture.* Metropolitan, New Delhi.

Bhople and Patki (1992)[1] observed that farmwomen are involved maximally in pre sowing, manuring, harvesting and grain storage operations and minimally in land preparation and plant protection.

World economic profile of women shows that they represent 50% of population and 40% of the world's farms are managed by women. In India, women accounts for 48% of rural population and perform up to 2/3rd of manual work. Thus Indian agricultural scenario cannot be improved without making women equal partners in developmental efforts (Kharwara *et.al.*, 1991)[2].

The extent of women's contribution is aptly highlighted in study conducted in the Indian Himalayas, which found that on a one-hectare farm, a pair of bullock works 1,064 hours, a man 1,212 hours and a woman 3,485 hours in a year (Shiva and Dankelman, 1992)[3]. In Andhra Pradesh, Mies *et. al.* 1986[4] found that the workday of a woman agricultural labourer during the agricultural season lasts for 15 hours, from 4 am to 8 pm, with an hour's rest in between, while her male counterpart works for seven to eight hours, from 5 am to 10 am or 11 am and from 3 pm to 5 pm. Rice transplantation, the most arduous and labour intensive task in rice cultivation, is

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[1] Bhople, R. S. and Patki, A. (1992): Correlates of role performance and training needs of farm women labour. *Journal of Rural Development.* **11:** 49-58

[2] Kharwara, P.C.; Manchanda, A.; Kistwaria, J. and Konwar, P. (1991): Comparative adoption of improved technology by female and male headed scheduled caste families. *Journal of Rural Development.***10:**343-351.

[3] Shiva, V. and Dankelman, I. (1992) Women and biological diversity: lessons from the Indian Himalaya. David, C. (Ed) *Growing diversity genetic resources and local food security.* Intermediate Technology Publications. p.44-52

[4] Mies, M.; Kumari, L. K. and Kumari, K. (1986): Indian women in subsistence and agricultural labour. International Labour Office, Geneva, pp 158

carried out entirely by women without the help of any tools. Both transplantation and weeding require women to spend the whole day at work. As women's work is based largely on human energy, hence it is considered unskilled and less productive. On this basis, women are invariably paid lower wages, ignoring the fact that they work harder and for longer hours.

The rural women of Assam have a long tradition of doing various economic and productive activities both within and outside the sphere of the household. The economic activities of the rural women can be grouped under three heads viz. household works without direct economic benefits, agricultural and allied activities within the family farm and the wage earning employment. The role of tribal women in agriculture in the northeastern region of India is yet to get full attention in respect of their potentialities and development.

Studies about agricultural development in Assam are intended to provide information about various aspects for its uplift was made by various workers (Saha, 1975[1]; Goswami and Bora, 1977[2]; Das, 1984[3]). The role of rural women in animal husbandry was highlighted by many researchers (Venkatachalan, 1983[4]; Sardana

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[1] Saha,N. (1975): *Agricultural development in Assam.* Agro-economic research center for NE region, AAU, Jorhat.

[2] Goswami,P.C. and Bora,C.K. (1977): Economy of farm management in Nagaon district of Assam, 1968-69 to 1970-71. Directorate of Economics and Statistics. Ministry of Agriculture and co-operation. Govt. of India.

[3] Das, M. M. (1984): *Peasant Agriculture in Assam,* Inter-India Publication, New Delhi

[4] Venkatachalan, S. (1983): Training or Rural Women must for dairy extension programme. *Tamil Nadu Journal of Co-operation* **78:** 475-477

*et.al.*1988[1]). The tribal women of Assam are known to contribute substantially to the family earnings by rearing pigs, poultries, goats, ducks etc. (Bordoloi *et.al.* 1987)[2].

The tribal women of Assam works longer in weaving, husking, threshing, kitchen gardening, rearing of silk worms, animal care etc. besides spending 10 hours per day in various activities in agricultural season which rises up to 13.91 hours per day during the peak season (Mahajan, 1984)[3].

Another study on time and energy spent by men and women on agricultural work (Batliwala 1984)[4] found that 53 per cent of the total human hours per household are contributed by women as compared to 31 per cent by men. The remaining contribution comes from children.

1.1.7. WOMEN AND ECONOMIC DEVELOPMENT

Women's role in the process of development has varied from society to society. An important component of work effort belongs to the area of activities resulting in non-marketed output where women play a dominant role (Das, 1984)[5]. According to the National Sample Survey Organization, 'work' may be defined as

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[1] Sardana, P. K.; Gandhi, S.; Harijan, R. C. and Chamola, S. D. (1988): Role of women in agriculture. Farm women and dairy cattle supplement each other. *Rural India.***1**:67-69.

[2] Bordoloi, B. N.; SarmaThakur, G. C. and Saikia, M. C. (1987): *Tribes of Assam* (Part-I & Part-II), Tribal Research Institute, Assam, Guwahati

[3] Mahajan, V. S. (1984): Changing role of women in rural economy of Assam. *Women's contribution to India's economic and social development.* 71-85.

[4] Batliwala, S. (1984): Rural energy scarcity and under-nutrition. A new perspective. *Economic and Political weekly.* **17(9):** 329-33.

[5] Das, M. M. (1984): *Peasant Agriculture in Assam,* Inter-India Publication, New Delhi

labour participation in gainful activities. The gainful activities include activities pursued for pay, profit or family gain or the activities, which adds value to the national product. Gainful activities normally results in production of goods or services for exchange and that the activities in agriculture in which a part or whole of the production is used for own consumption.

Poverty and unemployment are the two major economic problems in the rural areas of Assam. As most of the population in Assam (about 90%) lives in the rural areas, thus pressure on land is acute and the problem of finding jobs for the surplus population has become difficult. The role of women in economic development in Assam is both direct and indirect. The direct role can be observed based on proportion of women involved in the working force. However, it is also important that a significant proportion of women populate is also engaged in various activities under informal sector and remained mostly invisible. Such invisible task may include the wide-ranging domestic chores, weaving and knitting, livestock care, helping the male members in agricultural and allied activities etc. (Kar, 2002)[1]. Unlike past, presently the role of women in economic development is an accepted fact and they are given more opportunities to take part in a diverse range of economic activities.

[1] Kar, B. K. (2002): *Women Population of North East India: A Study in gender geography*. Regency Publication, New Delhi

1.1.8. WOMEN AND TECHNOLOGY

The Green Revolution, which focused on increasing yields of rice and wheat, entailed a shift in inputs from human to technical. In the farm sector, the process of mechanization of agricultural activity has brought in tendencies for gender discrimination where women are replaced by men for a number of activities previously performed by women.

Extension services tend to reach only men, which perpetuate the existing division of labour in the agricultural sector, with women continuing to perform unskilled tasks. The male dominated extension system tends to overlook women's role in agriculture and proves ineffective in providing technical information to women farmers (Desai and Mohiuddin 1992)[1]. Traditionally women have played a key role in food security and also energy management and water. They have not only been collecting fuel/water for cooking but also been finding nutrition for both crops and farm animals. Organic recycling and collection of fodder and feed have been their traditional occupation. As major providers of food/water and income, rural women spend up to 16 hours a day producing, processing, marketing and preparing food, gathering fuel and water, and performing other household tasks in addition to caring for their children and extended families (Jain and Singh, 1983)[2]. Women have also traditionally been seed selectors and preservers. Whether literate or illiterate, they have the ability to spot the healthy plants whose seeds they carefully preserve

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[1] Desai, G. R. and Mohiuddin, A. (1992): Involving women in agriculture: issues and strategies: A study across three States. *J Rural Dev.* **11(5):** .637-651

[2] Jain, V. and Singh, T. R. (1983): Perceived attributes of food preservation practice by farm women. *Indian J Nutr Diet.* **20(6):** 195-201

for sowing next year (Majumder, 1976)[1]. Similarly in the area of conservation of biological diversity, women have traditionally been active conservationists. Further their roles in the organization and conservation of heritage sites, biosphere reserves, national parks and community gene banks enhances the effectiveness of the conservation movement. Though, traditionally women have played key roles in energy, water, agriculture, including crop husbandry, animal husbandry; fisheries, forestry and post harvest technology, services and public policies for rural areas have often tended to neglect the productive roles of women. Consequently, the development of technologies specifically tailored to women-specific occupations and the involvement of women in technology development and transfer has received inadequate attention from both scientific and administrative angles. The advancement of technology as a dimension of economic development will be successful only when the needs of both women and men are addressed and acceptance of equal participation in the process will come. However, technology continues to be associated with masculinity, and as a result, technology is narrowly defined and understood, making the linkage between technology and women invisible.

Women constitute a significant human resource that implements functions cutting across the whole spectrum of agro-business (Whaghmare and Choudhary, 1989)[2]. The economic scenario in rural India can only be improved when women are made equal partners in the developmental efforts as they play key roles in many

[1] Mazumdar, V. (1976) Women in Indian agriculture *Green Revolution.* **16:** 41-47

[2] Waghmare, S. K. and Chaudhari, N. V. (1989): *Tribal women in agriculture.* Metropolitan, New Delhi.

facets of composite farming systems and in fact, poorest families are the most dependants upon women's economic productivity (Kharwara *et. al.* 1991)[1].

1.1.9. WOMEN IN ANIMAL HUSBANDRY

Although women's work is rarely recognized but with increased women participation in income-earning activities there will be more income for the family and side by side gender inequality will also be reduced. This issue is particularly salient in India because studies show a very low level of female participation in the labour force. This under-reporting is attributed to the view that women's work is not economically productive (Mies, *et. al* 1986[2]; Sen, 1993[3]). Participation in animal husbandry practices is one such sphere of activity performed by women.

Animal Husbandry and Agriculture are the twin occupations and have played a significant role in improving the rural economy. Livestock rearing provides meaningful occupation, provides assured income and ensures better utilization of human resources. It provides employment especially self-employment to a substantial number of rural and urban population. The employment in Animal husbandry sector is estimated to be 9.8 millions in principal status and 8.6 million in

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[1] Kharwara, P.C.; Manchanda, A.; Kistwaria, J. and Konwar, P. (1991): Comparative adoption of improved technology by female and male headed scheduled caste families. *Journal of Rural Development.* **10:**343-351.

[2] Mies, M.; Kumari, L. K. and Kumari, K. (1986): Indian women in subsistence and agricultural labour. International Labour Office, Geneva, pp 158

[3] Sen, D. (1993): Role transition of women in Agriculture: Some issues. *Journal of Rural Development.* **12:** 497-513

subsidiary status which accounted for 5% of the total working population. Women contribute 71% of the labour force in Livestock farming.

There are 75 million women engaged in animal husbandry as compared to 1.5 million men. (*Women in agriculture*, 2002)[1]. Despite such significant contributions of women in animal husbandry, technological formulations and public policies for rural areas have often tended to ignore the productive role of women.

Livestock form an important resource next to family labour for the landless agricultural labourers. Livestock rearing forms the backbone of the livelihood of the landless rural poor and is the only major asset for them. Livestock rearing offers substantial income to the rural poor particularly during non-agricultural seasons and can create a positive impact on the rural economy (Bhatt, 1975)[2].

Increasing population, decreasing land holding, shrinking agricultural lands, failure of monsoon and the increasing demand for foods are some of the serious issues faced by our country. Animal Husbandry will be a lucrative occupation for alleviating poverty in such a condition (Kaur and Sharma, 1991)[3].

Women in most societies are responsible for the daily care of animals, their reproduction and management. As a result, women in general have more in-depth

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[1] *Women in agriculture*, (2002): A PIB Release, Directorate of Economics and Statistics. Ministry of Agriculture and co-operation. Govt. of India.

[2] Bhatt, K. P. (1975): A leading role [of women] in agriculture and animal husbandry. *Indian Farming*. **25(8):** 39-40

[3] Kaur, M. and Sharma, M. L. (1991): Role of women in rural development. *J Rural Stud.* **7(1/2):**.11-16

knowledge of animal husbandry practices than men (Patel and Kumbhare, 1980)[1]. Women had a wide range of knowledge on animal health problems and a set of traditional solutions.

The main drawback in the agricultural economy in Assam is the preponderance of uneconomic land holding. This preponderance of the small marginal farmers (one hectare of land or less) and land-less farmers in the state is indicated by the fact that 27.12% of the household in Assam was landless (World Agricultural Census, 1980-81)[2]. The population explosion in the recent decades is the major cause of rural unemployment and rural poverty in Assam. This grim scenario can greatly be improved by adapting improved animal husbandry practices in the rural sector.

The Assamese women in rural areas are traditionally rearing poultry including ducks in small numbers. Besides poultry and ducks, rural women in different tribal pockets are traditionally involved in pig rearing also (Deka and Hazarika, 2002)[3]. Effective economic development can be achieved by encouraging women for promotion of small livestock units through scientific way of rearing. The rural women seem to manage these small units of livestock easily.

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[1] Patel, R. K. and Kumbhare, S. L. (1980): Employment for rural women in dairy enterprise India. *Indian Dairyman.* .**32(11):** 852-854.

[2] World Agricultural Census (1980-81): Published for World Bank, Oxford University, London

[3] Deka, D and Hazarika, G. C. (2002): Role of women in poultry farming in Assam. *The North-East Veterinarian.* **2(3):** 17

1.2. STATEMENT OF THE PROBLEM

Study of women issues assumed great importance in a global context. However, geographical research on participation of women in agriculture, especially in this region is still very limited. In rural economy, women are playing an important role in the economic sustenance of the families. It is also recognized that rural women particularly the tribal women have significant contribution to the economic development of the family and the society, though they are at low level of skill. Participation of women in agricultural activity constitutes one of the most important facets of rural economy.

Woman is the molder and builder of any nation's destiny. They play a significant role in any economy. They are regarded as the backbone of the rural scene. Most of the women perform various types of work for their livelihood. Agriculture is considered as the biggest unorganized sector where large number of rural women takes part actively. About 75 per cent of the Indian female population is from rural families, who belong to the small and marginal farmers and landless agricultural labourers (Census of India, 2001[1]). Though women's primary responsibility is indulging in domestic work, greater emphasis is laid on women's earning in the form of cash by working outside the four walls. In India, a significant proportion of the population is below the poverty line and it is a fact that labour force participation will increase with poverty, a large proportion of rural women are under pressure to participate in the labour force.

[1] Census of India (2001): Directorate of Census Operations, India

In agriculture, the role of men have been stressed and studied extensively while those of women have been ignored. However, women cannot participate in all activities of agriculture like men but most women take part in agricultural activities. There are work variations and rate of variations depending upon the type of crops they grow. Agriculture being a family activity, participation of all family members including the womenfolk is considered to be must so as to provide free labour force for the family. In Assam, participation of female in agricultural activity is varied in different communities depending on their environment and ethnic variation. In tribal society, women constitute one of the main sources of agricultural labourers.

The association of women in agriculture is an age-old practice. Most of the female workers in India are engaged in agricultural sector. In the agricultural sector more women are found as agricultural labourers as compared to cultivators. The 2001 census data indicate that 39.4 per cent of women are working as agricultural labourers while 32.5 per cent are cultivators. Though rural farm labourers work under severe limitations, their contribution towards agricultural production and development is noteworthy. Apart from the job they do outside the household, the unpaid activities in the domestic sphere go unnoticed and unrewarded. Women workforces outside the four walls are larger in rural areas than in urban India. Women in rural areas help to grow at least about 50 per cent of the world's total food. They take part in all aspects of cultivation including planting, weeding, harvesting, sowing, threshing, etc.

While economists and sociologists have developed much interest in studying female participation in agriculture and their economic contributions, geographers

have been late in addressing such issues. The former made attempts to examine women's overall contribution to economy in the context of sexual division of labour and its impact on patriarchy. Geographical approach considered the issue in a holistic frame and relates it to the agro-ecological parameters. The present research aims at understanding the female participation in agriculture from the agro-ecological point of view and intends to examine the impact of ethnic factor in differentiating female involvement in work. It is assumed that agro-ecological factors influences the volume of work required in agriculture while the ethnic factor influences the sexual division of labour and socially directed, access to different types of work. This is why the case of tribal women is addressed directly in this research as the tribal societies are known to be more egalitarian and do not nurture discrimination in the name of gender.

In light of the above facts the present study was conceived to explore the pattern of participation in agriculture by the Mishings, the Deoris and the Sonowal Kachari women of Dhemaji district. An attempt was made to make a comparative study of work participation rate among the tribal and non-tribal villages of Dhemaji district. In this an attempt was to examine the extent of work participation, structure of work performed and the nature of sexual division of labour among the tribal women. The case of non-tribal component was also taken into consideration to find out the comparison between the two groups of population to test the significance level. The participation rate was examined in different areas of the district to find out a meaningful result on the nature and type of female participation in agricultural work among the tribal groups.

1.3. SALIENT FEATURES OF THE STUDY AREA

The present study was undertaken in the Dhemaji district of Assam where almost half of the population is tribal (43.92%). The major scheduled tribe population of the district include the Mishings, the Bodos, the Sonowal Kacharis and the Deoris. The district is ranked 12^{th} in literacy rate among the districts of Assam. The district has a fair proportion of women engaged in cultivation and agricultural activities (32.9%). Dhemaji district occupies a unique position amidst complex geologic and physiographic makeup of the state of Assam. It is the easternmost district of Assam and was created in the year 1989 bifurcating the Dhemaji and Jonai Subdivisions of the greater Lakhimpur district. The tribal and the non-tribal segments have long been interacting with each other both socially and economically as they live side by side in the same ecological unit.

The district is a narrow and elongated valley bounded by eastern Himalayan range in the north and river Brahmaputra in the south. The district lies between Arunachal Pradesh in the north and the east, river Brahmaputra in the south and Lakhimpur district in the west. The district is situated between 94^0 and $95^0 3'$ E longitude and $27^0 25'$ and $27^0 55'$ N latitude. The district has two subdivisions and five revenue blocks with 1205 inhabited villages. The district has a total population of 569468 persons as per 2001 census. The area of the district is 3237 sq. km. with population density of 148 persons per sq. km.

The topography of the district varies from undulating uplands in the northern foothill belts to low lying plains in the south. The grasslands and grazing lands

normally occupy along the main rivers and in Char areas. The district has a total cropped area of 100237 hectares while 63665 hectares are covered by forests. All the rivers of the district are perennial in nature.

The river Brahmaputra flows in the southern side of the district. The major tributaries of river Brahmaputra are Subansiri, Kumatia, Jiadhal, Charikuria, Gai, Jalakia suti, Tangani, Gelua, Dimu, Simen, Dipa, Dikrai and Buri suti. The district acts as a run-off zone for the access water from Arunachal Pradesh. An extensive area of the district is thus invariably subject to 3 or 4 waves of floods during the monsoon period. The district receives high annual rainfall accompanied by flash floods and high floods in the summer season. In fact, the flood problem is a perennial problem of the district affecting 28% (28084 hectares) of cropped area annually.

The district falls under the upper Brahmaputra valley agro-climatic zone. The climatic condition of the district is hot and moist during the summer and cool and dry during the winter. The district is influenced by the southwestern monsoon in the summer season.

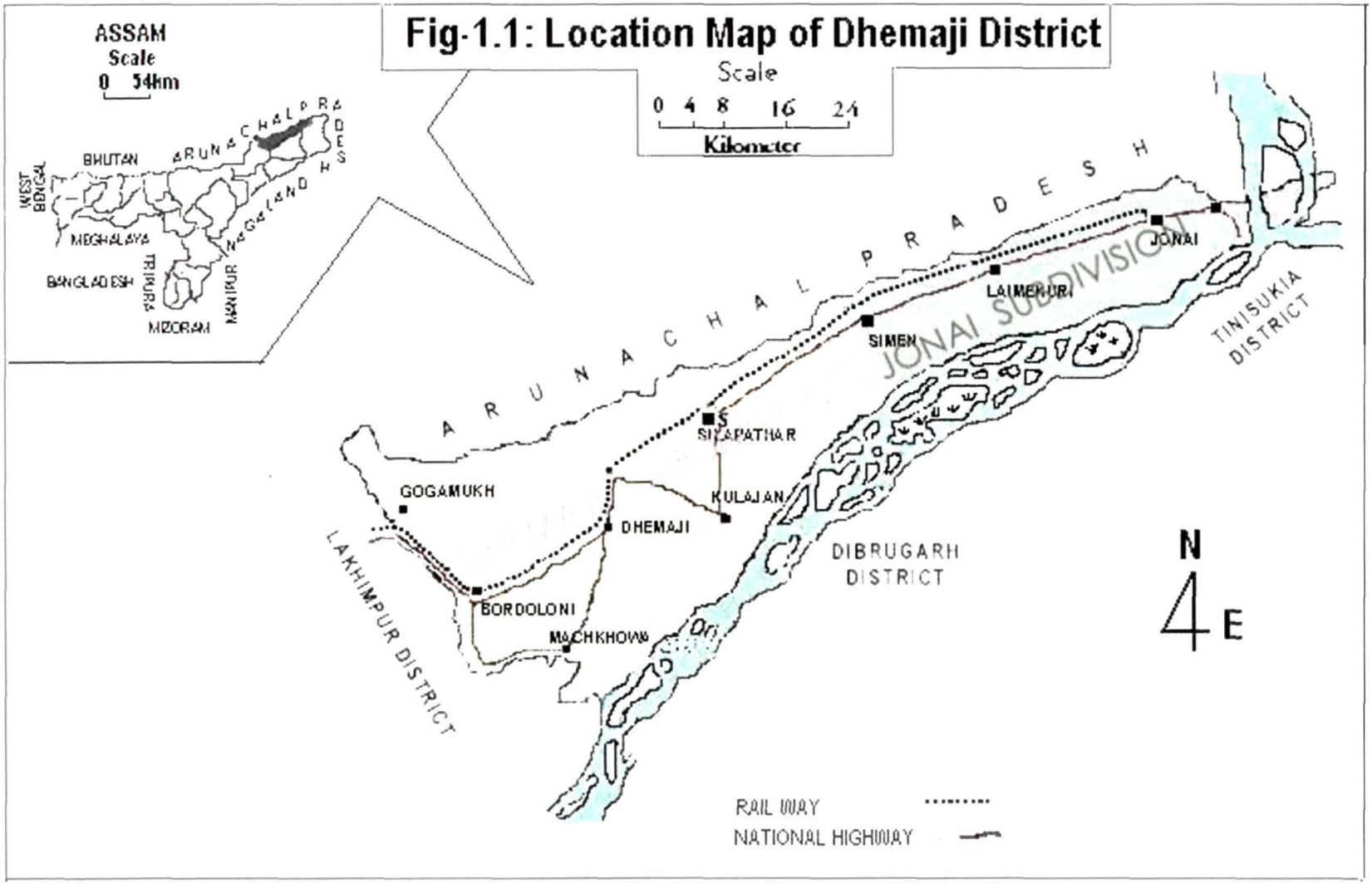
Fig-1.1: Location Map of Dhemaji District
ASSAM
Scale
0 54km
BHUTAN
ARUNACHAL PRADESH
WEST BENGAL
MEGHALAYA
BANGLADESH
TRIPURA
MIZORAM
MANIPUR
NAGALAND
Scale
0 4 8 16 24
Kilometer
ARUNACHAL PRADESH
JONAI
LAIMEKURI
SIMEN
JONAI SUBDIVISION
TINISUKIA DISTRICT
SIVAPATHAR
GOGAMUKH
KULAJAN
DHEMAJI
DIBRUGARH DISTRICT
LAKHIMPUR DISTRICT
BORDOLONI
MACHKHOWA
N
4 E
RAIL WAY
NATIONAL HIGHWAY

1.4. SOCIO-ECONOMIC CHARACTERISTICS OF THE TRIBES

Women are an integral part of human society. The status of women in the society depends upon social and cultural traditions, status of economic development, education level and political attainments. The economic status is on the other hand is determined by the role-played by them in carrying out various economic and non-economic activities in the society. In rural society, these activities are measured in work participation chores like agriculture, animal husbandry, weaving, domestic works, public related activities etc. The work participation rates among the scheduled tribe women are always higher than the non-tribal population. The social well being of women and their position in the society depends on various social attributes like literacy, education level, mobility, work participation etc. Today women have witnessed a significant improvement in areas of literacy and work participation.

The North East India is an agrarian region where 86.11 per cent of the total population lives in the villages. In Dhemaji district, about 98 per cent of the people live in the villages. There are no industries in the district and thus people depend upon agriculture and allied activities for their livelihood.

Literacy and educational attainment are considered basic and fundamental to human life and its differential levels result in disparities among people and places (Desai, 1993)[1]. Moreover, female mobility also depends upon level of education to a

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[1] Desai, S. (1994): Gender Inequalities and Demographic Behavior: India. The Population Council Inc. New York.

large extent. The mobility pattern is an important factor to understand the socio-economic conditions of women population of a region. Unfortunately, major part of Assam is lagging behind in respect of literacy and education than many other parts of the country. The female literacy rate in Assam is 56.03 per cent (Male- 71.93%) while Dhemaji district has 56.11 per cent (Male-75.15%). This indicates that the district is at per with the state average in literacy.

The role of women in work participation and their occupational pattern is vital to understand the socio-economic functioning of a region. Women's work participation is not only associated with gender division of labour, but also with ecological conditions, intensity of poverty and landlessness and prevailing social norms. The proportion of female main workers to the total female population in Assam according to 2001 census is 10.59 per cent while Dhemaji district has 17.18 per cent. The proportion of female marginal workers (to total female population) in Assam is 7.6 per cent while in Dhemaji it is 17.62 per cent. Female work participation is always found to be higher in tribal dominated regions in all over the country. Almost half of the population of Dhemaji district is dominated by tribal groups hence the work participation of females are also high as compared to the state average.

1.5. OBJECTIVES

The present study is conceived with the following objectives:

1. To undertake a study of the agro-ecological condition of the area that influences the total volume of work in agriculture and animal husbandry in Dhemaji district.
2. To make a comparative study of the participation rate of women in agricultural activities of the Mishings, the Deoris and the Sonowal Kacharis with the non tribal women of the district.
3. To study the nature of sexual division of labour between the tribes and the non-tribes population living in the district.
4. To explain the variation in female work participation in agriculture, among the scheduled tribes and between the tribes and non-tribes.

1.6. HYPOTHESES

The present research proposes to test the following hypotheses:

1. Variation in agro-ecological condition influences the extent of variation in female participation in work among the tribes as well as the non-tribal segments of the population.
2. Inter tribal variation in female work participation in agriculture will be minimal in similar agro-ecological units.
3. Sexual division of labour shall be more pronounced between the tribes and the non-tribes. However, the sexual division between the two segments will become insignificant within similar agro-ecological units.

1.7. DATA BASE AND METHODOLOGY

The study was undertaken in Dhemaji district of Assam. A total of 20 (twenty) villages were selected from the district considering five villages from the three scheduled tribes dominating and five non-tribal villages. The villages were selected on the basis of the following considerations:

a) Areas where the scheduled tribes constitute more than 80% of the population and are distributed in a contiguous belt.
b) Areas where traditional cultivations are dominant.
c) Areas where cash crops are cultivated.
d) Areas where irrigation facility is available to most farms.

From each village a minimum of 25 (twenty five) households was selected for personal interview to collect primary data with the help of household scheduled questionnaires (Appendix-I) for 690 households. The primary data thus collected was tabulated and used statistical analysis to determine the female participation rate, sexual division of works and occupational structure etc.

Necessary secondary data for the present study was taken from different Government reports, documents and other published reports. These documents was consulted to collect data on cropping pattern, sexual division of works, female rate of participation in the agricultural sector, female tribal and non-tribal occupational structure and population figures etc.

In the second stage, the validity of the findings was testified with secondary data by comparing the primary data collected through field survey with the help of household scheduled questionnaires. These were also used to examine the location specific factors responsible for occurrence of specific patterns and attributes.

Agro ecological information such as topography, soil type, climate, irrigation facility etc. was collected from different Government sources like Department of Agriculture, Govt. of Assam, Regional Remote Sensing Application Centre, Guwahati and other published sources.

The data obtained was processed, tabulated and analyzed with suitable and meaningful quantitative techniques. Interpretation and statistical analysis was made using $\chi 2$ tests and also with simple ratio of percentages, post diction method according to method described by Pal (1998)[1] and Hammond and McCullagh (1991)[2]. These analyses was supplemented by a number of charts, maps and diagrams to give a clear vision on the patterns of work participation, gender division of labour and occupational structure etc. A conclusion of the study was drawn based on results derived from the study.

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[1] Pal, S. K. (1998): Statistics for Geoscientists: Techniques and Applications. Concept Publishing Co. New Delhi. Pp 304-342

[2] Hammond, R and McCullagh, P (1991): Quantitative Techniques in Geography (2nd Ed), Clarendon Press, Oxford. P-108-109

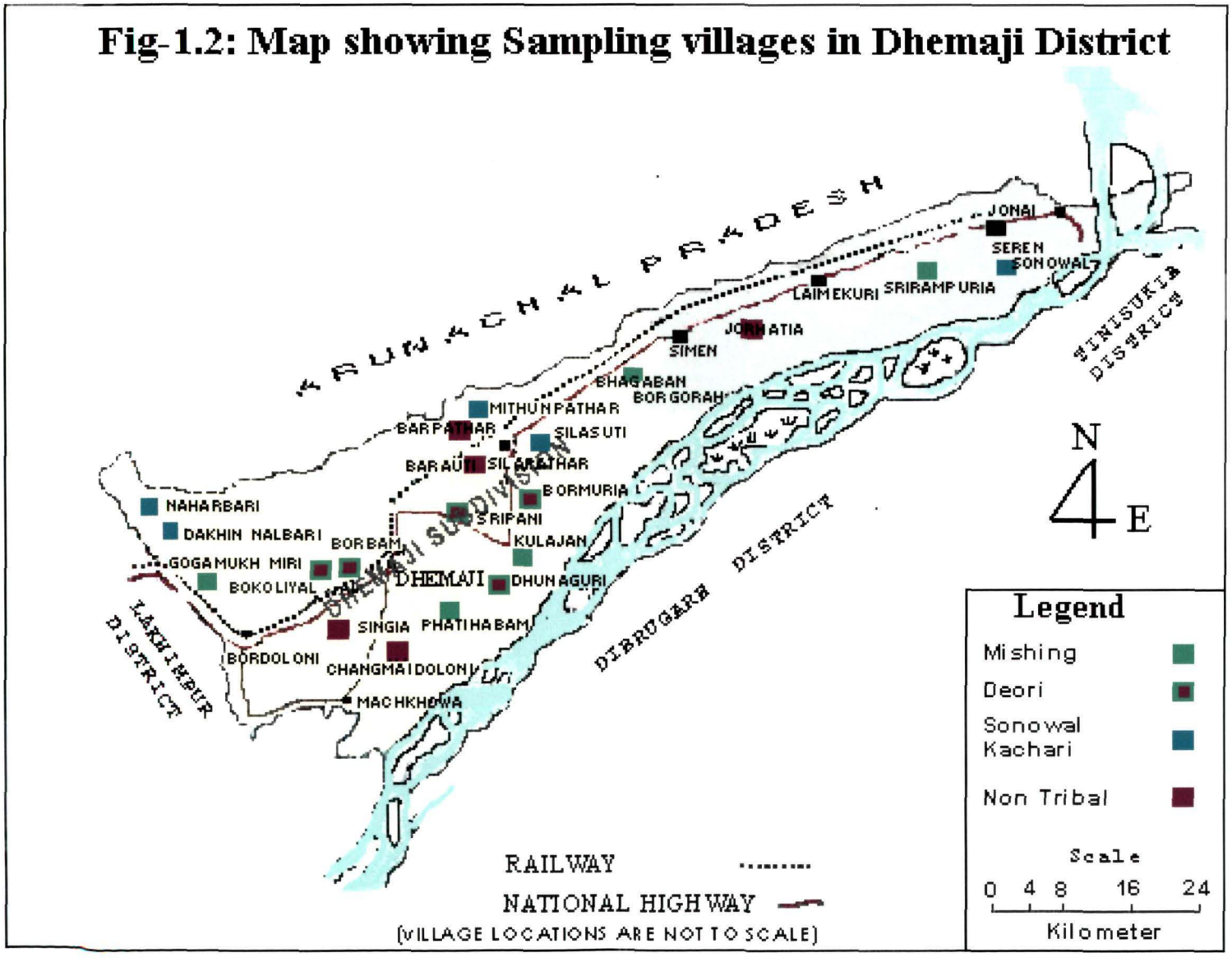
1.8. SAMPLING

The sampling was prepared as per the criteria cited in the methodology. However, difficulty arose while selecting areas where cash crops are cultivated and areas where irrigation facility is available to most farms, because the district is scantily irrigated either through Govt. or private agencies. Cash crops are also grown sporadically in the central part of the district (part of Dhemaji and Sissiborgaon revenue circles). Details of the villages covered during this study are depicted in table-1.1.

Table-1.1: Sampling Frame showing details of the villages covered

Ethnic Group	Block	Village	No. of households			Respondent Profile		Population Structure (%)			Irrigation Structure	Cash Crop grown
			Total	ST	PC of ST	No. Interviewed	House-holds covered (%)	Total	Tribal	P. C. of Tribal		
Non Tribal	Sissiborgaon	Barpathar	62	2	3	25	40	475	5	1.1	2 private pumps	Yes
		Barauti	32	0	0	30	98	106	0	0.0	2 private pumps	Yes
	Jonai	Jorhatia	45	3	6	25	56	225	18	8.0	Nil	No
	Bordoloni	Singia	41	0	0	25	61	73	0	0.0	Nil	No
	Dhemaji	Changmai Doloni	34	5	15	25	73	245	36	14.7	Nil	No
					Total	**130**						
Mishing	Sissiborgaon	Bhagaban Borgorah	70	64	91	35	50	502	459	91.4	Nil	Yes
		Kulajan	98	98	100	45	46	705	699	99.1	3 Private pumps	Yes
	Jonai	Srirampuria	61	61	100	40	66	438	438	100.0	Nil	No
	Bordoloni	Gogamukh Miri	78	71	91	45	57	564	514	91.1	1 Private pump	No
	Dhemaji	Phatiha bam	72	68	94	40	55	521	491	94.2	Nil	No
					Total	**205**						
Sonowal Kachari	Sissiborgaon	Silasuti	68	54	80	35	52	487	390	80.1	Nil	No
		Mithun Pathar	68	56	82	40	58	493	346	70.2	Nil	No
	Jonai	Seren Sonowal	68	68	100	50	74	489	489	100.0	Nil	No
	Bordoloni	Naharbari	85	68	80	45	53	615	492	80.0	5 Private pumps	Yes
		Dakhin Nalbari	57	57	100	40	70	409	409	100.0	Nil	Yes
					Total	**210**						
Deori	Sissiborgaon	Sripani	59	56	95	30	51	426	406	95.3	Nil	No
		Bormuria	56	45	81	25	45	401	326	81.3	Nil	No
		Dhunaguri	48	47	99	35	73	344	339	98.5	5 Private pumps	Yes
	Bordoloni	Borbam	74	71	96	30	41	690	612	88.7	3 Private pumps	No
		Bokolial	63	62	98	25	40	604	496	82.1	Nil	No
					Total	**145**						
					Grand Total	***690***						

Fig-1.2: Map showing Sampling villages in Dhemaji District



CHAPTER-II

AGRO-ECOLOGICAL SETTINGS OF THE STUDY AREA

CHAPTER-II

AGRO-ECOLOGICAL SETTINGS OF THE STUDY AREA

Dhemaji district occupies a unique position amidst complex geologic and physiographic makeup of the state of Assam. It is bordered in the north and east by Arunachal Himalayas and the river Brahmaputra in the south. The district falls under the upper Brahmaputra valley agro-climatic zone. It is the easternmost district of Assam and was created in the year 1989 by bifurcating Lakhimpur district. The major part of the population of the district is constituted by scheduled tribes (43.92%). The major tribes of the district are the Mishings, the Bodos, the Sonowal Kacharis and the Deoris. The district has been ranked 12th in literacy rate among the districts of Assam. The district has a fair proportion of women engaged in cultivation and agricultural activities (32.9%). The district has a total population of 569468 persons as per 2001 census. The population of the district as per language table the Mishings and the Deoris are 124526 persons (21.86%) and 3330 persons (0.58%) respectively while the population of the Sonowal Kacharis are not known, since they are included with the Assamese-speaking people. However, the actual population of these tribes in the district is not reflected in these figures, as some of them have adopted Assamese as their mother tongue. The tribes and the non-tribal segments have long been interacting with each other both socially and economically as they live in the same ecological unit.

2.1. LOCATION AND EXTENT OF THE DISTRICT

Dhemaji sub-division came into operational as a district on 14th August 1989. It comprises of erstwhile Dhemaji and Jonai sub-divisions and part of Machkhowa mouza and Bordoloni. Forted by arch shaped Arunachal hills in the North and East, the district emerges from the foot hills and stretches to the Brahmaputra river with Subansiri in one side and the other side with river Siang. Geographically situated between the 94^0 12' 18" E and 95^0 41' 32" E longitudes and 27^0 05' 27" N and 27^0 57' 16" N latitudes, the district covers an area of 3237 sq. km and is basically plain area lying at an altitude of 104 m above the mean sea level. It occupies 2,63,701 hectares of land area which accounts for 3.36 per cent of the state. It is bounded in the east and north by Arunachal Pradesh and partly by Tinsukia district, in the west by Lakhimpur district, and in the south by river Brahmaputra.

The district has a total cropped area of 100237 hectares while 63665 hectares are covered by forest land. The district receives high annual rainfall accompanied by flash floods and high floods in the summer season. In fact, the flood problem is a perennial problem for the district affecting 28084 hectares of cropped area according to 1998 report. The district has two subdivisions and five revenue blocks with 1205 inhabited villages.

2.2. POPULATION DISTRIBUTION AND DENSITY

The demographic identity of the district is significant for its substantial scheduled tribe and scheduled caste population. The prominent scheduled tribe and scheduled caste groups are Mishing, Sonowal Kachari, Deori, Hajong, Lalung, Bodo, Namasudra, Koibarta etc. Each of these ethnic groups has their own cultural, social, structural and religious identity.

Dhemaji district shelters a population of 5, 69,468 as per 2001 census, which includes 2,94,105 males and 2,75,363 females, with a sex ratio of 936 females per thousand males. The average density of population is 176 per sq. km. The scheduled tribes and scheduled castes population of the district are 47.29% and 5.33% respectively to the total population as per 2001 census.

The urban population is only 1.85%, which indicates predominantly rural character of the district. The rate of growth of population in the district between 1971 and 1991 was 107.50%, which incidentally, is the highest in the state (state average = 53.26%). The growth of population between 1991 and 2001 is 19.45% against state growth rate of 18.92. The annual growth rate of population is 5.22% compared to the overall state growth of 2.62%.

Spatial distribution and density of population in Dhemaji district is not even. The pattern of population density and distribution can be linked with its spatially varied environmental conditions such as soil types, occurrences of floods, transport and communications etc. Concentration of population is more in the middle part of the district than the other areas. The Jonai subdivision is sparsely populated while the

most concentrated population of the district is Dhemaji development block. Jonai subdivision of the district is mostly inhabited by the tribes (66.96% of total population). The Mishing tribe is the major tribal group of the subdivision. Other tribal groups include the Bodos and the Sonowal Kacharis. The Scheduled caste population of the subdivision is only 2.36% to the total population. Dhemaji subdivision of the district also has a fair proportion of tribal population (36.62% to the total population). The scheduled castes population of the subdivision is 7.64% to the total population. The Mishings are the major tribe, concentrated along the river Brahmaputra in Dhemaji and Bengenagarah blocks. The Bordoloni block is also having a fair proportion of the tribe besides other tribal groups as the Deoris and the Sonowal Kacharis.

2.3. TRANSPORT AND COMMUNICATION

It is well recognized that various social and economic activities are inherently dependent upon transport network. However, lack of adequate and efficient transport network has become a major obstacle towards economic exploitation and utilization of potential resources of Dhemaji district. Moreover, the transport system of the district is regularly disrupts during floods.

The district is connected with roads, railways and water ways but yet to be connected with airways. There are five waterways which links the district with the south bank of Assam. These waterways are. Dihingmukh-Sissikalghar ferry, Dibru-Sissi-Machkhowa, Dibru-Sonari-Burisuti, Dibru-Kachari-Oriumghat and Disangmukh-Matmora, they are ferrying 58,000 persons, 11 tons of goods and

14,000 animals annually at an average. These waterways are also used for ferrying various vehicles also.

Dhemaji district is connected with a meter gauze line with the rest of the country. The railway line enters the district at the eastern most part and extends throughout the district up to the western end with a 143 km span. The district has no broad gauze railway line at present.

Roads are the major mode of communication of the district. The lifeline of the district is the National Highway (NH-52) with a 139 km span that runs across the district. Other roads constitute 775 km out of which 628 kms are still to be surfaced. The ratio of road per lakh population is 190.8 km (state average is 143.5 km) and 28.2 km per hundred square km as against state average of 41.0 km.

2.4. PHYSIOGRAPHY

Dhemaji district of Assam occupies the North Eastern part of the state. The district is in a strategic location where steep slopes of eastern Himalayas abruptly drops forming a narrow valley and widens towards the western side. Numerous drainage systems are originating from the hills of Arunachal Pradesh and flows through this narrow valley to river Brahmaputra. In general, the slopes of this triangular district drops from northern and eastern corners towards south and western sides. The three mighty rivers i.e. Dihing, Dibang and Lohit joins together before entering into the valley and exerts tremendous impact at the eastern most corner of Dhemaji district and makes the district flooded during rainy season. After the great earth quake of 1950 the Brahmaputra river bed is rising continuously due to

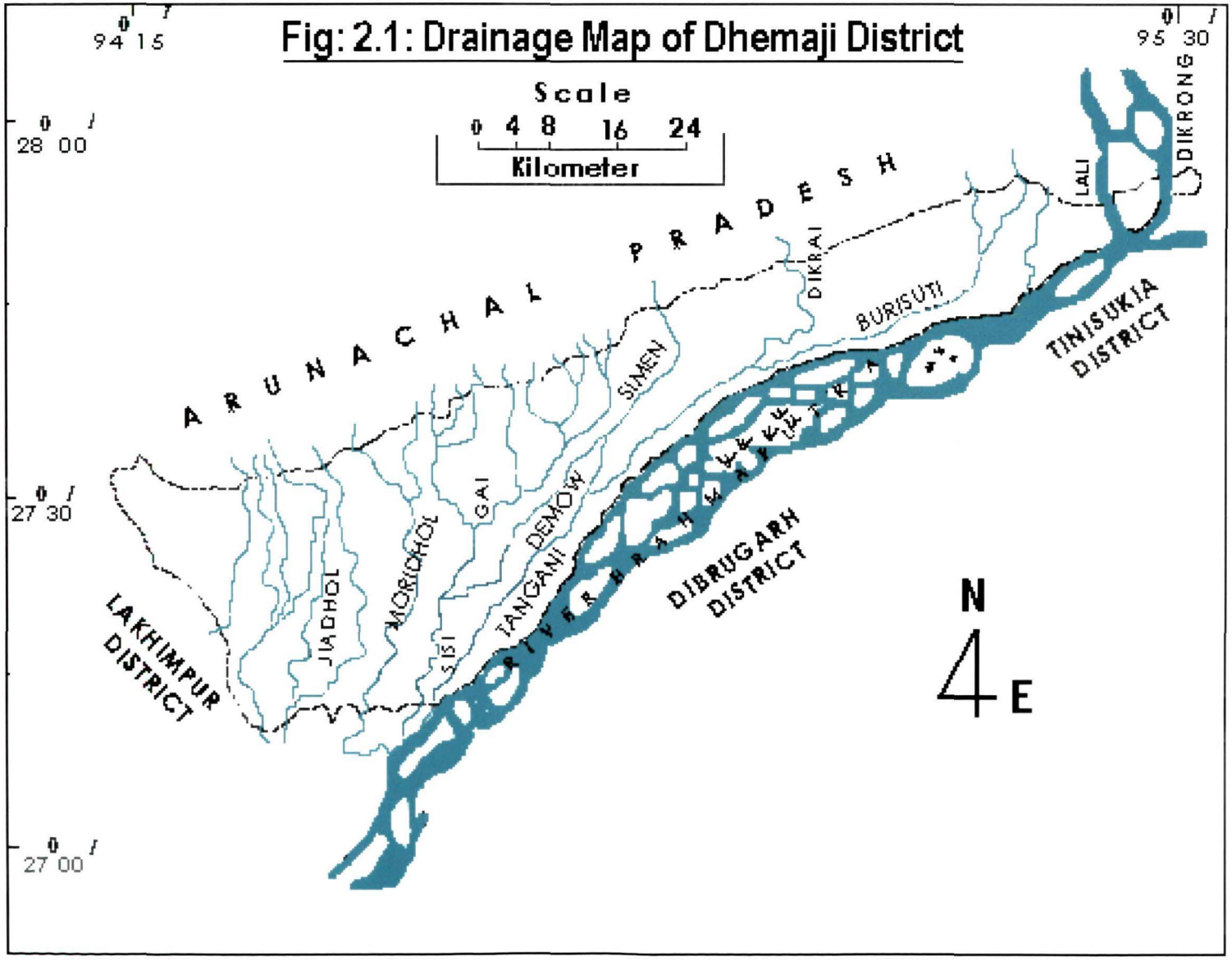


Fig: 2.1: Drainage Map of Dhemaji District
Scale
0 4 8 16 24
Kilometer
94 15
95 30
28 00
27 30
27 00
ARUNACHAL PRADESH
DIKRAI
LALI
DIKRONG
BURISUTI
TINISUKIA DISTRICT
SIMEN
DEMOW
TANGANI
SISI
GAI
MORIOKOL
JIADHOL
LAKHIMPUR DISTRICT
DIBRUGARH DISTRICT
BRAHMAPUTRA RIVER
N
4 E

deposition of sands from upstream. This has led to the formation of a saucer shaped low lying zone in the plains of the district. The river Brahmaputra flows from east to west in the southern part of the district. Different tributaries viz., Dihingia, Jiyadhal, Moridhal, Telijan, Kaitangjan, Laipulia Nadi, Kapardhowa, Sisi, Gai, Tangani and Gutung originating from Arunachal Pradesh in the north, flow southwest carrying enormous amount of alluvium through the district before meeting the river Brahmaputra.

The present physiographic configuration of the district has taken shape only during the recent geological time period and the process is still active. Fluvial processes are significantly dominant on the flood plains where alluvial deposition takes place due to erosion of the higher surfaces due to river erosion and flood. The erosion and depositional processes are intensified by copious rainfall and occasional seismic movements.

The district is a narrow and elongated valley bounded by eastern Himalayan range in the north and river Brahmaputra in the south. The topography of the district varies from undulating uplands in the northern foothills to low lying plains in the south. The grasslands and grazing lands normally occur along the main rivers and in *char* areas. Most of these char areas are used as grazing land for cattle. The area under this category accounts for 11.71% of the total land area of the district.

The district has altitude ranging from about 35 meters (areas in riverine belts) to 140 meters (areas in the foothill belts) above mean sea level. The mean altitude of the district is 102 meters above mean sea level.

All the rivers of the district are perennial in nature. The river Brahmaputra flows in the southern side of the district. Besides the tributaries of the river Brahmaputra, there are numerous channels that drain through the district. These rivers flow through the high rainfall region at the foothills of Assam Himalayas and hence the district acts as a runoff zone for the access water from Arunachal Pradesh. An extensive area of the district is thus invariably subjected to 3 or 4 waves of floods during every monsoon.

Marshy/ swampy lands are wastelands formed due to natural depressions within the flood plain. These water bodies are locally known as "Beels" and are found scattered specially in the flood plains of the district. These naturally depressed wetlands remain perennially waterlogged. These "Beels" covers about 1.28% of the total geographical area. When rivers, ponds, "Beels" and sandy river banks (locally known as chaparis) are included in the water body, it accounts for 44,995 hectares i.e. 17.06% land of the total geographical area.

2.5. FLOOD AND ITS CAUSES

Assam valley is prone to flood and it is the perennial source of natural calamity, as mighty river Brahmaputra gets flooded during monsoon due to excessive precipitation (Taher, 1975)[1]. Floods in Brahmaputra River have been aggravated due to frequent change in river course and heavy sedimentation load. The intensity of flood can be revealed from the fact that an area of 30 lakhs hectares are flood prone out of 78 lakhs hectare areas i.e. about 45% of basins in Assam is flood prone. It is

[1] Taher, M. (1975): Regional basis of Agricultural Planning in the Brahmaputra valley. *North Eastern geographer.* **17 (1&2).**

more true to the northern bank of Brahmaputra where the Dhemaji district is located, and is the most flood prone district of Assam. Dhemaji District shows lowest per capita GDP, annual flooding may be cited as one of the causes of such low.

The climate of the district is pre-humid, characterized by heavy rainfall, hot summer & cold winter. The monsoon starts from April/May and continues till August/October. Meandering of rivers due to high velocity & heavy sedimentation causes breaches in the embankments and leads to devastating flood. Due to continuous deforestation in Arunachal Pradesh in the North, the protective plant canopy structures are fast depleting and causing more floods in Assam. Many times catastrophic flood causing huge sand deposition in cropped areas and making soil unsuitable for crop cultivation and production in the foothills.

Numerous drainage systems originates from the hills of Auranachal Pradesh and flows through this narrow valley ending at the mighty river Brahmaputra, thus making the district more vulnerable to annual flood. In fact, the annual flooding has broken the very backbone of Dhemaji District in terms of GDP, which is the lowest among all the Districts in Assam (NIC, 2003)[1]. The devastating flood has been causing extensive damages to the National Highway No. 52, which is the main life line of the district. During flood even railway lines are also damaged, and thus causes disruption of land communication to and from Dhemaji district from the rest of the country during the rainy season. The annual flooding in the district has been causing extensive damages to cropped areas and population of the district.

[1] National Informatics Centre (NIC) (2003): An online report on flood in Dhemaji

Every year flood disaster is almost inevitable. The rivers of the district change their courses frequently. This is mainly because the rivers carry enormous quantity of sediments from the hills and on reaching the plains the sediments are deposited on their own beds. The channels are thus filled up and water in the following summer takes a different course abandoning the earlier ones. The result is that the rivers in the process of their shift cause devastation through floods. (Bora, 2001)[1]

A study shows that the sand deposition takes place in the river Brahmaputra and its tributaries (mainly the Jiadhal, Sissi & Gai). Frequent occurrence of flood is also due to siltation of the riverbeds and unplanned construction of embankments.

Throughout Northeast India, average annual rainfall is very high which varies from 100 cm to1340 cm. About 80% of the rainfall occurs during the summer months from May to September. As the district is located near the hills of Arunachal Pradesh, it experiences difference in temperature, rainfall, fog, wind etc. Dhemaji district is situated in one of the heaviest rainfall areas in Assam due to which the area experiences a regular annual flood. During the months of May to September with the onset of south east monsoon rains, heavy volume of floodwaters starts spilling all over the region.

[1] Bora, A. K. (2001): "Drainage and Flood of Assam", In *Geography of Assam* . Eds Bhagabati, A.K., Bora, A.K. and Kar, B. K. Rajesh Publications, New Delhi

The intensity of flood is heavy during the summer months when water from the Brahmaputra River their tributaries joins together. The tributaries are additionally charged with rain waters during the monsoon and thus create flash floods.

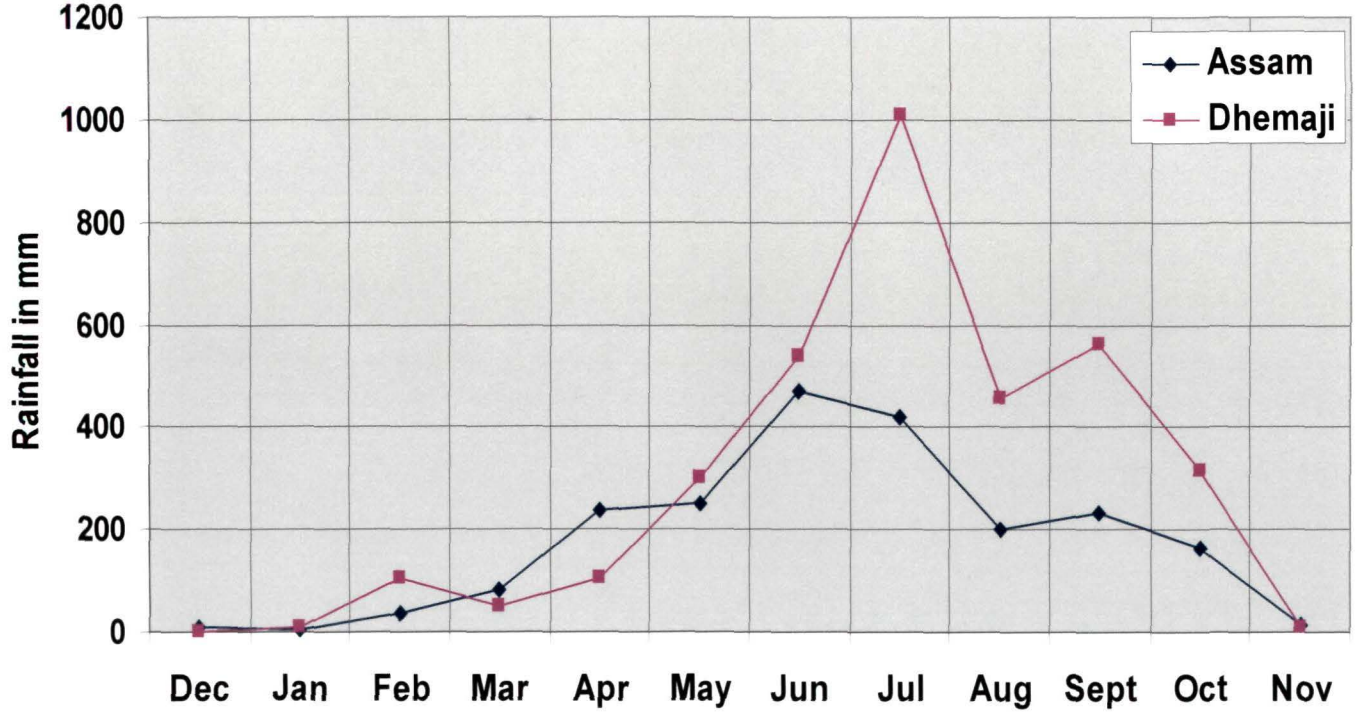
The north and the south bank tributaries of Brahmaputra shows mark difference in terms in their fluvio-geomorphic characteristics. The northern tributaries have their longer courses in the hilly terrain and shorter courses in the plains. The average length of the northern tributaries of the Brahmaputra is 140.2 km. whereas the average length of southern tributaries of the Brahmaputra is 194.1 km. The tributaries in the district are even shorter courses in the plains which is less than 100 km. Most of them originate from the Arunachal Hills and these tributaries when reaches Dhemaji its speed is enormous and causes flash floods and devastation.

However, people in the district is adapting to such natural disasters though they suffer and live in vulnerability. People store sufficient food and drinking water before the floods. In order to combat floods people construct protective shelters like "changghars"- the high pillared houses.

2.6. CLIMATE

The climatic condition of the district is hot moist during summer and cool and dry during winter. The cold season starts from mid-November and ends in early March followed by a pre monsoon rain. The monsoon starts in early June and continues upto the end of October. The maximum and minimum temperatures vary between 31^0 C and 7^0 C; while the mean temperature is within 19^0 C. The coldest month of the year is January with a mean daily temperature ranging from 7^0C (Min) to 23^0C (Max). The July is the hottest month with temperature ranging between 22^0C (Min) to 31^0C (Max). The district is influenced by southwestern monsoon in summer. Northeast monsoon brings rain during October and November. The average annual rainfall in the district is 300 cm as compared to the state average of 285.6 cm.

Fig-2.2: Monthly Rainfall in Dhemaji District
(Dec/2002 to Nov/2003)



2.7. SOIL TYPES

Soil is a vital element of the physical environment. It comprises a complex mixture of minerals (inorganic) and biological (organic) materials and serves as the prime requisite for life. It is the most valuable natural resource. Soils through their relative fertility support all agricultural activities. In general parent material, climate, organisms, topography and time factor governs the soil forming process. Therefore, varying geological conditions, topographical characteristics and geo-climatic situations influences formation of different types of soils in different parts of the state. The soils of Assam may thus be able to be divided into four major groups viz. alluvial soils, piedmont soils, hill soils and laterite soils. Alluvial soils are predominant the district. The district is mainly covered by quaternary deposits. Upper Tertiary sediments are exposed along the foothills. These are mainly made up of fine to medium grained clay. Dhemaji district is devoid of any minerals of economic importance except building materials consisting of boulders, pebbles, gravels and sand.

The soils of the district are broadly classified into three major groups i.e. Older Alluvium along the foothills and flood plains and Newer Alluvium on the recent flood plains. The Older alluvium belt along the foothills occurs in the comparatively older alluvial landmasses lying along the foothills in the northern side of the district. Besides, these are also found in old flood plains in the middle part, which are comparatively newer than the foothill soils. The new alluvial soils in the recent flood plains are distributed along the riverine tracts of the Brahmaputra and other major rivers.

2.7. LAND USE PATTERN

Agricultural land use constitutes a dominant feature of the diverse uses of land for productive purposes. The present pattern of agricultural land use in Assam is an outcome of long and continued human settlement and culture. Within the state diverse ecological setting of the river valleys, hills, ridges and other micro-physiographic units combined with varying socio-economic factors have produced significant spatial variation in the pattern of agricultural land utilization. (Bhagabati, 1990)[1]. In Assam agricultural land use basically means the cultivation of soil for growing crops only, leaving insignificant areas for grasslands, horticulture, pisciculture and livestock farming. The major land use/ land cover categories that are identified in the district are built-up land, agricultural land, forestland, wasteland, water bodies and grazing land. The area occupied by each of these major categories is shown in Table-2.1.

Grassland and grazing lands normally found along the main rivers and in the char areas. Most of these areas are used as grazing areas for cattle and buffaloes. This category of land covers an area of 30,884 hectares, which accounts for 11.71% of the total land area. The areas of wasteland, which are covered with or without scrub, found mostly along the piedmont zone. This area covers 12,724 hectares (4.83% of the total land).

[1] Bhagawati, A. K (1990): Social structure and Agricultural production in Dholabari Irrigated area of Sonitpur district, Assam. *Geographical Review of India* **52(4):** 71-79

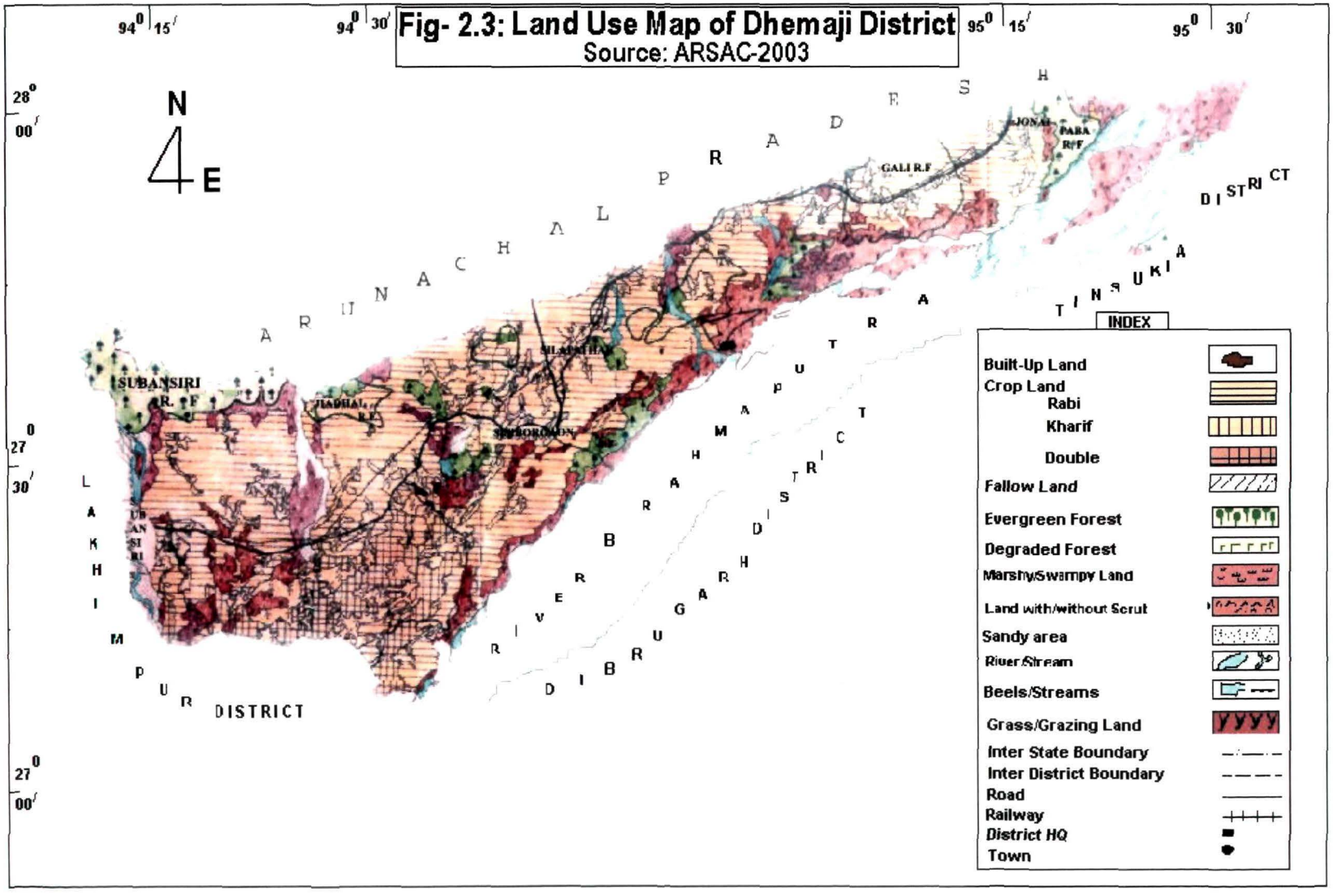


Fig- 2.3: Land Use Map of Dhemaji District
Source: ARSAC-2003

Area under built-up land is 185 hectares and constitutes mainly the Dhemaji Township. This category accounts for 0.07 per cent of the total geographical area of the district.

Table-2.1: Land use / land cover categories

Sl.No	Category	Area (Ha)	P.C. to the total land area
1	Built-up Land	185.00	0.07
2.	Agricultural Land		
	a) Kharif	122628	
	b) Rabi	15712	
	c) Double cropped area	15712	
	d) Net area sown	122628	46.5
	e) Fallow	00	
	f) Plantation	27266	10.34
	TOTAL	149894.00	56.84
3.	Forest land		
	a) Evergreen/Semi evergreen forest	20716	7.86
	b) Degraded forest or Scrub land	922	0.35
	TOTAL	21638.00	8.21
4.	Waste Land		
	a) Marshy/Swampy Land	3811	1.28
	b) Land with/without scrub	12724	4.83
	TOTAL	16105.00	6.11
5.	Water bodies		
	a) River/Stream	44811	16.99
	b) Lake/Reservoir/Tank/Canal	184	0.07
	TOTAL	44995.00	17.06
6.	Others		
	a) Grass Land/ Grazing land	30884	11.71
	TOTAL	30884.00	11.71
	Grand Total	263701.00	100.00
Source: Assam Remote Sensing Application Centre, Guwahati, 2003			

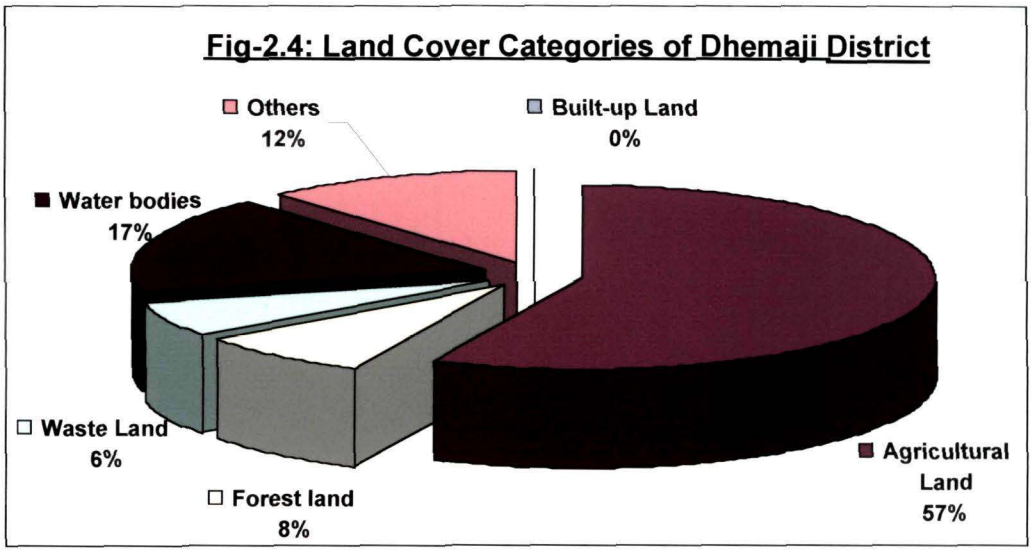


Fig-2.4: Land Cover Categories of Dhemaji District
Others
12%
Built-up Land
0%
Water bodies
17%
Waste Land
6%
Forest land
8%
Agricultural
Land
57%

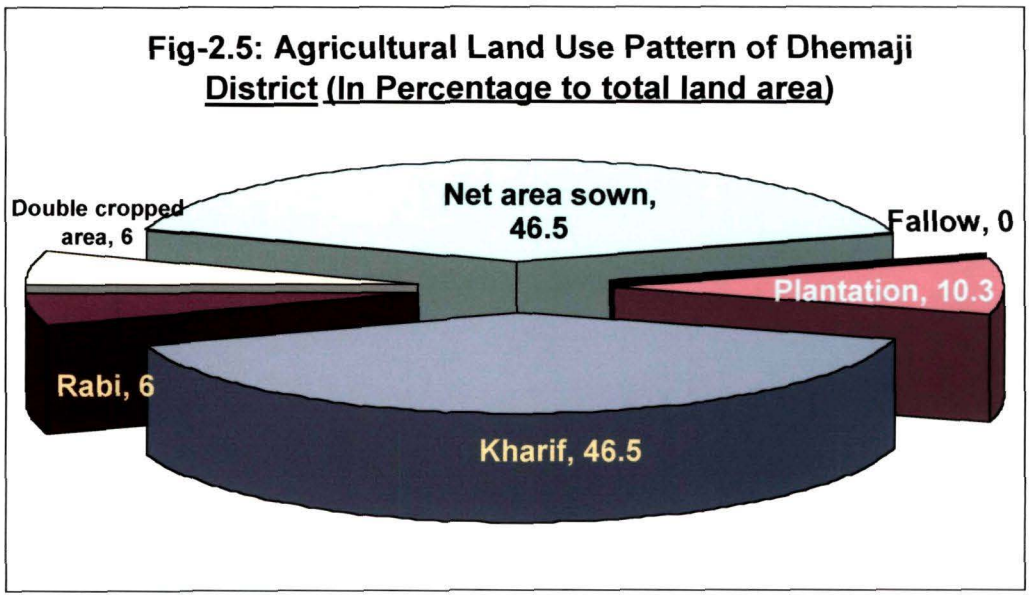


Fig-2.5: Agricultural Land Use Pattern of Dhemaji
District (In Percentage to total land area)
Double cropped
area, 6
Net area sown,
46.5
Fallow, 0
Plantation, 10.3
Rabi, 6
Kharif, 46.5

Crop area can be subdivided into Kharif, Rabi and double-cropped areas. The area covered by kharif crop is 1, 22,628 hectares which accounts for 81.8% of the total agricultural land. Kharif crop is distributed throughout the district and comprise mainly of Sali paddy.

During Rabi season crops like paddy, mustard, winter vegetables etc are cultivated in the district. The area under Rabi crop is much less than that of Kharif. Rabi areas are found within the double crop areas. The area occupied by Rabi crop is 15,712 hectares and accounts for 10.48% of the total agricultural land.

The double-cropped area is situated in the central part of the district. The area covered in this category is 15,712 hectares (10.48% of the total agricultural land).

The plantation agriculture of the district is mainly confined to the settlement areas. This area covers 27,266 hectares of land (18.19% of the total agricultural land). The main plants include jackfruit, banana, bamboo groves and areca nut.

2.9. FOREST AND DEGRADED FOREST OR SCRUB LAND

Dhemaji district harbours a wide variety of forest resources like trees, herbs and shrubs. The total areas covered by the forests are 44.46% of the total land area, which is lower than the state average of 54 per cent. The forests types of the district are evergreen or semi-evergreen. Holong (*Dipterocarpus macrocarpus*) and Sam (*Artocurpus chaplasha*) are the major trees found in the forests. The areas under the Jiadhal Reserve forest are poorly stocked and thus fall under degraded forest or scrubland.

2.10. ECONOMY

The Economy of Dhemaji is generally agro based. Sericulture, fishing and driftwood business is carried out by people in smaller scales. Fish drying is another practice carried out during the monsoon season, mainly by the people living near the rivers. However sand deposition and other adverse effects of chronic floods on fertile agriculture land have made even affluent farmers landless. Therefore a large number of such people shifted to greener pastures within the district to carry out horticulture practices. Lack of good communication system, shortage of power and lack of proper irrigation and marketing facilities add to the poverty of the district. Dearth of any major and small industry worth the name is also responsible for multiplying the problem of unemployment while galloping explosion in the rate of population growth has already shown signs of negative impacts. The local economy is thus characterized by subsistence level of production and consumption.

2.11. IRRIGATION FACILITIES

Irrigation is largely rain-fed, except few mechanized shallow tube wells scattered throughout the district. Winter cropping is very difficult in monsoon land due to lack of rainwater. Thus, irrigation is a vital component of agricultural modernization in such areas. However, the gross irrigated area in Assam is barely 17.28% of the state's gross cropped area (1995-96). About 3.5-4.0 lakh hectares of land are affected annually by flood where standing crop (mainly Sali paddy) is damaged. This in turn drives the farmers to find an alternative in Rabi cropping in order to compensate the loss, otherwise Rabi cropping will not become possible in

such areas without proper irrigation facilities. As there is very limited irrigation facility in Assam, hence most of the lands remain fallow during winter season. Dhemaji district is lagging far behind in this aspect as only 7.53% of the gross cropped area of the district is having irrigation facility. The irrigated area is shown in the following table.

Table- 2.2: Irrigation facilities in Dhemaji District

Net irrigated area	11110 Hectare (7.41)
By Channel	Nil (0.0)
By Wells	7790 Hectare (5.19)
By Other Sources	3320 Hectare (2.22)
Figures in parenthesis indicates per cent of agricultural land under irrigation Source: Dist. Agriculture Office, Dhemaji, 2003	

CHAPTER-III

INTER-TRIBAL AND INTER ETHNIC VARIATION IN WORK PARTICIPATION

CHAPTER-III

INTER-TRIBAL AND INTER ETHNIC VARIATION IN WORK PARTICIPATION

Assam is the homeland of many ethnic groups with different languages, customs and with different historical, economical, cultural traditions and religious believes. Although, most of them share a common mode of income from agricultural activities, even than there exists variation in the pattern of agricultural practices among different groups. Female work participation rate is also of varied nature and among tribal population the work participation of female is always higher than the non-tribal population.

Generally in rural households, women do a sizeable part of agricultural and allied works in addition to all the household works. Taken together, women in rural area work over three times as much as men do (Sivyard, R., 1985)[1]. Time budget studies have depicted women working extremely long hours (Jain and Chand, 1982[2]; Khan *et al.*, 1983[3]; Singal, *et. al.* 1993[4]) and expend more total energy in the tasks they do without adequate rest, on a wide variety of tasks essential to a family's

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[1] Sivyard, R. (1985): *Women –A World Report.* Methuen London Ltd. London.56-57

[2] Jain, D. and Chand, M. (1982): Report on a time allocation studies: Its methodological implications. Paper presented at Technical Seminar on *Women's Work and Employment*, New Delhi.

[3] Khan, M.E., Dastidar, G. and Singh, D (1983): Time use data of five pregnant women on a normal day. Working Paper, Operation Research Group, Baroda .

[4] Singal, S.; Srinivasan, K. and Jindal, R. (1993) Women's work status and their time use pattern in rural households of Haryana. *J Consum Stud Home Econ.* 17(1): 90-104

survival (Batliwala, 1984)[1]. Women make a considerable contribution to agricultural production in developing countries. Women workers in farming may be classified as unpaid family labour or self-employed workers for their own-account; and wage labourers on farms and plantations. The distinction between these three categories is often unclear. However, women's traditional roles are affected by changes in social patterns and the introduction of technology.

India has a labour force of over 300 million, a large portion of which is women workers. In every form of activity, women contribute substantially to the value addition of the final product and yet their work is perceived as subsidiary, unskilled and often as skill only of domestic value. Women have also been experts in the breeding and feeding of farm animals, which include not just cows and buffaloes but also pigs, chicken, ducks and goats. Knowledge of the feed value of different fodder species of the fuel value of firewood types and food products and food species is essential to agriculture related forestry in which women are predominantly active. In major parts of the country, tending animals is mostly women's occupation. Their share in activities of animal husbandry is scattered across all the caste groups. Women also play significant role in activities like milking cattle, fodder cutting, preparing feed for calves, taking animals for grazing, collection of dung, preparation

[1] Batliwala, S. (1984): Rural Energy Scarcity and Under-nutrition. A new Perspective. *Economic and Political Weekly*. 17(9): 329-33.

and storage of dung cakes, storage of hay, storage and marketing of milk and other dairy products (Sardana *et. al.*, 1988)[1].

Women's traditional jobs in agriculture are to transplant, sow, weed, harvest, winnow, and thresh. The type and extent of participation by women in farm operations varies between various ethnic groups and from state to state. In Punjab it is 4.28%, in Maharashtra it is 29%, Tamil Nnadu 24%, North Eastern States 70% and Andhra Pradesh 95% (Jain and Chand 1982)[2]. In the tribal society in Orissa, women spend 105.4 days per year on agricultural operations compared to men who spend 59 days per year on agricultural work (Fernandes and Menon, 1987)[3]. In the Indian Himalayas, a pair of bullock works for 1,064 hours, a man for 1212 hours and a woman for 3485 hours in a year on a one-hectare farm (Singh, 1987)[4]. In the hill agriculture of Himachal Pradesh women do 37 per cent of sowing work, 59 per cent in intercultural (weeding) 66 per cent of harvesting, 59 per cent of threshing and 69 per cent of tending farm animal. In terms of over all farm work they contribute 61 per cent of the total labour (Mencher, 1987)[5]. In the rice producing states like Kerala, Tamil Nnadu and West Bengal the contribution of women is neither marginal nor

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[1] Sardana, P. K.; Gandhi, S.; Harijan, R. C. and Chamola, S. D. (1988): Role of women in agriculture. Farm women and dairy cattle supplement each other. *Rural India*.**1**:67-69.

[2] Jain, D. and Chand, M. (1982): Report on a time allocation studies: Its methodological implications. Paper presented at Technical Seminar on *Women's Work and Employment*, New Delhi.

[3] Fernandes, W. and Menon, G. (1987): *Tribal Women and Forest Economy*. Indian Social Institute, New Delhi.

[4] Singh, V. (1987): Hills of Hardship. *The Hindustan Times Weekly*, January 18.

[5] Mencher, J. (1987): Women's work and poverty: women's contribution to household maintenance in two regions of South India. Deoyer, D. and Bruce, J. (eds.), *A Home Divided: Women and Income Control in the Third World*. Stanford University Press, Stanford, USA.

insignificant and women's contribution to the household income is immense (Mencher, 1987)[1]. Even though women contribute significantly to food production and food processing, most perceive women as inactive and dependents. This leads to unequal wages and most of the strenuous jobs that women do are considered light and unskilled works.

The study of spatial distribution in work participation rate in Assam indicates that this rate is high in the tribal dominated and economically backward districts like Lakhimpur (42.86%), Karbi Anglong (42.78%) etc. It might be said that the economic conditions and social prejudices play an important role in determining the female work participation in different parts of the state. Women contribute considerably to household income through farm and non-farm activities as well as through work as landless agricultural labourers. The Indian work force participation rate is 37.7% (Census 2001)[2] the rate of women is 22.7% which is lower than half the rate of man (51.6%). Within the state of Assam the work participation is considerably higher in the rural areas (36.71%) than that of urban areas (30.92%). The main economic activities of the tribal population in Assam lie in the primary sector of agriculture. In rural areas including the Dhemaji district of Assam, agriculture and allied industrial sector employ most of the total female workers The work participation rate of female (percentage of female workers to total female population) in Dhemaji district is 37.94%, which is much higher than state average

[1] Mencher, J. (1987): Women's work and poverty: women's contribution to household maintenance in two regions of South India. Deoyer, D. and Bruce, J. (eds.), *A Home Divided: Women and Income Control in the Third World.* Stanford University Press, Stanford, USA.

[2] Census of India (2001): Directorate of Census Operations, India

(18.09%). The percentage of female main workers to total female population in the district is 15.15% against 9.82% for the state of Assam. The corresponding figures in female marginal workers are 22.53% and 10.89% in Dhemaji and Assam respectively (Census, 2001)[1]. This indicates that most of the female workers in the district are underutilized.

Demographic feature of female population like age composition, age at marriage, health care, fertility and child care practices, rural-urban composition of population, nature of migration determines the potential labour force which can be utilized for productive purposes. Social statuses, prestige, customs, attitudes and religious beliefs affect the volume of female labour supply in the society. Educational standard also influences the nature of occupation of females.

Women within a geographical area, though not a homogeneous group by way of caste, class or economic activity, the work participation in agriculture has a similarity in many aspects. Most of the women lack social security and do not have access to new technologies, skills and knowledge (Ratan *et. al., 1993*)[2]. The primary activity is such an activity where every family member is called upon to assist in some aspect of production. It is the agriculture sector, which absorbs the largest proportion of India's workforce in both male and female. Women's contribution to agriculture is significant and crucial both to agricultural production and to household. Any assessment of the role and problem of women in agriculture has to be made not

[1] Census of India (2001): Directorate of Census Operations, India

[2] Ratan, R. P. S.; Mohsin, M.A. and Roy, N.K. (1993): Empowering tribal farm women: issues and approaches. Paper presented at the National Seminar on Women in Agriculture - Developmental Issues, December 28-30, National Academy of Agricultural Research Management, Hyderabad, India.

only on the nature and structure of the agricultural economy but also on the characteristic features of land resources, labour utilization and the agro-ecological settings of a region.

In Assam the rural sector is dominant with 90% of its population living in 22,000 villages. Out of the total workers 77% are engaged in agriculture and allied activities and contribution of agricultural sector to state income is as high as 56% (Das, 1984)[1]. The agriculture sector employs as much as 85% of all economically active women where, there are two categories of women. The self-employed cultivator women working on their own farms and women working as agricultural laborer for wages or share of produce contributes to income of the family. In Dhemaji district it was observed that there has been a decline in the number of cultivators over the years and more and more women are working as agricultural laborers, this is due to the floods that declining the land holding. However, most of the women work to sustain their families and communities is not measured in wages making their work invisible. The invisibility of women's work may have relation to the fact that women are concentrated outside market related activities or remunerated work and are normally engaged in multiple tasks. The multiplicity of task is reflected in time allocation studies without defining the priority definition of work that characterizes the livelihood strategy for most rural women.

Regardless of the type of agriculture (shifting cultivation, subsistence and low input agriculture, or high external input agriculture), women work much longer hours

[1] Das, M. M. (1984): *Peasant Agriculture in Assam,* Inter-India Publication, New Delhi

and harder works than men. Women are involved in transplantation, preparation of farm yard manure, seed selection, thinning, weeding, scaring of birds, using plant protective measures, harvesting and post harvest activities but are not involved in ploughing fields and marketing of the crops, thus making female population a significant work force in Assam. Studies have shown that application of modern science to the agricultural sector raises the productivity factor more than similar investments in the industrial sector, and that agricultural growth has a greater effect on the reduction of poverty than the industrial sector. The ratio of male to female work participation in percentage and the sex ratio in the Dhemaji district of Assam is shown in Table 3.1.

Table-3.1: Distribution of Main and Marginal Workers in Dhemaji District of Assam

Workers Category			Total	PC to total population	PC to total workers	Sex Ratio
Main Workers	Agricultural workers	Total	136164 (4404081)	28.44 (19.65)	63.24 (54.45)	-
		Male	91417 (3553156)	19.09 (15.85)	42.45 (43.93)	-
		Female	44747 (850925)	9.35 (3.80)	20.78 (10.52)	490 (240)
	Other workers	Total	24669 (2587975)	5.15 (11.55)	11.45 (31.99)	-
		Male	22113 (2087031)	4.62 (9.31)	10.27 (25.80)	-
		Female	2556 (500944)	0.53 (2.23)	1.19 (6.19)	120 (240)
Marginal Workers		Total	54494 (1096879)	11.38 (4.89)	25.31 (13.56)	-
		Male	5977 (124213)	1.25 (0.55)	2.78 (1.54)	-
		Female	48517 (97266)	10.13 (0.43)	22.53 (1.20)	810 (780)

State figures are presented in parenthesis
Source: Statistical Handbook, Assam, 2002

The table shows that the percentage of female main workers to total population involved in the agricultural sector is much higher (9.35%) than that of the state average (3.8%). Similarly, it is reflected in the sex ratio also (490 per 1000 males) as compared to the state average (240 per 1000 males). However, in case of female main workers engaged in sectors other than agriculture is very low (0.53% of total population) as apart from Government jobs there is very little scope of engaging female workers in work categories other than the agricultural or allied sectors. Although most of the women are involved in multiple activities, the overwhelming majority of them report themselves to be not working. This fact is reflected in the proportion of female marginal workers, which is also much higher in Dhemaji district (10.13% of total population) than the state average of 0.43%. The numbers of female marginal workers are almost at per with male in Dhemaji district (810 per 1000 males) which is higher in comparison to the state average (780 per 1000 males). Among social groups in Assam, upper caste women participates the least in comparison to the scheduled tribes and scheduled castes. The average rates of participation for general category women are 14%, which is significantly lower than that of scheduled tribes (37%), and scheduled castes (22%) (Statistical Hand Book of Assam, 2002)[1].

However, it is observed from table-3.6 that there is an increasing trend of shift of women marginal workers to main workers category. In the main workers category, the increase in other workers category recorded highest annual growth rate (17.4%) followed by agricultural labourer (15.28%), while cultivators recorded an

[1] Statistical Hand Book of Assam, (2002): Published by the Directorate of Economics and Statistics. Govt. of Assam, Guwahati.

Table-3.2: Comparative FWPR in Different Work Categories during two Census Periods

Census Year	Total female population	Total Female workers	Female Main Worker			Female Marginal Worker
			Cultivators	Agricultural labour	Other Workers	
1991	230373	95820	42243	2504	2556	48517
2001	277301	166954	81382	10382	12714	62476
Annual growth rate (%)	1.87	5.71	6.78	15.28	17.4	2.56

Source: Census of India, 1991 & 2001
Annual Growth rate is calculated according to the post diction method of Time Series analysis (Hammond & McCullagh, 1991)[1]

increase of a mere 6.78%. This shift during the last decades can be attributed to various factors like negative impact of population explosion, decreasing land holding pattern, loss of agricultural lands due to floods etc. which also the reasons for increased poverty in the district.

There is a considerable variation in the work participation of women in agriculture in different parts of Assam and a same phenomenon is observed between different ethnic groups residing in Assam. However, there exists little difference in work participation pattern among women of different ethnic and tribal population residing within a particular geo-climatic condition. However, in Dhemaji district of Assam, although the women work participation in agriculture is more or less similar among different tribal and ethnic groups even though slight differences are observed in some aspects. Table 3.3 shows the work participation pattern in different agricultural activities by the women respondents of the Mishing, the Deori, the Sonowal Kachari tribes and non-tribal women groups.

[1] Hammond, R and McCullagh, P (1991): Quantitative Techniques in Geography (2nd Ed), Clarendon Press, Oxford. P-108-109

Table-3.3: Work Participation rate of respondents in different activities related to agriculture

Type of work	Participation rate in percentage			
	Mishing	Deori	Sonowal Kachari	Non tribal
Ploughing	0	0	0	0
Seeding	3.2	4.0	7.2	5.6
Transplanting	78.4	74.8	70.0	53.2
Weeding	36.0	41.2	47.2	27.2
Harvesting	86.0	88.0	82.0	51.6
Carrying harvested crop	2.0	4.4	10.0	1.2
Threshing	44.8	16.4	0	0
Husking	48.4	22.4	10.4	4.8
Preparation of food	89.6	92.0	84.0	87.6
Livestock Maintenance	79.3	86.0	81.6	58.0
Kitchen Gardening	10.0	15.6	44.8	60.0
Horticulture	10.0	15.6	44.8	60.0
Source: Primary Field Survey data, 2003				

The table reveals that women are not involved in plaughing and are minimally involved in activities like seeding and carrying harvested crops home but are maximally involved in transplanting, harvesting, livestock maintenance and preparation of food. Threshing, previously done exclusively by women in the tribal dominated areas of the district are now gradually replaced by the use of bullocks and most of the husking process became mechanized. However, a sizeable proportion of the Mishing women are still using the manual method of threshing and husking using hand-operated "Khundana". The women of the Deori tribe also use the same method for husking and threshing as the Mishing tribe but to a lesser degree. The women of non tribal groups are still practicing the husking process in a minimal way using a foot-operated device called "Dheki" and almost every household possesses a "dheki". The process of kitchen gardening and horticulture is found to be minimum

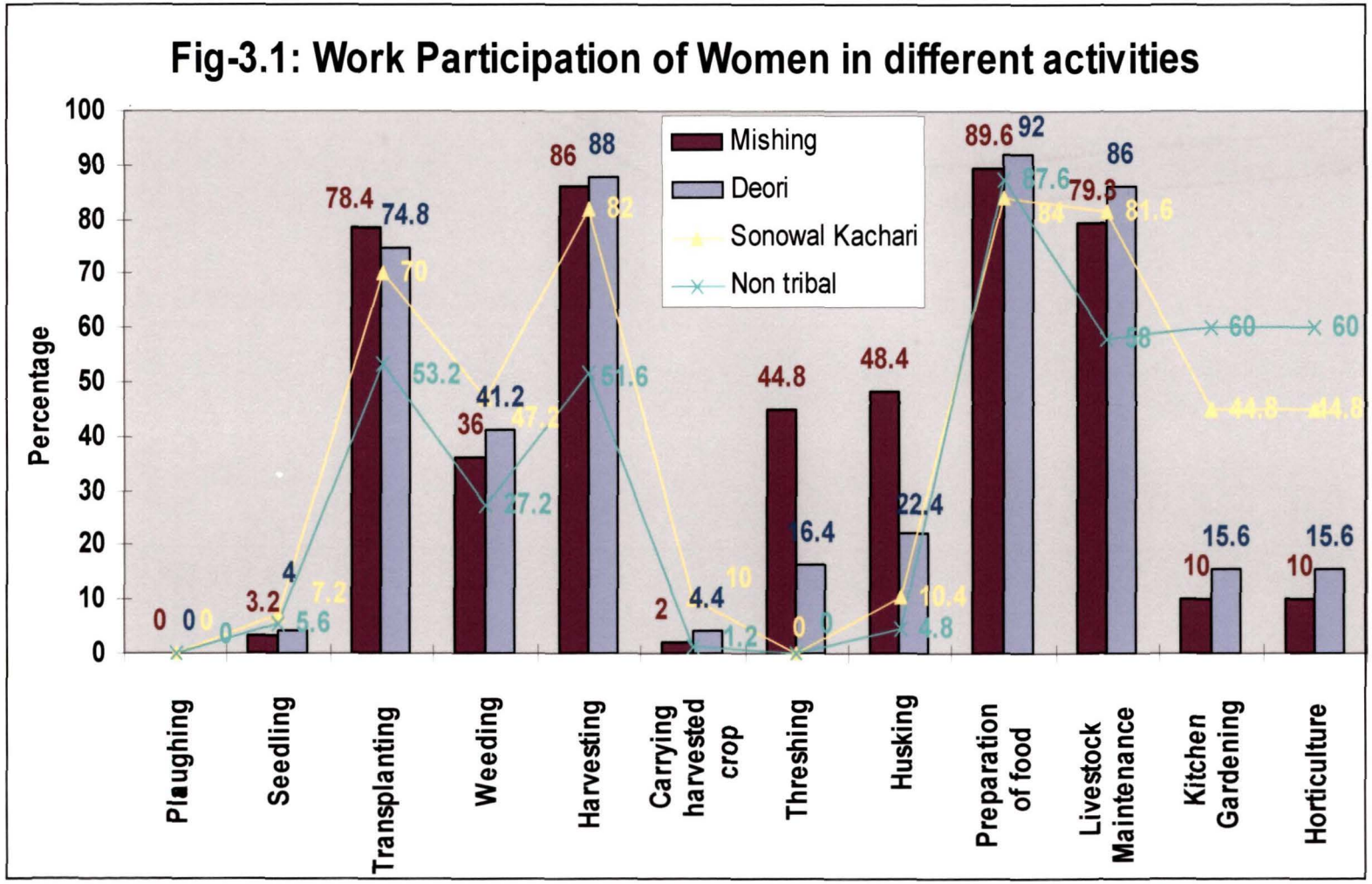


Fig-3.1: Work Participation of Women in different activities
Percentage
100
90
80
70
60
50
40
30
20
10
0
Mishing
Deori
Sonowal Kachari
Non tribal
0 0 0 0
3.2 4 5.6 7.2
78.4 74.8 70 53.2
36 41.2 27.2 47.2
86 88 82 51.6
2 4.4 1.2 10
44.8 16.4 0 0
48.4 22.4 4.8 10.4
89.6 92 84 87.6
79.6 86 81.6 58
10 15.6 44.8 60
10 15.6 44.8 60
Plaughing
Seedling
Transplanting
Weeding
Harvesting
Carrying harvested crop
Threshing
Husking
Preparation of food
Livestock Maintenance
Kitchen Gardening
Horticulture

TRANSPLANTATION IN PADDY FIELDS

MISHING WOMEN HUSKING RICE

TRIBAL WOMEN HARVESTING CROPS
IN KULAJAN VILLAGE

TRIBAL WOMEN HARVESTING CROPS IN NAHARBARI VILLAGE

for the Mishing tribe followed by the Deori tribe. However, the women of the Sonowal Kachari tribe as well as non tribal groups are found to be involved in kitchen gardening in a moderate degree. It is observed that the Mishing and Deori women are involved in kitchen gardening to a lesser degree than the Sonowal Kachari and non tribal women. It may be due to the fact that the women and girls of these two tribes used to meet their daily necessities through rearing of pigs and poultry in their backyard openly, thus open grazing system is not feasible for kitchen gardening. Thus it shows that the traditional pattern of participation of women in various activities related to agriculture exists in the district.

To make the evaluation of the agricultural work participation by women purposeful, the sample profile covers information on age, education and landholding etc. Age acquires a special significance as far as efficiency is concerned. Although women's participation in agricultural activity starts at a very early age, the respondents of the present study mainly confined to the housewives, hence their age ranged between 18 to 60 years. In the present study 31.88 per cent respondents belong to below 30 years group, while 37.10 per cent and 31.02 per cent of women respondents belonged to 30-45 and above 45 years of age group. The analysis revealed that the age of nearly two third of the respondents ranged between 20 and 40 years.

The relationship between age groups of respondents with ethnic groups, their work participation and economic contribution through agricultural activities towards family income is analyzed in Table-3.4.

Table-3.4: FWPR and respondents age groups

Ethnic Group	Category	Below 30 years		Between 30-45 years		Above 45 years		Total		χ^2 value
		No of Respondents	PC to total Respondents	No of Respondents	PC to total Respondents	No of Respondents	PC to total Respondents	No of Respondents	PC to total Respondents	
Mishing	**Non Workers**	3	1.46	4	1.95	11	5.37	**18**	**8.78**	13.58*
	Marginal Workers	59	28.78	63	30.73	38	18.54	**160**	**78.05**	
	Main Workers	7	3.41	14	6.83	6	2.93	**27**	**13.17**	
	Total	**69**	**33.66**	**81**	**39.51**	**55**	**26.83**	**205**	**100**	
Deori	**Non Workers**	6	4.14	8	5.52	14	9.66	**28**	**19.31**	13.91*
	Marginal Workers	23	15.86	38	26.21	29	20.00	**90**	**62.07**	
	Main Workers	15	10.34	8	5.52	4	2.76	**27**	**18.62**	
	Total	**44**	**30.34**	**54**	**37.24**	**47**	**32.41**	**145**	**100**	
Sonowal Kachari	**Non Workers**	14	6.67	7	3.33	22	10.48	**43**	**20.48**	18.32*
	Marginal Workers	33	15.71	45	21.43	29	13.81	**107**	**50.95**	
	Main Workers	26	12.38	24	11.43	10	4.76	**60**	**28.57**	
	Total	**73**	**34.76**	**76**	**36.19**	**61**	**29.05**	**210**	**100**	
Non tribal	**Non Workers**	13	10.00	5	3.85	19	14.62	**37**	**28.46**	13.72*
	Marginal Workers	17	13.08	38	29.23	30	23.08	**85**	**65.38**	
	Main Workers	4	3.08	2	1.54	2	1.54	**8**	**6.15**	
	Total	**34**	**26.15**	**45**	**34.62**	**51**	**39.23**	**130**	**100**	

Source: Primary field Survey data, 2003
* Statistically Significant at 1% level of significance

Fig-3.2: Age group and Respondents

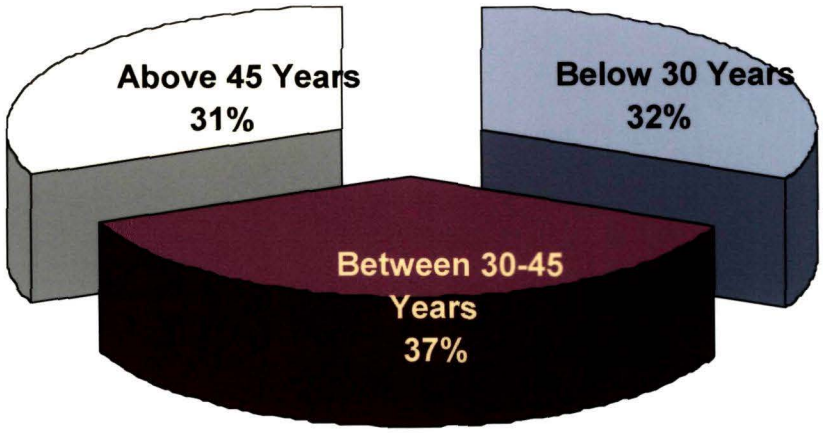


Fig- 3.3: Comparative Age Group Distribution of Respondents of Different Ethnic Groups

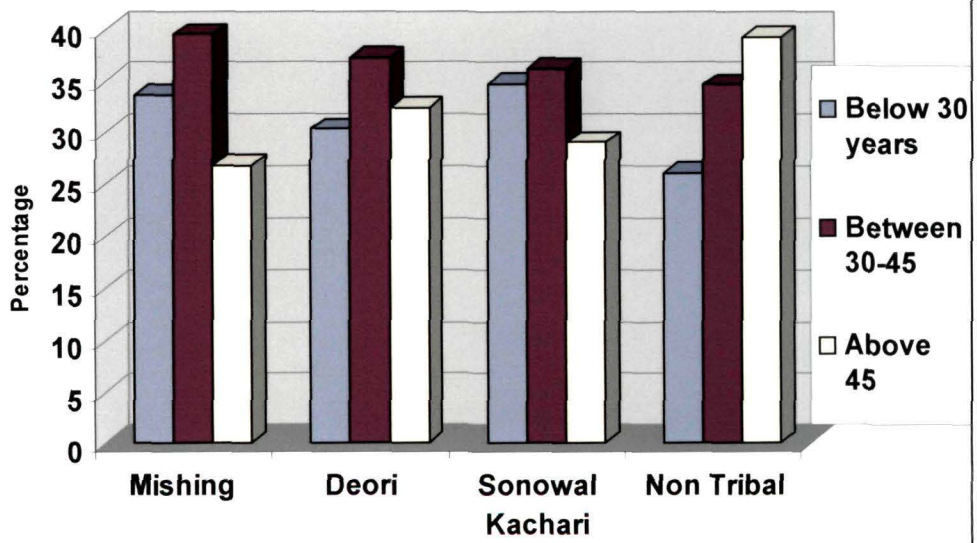


Fig-3.4: Comparative FWPR of Respondents in percentage (Below 30 years of age group)

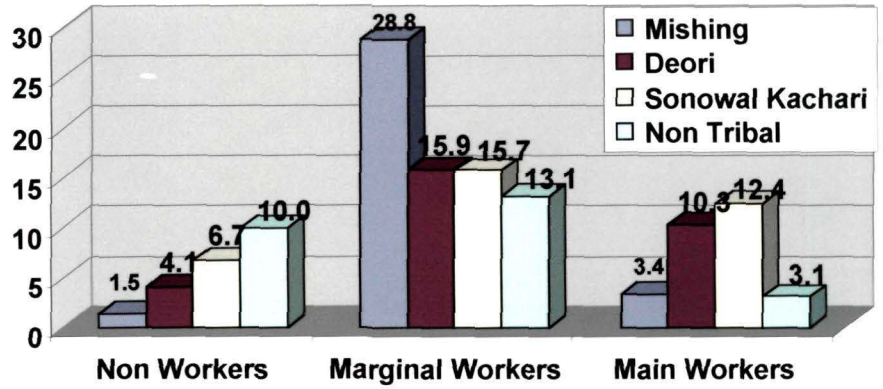


Fig-3.5: Comparative FWPR of Respondents in percentage (Between 30-45 years of age group)

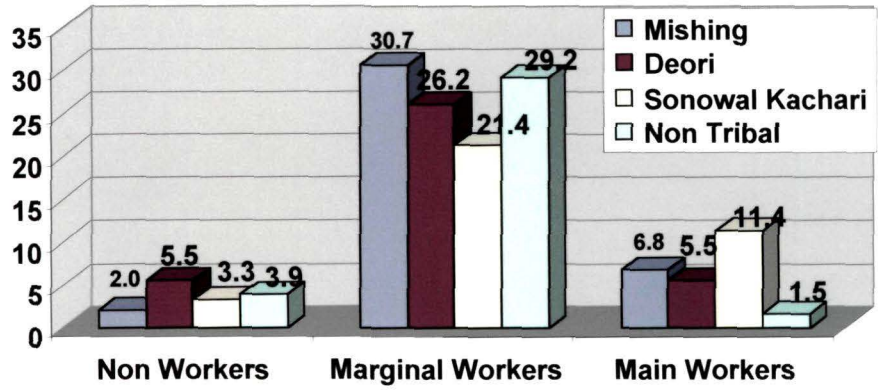
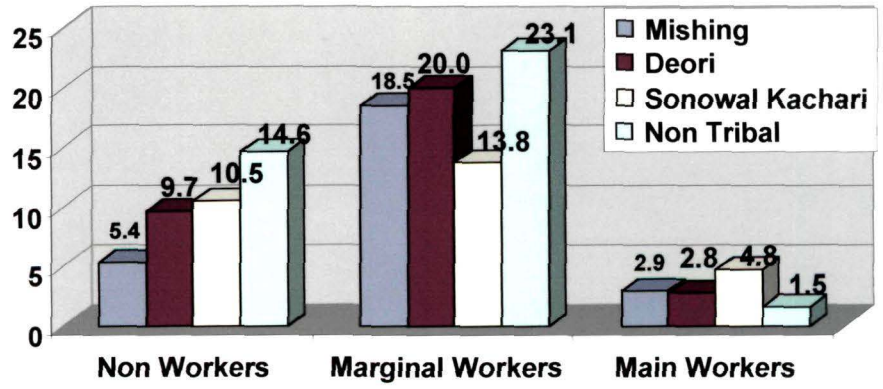


Fig-3.6: Comparative FWPR of Respondents in percentage (Above 45 years of age group)



It is evident from the Table-3.4 that the percentage of workers of tribal women is substantially higher than non-tribal women irrespective of age groups. The percentage of non-workers irrespective of age groups reflects higher FWPR among the tribal women as compared to non-tribal women. Thus the economic contribution of the women workers through wages earned / saved will definitely be higher in case of tribal women. Moreover, the table reveals that the women normally economically active up to the age of 45 years after which their economic contributions towards family income tends to decline.

Thus there is a significant relationship ($\chi 2$ values) between age groups and work participation in agriculture among women. It is also observed that many women of low income groups of the Sonowal Kachari tribe residing in the foothill areas near Subansiri River are engaged in wage earning activities in the construction works associated with the Subansiri hydroelectric project (N.H.P.C.). Moreover, women of all ethnic groups residing in Flood affected areas of Jiadhol are also engaged in wage earning activities (mostly in neighboring farms or households).

A woman has very little access to education in the rural areas, which is more pertinent in tribal dominated areas; hence most women are illiterate. The educational level of the respondents in the present study is classified into four categories viz. illiterate, educated up to primary school level, educated up to High School (HS) level and higher educated women (HSLC and above). The study shows illiteracy among the respondents is found to be highest among Mishing women (67.8%) and lowest among non tribal women (43.9%). Illiteracy among married scheduled tribe women are 75 per cent which is higher than the corresponding figures of 45.9 per cent for

scheduled castes and 56.7 per cent for women in general (Assam Human Development Report, 2003)[1]. However respondents from the scheduled tribes are mostly belonging to the married groups, in which the literacy rate is found to be better. The comparison study of educational level of respondents of different ethnic groups are presented in fig -3.7 and fig 3.8

Agricultural activity doesn't require lots of skill and training, hence most rural women engage themselves in such activities where education is not a prerequisite. However, the work participation of educated women in agriculture activity is more productive as they are known to be keener to assimilate the modern trends in agricultural technology. (Tripathy, 1990)[2]. Table 3.5 shows the relationship of educational level with the work participation rate of women among different ethnic groups residing in the district. It is also observed that the illiterate and primary educated women participation rates are more in agricultural activities in comparison to the highly educated women.

In the marginal workers category women participation rate is found to be maximum in all the levels of education since traditionally they are over represented in this category. In general, most of the women respondents of the present study belonged to the marginal workers category while the proportion of non workers is almost negligible among Mishing women. A sizeable proportion of Deori and Sonowal Kachari women are engaged in the main workers category. In contrast most

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[1] Assam Human Development report (2003): Published by Planning and Development Department, Government of Assam, Dispur.

[2] Tripathy, A (1990): Scientific orientation among rural housewives in Puri district (Orissa) *Rural India* **3**:67-70.

Fig-3.7: Literacy pattern among respondents

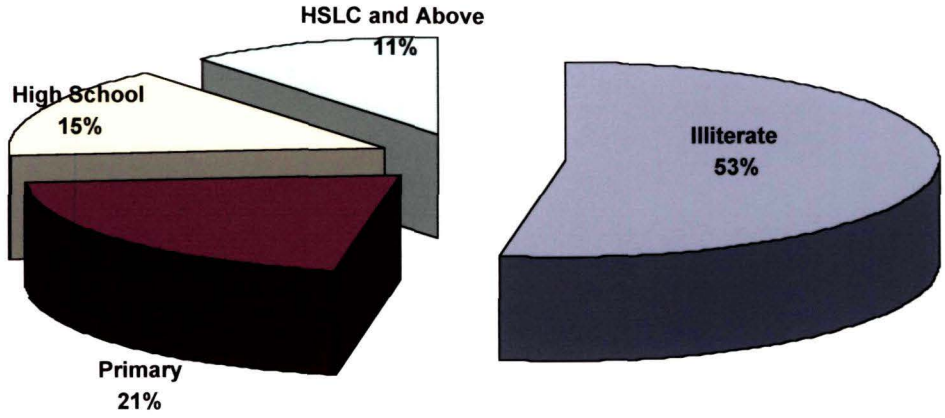


Fig-3.8: Comparative Literacy rate among respondents of Different ethnic groups

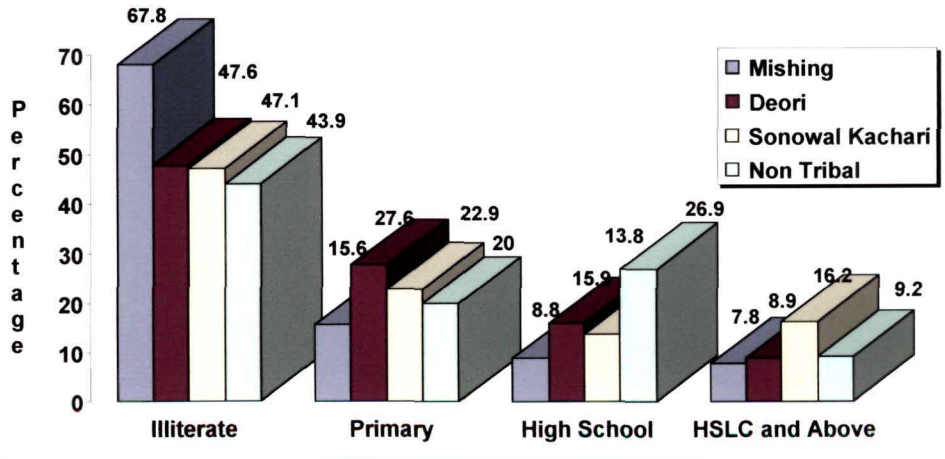


Table-3. 5: FWPR of respondents in agriculture according to level of education

Ethnic Group	Category	Illiterate		Primary		High School		HSLC & Above		Total		$\chi 2$ value
		No of Respondents	PC to total Respondents	No of Respondents	PC to total Respondents	No of Respondents	PC to total Respondents	No of Respondents	PC to total Respondents	No of Respondents	PC to total Respondents	
Mishing	**Non Workers**	13	6.34	1	0.49	2	0.98	2	0.98	**18**	**8.78**	5.69^{NS}
	Marginal Workers	107	52.20	29	14.15	14	6.83	10	4.88	**160**	**78.05**	
	Main Workers	19	9.27	2	0.98	2	0.98	4	1.95	**27**	**13.17**	
	Total	**139**	**67.80**	**32**	**15.61**	**18**	**8.78**	**16**	**7.80**	**205**	**100.0**	
Deori	**Non Workers**	17	11.72	8	5.52	2	1.38	1	0.69	**28**	**19.31**	4.93^{NS}
	Marginal Workers	41	28.28	23	15.86	16	11.03	10	6.90	**90**	**62.07**	
	Main Workers	11	7.59	9	6.21	5	3.45	2	1.38	**27**	**18.62**	
	Total	**69**	**47.59**	**40**	**27.59**	**23**	**15.86**	**13**	**8.97**	**145**	**100.0**	
Sonowal Kachari	**Non Workers**	24	11.43	10	4.76	3	1.43	6	2.86	**43**	**20.48**	6.16^{NS}
	Marginal Workers	49	23.33	25	11.90	13	6.19	20	9.52	**107**	**50.95**	
	Main Workers	26	12.38.	13	6.19	13	6.19	8	3.81	**60**	**28.57**	
	Total	**99**	**47.14**	**48**	**22.86**	**29**	**13.81**	**34**	**16.19**	**210**	**100.0**	
Non tribal	**Non Workers**	18	13.85	6	4.62	10	7.69	3	2.31	**37**	**28.46**	5.80^{NS}
	Marginal Workers	38	29.23	17	13.08	23	17.69	7	5.38	**85**	**65.38**	
	Main Workers	1	0.77	3	2.31	2	1.54	2	1.54	**8**	**6.15**	
	Total	**57**	**43.85**	**26**	**20.00**	**35**	**26.92**	**12**	**9.23**	**130**	**100.0**	

Source: Primary field survey data, 2003
NS: Statistically Non Significant

Fig-3.9: FWPR of respondents according to level of education (Illiterate)

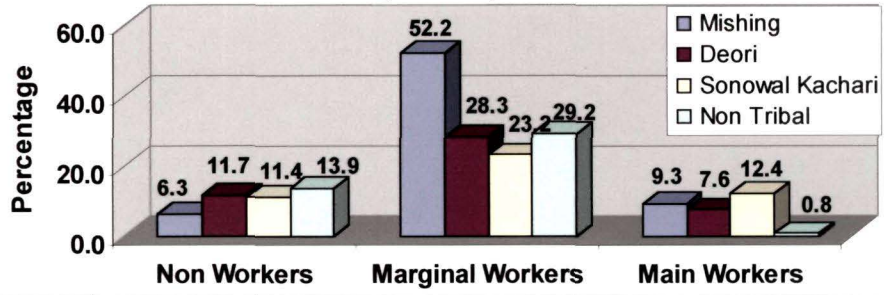


Fig- 3.10: FWPR of respondents according to level of education (Primary)

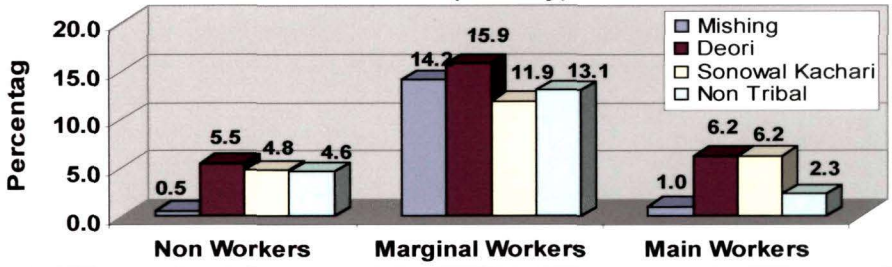


Fig- 3.11: FWPR of respondents according to level of education (High School)

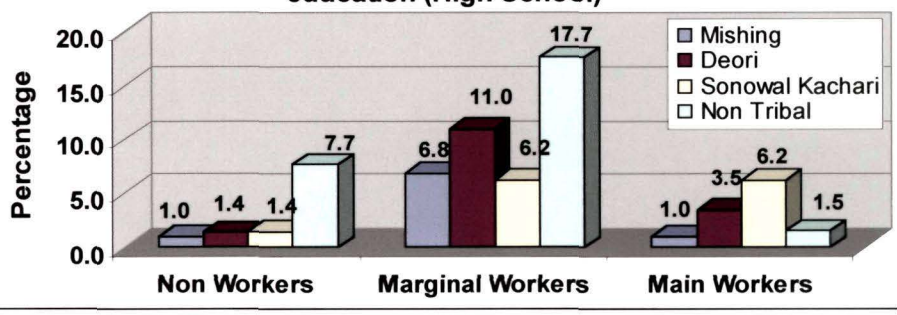
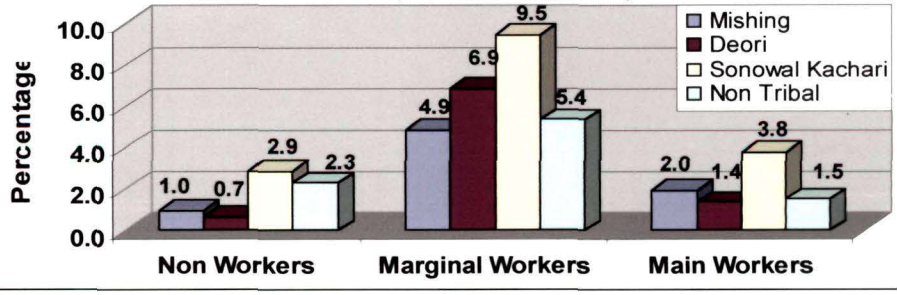


Fig- 3.12: FWPR of respondents according to level of education (HSLC and Above)



of the women of the non tribal communities are either non-workers or marginal workers. This study indicates that the FWPR of tribal women is higher in agricultural activity than the non-tribal women.

Although, it is generally observed that higher the levels of education lower the participation rate in agriculture for women. Also economically well-off families tend to educate their girl child and womenfolk of such families tend to spent lesser times in agricultural activities. However, in the present study, the statistical analysis of FWPR with that of education level of women reveals insignificant relationship for all the ethnic groups, probably due to lesser job opportunity outside the primary sector within the district.

A large section of rural females depends mainly on agriculture. They work as labourers, those who don't possess own land. The families who possess land about two acres also take part as wage labourers since their own farm cannot sustain them economically for the whole year and as such they supplements their family income. Table-3.6 shows FWPR according to size of land holding

Economic status of a family has a direct relationship with the women's work participation in agriculture, and thus land holding has a significant relationship with the FWPR of tribal women as seen in the statistical analysis. There also exists a significant relationship of FWPR with land holding in case of non tribal women. It is also observed from the tables and illustrations that the non-workers components of women respondents are higher among non-tribal population. It is also observed from

the table that the FWPR increases with the decrease of size of land holdings, which indicates an inverse relationship with the size of land holdings.

Table-3.6: FWPR of Respondents in Agriculture in Relation to Land Holding

Land Holding		Below 2 acres		Between 2-5 acres		Above 5 acres		Total		χ2 value
Ethnic Group	Work category	No of Respondents	PC of Respondents	No of Respondents	PC of Respondents	No of Respondents	PC of Respondents	No of Respondents	PC of Respondents	
Mishing	Non Worker	1	0.49	3	1.46	14	6.83	18	8.78	14.57*
	Marginal Worker	31	15.12	61	29.76	68	33.17	160	78.05	
	Main Worker	9	4.39	12	5.85	6	2.93	27	13.17	
	Total	**41**	**20.00**	**76**	**37.07**	**88**	**42.93**	**205**	**100.00**	
Deori	Non Worker	4	2.76	6	4.14	18	12.41	28	19.31	17.96*
	Marginal Worker	17	11.72	26	17.93	47	32.41	90	62.07	
	Main Worker	14	9.66	8	5.52	5	3.45	27	18.62	
	Total	**35**	**24.14**	**40**	**27.59**	**70**	**48.28**	**145**	**100.00**	
Sonowal Kachari	Non Worker	14	6.67	12	5.71	17	8.10	43	20.48	19.72*
	Marginal Worker	23	10.95	47	22.38	37	17.62	107	50.95	
	Main Worker	32	15.24	16	7.62	12	5.71	60	28.57	
	Total	**69**	**32.86**	**75**	**35.71**	**66**	**31.43**	**210**	**100.00**	
Non tribal	Non Worker	10	7.69	11	8.46	16	12.31	37	28.46	14.44*
	Marginal Worker	32	24.62	40	30.77	13	10.00	85	65.38	
	Main Worker	5	3.85	1	0.77	2	1.54	8	6.15	
	Total	**47**	**36.15**	**52**	**40.00**	**31**	**23.85**	**130**	**100.00**	

Source: Primary Field Survey Data, 2003
* Statistically Significant

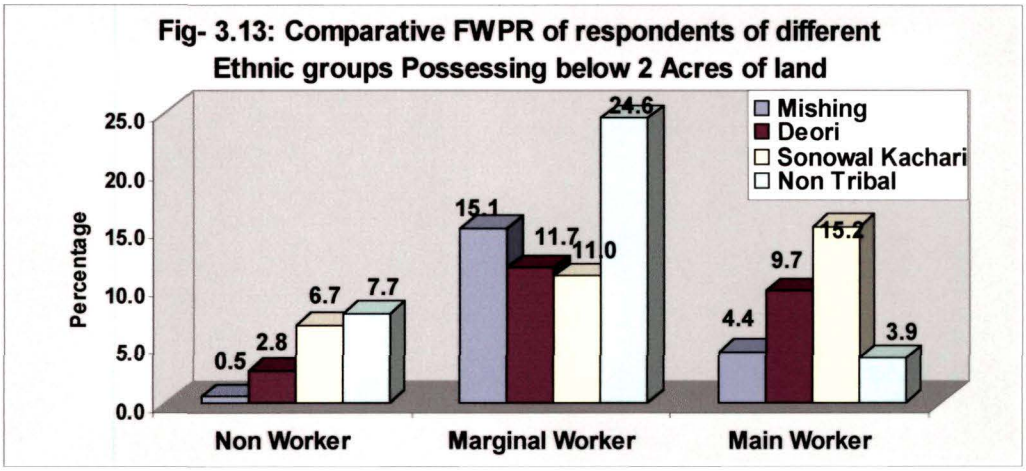


Fig- 3.13: Comparative FWPR of respondents of different Ethnic groups Possessing below 2 Acres of land
Percentage
25.0
20.0
15.0
10.0
5.0
0.0
Mishing
Deori
Sonowal Kachari
Non Tribal
0.5
2.8
6.7
7.7
15.1
11.7
11.0
24.6
4.4
9.7
15.2
3.9
Non Worker
Marginal Worker
Main Worker

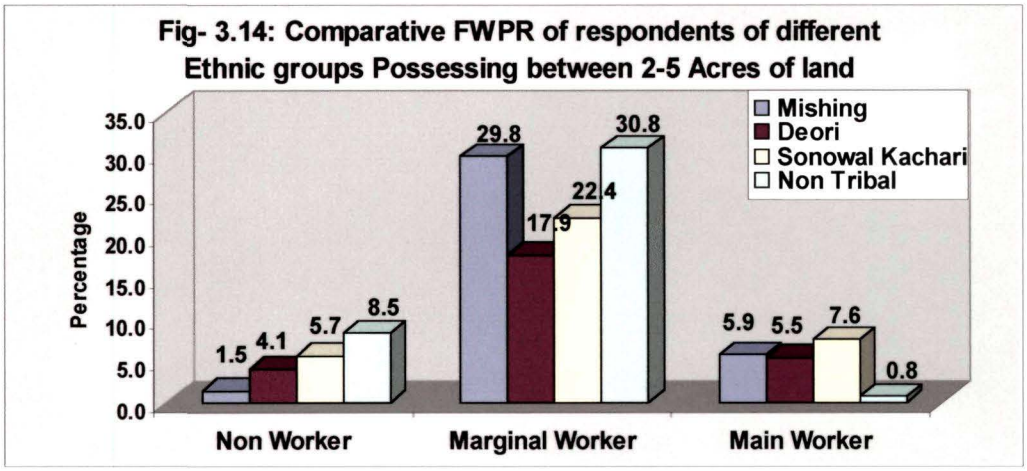


Fig- 3.14: Comparative FWPR of respondents of different Ethnic groups Possessing between 2-5 Acres of land
Percentage
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Mishing
Deori
Sonowal Kachari
Non Tribal
1.5
4.1
5.7
8.5
29.8
17.9
22.4
30.8
5.9
5.5
7.6
0.8
Non Worker
Marginal Worker
Main Worker

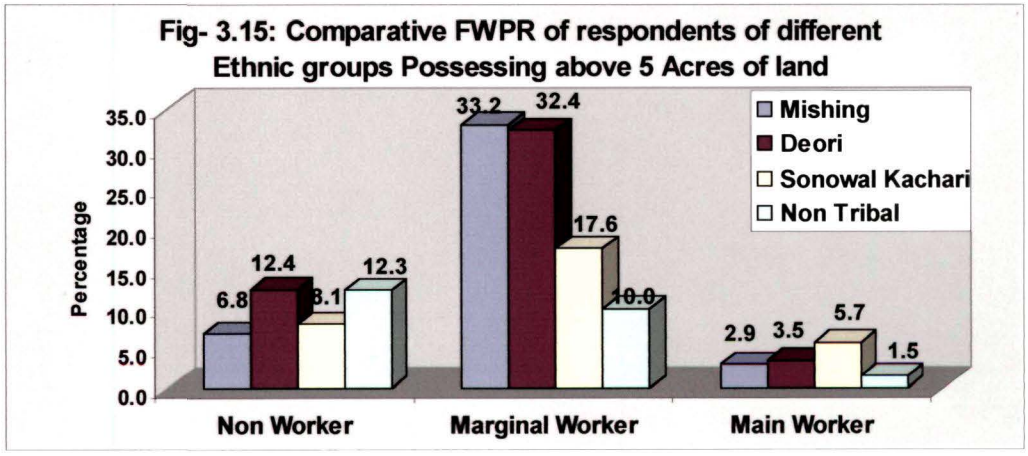


Fig- 3.15: Comparative FWPR of respondents of different Ethnic groups Possessing above 5 Acres of land
Percentage
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Mishing
Deori
Sonowal Kachari
Non Tribal
6.8
12.4
8.1
12.3
33.2
32.4
17.6
10.0
2.9
3.5
5.7
1.5
Non Worker
Marginal Worker
Main Worker

The participation rate of women of poor families is higher in the agricultural activity, therefore their economic contributions towards family income is higher than the others families. Further it is also observed from the table that work participation of tribal women is higher than their non tribal counterpart irrespective of their age, education and land holding. Among poor families of Sonowal Kachari tribe residing in the Subansiri dam construction sites and that of the non tribal populations residing in the Jiadhol river flood ravaged areas are found to be in wage earning women workers. In general most women are self-employed and very few are in formal employment.

It was further observed that livestock care was more or less a female dominated work. Men's involvements in livestock activities were rather limited to cleaning and milking the cows, thus women play a significant role in livestock management and production. Livestock has a multi-faceted role in the district providing draught power to the farm, manure for crops, energy for cooking and food for household consumption as well as for market. In animal husbandry women's role is significant. Women takes care the animals, takes them to grazing and collects fodder, cleans animal sheds and helps in milk processing and livestock products.

Most of the pre-harvesting operations like ploughing, sowing, watering and fertilizing the land etc. are the responsibility of men. Weeding and pruning works are done by women. Harvesting and threshing of crops, cleaning and storage of grains are exclusively women's responsibility, which they perform with the help of men-folks.

The socio-economic characteristics of the society also plays significant role in FWPR. The Mishing women are found to be more active than the other two tribes in terms of work participation rate. However, proportions of main workers are higher in Sonowal Kachari and Deori tribes than the Mishings. The FWPR of all the three tribes are much higher than their non tribal counterparts residing within the district.

In the last decade though considerable attention was paid to identify and calculate the value of women's unpaid work, there was hardly any attention paid to women's work in terms of income in the home based production. This is an area where statistical data is not available from official records, except a few. Since rural women are becoming more responsible for household production, the rural women can acquire necessary training on new techniques and technologies on household productions. There are very few data available on the number of women engaged in home based productions, which could be due to lack of recognition of home based producers as workers in most data collection system. A wide range of productive activities can be included in the home-based work as production. Women often combine their household tasks with income generating works. The hours of work vary from part time works to extended days work. Women always play a key role in agricultural production. These activities can be reflected in the Gross National Product Analysis for rural women's work. Non-formal education on work simplification, time and energy management can reduce the physical labour of work; thereby women can devotes more time in economically productive activities. Access to science, technology and information can improve the life of rural women and that may help in reducing poverty.

Basic educations for women have been shown to have significant impacts on agricultural production (Bharathi *et al*, 1992)[1]. A large number of women carry a double burden of work. Moreover women are less access to skill acquisition, skill training and skill up gradation. The work of women can be broadly divided into two types viz. Works carryout outside their homes (agriculture and allied occupations like dairying, small animal husbandry, fishing, sericulture, construction work, and waged domestic works) and Works performed within the homes (weaving and spinning, garments making, handicrafts making, and food processing)..

The above discussions of inter tribal and inter ethnic variations in works participation of women reveals that the FWPR in Dhemaji district (37.94%) is much higher than the state average (18.09%). The percentage of female main workers to total female population in the district (15.15%) is also significantly higher than the state of Assam (9.12%). It is observed that in Dhemaji district, although the women work participation in agriculture is more or less similar among the different tribal and ethnic groups but slight differences are observed in some aspects. It is also observed that there a definite relationship between different socio-economic characteristics as age, education and land holding of women belonging to different ethnic groups with their work participation rate and their economic contributions towards family income. However, it is seen that the agriculture is carried out through traditional customs and it is more labour intensive and low productive.

[1] Bharathi, M.; Dhadave, M. S. and Chandran C. (1992): A study on the knowledge levels of women in rural development programmes. *J Rural Dev.***11 (5):**.677-684

CHAPTER-IV

INTER-TRIBAL AND INTER ETHNIC VARIATION IN OCCUPATIONAL STRUCTURE

Chapter-IV

INTER-TRIBAL AND INTER ETHNIC VARIATION IN OCCUPATIONAL STRUCTURE

The working force and the occupational pattern of women are greatly determined by the characters of socio-economic status of a society. Further, the work participation rate, occupational pattern of women and prevalent sex disparity in different economic pursuits certainly reveals the economic status of women and the social system prevalent in the society. Women's economic contribution is immensely significant, although most of their work remains unpaid, unrecognized and undervalued. Women are considered to be one of the crucial development forces in the world. As per the World Economic Profile, a women form 50% of the World's Population and contributes 60% of the working force, which is 30% of the official labour force and contributes 50% in the food production (FAO, 1999)[1]. In India, nearly 84% of all economically active women are engaged in agriculture and allied activities. Agriculture employs 4/5th of all economically active women; they make 1/3rd of the agriculture labour force and 48% self-employed farmers. A substantial number of women are also engaged in animal husbandry activities.

It is believed by some historians that it was women who first initiated farming by domesticating crop plants. While men went out for hunting, women started gathering seeds or plants and began cultivating to meet their food, fiber and fuel

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[1] Food and Agricultural Organization (1999): Measuring women's work in agriculture. P 1-15

needs (Swaminathan, 1985)[1]. In the developing countries, women in the rural areas are considered as invisible farmers. Besides engaging themselves in a variety of activities, both on the farm and at home, the farm women also contribute to the family income through their wage earnings. Their earnings form a major part of the income of poor households and in fact poorer the farm household, greater is their relative contribution to total income.

The occupational structure among the women workers in a region is indicative of the role played by them. The occupational composition of workers is analyzed in terms of proportion of workers in different categories out of the total main workers as defined by the census of India. The occupational categories are grouped into three major sectors viz. primary, secondary and tertiary.

The Indian work force participation rate is 37.7% (Census of India, 2001). The rate of women participation is 22.7%, which is less than half of the men (51.6%). The pattern of women's participation in the labour force varies across the country depending upon geographic location, caste, class, socio-economic and engagement in the formal or the informal sector. The rural female work participation rate (27.2%) is nearly thrice as much of the urban female participation rate (9.7%). The percentage of labours employed as main men workers are higher than the women. In case of marginal workers, this proportion is higher among women than men. The majority of the main workers (66.8%) are employed in agricultural and

[1] Swaminathan, M.S. (1985): Report from the CGIAR Inter-Center Seminar on *Women and Agricultural Technology*, Italy, Rockefeller Foundation and ISNAR, **I**: 51- 73.

allied industrial sectors. In rural areas, 89.5% of the total females employed are engaged in agricultural and allied industrial sectors. Moreover, most women are primarily workers and engaged as unpaid family workers and accounted for a major part of the total employment in agriculture.

Employment in any occupation depends upon various parameters. Any occupation involves certain range of responsibility and functions, which requires education, training and experience. Therefore, a positive co-relation between occupational pattern and education is always exists. Experience or expertise substitutes educational requirement of certain occupations. However, it becomes difficult to establish a relationship between women's education and work, although education always plays an important role in diversifying females work participation pattern. Table 2 shows education level of females as per males at different levels.

Table- 4.1: Female Literacy (As per Male Ratio)

Education Level	Percentage	
	India	Assam
Female Adult Literacy	65	72.12
Primary	86	82.39
High School	68	76.82
College level	61	59.60
Tertiary Science Enrolment	30.4	33.63
Source: National Profile on Women, Health and Development, 2000 and Statistical Handbook of Assam, 2003		

In spite of the social reforms and formal education of women, the critical objective of improvement of general literacy for women has been slow. The disparity between male literacy and female literacy has constantly been at about 20% for the

last two census periods (1991 and 2001) for the Dhemaji district is shown in the following table.

Table-4.2: Literacy Rate in Dhemaji District of Assam

	Person		Male		Female	
	1991	2001	1991	2001	1991	2001
Dhemaji	53.84	65.96	65.43	75.15	41.12	56.11
Assam	52.89	64.28	64.28	71.93	43.03	56.03
Source: Statistical Handbook of Assam, 1996 and 2004						

It is observed from the field study that the majority of female literates have only a primary education or even less. As a rule, the level of education is directly proportionate to the share of main workers for the population. In contrast, higher levels of education for women do not directly translate into higher proportions of main workers. The usual relationship between education and employment is related to the families that the poor and low educated female members go to work. Well-off and better-educated families may send their girl child to school, but are able to afford to keep women at home after schooling is completed.

In spite of the substantial growth in female enrolment in Assam, women's representation is still very low in sciences. Therefore, women's work participation rates in various occupations are low except in the primary sectors. The same situation is observed in Dhemaji district of Assam where very few women are engaged other than the primary sector and tertiary sector (weaving). Thus diversification of occupational structure of women is almost nil in the district.

Indian women continue to remain at a lower status with low literacy and poor access to resources, facilities and face gender discrimination throughout their life within the family, society and at work places for all classes, castes and religions with varying degrees. Although the constitution of India provides legal equality for men and women even than social and economic equality for women is yet to be achieved. Therefore, women are employed less than men in most of the formal and informal sectors of employment. Moreover, female workforce is overwhelmingly represented in the marginal sectors of work. This fact is reflected in Table-4.3 which shows the distribution of main and marginal workers in Dhemaji district of Assam. It can be observed from the table that the proportion of female workers in Dhemaji district is

Table-4.3: Rural Urban distribution of workers and non-workers in Dhemaji District of Assam

		Total Population	Percentage to total population			
			Total Workers	Main workers	Marginal workers	Non Workers
Total	Persons	569468 (26,638,407)	44.34 (35.88)	27.44 (26.59)	16.90 (9.29)	55.66 (64.12)
	Males	294105 (13,787,799)	25.87 (25.84)	19.77 (21.92)	6.10 (3.92)	25.78 (25.92)
	Females	275363 (12,850,608)	18.47 (10.03)	7.67 (4.67)	10.80 (5.36)	29.88 (38.21)
Rural	Persons	530138 (23,248,994)	45.31 (36.45)	27.39 (26.15)	17.92 (10.30)	54.69 (63.55)
	Males	273148 (11,983,157)	25.82 (25.65)	19.40 (21.37)	6.42 (4.28)	25.70 (25.89)
	Females	256990 (11,256,837)	19.48 (10.79)	7.99 (4.78)	11.50 (6.02)	25.82 (37.66)
Urban	Persons	39330 (3,389,413)	31.32 (31.98)	28.13 (29.62)	3.19 (2.36)	68.68 (68.02)
	Males	20957 (1,804,642)	26.49 (27.17)	24.71 (25.70)	1.77 (1.47)	26.80 (26.08)
	Females	18373 (1,584,771)	4.83 (4.81)	3.42 (3.93)	1.41 (0.88)	41.88 (41.94)
Source: Census of India-2001						

much higher (18.47%) than the state average (10.03%). This is due to the fact that the district has a substantial population of scheduled tribes, where women work participation rate is always higher than the other ethnic groups including scheduled castes population.

The ratio of female workers in Dhemaji district is 714 per 1000 males which is almost double to that of the sate average of 388 per 1000 males. However, the ratio of female main workers (388 per thousand male) in the district although is substantially higher than the state average (213 females per thousand males), but do not reveal much difference as female workers of the district.

There are over representation by females in the marginal work category. The rural urban analysis of the distribution of workers indicates that the difference of work participation of the district with the state average lies only in the rural sector while the urban work scenario is almost similar with that of the state average.

Work defines the conditions of human existence in many ways. Vast majority of women are inevitably involved in some kind of productive activity. Despite this, the importance of women's work generally receives marginal treatment simply because the works regularly performed by women remains invisible in terms of market criteria or in terms of socially determined perceptions of work. Thus, the issues relating to female employment are qualitatively different from those of male employment. Moreover, this invisibility gets directly transferred to data inadequacies and imprecise indicators of the actual productive contribution of women. Typically, the available data do not distinguish between factors that are especially important for

women, such as: seasonal work versus usual or current work; full time versus part time work; paid versus unpaid activities etc. Moreover, there is substantial undercounting of female work activity, especially the activities of unpaid family workers. In general, data on the informal sector are very imprecise, which tends to be a significant source of female employment in developing countries. Further, even statistics over time for the same region may alter dramatically as a result of changed definitions of work. In India, for example, the sharp increase in female labour force participation rates evident in the 1991 census which was related to the changed nature of the questions posed during enumeration.

The available data shows that there are some changes in the employment patterns of women in recent decade. The most significant changes that have been noticed since early 1980s is the increase in labour force participation rates among women especially in the informal sector. This is due to the failure of the organised or formal sector to generate sufficient employment, and that those who could not find paid work in the formal sector were forced into informal activities. ILO (2002)[1] defines main characteristics of the informal sector as: ease of entry; reliance on local resources; family ownership of enterprises; small-scale operations; labour-intensive work, using adaptive technologies; use of skills acquired outside school; an irregular and competitive market and possess development potential because of its flexibility and potential for creative responses to economic change. However, work in the informal sector is less remunerative and under conditions which are inferior to

[1] ILO (2002) Decent Work in the Informal Economy, Report VI, International Labour Conference 90th Session, Geneva.

organised sectors work and is highly vulnerable to workers due to the absence of workers' rights and social protection.

Women are found to be over-represented in the informal sector because the flexibilities of work involved in such activities, especially in home-based works. In case of women workers, the problem is further complicated by the fact that much of their informal works are unrecognized and unpaid, and therefore it is not considered in the standard labour force and employment indicator system.

Services constitute a very heterogeneous economic category, and include activities like retailing, banking, insurance, and administration as well as other arms-length transactions. Women have always been major sources of service sector works, but they have not always been classified as engaged in service sector employment, because much of the works they typically perform comes under the category of unpaid labour, performed within the household or local community. The care economy dominates in such works, thus, all activities such as cooking and cleaning for household members, care of the young, the old and the sick, provisioning of necessary goods (such as fetching water and fuel wood in rural areas) are typically seen as the responsibility of women members of the household. In general, women workers are more concentrated in low paid and more informal types of service activities. In service sector, women workers are dominantly employed in the domestic service, care-giving and entertainment activities and in petty trading activities. Such work comes dominantly in the form of self-employment, and because most of it is conducted in the informal sector, it is extremely difficult to get reliable

estimates of such employment. Thus data inadequacy is certain in FWPR and in determining the occupational structure of women in a region.

Table-4.4 shows the rural urban distribution of workers in different categories of works in Dhemaji district.

Table- 4.4: Category wise percentage of workers in Dhemaji District

		Total workers (Main+ Marginal)	Percentage to total workers			
			Cultivators	Agricultural labour	House Hold Industry Workers	Others
Total	Persons	252507 (9,557,064)	72.98 (39.15)	7.96 (13.50)	2.22 (3.44)	16.84 (43.91)
	Males	147316 (6,884,451)	40.66 (27.85)	3.43 (8.89)	0.52 (1.23)	13.73 (34.07)
	Females	105191 (2,672,613)	32.32 (11.30)	4.53 (4.61)	1.69 (2.21)	3.12 (9.85)
Rural	Persons	240189 (8,473,127)	76.33 (43.93)	8.27 (15.12)	2.22 (3.54)	13.19 (37.41)
	Males	136898 (5,963,601)	42.48 (31.22)	3.56 (9.95)	0.48 (1.19)	10.47 (28.02)
	Females	103291 (2,509,526)	33.85 (12.71)	4.71 (5.16)	1.73 (2.35)	2.71 (9.39)
Urban	Persons	12318 (1,083,937)	7.68 (1.82)	1.89 (0.84)	2.24 (2.63)	88.19 (94.71)
	Males	10418 (920,850)	5.13 (1.48)	0.98 (0.58)	1.27 (1.55)	77.20 (81.34)
	Females	1900 (163,087)	2.55 (0.34)	0.91 (0.26)	0.97 (1.08)	10.99 (13.37)
Figures in parenthesis indicate all Assam average. Source: Census of India, 2001						

It can be observed from the table that as high as 80.94 per cent of the workers in the district are engaged in the primary sector (cultivators and agricultural labourers), while a mere 19.06 per cent of workers are engaged in other sectors of

occupation including the household industries in comparison to the state average of 52.65 per cent and 47.35 per cent respectively in similar occupations. This may be due to the fact that the district has a fair proportion of scheduled tribe population, and as scheduled tribe populations are traditionally linked with land and nature, and thus the proportions of workers are found to be high in primary sector, particularly in agriculture. Moreover, the district is one of the most backward districts of Assam with very little job opportunity outside the agricultural sector.

The FWPR in different categories of works in urban areas of the district do not have substantial difference with the state scenario. The proportion of female workers to total workers involved in agricultural activities in urban areas are 3.46 per cent while 11.96 per cent of urban women are involved in activities other than agriculture against the state average of 0.60 per cent and 14.45 per cent respectively. However, in the rural sector the difference of FWPR in the district with the state becomes prominent where 38.56 per cent of women (of total workers) are involved in agriculture against the state average of 17.87 per cent. The work participation in other sectors including household industry (4.44 per cent) for the rural women of the district is substantially lower than the state average of 11.74 per cent. Kar (2002)[1] also observed that the share of workers in primary occupations, especially of women among the scheduled tribe is significantly higher than the scheduled caste and non tribal groups.

[1] Kar, B. K. (2002): *Women Population of North East India: A Study in gender geography*. Regency Publication, New Delhi

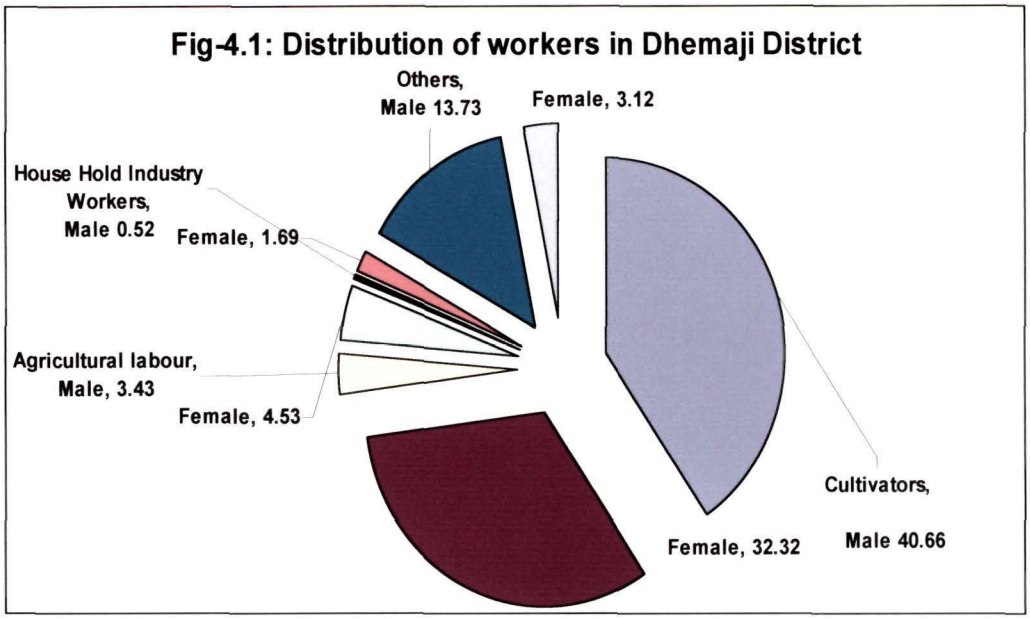
Fig-4.1: Distribution of workers in Dhemaji District
Others, Male 13.73
Female, 3.12
House Hold Industry Workers, Male 0.52
Female, 1.69
Agricultural labour, Male, 3.43
Female, 4.53
Cultivators, Male 40.66
Female, 32.32

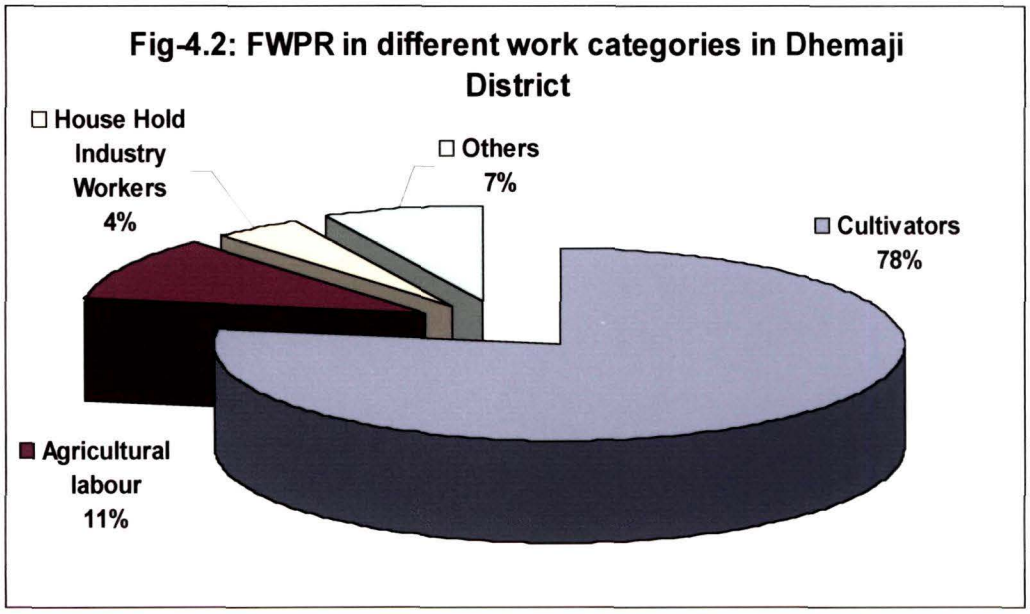
Fig-4.2: FWPR in different work categories in Dhemaji District
House Hold Industry Workers 4%
Others 7%
Cultivators 78%
Agricultural labour 11%

In Dhemaji district as most of the workers are engaged in occupations related to the primary sector hence variation in occupational structure is relatively lower than the state. Similar trends are also observed in some non-tribal dominated districts of Assam, possibly due to the presence of tribal people and tea garden labourers. Lack of industrial and associated infrastructure development is one of the primary causes of over representation of workers in the primary sector in the district. Among the districts of the state, the non-tribal dominated and urbanized district of Kamrup records a highest economic diversification in the state. The shares of female workers are also high in the secondary and tertiary sectors in Kamrup district than the tribal dominated and economically backward district of Dhemaji. It is worth mentioning that the shares of female workers in the primary occupations among the non-tribal population in the district is significantly lower than the scheduled tribes as observed in the preceding chapters. Among the Sonowal Kachari tribe living near the Subansiri Hydro-electricity project peoples' livelihoods are changing. Over the past few years, there is a move from agriculture as the primary livelihood, to a mix of agriculture, small scale tea plantations and off-farm employment as wage labourers in the project sites. More and more people are engaged in wage earning activities among the tribes other than agriculture.

The tribal population of India (67.6 million) is lager than that of any other country in the world, but remains as the most backward ethnic group in respect of the three most important indicators of development viz. health, education, and economic status. As a whole the tribes of India are more backward not compared only with the general population, but also compared to the other backward social groups. They

rarely engage themselves in one occupation. Vast majority of the tribes (almost 90%) are engaged in agriculture, and their other economic activities include food gathering (including fishing), pastoral, handicrafts, trade and commerce. The employment status of tribal women may be considered in terms of their work participation in agriculture, forest related activities, non-agricultural activities and others. Though the work participation rates among tribal women have been increasing over a period of time, it is less than the tribal males, but higher than the general females. Though an overwhelming majority of tribal men and women were involved in agriculture, there exist more cultivators among tribal males while more tribal women are agricultural laboures. As compared to general females, the tribal females are engaged more as cultivators in agriculture, animal husbandry and weaving. The major role that women play in agricultural operations includes transplantations, weeding, harvesting, cleaning grains, winnowing and husking.

The issue of women in workplace has been a tumultuous one. In the past, few women participated in the labor force and their work place was at or nearer to their homes, so that they can simultaneously take care of the family and manage the domestic world. The present women's works become diversified and female employment growth rate has also increased. However, the diversification of occupational structure of women workers in Dhemaji district of Assam is negligible and they prefer to work near to their homes. This may be due to various factors including sense of social insecurity, lack of industrial activities in the district, poor communication systems etc.

Women's contribution to agriculture is significant and crucial both to agricultural production and to the household. Any assessment of the role and problem of women in agriculture has to take the nature and structure of the agricultural economy with its characteristic features of land relations, labour utilization and other related factors. In agriculture, there are two categories of self employed women, cultivators and agricultural labourers. Over the years, there has been a decline in the number of cultivators but more women are working as agricultural laborers in Dhemaji district, mainly due to floods which deposits sand on agricultural land and making the farm lands unusable for cultivation.

According to census reports 20% of the working women are involved in agriculture operations, 38% in agricultural activities, 22% in livestock, forestry, plantation and orchards and other allied activities in India. Moreover, women work longer hours with great responsibility. Women involves in activities like preserving and sowing operations, repairing of bunds and channels, maintenance of agricultural tools and implements, seed selection, seed treatment before sowing, transplanting, thinning, weeding, scaring of birds, harvesting and post harvest operations. Women sometimes join men in chopping up lumps of earth in the fields. At sowing time they walk besides men driving ploughs, pouring grains into sowing funnels which supplies seeds to the furrows. Most women do almost all activities of agricultural operations except ploughing the fields or in marketing the crops except in states like Manipur, Meghalaya and Nagaland.

Women are concentrated outside market related or remunerated works and they are normally engaged in multiple tasks. The multiplicity of tasks undertaken by

women and the seasonal or daily movement of the conventional labour force characterize the livelihood strategy for most rural women. Women are also considered as experts in breeding and feeding of farm animals. Tending animals are mostly women's occupation. Their activities in animal husbandry sector is scattered across all caste groups. They play a significant role in activities like milking cattle, fodder cutting, preparing feed for calves, and taking animals for grazing, collection of dung, preparation and storage of dung cakes, storage of hay, storage and marketing animal products. Women also play an important role in running successfully other enterprises like poultry, piggery, goatary, duckery, fishery and sericulture. Women's knowledge has been the mainstay of the indigenous dairy industry (Patel and Kumbhare, 1980)[1]. In forestry too, women's knowledge is crucial to the use of biomass for feed and fertilizer. Knowledge of the feed value of different fodder species and the fuel value of firewood types and food species are essentials to agriculture related and forestry in which women are predominantly active.

Over the years it is also observed that there is a decline in women cultivators. This decline can be attributed to increasing pauperization leading to loss of land or inadequate growth of productive employment opportunities on family farm leading to withdrawal of women from active cultivation (Towards equality 1974)[2]. The increase in the number of agricultural labourers from less than one third to more than half of the total women workforce is the indicator of increasing poverty and reduction in the level of employment and not of improving rights and opportunities

[1] Patel, R. K. and Kumbhare, S. L. (1980): Employment for rural women in dairy enterprise India. *Indian Dairyman.* .**32(11):** 852-854.

[2] Towards equality(1974): Report of the Committee on the Status of Women in India; Govt. of India, Ministry of Education and Social Welfare, New Delhi.

for economic participation (Shiva and Dankelman, 1992)[1]. More recently, the increased commercialization of agriculture and magnetization of economy have resulted in the transformation of agriculture labour into wage employment. Agricultural labour is seasonal work with long period of unemployment and under employment during the year. It has been shown, the shift from cultivator to laborer status, can only be explained by loss of land for subsistence cultivation and inadequate growth of productive employment opportunities on family structure (Duvvury, 1989)[2].

The occupation of a person refers to the type of jobs that he holds (Bogue, 1969)[3]. It is also an important indicator of the family's social status in the community. The occupational structure of a family also changes the outlook and thus leads to a change in societal set-up. The social changes broaden when the women also tend to participate in the economic development along with men. Bosrup (1970)[4] has stated that women lose their traditional roles during economic development, as they are found mostly absorbed in agricultural sector. The level of women's participation also depends on the restrictions imposed on women in a society. Free and more favourable societies give more autonomy to them and thus their participation rate in economic sector increases.

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[1] Shiva, V. and Dankelman, I. (1992) Women and biological diversity: lessons from the Indian Himalaya. David, C. (Ed) *Growing diversity genetic resources and local food security.* Intermediate Technology Publications. p.44-52

[2] Duvvury, N. (1989): Women in agriculture: a review of the Indian literature. *Economic and Political Weekly* **24:** 96-112.

[3] Bogue, D.J. (1969). Principles of Demography.: John Wiley, New York

[4] Boserup, E. (1970). Women's Role in Economic Development. New York: St. Martin's Press. pp. 283.

The present study shows very little variations in occupational structures among different ethnic group respondents residing in Dhemaji district which is depicted in Table- 4.5.

Table- 4.5: Occupational structure of Women Respondents (in percentage)

Occupation / Tribe	Family farm	Wage labour	Formal Sector	Petty Traders	Non Workers
Mishing	82.44	6.34	1.95	0.49	8.78
Deori	63.45	11.03	5.52	0.69	19.31
Sonowal Kachari	50.95	21.90	4.29	2.38	20.48
Non Tribal	48.46	10.00	8.46	4.62	28.46
Source: Field work: 2003					

The assessment of the occupational status of the women (Table 4.5) reveals that there are not much significant differences in working status among different ethnic groups of women. Very few of the tribal women of Dhemaji district are involved in activities other than agriculture except weaving and sericulture. Sericulture is recognized as an intensive employment area for women. Sericulture starts with agricultural sector and ends as a small-scale industry. This sector is exclusively controlled and managed by women in this district. The sericulture activity includes rearing of silk worms, boiling the cocoons and reeling the threads, producing fine silk threads. Women traditionally know all the steps of this process

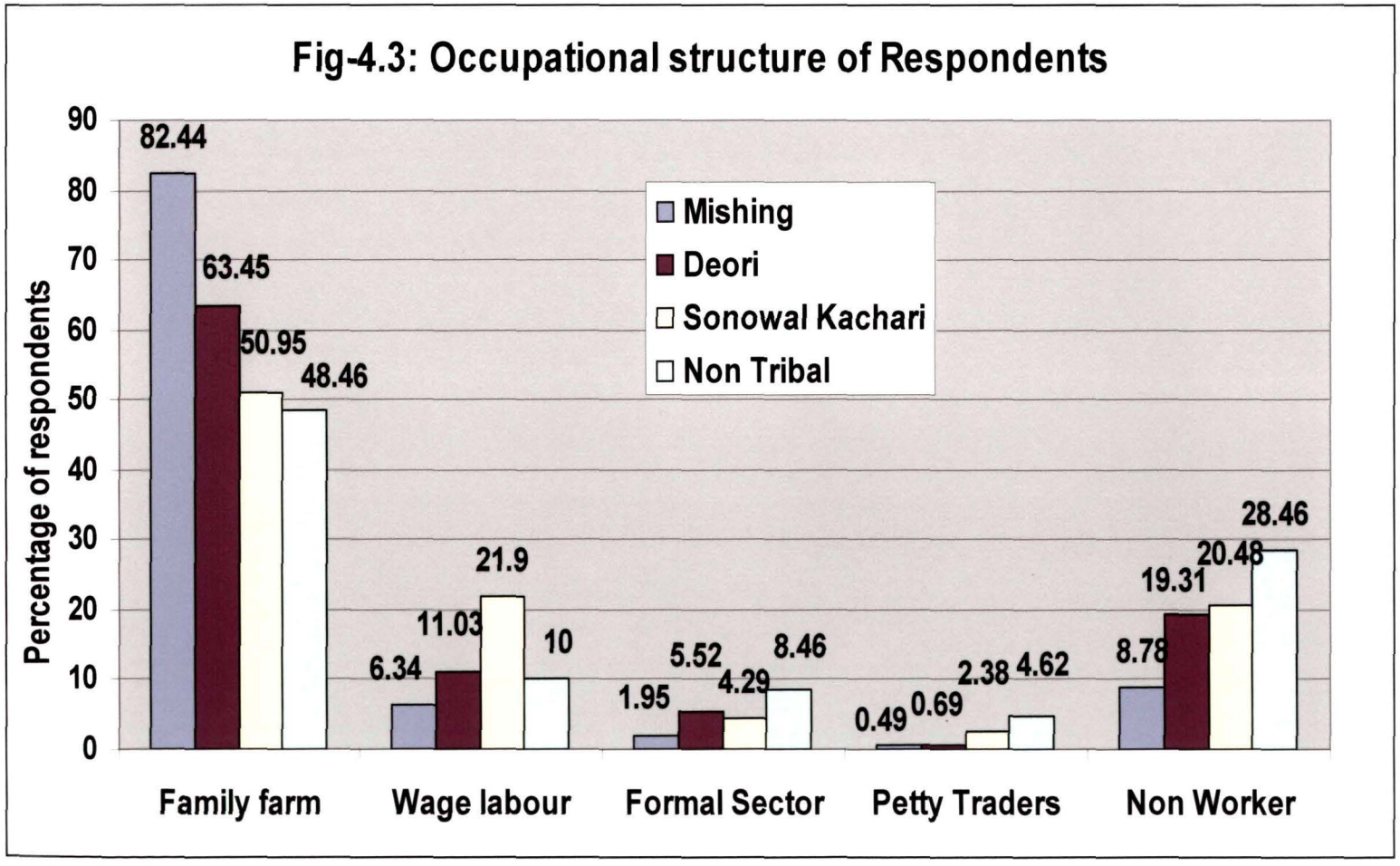
Fig-4.3: Occupational structure of Respondents
Percentage of respondents
90
80
70
60
50
40
30
20
10
0
82.44
63.45
50.95
48.46
6.34
11.03
21.9
10
1.95
5.52
4.29
8.46
0.49
0.69
2.38
4.62
8.78
19.31
20.48
28.46
Mishing
Deori
Sonowal Kachari
Non Tribal
Family farm
Wage labour
Formal Sector
Petty Traders
Non Worker

COMMUNITY FISHING

TRIBAL WOMEN FISHING IN SWAMP LANDS

SMALL SCALE TEA PLANTATION IN NAHARBARI VILLAGE

TRIBAL WOMEN ENGAGED IN WEAVING ACTIVITY

(Manjula, 1996)[1]. The sericulture is practiced in many parts of the district by all ethnic groups, while weaving is invariably practiced by almost all the womenfolk of the district.

The table shows that most of the female workers are engaged in the primary sector, while only a negligible proportion of women are found in occupation other than agriculture. The female wage labourers mostly earn their wages through work in agricultural fields and its related activities. There is a growth in the number of female wage labourers over the years due to loss or damage of agricultural lands of many of the farmers. This damage or loss is caused by devastating floods and sand silting occurring annually over the last decades. The establishment of Subansiri Hydro-electric project also attracted many female workers as it provides better wage structure and regular wage employment. This project is located in an area where Sonowal Kachari tribe is found to be concentrated. This is reason for the growth of wage labourers among Sonowal Kachari women.

Tribal women are working women almost without any exception. Working women in all social groups work more than men. This is more so for the tribal women. Traditionally rural women play a key role in crop husbandry, animal husbandry; fishery and post harvest activity. The development of technologies especially to women-specific occupations and their involvement in technology development and transfer has received inadequate attention from both scientific and

[1] Manjula, N. (1996): Adoption of Mulberry cultivation practices by farm women. *Rural India.* **9:** 257-259

administrative angles. The economic development will be successful only when the needs of both women and men are equally addressed.

The foregoing discussions about inter tribal and inter ethnic variation of the occupational structure is indicative of the fact that women are primarily engaged in agriculture and allied activities irrespective of ethnic variation residing within the district. It is observed that occupational share of female workers in the primary sector is 88.45% while only 4.07% and 7.48% female workers in the district are engaged in household industry works and other sectors respectively. The corresponding state average in primary sector (56.90%) is lower than the district while it is much higher in household industrial activities (7.89%) and in other sectors (35.21%). Lack of industrial and associated infrastructure development is the primary cause of low share of female workers in both these sectors in the district.

CHAPTER-V

FEMALE WORK PARTICIPATION: THE CASE OF SEXUAL DIVISION OF LABOUR.

Chapter-V

FEMALE WORK PARTICIPATION:

THE CASE OF SEXUAL DIVISION OF LABOUR.

Gender roles are the socially, not biologically ascribed roles of women and men, which can vary between different societies and cultures, classes and ages, and throughout different periods in history. Gender-specific roles and responsibilities are often conditioned by household structure, access to resources, and the specific impacts of the global economy, and other locally relevant factors such as ecological conditions (FAO, 1997)[1]. Sexual division of labour in the workforce is firmly rooted in socio-cultural traditions and has shown little substantial change over the last few decades. Gender roles are acquired through the process of socialization, starting within the family.

In almost all societies women and men have differing roles and responsibilities within the family and in society, experience different social realities, and enjoy unequal access to and control over resources. It therefore follows that gender is an important social determinant of division of labour within a region. Gender differences are observed in every stratum of society, and within every social group, across different castes, races, ethnic or religious groups.

Men and women perform different tasks and occupy different social and often different physical, spaces. The sexual division of labour within the household, and labour market segregation by sex into predominantly male and female jobs, expose

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[1] FAO (1997). "Gender: Key to Sustainability and Food Security. Illustrated Plan of Action for Women in Development", Rome

men and women to varying nature of occupational structures and wages. The division of labour by sex is largely a social construct and restrictions on women's physical mobility are also having some bearings on the type of activities they used to perform in a society. Sexual division of labour is also affected by the way society expects women and men to behave. Gender ideology reinforces the notion that women's work at home is not real work for which men were reluctant to share their domestic and childbearing and rearing roles, upon which women dedicate an important part of their lives.

Gender is the basis of the division of labour between productive and reproductive activities within most societies. Activities like care and development of people, food preparation, cleaning and sanitation, collection of fuel and water are carried out mostly by women under conditions of unpaid labour. This is in contrast to productive work that finds remuneration in the market, which is done mostly by men. This division of labour is a social, rather than a biological, phenomenon that is only explained by social customs, conventions and practices that regulate the multifaceted relationship between men and women in a given society.

Developmental efforts rarely challenge the idea that domestic work and the day- to-day tasks of family maintenance must be done by women nor do they promote men's participation in household chores. Within the family gender inequality in the distribution of resources, decision making and the allocation of the labour of family members is usually the rule rather than the exception. It is difficult to promote the idea that men can and should share women's work since such works are viewed

as low value and inferior. Thus gender hierarchies clearly operate in the sexual division of household labour.

Throughout the world, rural women historically have played, and continue to play an important role in farming systems. Their roles and those of rural men are conditioned by several inter-related socio-economic (including class, ethnicity, age, religion), political and environmental factors and are known as "gender roles". However these roles are dynamic and can change over time depending on changes in other factors related to production system.

It is believed by some historians that while men went out hunting, women started gathering the seeds of plants and began cultivating them to meet their food, fibre and fuel needs (Swaminathan, 1985)[1] and thus women are first to initiate farming by domesticating crop plants. Women constitute almost half of the work force engaged in agriculture. The rural women participate in a broad range of agricultural activities such as production, processing, preservation, and utilization of food. They play key roles in the entire food system, starting from the selection of seeds through sowing, manuring, transplanting, weeding, harvesting, threshing, winnowing, drying, stacking and storing, to feeding the family from the harvested produce. It has been shown that whether it is shifting cultivation, subsistence and low-input or high-input agriculture, women work longer and harder than men (Bhati

[1] Swaminathan, M.S. (1985): Report from the CGIAR Inter-Center Seminar on *Women and Agricultural Technology*, Italy, Rockefeller Foundation and ISNAR, **I**: 51- 73.

and Singh, 1987[1]; Fernandes and Menon, 1987[2]; Kelkar, 1981[3]; Singh, 1987[4]). They also work on more tasks than men. It is the women who do most of the milking and feeding of the animals (Vandana, 1991)[5]. In spite of their enormous contributions to farming, the women have largely remained invisible as farmers and most people fail to recognize the work, which the women do in agriculture (Waring, 1988)[6]. Besides engaging themselves in a variety of activities, both on the farm and at home, the farmwomen also contribute to the family income through their wage earnings. Their earnings form a major part of the income of poor households. Poorer the farm household, greater is their relative contribution to its total income and contribute a larger share of what they earn to basic family maintenance than men (Mencher, 1987)[7]. A majority of the economically active women are from the marginal and

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[1] Bhati, J.B. and Singh, D.V. (1987): Women's contribution to agricultural economy in hill regions of North-West India. *Economic and Political Weekly* **22(7):** 7-11.

[2] Fernandes, W. and Menon, G. (1987): *Tribal Women and Forest Economy.* Indian Social Institute, New Delhi.

[3] Kelkar, G. (1981): The impact of Green Revolution on women's work participation and sex roles. Paper presented at ILO Tripartite Asian Regional Seminar, Mahabaleshwar, India.

[4] Singh, V. (1987): Hills of Hardship. *The Hindustan Times Weekly*, January 18.

[5] Vandana, S. (1991): Most Farmers in India are Women. Food and Agricultural Organisations, Regional Office, New Delhi, India.

[6] Waring, M. (1988): *If Women Counted.* Harper and Row, New York, USA.

[7] Mencher, J. (1987): Women's work and poverty: women's contribution to household maintenance in two regions of South India. Deoyer, D. and Bruce, J. (eds.), *A Home Divided: Women and Income Control in the Third World.* Stanford University Press, Stanford, USA.

small landholder categories (Duvvury, 1989)[1]. It can be said that rural women in India are not simply housewives but are in fact farmers (Vandana, 1991)[2].

According to the Report of the National Commission on Labour (1999)[3] agriculture is the most important activity of the women workforce (84%) nationwide in the rural areas, with the highest number of women workers engaged as agricultural labourers. Manufacturing and services are the other two sectors where women are employed in large numbers. In the rural areas, the pattern of changes in the distribution of workers by employment, status categories during the last fifteen years has generally been similar for men and women workers. There has been a fall in self-employment and an increase in casual labour for both categories. In rural areas, while women have been predominantly self employed/ family helpers, the proportion of casual employees is on the increase. The trends of casualisation, for both –females and males have been more pronounced in rural areas. It has been pointed out that a large proportion of semi-landless and marginal landholders work as casual wage labourers. The increase in landless households and precariously small holdings, in turn, accentuates the pressure on the casual labour wage market. While men in landless households were able to find other kinds of work, women in such households were confined to wage work. Options of diversification to non-agricultural employment, which is more paying, are fewer for women.

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[1] Duvvury, N. (1989): Women in agriculture: a review of the Indian literature. *Economic and Political Weekly* 24: 96-112

[2] Vandana, S. (1991): Most Farmers in India are Women. Food and Agricultural Organisations, Regional Office, New Delhi, India.

[3] Report of the National Commission on Labour Ministry of Labour, Govt. of India, Employment Review, Jan-March, 1999

Within the organised sector of employment women remain confined to the peripheries. Within the unorganised sector, women have an overwhelming presence in agriculture, forestry, fishing, plantation and allied activities with the highest proportion working as agricultural labourers and cultivators. Livestock care is often combined with housework or non productive activity and thus reliable statistics on women's contribution in the field of livestock are not available.

A very strict division of labour on the basis of gender characterizes agricultural activity. The tasks performed exclusively by women are usually the most arduous and low paying, e.g. transplanting, weeding, winnowing, threshing, harvesting and after harvest processing. These tasks are also monotonous and repetitive. Recent technological changes have eliminated many jobs traditionally performed by women while the exodus of men from villages has imposed further burdens on them.

Women are also involved crafts like embroidery, weaving etc. Handlooms and textile sector is a major employer of women. The handloom industry is home-based sector employing women. The practice of weaving though handlooms is done in the Dhemaji district as a subsidiary income generating avenue of women. However, prohibiting cost of cotton yarn, competition from power looms and lack of skill training handicapped this sector. Linking of handloom weavers to market requirements and skill up gradation of the weavers, will improve their employment prospects. This sector has becoming a growing export sector in the country. Women, using traditional skills also carry out a large proportion of food processing in the unorganised sector. Women provide most of the services related to personal services

such as domestic work, cleaning and cooking services and care of children and the elderly.

There has been a growing concern about women workers in rural households over the last decade because it is believed that women do not work in economically productive activities as long as they do housework (Nath, 1992)[1]. In contrast of this believe the housework is the most productive and the most arduous work. In villages, women virtually do all the household work, three quarters of other agricultural work and half of the work with animals. Taken together, women in this area work over three times as much as men (Shivyard, 1985)[2]. Moreover, women used to work extremely long hours (Jain and Chand, 1982[3]; Khan *et al.*, 1983[4]; Singal and Balakrishana, 1988[5]) and expending more total energy in the tasks they do (Batliwala, 1984)[6], without adequate rest on a wide variety of tasks, all of which are essential to a family's survival. Along with the drudgery of housework, health hazards are prevalent due to use of traditional methods of doing work.

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[1] Nath, M. (1992): Women's issues: from the periphery to the centre. *J Rural Dev.* **11(5)**: 515-519

[2] Sivyard, R. (1985): *Women – A World Report.* Methuen London Ltd. London. p 56-57

[3] Jain, D. and Chand, M. (1982): Report on a time allocation studies: Its methodological implications. Paper presented at Technical Seminar on *Women's Work and Employment*, New Delhi.

[4] Khan, M.E., Dastidar, G. and Singh, D (1983): Time use data of five pregnant women on a normal day. Working Paper, Operation Research Group, Baroda (Gujarat).

[5] Singal, S.and Balakrishnan, R. J (1988): Appraisal of women's work. *Consum Stud Home Econ.***12(1):** 29-37

[6] Batliwala, S. (1984): Rural energy scarcity and under-nutrition. A new perspective. *Economic and Political weekly.* **17(9):** 329-33

Approximately half the population of our country and, therefore, of the potential workforce is female. Women can do any job that men can do, but on the other hand there exists some social responsibilities that men cannot discharge. In spite of that there are lower achievements in human development for women as compared to men in almost all countries of the world. Gender gaps in education and health are closing, but opportunities for economic and political participation are severely limited for women.

The Census of India defined work as participation in any economically productive activity, irrespective of whether the participation is physical or mental. In addition to this, activities like cultivation for self-consumption and unpaid work for family enterprise were also included in the definition of work. However, this definition is inadequate to fully capture the extent and degree of women's participation in the workforce, as these criteria are quite insensitive to most of the kinds of work performed by women. It excluded a wide range of activities performed by women who produced a variety of services for self or family benefit as unpaid helpers in the farm, domestic workers etc. The gender wise data on household heads remained an inadequate source to realistically assess the economic and social value of the work contributed by women. Thus, much of the work that women do remained invisible to national accounting and censuses, despite its obvious productive and social worth. Women's work, especially their unpaid household work, processing food, carrying water, collecting fuel, growing subsistence crops and providing childcare remained unaccounted. The problems arising from inadequate definitions and inaccuracies and biases in enumeration, are compounded by the difficulties that

are experienced in assigning economic value to the work of women especially when it is unrelated to the market.

Thus the participation of women in the labour force has always been found to be lower than that of men. Table 5.1 shows the work force participation rates in Dhemaji district during two census periods.

Table- 5.1: Work Force Participation Rates in Dhemaji District
(In Percentage to total population)

Work category		Census Period	
		1991	2001
Total Workers	Male	24.96	25.47
	Female	20.01	18.27
Total Main Workers	Male	23.71	19.83
	Female	9.88	7.34
Cultivators	Male	18.70	17.64
	Female	8.82	14.23
Agricultural Labourers	Male	1.15	1.37
	Female	0.52	1.82
Other Workers	Male	4.62	6.46
	Female	0.53	2.22
Marginal Workers	Male	1.25	5.64
	Female	10.13	10.92
Source: Census of India, 1991 and 2001			

Data from the table 5.1 shows the workforce participation rates for females are substantially lower than that for males. However, this trend would have been reverse if all the works that women perform are accounted for in the data gathering system. The ratio of workers to total population shows that the work participation rates of female workers have fallen between the census periods in total workers and total main workers category while it shows an increasing trend in other categories.

In order to understand the impact of changing gender roles in the socialization processes as a result of the incorporation of women in the workplace, it is necessary to first understand the overall background of gender relations. Most cultures and societies are firmly rooted in a hierarchical system of economic, social and political relations based on the sexual difference between men and women, which considers men as the standard of the system. Patriarchate is based upon a gender-based division of work, whereby male domination and female submission form the basic structuring principle of society. Primary socialization of gender roles starts within the family. This process of acculturation and cultural hybridization resulted in specific gender-based roles, developed and learned within the household unit, whereby tasks related to the public domain and to the generation of family income were assigned to men, while women were assigned tasks of biological and social reproduction that were mostly limited to the private, domestic domain. Through gender-differential pedagogy, games and toys, girls and boys are taught how to behave in accordance with their gender. The role of women and children also includes economic responsibility at home, as the division between public and private spheres in agricultural tasks are constructed in a different manner. However, some deviations can be seen, principally due to women's increasing involvement in the workforce due to the impact of education, training and various developmental programmes.

Information about gender division of labour serves as important indicators for determining the specific impacts of the project activities on women and men. There are identifiable patterns in gender division of labour in agriculture, which is not only

quite complicated, but also dynamic and subject to change. This means that generalizations need to be made with care. There were considerable variations in the position of women, caste-wise, region wise and between caste communities and tribal communities. Moreover, division of labour by gender within both paid and unpaid work and between them exists in almost all societies, although the nature of the specialized work done by women and men differs substantially by place, time, and in some cases, over the life cycle. Hence, economic and cultural interpretations require detailed analysis in a specific social context incorporating class, race and other structural variables in addition to gender (Tinker, 1990)[1]. However, some patterns with respect to gender have been observed e.g. cooking, grinding grain, transplantation, harvesting and carrying water are more commonly female activities and ploughing, preparation of field, carrying harvested crop home etc. are more commonly are male activities (Rogers, 1980)[2]. Flexibility in the gender division of labour is also not uncommon.

Most people think that the gender division of labour is socially constructed for subordination of women and perpetuation of patriarchy. The household work, childcare and dependant care are unrecognized and unvalued work predominantly done by women, only when agricultural work is concerned women's participation is significant or at par.. Unpaid work includes community and voluntary work as well as household work. Unpaid work may be restricted to work without payment done

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[1] Tinker, I. (1990) *Persistent Inequalities: Women and World Development.* New York/Oxford, Oxford University Press.

[2] Rogers, B. (1980): The Domestication of Women: Discrimination in Developing Societies, London and New York, Tavistock.

for someone else (Delphy and Leonard, 1992)[1]. Within household and paid work, gender divisions of labours are observed, where women do far more household work, while men specializes in maintenance of farm equipments and outside household tasks.

The nature of gender divisions of labours is different among class and ethnicity, but presently this has undergone changes with the changes of methods in agriculture. In agriculture, the impact of modern technology and shift from subsistence to cash cropping largely benefited men and increased women's work in the family (Boserup, 1970)[2]. Women's participation in the paid labour force has shown fluctuations with the social and economic systems change. Supply and demand factors have led to an increase in women's work participation rate in agricultural and allied activities and its extent varies according to economic, social and policy factors.

Women of lower income groups needed to work due to poverty, but it also provides possible economic independence and self-dependant for women. However, financial pressures necessitated wage earners a burden of wage and households and thus double burden on women emerged, with women working longer hours in total than men (Szalai, 1975)[3].

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[1] Delphy, C; and Leonard, D. (1992): Familiar Exploitation: A New Analysis of Marriage in Contemporary Western Societies. Cambridge, Polity Press.

[2] Boserup, E. (1970): *Women's Role in Economic Development.* New York, St Martin's Press

[3] Szalai, A. (1975): Women's Time: Women in the Light of Contemporary Time Budget Research, Futures. Oxford University Press, London

The gender division of labour takes the form of horizontal and vertical occupational segregation, with women confined to particular types of work generally at lower levels. Women are over represented in the secondary sector, with little access to occupations with better pay and conditions. This may occur due to indirect gender discrimination or due to less access of women to education, training, apprenticeships and professional associations. However, gender specific occupational pattern and their differences between different societies and within the same society over time are yet to be fully understood (Poats, 1988)[1]. Female dominated occupations are low waged and are more frequently defined as unskilled irrespective of its content, through the social construction of skill (Phillips and Taylor, 1980)[2].

Different responsibilities of man and women in agricultural production systems are due to the local ecosystem and farming systems. Women's involvement in rice farming varies from region to region, and also varies even within regions. In many areas, activities related to planting, weeding, post-harvest processing of the crops are done by women, while men traditionally undertake activities such as land preparation, ploughing, irrigation and field-leveling (Vedavalli and Sharma 1997[3]).

Agriculture is the main source of income for rural households in Assam and is also the main occupation of women. Nationwide, 72% of all employed women and

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[1] Poats, S.V. (1988): Gender analysis in farming systems research and extension projects. Proceedings of Farming Systems Research/Extension Symposium, University of Arkansas and Winrock International Institute for Agricultural Development, USA. p 263-272.

[2] Phillips, A and Taylor, B. (1980): Sex and Skill. *Feminist Review.* **6:** 44-48.

[3] Vedavalli L. & Sharma A. N., (1997). In "Gender Dimensions in Biodiversity Management: India", Report submitted to FAO, RAP, p. 85-94, Chennai, India, M.S. Swaminathan Research Foundation.

90% of all rural women work in agriculture. Only 53% of rural men do so. Division of labour in Dhemaji district varies very little in farming system but not among the tribes. Some tasks are exclusively undertaken by men, and some by women. Predominantly male tasks include the felling of trees, ploughing with oxen, digging etc. and market related activities such as purchase and use of pesticides/ fertilizers, sale of agricultural products etc. Women, besides household tasks usually undertakes transplanting, harvesting, thrashing, crop drying, and other post harvest operations, like - winnowing, fetching water and pig and poultry-rearing. Other tasks, such as weeding, and crop storage, are almost equally undertaken by both women and men. In general, women's workload considerably exceeds than men. Table-5.1 provides an overview of the structure of gender involvements in agricultural activity as well as other activities.

Table-5.2: Distribution of Female Workers in Different Work Categories in Dhemaji District of Assam

Category	Assam	Dhemaji
1. Share of workers to total population (%)	35.88	44.34
2. Share of female workers to total population (%)	10.03	18.47
3. Share of Agricultural workers to total workers (%)	52.65	80.94
4. Share of female Agricultural workers to total workers (%)	15.91	36.85
5. Share of Female Agricultural work force (per 100 male)	43.31	83.57
6. Share of Female cultivators (per 100 female agricultural workers)	71.04	87.71
7. Share of Female Agricultural Labour (per 100 female agricultural workers)	28.96	12.29
8. Share of Female agricultural workers to total female work force (%)	56.90	88.45
9. Share of Female household industry workers to total female work force (%)	7.89	4.07
10. Share of Female other workers to total female work force (%)	35.21	7.48
Source: Census of India, 2001		

The personal, demographic and socio- economic profile of the women workers of the district reveals that majority of the women belong to low to medium income groups and also low economic status (literacy, land holding, annual family income etc.). The household works (child care and household chores) and economically benefited works (as fetching of water), which are essential for a family, is still a women's responsibility. The female child extends a helping hand to their mothers on the above tasks. Women usually do not get any help from their men folk for domestic activities and economically benefited activities. On the whole, distribution of task responsibility is a gender biased and divided along the traditional lines, irrespective of women's work status. It may be because of the cultural point of view that women do the household works and men do the outdoor works (Sethi, 1991)[1]. Phillips and Taylor, 1980[2] points out that there can be few generalizations, which hold true throughout the world that unpaid domestic works are everywhere seen as women's work and responsibility. Although many women do additional work outside their home, only a few men are involved in additional work inside their home.

Most of the women in the district work in agricultural fields and during off season they engage themselves in weaving of their dresses. Women are traditionally responsible for the daily household chores (e.g., cooking, fetching water, and looking after children). In the past, cultural restrictions were the primary impediments to female employments in formal jobs; now a day, the shortage of job opportunity contributes to low female employments. Indian census divides workers into main and

[1] Sethi, R. M. (1991): *Women in Agriculture*. Rawat Publications. Jaipur

[2] Phillips, A and Taylor, B. (1980): Sex and Skill. *Feminist Review.* **6:** 44-48

marginal workers. Main workers include a person who works for 6 months or more during the year, while marginal workers include those who work for a shorter period. In Dhemaji district women are over represented in the marginal workers category as depicted in the table-5.3.

Table-5.3: Comparative Statistics of Main and Marginal Workers in Assam and Dhemaji District during two census periods (1991 and 2001)

		Per cent increase over 1991		Percentage of Total Workers to total population		Percentage of Main workers to total workers		Percentage of marginal workers to total workers		Percentage of non workers to total population	
		Population	Workers	1991	2001	1991	2001	1991	2001	1991	2001
1	2	3	4	5	6	7	8	9	10	11	12
Assam	Persons	19	18	36.09	35.88	86.44	74.11	13.56	25.89	63.91	64.12
	Males	18	19	25.72	25.84	69.73	61.10	1.54	10.94	26.29	25.92
	Females	19	15	10.37	10.03	16.71	13.02	12.02	14.95	37.62	38.21
Dhemaji	Persons	19	17	44.97	44.34	74.69	61.88	25.31	38.12	55.03	55.66
	Males	18	23	24.96	25.87	52.72	44.58	2.78	13.76	26.93	25.78
	Females	20	10	20.01	18.47	21.97	17.30	22.53	24.35	28.10	29.88
Source: Census of India, 1991 and 2001											

The table depicts that the male workers are keeping pace with the decadal increase in population. However, the proportion of female workers is lagging behind in this regard. Though detailed breakup data on marginal workers are not available, but many of them are belong to the primary workers category. Unpaid farm and family enterprise workers are supposed to be included either in the main workers or

marginal workers category. Women account for a small proportion of formal labour force, even though the number of female main workers has grown in recent years than that of male counterparts. The number of main workers in the district has decreased compared to the total population since 1991 census for both male and female category. However, women in the district accounts for 41.65 per cent of the total workforce in contrast to a mere 27.97 per cent for the state as a whole that indicates higher rate of female work participation in the district. Moreover, many women are involved in undocumented wage works than in the formal labour force. It can be said that over 90 per cent of working women are also involved in the informal sector. The informal sector includes jobs such as domestic servant, small trade, artisan, or field labour on a family farm. Most of these jobs are unskilled and low paying and do not provide other benefits to the workers. Although such jobs are supposed to be recorded in the census, undercounting is likely because the boundaries between these activities and other forms of household works done by women are often clouded (Dube and Palriwala, 1990)[1]. Thus, the actual labour force participation rates for women are likely to be higher than the data available.

Most female and male main workers in the district are employed in agriculture. Agricultural employment is divided into three categories: cultivators, agricultural labourers, and other agricultural works. Most of female agricultural labourers are employed in lower-skilled, lower-paid positions. Most female cultivators are members of a family that owns the land. A very low percentage of female workers are engaged in other sectors of the economy such as social work,

[1] Dube, L. and Palriwala, R. (1990): Structures and Strategies: Women, Work, and Family. Vedam Publications. New Delhi.

government, teaching, religious activities, household and non household industries etc. The lower participation rates of women might have link to the fact that they are paid less than male workers. Researchers have estimated that female agricultural labourers are usually paid 40 to 60 per cent less than the male wage (Kishwar and Vanita, 1985)[1]. The public sectors hire a greater share of women than does the private sectors, but wages in the public sectors are less egalitarian (Madheswaran and Lakshmanasamy, 1996)[2].

There are evidences that suggest that technological progress sometime have a negative impact on women's employment opportunities. When a new technology is introduced to automate specific manual labour, women may lose their job because they are often responsible for the manual duties (Kishwar and Vanita, 1985)[1]. Manual tasks such as husking if replaced by mills and other modern technologies then the new jobs (e.g., machine operator) created are usually goes to men. Thus, over the years total female main workers have been decreasing as a proportion of total employment in rural areas, while proportions of marginal workers have been increasing (as depicted in the table).

Although the district experiences a multifaceted society, a generalized trend in gender division of labour is observable among various regional, religious, social, and economic groups. The society is extremely hierarchical where virtually everyone

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[1] Kishwar, M and Vanita, R. (1985): In Search of Answers: Indian Women's Voices. Manushi, London.

[2] Madheswaran, S. and Lakshmanasamy, T, (1996): Occupational Segregation and Earnings Differentials by Sex: Evidence from India, *Artha Vijnana*. 38 (4): 372-386.

is being treated according to their caste, class, wealth, and power, though specific customs vary from region to region. There are different standards of behavior for men and women. Women are modest in all actions, which may constrain their ability to perform on an equal basis with men. People often think a woman should go out and work, yet at the same time the woman's participation in employment outside the home is viewed as inappropriate and threat to their chastity and womanly virtue (Dube and Palriwala, 1990)[1]. When family economy is sound women receives a greater educational opportunity but still they remain at home to protect family's moral.

Table 5.4 reveals that there are no differences of divisions of labour among different tribes residing within the geo-climatic conditions of the district. Most of the ethnic groups of the district are living close to each other; hence the pattern of gender division of labour from one ethnic group to another group has lots similarity.

It is seen that most of the pre-harvesting operations are taken care by men, especially ploughing, sowing, watering and fertilizing the field. Use of machinery and draught animals are performed by men, but the farm tasks that require direct manual labours are done by women. Harvesting and other post harvest operations like manual thrashing; husking (manual), cleaning etc. were exclusively women's responsibility. However, thrashing with the help of animals and husking with the use of machinery (milling) are performed mainly by men. As a whole woman extends helping hand to men folk in every activity in agricultural production, in addition to

[1] Dube, L. and Palriwala, R. (1990): Structures and Strategies: Women, Work, and Family. Vedam Publications. New Delhi.

their household activities. It is a fact that livestock's cares are more or less women's work. Men's involvements in livestock activities are limited to cleaning, milking and market related and products.

Table-5.4: Gender Division of labours in Dhemaji District

Activities	Performed by men only				Performed by female only				Performed by both			
	Mishing	Deori	Sonowal kachari	Non Tribal	Mishing	Deori	Sonowal kachari	Non Tribal	Mishing	Deori	Sonowal kachari	Non Tribal
Ploughing	√	√	√	√								
Field preparation	√	√	√	√								
Seeding	√	√	√	√								
Transplanting					√	√	√	√				
Weeding									√	√	√	√
Harvesting					√	√	√	√				
Carrying harvested crop	√	√	√	√								
Thrashing (Manual)					√	√						
Thrashing (With Animal)	√	√	√	√								
Husking (Manual)					√	√	√	√				
Preparation of food					√	√	√	√				
Livestock maintenance									√	√	√	√
Kitchen gardening									√	√	√	√
Horticulture									√	√	√	√
Source: Primary Field Survey Data, 2003												

Cash crops are not very popular in the district. However, mustard seed plantation is carried out in many flood affected and sandy field areas. In the family farms where such crops are grown men only takes care of them. In general, men tend to dominate in more remunerative activities in agriculture. Women and children are normally assigned to tedious and time consuming jobs of agriculture. A man takes care of the marketing of high-valued cash crops and cattle, whereas women normally sell their domesticated chickens and pigs. Role sharing and working conditions are not static and are redefined as per social change. Earlier day's agricultural activities were shared by the community by way of helping each other in ploughing, planting and harvesting etc. Now a day these practices are not very common in many areas but still exists in some tribal villages of the state.

Technological development in the district is at its rudimentary stage. Hence, the division of labour through technology is less felt in the district.

Due to disintegration of joint family structures, changes are also taking place in the gender division of labour within the family. Work division within the family depends in the size of the family and availability of works requires to be done. The disintegration of the extended family and the transition to the nuclear family often results to shortage of work within the family and thus more involvement of woman in agriculture activity is seen. The changes in family structure are accompanied by willingness and capacity on the part of the men to help the women.

A woman performs variety of household works. They act as food producers, wage earners, and care takers of the family and post harvest managers. Several

studies have shown that the women always contribute in the decision-making process in agricultural production and household expenditure, management of food consumption within the household. In spite of the sensitivity of gender issues in agriculture, women's participation in agricultural research, extension and training is next to insignificant (Vandana, 1991)[1]. Since farm women performs multiple roles at home and in farms, adoption of modern technologies should not lead to more workload for them. Since women in agriculture combine work to produce income with agricultural work, household work and child care, there are competing demands on women's labour (Vandana, 1991)[1]. Though they make enormous contributions to agricultural production, the farm women have very little access to the knowledge and skills of modern farm technologies and related resources. They should be given their due place in research and development strategy by targeting them as beneficiaries. The newly introduced modern technologies should not lead to displacement of women labour, but should result in improving their productivity, employment and income (Ratan *et al.* 1993)[2]. Women should be educated through organizing functional literacy programmes in crop production, livestock rearing, forestry enterprises, rural energy management, and other income generating activities. In order to realize the full benefits from such literacy programmes, their male counterparts should also be educated about the complementary roles played by the

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[1] Vandana, S. (1991): Most Farmers in India are Women. Food and Agricultural Organisations, Regional Office, New Delhi, India.

[2] Ratan, R. P. S.; Mohsin, M.A. and Roy, N.K. (1993): Empowering tribal farm women: issues and approaches. Paper presented at the National Seminar on Women in Agriculture - Developmental Issues, December 28-30, National Academy of Agricultural Research Management, Hyderabad, India.

farmwomen so that changes in their attitudes could be brought about (Ratan *et al.* 1993)[1].

Increased participation of women in the workforce has brought changes in gender relations in the society. These social transformations are taking place throughout India due to education, change in wage system and rights to information. The broadening of gender roles will have a direct impact on gender relations and socialization within the family. Division of labours between men and women has to be reduced. The unpaid work and its values have been already recognized. Sharing of both market and household works with equal opportunity in paid work, will enhance women's work participation rate. The study of women's work pattern on farm activities reveals that women play a major role (as unpaid workers) in agricultural production system. Women actively shares livestock rearing and farm work. But men shares very little in household work (including childcare). Thus there is a need for changing the traditional attitude of work pattern towards sharing all the household work for overall benefit of the family and the society.

[1] Ratan, R. P. S.; Mohsin, M.A. and Roy, N.K. (1993): Empowering tribal farm women: issues and approaches. Paper presented at the National Seminar on Women in Agriculture - Developmental Issues, December 28-30, National Academy of Agricultural Research Management, Hyderabad, India.

CHAPTER-VI

VARIATIONS IN AGRICULTURAL WORK PARTICIPATION RATE

Chapter-VI

VARIATIONS IN AGRICULTURAL WORK PARTICIPATION RATE.

There are considerable variations in the female participation rate in agriculture depending upon caste, region and between caste communities and tribal communities. Moreover, economic condition of the family, educational status, age, type of habitation (rural/ urban) etc. also plays a distinctive role in female work participation rate.

Women constitute a significant part of the work force in the country. Majority of rural women workers are employed in agriculture as labourers and cultivators. In the urban areas, women workers are also employed in other unorganized sectors such as household industries, petty trades and services etc. A majority of women carry a disproportionately greater burden of work than men, as women are also traditionally responsible for a greater share of work in the care economy (i.e. home based works). The Female Economic Activity Rate (FEAR) or the proportion of female population aged 15 years and above who furnish or are available to furnish, the supply of labour for production of goods and services for India is 42 per cent (UNDP, 2003)[1]. The female to male ratio of participation in economic activity (F/M) for India is 50. The sectoral profile of female work force indicates that most of the female workers are engaged in the agriculture sector in rural areas. In the urban areas, variation of female work participation from the primary to the tertiary sector is visible which may indicate that urban women have been able to take advantage of the increased

[1] UNDP (2003): Human Development Report, Oxford Univ. Press, Bombay

employment opportunities. The distribution of female work participation by status of employment indicates that there is a pronounced declining trend in the importance of the self-employed category in both rural and urban areas and there is an overall increase in the casualisation of the women work force in rural areas. In urban areas there's a reversal of this trend with an increase in work participation rates of females under regular employment category and a decline in casualisation. In rural areas female work participation rate has been the highest at 58.6 per cent in the age group of 40-44 and is above 50 per cent in the age group 30-54. Early marriage and multiple childbearing depress the female work force participation rates in the 15-29 age groups in India in contrast to developed countries, where the age group of 15-25 exhibits a peak in women's workforce participation rates.

Restructuring the economy of a poor district like Dhemaji needs a comprehensive policy framework emphasizing on increasing agricultural production. The implications of such a framework for women farmers need to be adequately explored in this flood ravaged district of Assam conforms the actual conditions on the ground. The process of making production cost of cash crops competitive can primarily be done through reducing labour costs, as there is abundance of human resources available in the district. Women in the family farms provide cashless labour force and are also shouldering the tedious tasks involved with cash crop production, wherever such crops are grown.

Apart from agriculture the Home-based work is a significant source of employment in many parts of the world. There is a significant increase in the number of women workers in the home-based sector in recent times. However, despite

increased recognition of the home-based sector to the overall economy, home workers remain largely invisible. The majorities of these workers are deprived of access to any form of organizational support, social security which constitutes the most vulnerable segments of the workforce.

Regardless of the ethnic variation, personal, demographic and socio-economic profiles of the tribal women workers and economically backward non tribal women workers within the district reflects that housework (child care and household chores) and economically extended work (i.e., fetching of water, fire wood and edible forest products), which are crucial for family's survival, are still exclusively a women's responsibility. The female children of the family also extend their helping hand for the above tasks apart from taking care of their infant brothers and sisters. On the whole, distribution of task responsibility and help received for housework and economically extended work was gender biased and divided along traditional lines, irrespective of women's work status. It may be because of the cultural view that women do the housework and men do the outdoor work (Sethi, 1991)[1]. According to Phillips and Taylor (1980)[2] a generalized view hold true throughout the world that the unpaid domestic work is everywhere seen as women's work or women's responsibility.

In the present study the female work participation rate among different ethnic groups reveals that the tribal women are involved in a higher proportion in various

[1] Sethi, R. M. (1991): *Women in Agriculture*. Rawat Publications. Jaipur

[2] Phillips, A and Taylor, B. (1980): Sex and Skill. *Feminist Review*. **6:** 44-48.

activities related to agriculture than their non tribal counterpart. The Table 6.1 depicts the FWPR of respondents of different ethnic groups residing in Dhemaji District of Assam.

Table 6.1: FWPR of respondents of different ethnic groups in Dhemaji

	Mishing	Deori	Sonowal Kachari	Non Tribal
Non Workers	18 (8.8)	28 (19.3)	43 (20.5)	37 (28.5)
Marginal Worker	160 (78.0)	90 (62.1)	107 (51.0)	85 (65.4)
Main Workers	27 (13.2)	27 (18.6)	60 (28.6)	8 (6.2)
Total	205 (100)	145 (100)	210 (100)	130 (100)
(Figures in parenthesis indicate Percentage of respondents) Source: Primary Field Survey data, 2003				

The table reveals that work participation rate of women within Dhemaji district does not differ significantly among different tribal groups and proportion of non workers are comparatively low. However, the non tribal counterpart has shown a lower proportion of main workers and higher percentage of non workers.

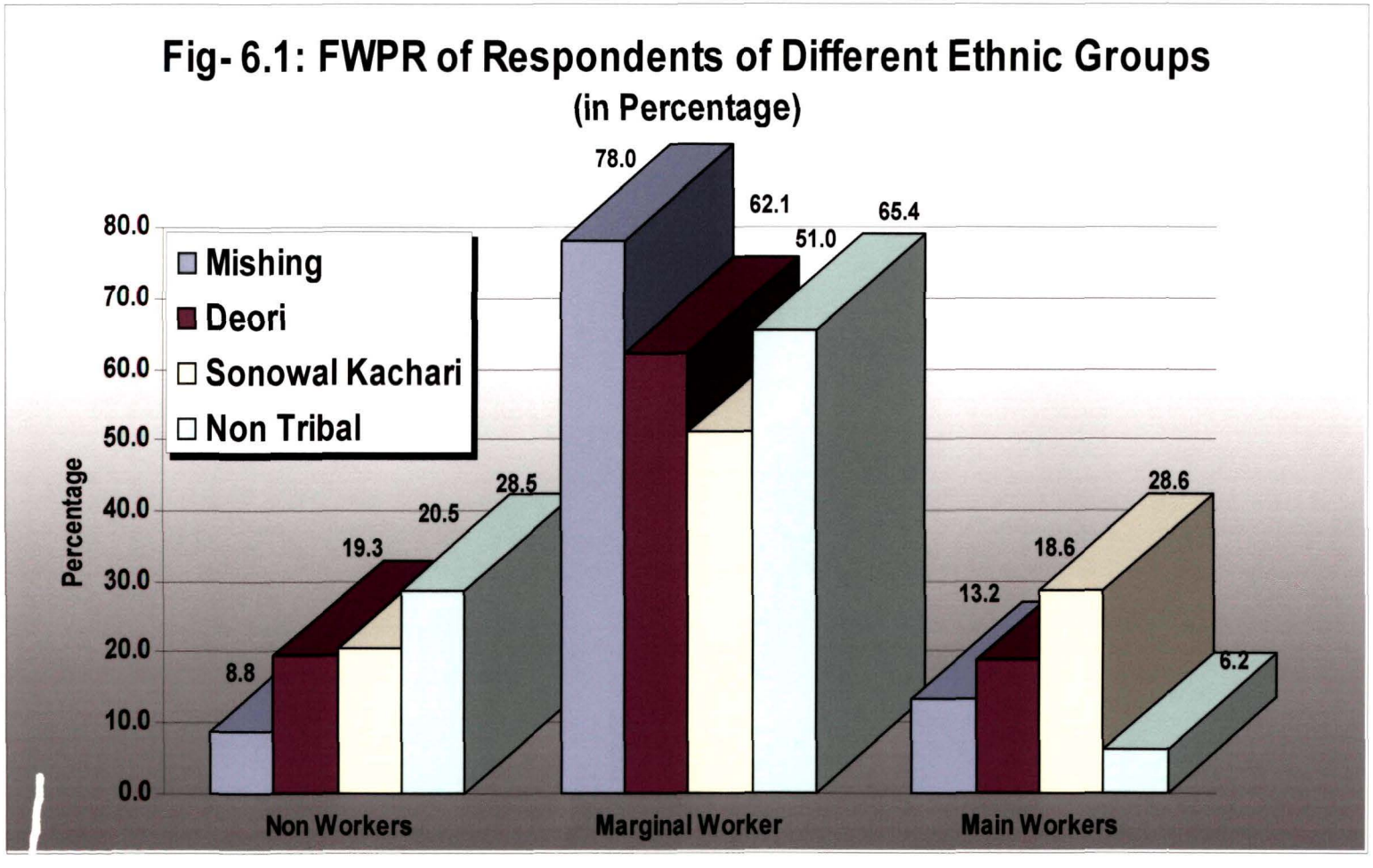
Fig- 6.1: FWPR of Respondents of Different Ethnic Groups
(in Percentage)
Mishing
Deori
Sonowal Kachari
Non Tribal
Percentage
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
8.8
19.3
20.5
28.5
78.0
62.1
51.0
65.4
13.2
18.6
28.6
6.2
Non Workers
Marginal Worker
Main Workers

The type and extent of participation by farmwomen in farm operations varies from state to state. In Haryana it is 1.45% and Punjab it is 4.28%. In Maharashta it is 29%, Tamil Nadu 24%, North eastern states 70% and Andhra Pradesh 95% (Jain and Chand 1982)[1]. In the tribal economy of Orissa, in shifting cultivation Bogodo women spend 105.4 days per year on agricultural operations compared to men who spends 59 days per year on agricultural work. (Fernandes and Menon, 1987)[2]. In the Indian Himalayas, a pair of bullock works for 1,064 hours, a man for 1212 hours and a woman for 3485 hours in a year on a one-hectare farm (Singh, 1987)[3]. In the hill agriculture of Himachal Pradesh women do 37 per cent of sowing work, 59 per cent in intercultural (weeding) 66 per cent of harvesting, 59 per cent of thrashing and 69 per cent of tending farm animal. In terms of over all farm work they contribute 61 per cent of the total labour (Mencher, 1987)[4]. In the rice production in the three states of Kerala, Tamil Nadu and West Bengal the contribution of women are neither marginal nor insignificant. Through their work, knowledge and skill both categories of women (Labourer's and land owning) make crucial contribution to the production proceeding of rice as well as household expenditure. They are also aware of technological changes and influence their acceptance or rejection (Saradamoni

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[1] Jain, D. and Chand, M. (1982): Report on a time allocation studies: Its methodological implications. Paper presented at Technical Seminar on *Women's Work and Employment*, New Delhi.

[2] Fernandes, W. and Menon, G. (1987): *Tribal Women and Forest Economy.* Indian Social Institute, New Delhi.

[3] Singh, V. (1987): Hills of Hardship. *The Hindustan Times Weekly*, January 18.

[4] Mencher, J. (1987): Women's work and poverty: women's contribution to household maintenance in two regions of South India. Deoyer, D. and Bruce, J. (eds.), *A Home Divided: Women and Income Control in the Third World.* Stanford University Press, Stanford, USA.

1985)[1]. Women's contribution to the household income is immense and besides this in agriculture more than two third input is female (Mencher 1987)[2].

The Dhemaji district, occupying the eastern most part of the state falls under the upper Brahmaputra valley agro-climatic zone. Female work participation rate in primary activities are dependant upon various factors including the agricultural production system, local ecosystem and the farming system. Rice, is the main crop of the district, is typically produced in ecosystems like irrigated land; rainfed land and swamps. All these ecosystems have different requirements and they face different constraints (Riveros 1994)[3]. However, the district is difficult to partition on the basis of its agro-ecological setup. There are limited irrigation facilities in the district covering only 7.53% of the gross cropped area, due to which most of the lands remain fallow during winter season. Moreover, traditional method of cultivation is practiced in most parts of the district. Developments in the field of agriculture, including the use of HYV, fertilizers and mechanization are yet to make impact in the district. Thus in the context of the present study the sampling villages are divided into two agro-ecological units (Unit-I and Unit-II) on the basis of irrigation facility. Villages having irrigation facilities (even partly) are grouped in Unit-I and villages

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[1] Saradamoni, K. (1985) Women's work: need for in-depth look. *Women, work, and society.* Metropolitan, New Delhi.

[2] Mencher, J. (1987): Women's work and poverty: women's contribution to household maintenance in two regions of South India. Deoyer, D. and Bruce, J. (eds.), *A Home Divided: Women and Income Control in the Third World.* Stanford University Press, Stanford, USA.

[3] Riveros F. (1996). Keynote address. In "Progress assessment and Orientation in the 1990s", Proceedings of the 18th Session of the International Rice Commission (1994). p. 3-7, Rome

without having irrigation facilities are grouped into Unit-II. The data of these two units are used in testing the hypotheses of the present study.

The first hypothesis of the present study states that "Variation in agro-ecological condition determines the extent of variation in female participation in work among the tribes as well as the non-tribal segment of the population." Table 6.1 depicts the FWPR among different ethnic groups residing in the two agro-ecological units of the district. The data is used to test the validity of the first hypothesis using χ^2 test

Table 6.2:- FWPR of different ethnic groups in two agro-ecological units of Dhemaji District

Tribe	Agro-ecological unit	Non Worker	Marginal worker	Main Worker	Total	χ^2 value at 5% level= 5.99
Mishing	Unit-I	9	70	11	90	$\chi^2=0.38^{NS}$
	Unit-II	9	90	16	115	
Deori	Unit-I	12	40	13	65	$\chi^2=0.17^{NS}$
	Unit-II	16	50	14	80	
Sonowal Kachari	Unit-I	10	25	10	45	$\chi^2=1.31^{NS}$
	Unit-II	33	82	50	165	
Non Tribal	Unit-I	17	36	2	55	$\chi^2=1.18^{NS}$
	Unit-II	20	49	6	75	
Source: Primary field Survey data, 2003 NS: Not significant						

As the χ^2 test did not show any significant relationship of FWPR between the two agro-ecological units for all the ethnic groups, hence it becomes evident that the

variation in agro-ecological condition does not determine the extent of variation in female participation in work among the tribes as well as the non-tribal segment of the population.

The second hypothesis which states that "Inter tribal variation in female participation in agriculture will be minimal in similar agro-ecological units" is also tested using the data tabulated in table 6.3 and table 6.4 with χ^2 test.

Table: 6.3: FWPR in villages having irrigation facility (Unit-I)

Tribe	Non Worker	Marginal worker	Main Worker	Total	χ^2 value
Mishing	9	70	11	90	19.21*
Deori	12	40	13	65	
Sonowal Kachari	10	25	10	45	
Non Tribal	17	36	2	55	
Total	48	171	36	255	
Source: Primary field Survey data, 2003 *: Significant					

Table- 6.4: FWPR in villages not having irrigation facility (Unit-II)

Tribe	Non Worker	Marginal worker	Main Worker	Total	χ^2 value
Mishing	9	90	16	115	26.06*
Deori	16	50	14	80	
Sonowal Kachari	33	82	50	165	
Non Tribal	20	49	6	75	
Total	78	271	86	435	
Source: Primary field Survey data, 2003 *: Significant					

The χ^2 value for Unit –I and Unit-II reveals significant difference of work participation rate among the different ethnic groups rejecting the null hypothesis indicating that inter tribal variation in female participation in agriculture is not equivalent even in similar agro-ecological units of the district. This may be because of differences of cultural, traditional and historical traditions among different ethnic groups despite the influence of one ethnic group over the other as they used to live in close proximity for decades together. Moreover, as the influence of poverty is an determining factor on FWPR irrespective of ethnicity and as the district is backward in respect of industrialization, communication etc. and as most of the tribal people are dependant on agriculture and allied activities as their sole source of income. Therefore, there are differences in work participation rates of women among the different tribes residing within the same agro-ecological unit.

Some definite patterns in gender division of labour in agriculture sector in the district are observed during the study. However, gender division of labour in agriculture is subject to variation over time and generalization is difficult. The position of women in a society is also a determining factor for FWPR. Such positions are determined by variations in the position of women, by virtue of caste, regional disparity, economic status of the family etc. Moreover, sexual division of labour exists in paid and unpaid work and between them in almost all societies, and the nature of the work done by women differs substantially by place, time, and in some cases, over the life cycle (Tinker, 1990)[1]. However, some patterns of gender division

[1] Tinker, I. (1990) *Persistent Inequalities: Women and World Development.* New York/Oxford, Oxford University Press.

of labour are observable as cooking, feeding the family, cleaning and washing household clothes and utensils, grinding grain, transplantation, harvesting etc. are more commonly female activities while ploughing, preparation of field, carrying harvested crops home etc. are more commonly male activities. However, increase in the numbers of nuclear type of families has in one hand expedited the concept of duel earner and in the other it gave flexibility to the traditional concept of the gender division of labour.

Dhemaji district has a multifaceted society and customs varies from place to place; but a generalized pattern of gender division of labour is observable among various religious, social, and economic groups. The society is moderately hierarchical and people are moderately ranked relative to others according to their wealth, power and caste. In general women are expected to be chaste and modest and their employment outside the sphere of home and family farmyard is viewed as inappropriate and threat to their chastity and womanly virtue. Women and girls of the economically sound families generally receive a greater educational opportunity but are usually kept at home as a demonstration of the family's morality.

Most of the ethnic groups residing within the district are living at close proximity to each other and there are cross integration of each others cultures, traditions etc. Moreover, inter-caste, inter-tribe and inter-ethnic marriages also are not uncommon in the district. Hence, the pattern of gender division of labour of one ethnic group has definite influence on the other groups resulting in a generalized trend.

The third hypothesis which states that "Sexual division of labour shall be more prominent between the tribes and the non-tribes" is also rejected since there are very little differences in sexual division of labourers, except fetching of fuel or firewood which are carried out by women in the tribal society and man in non tribal communities. Thus the sexual divisions between the two groups are not significant within similar agro-ecological units as well as within the district as a whole.

Technological development in the district is at its rudimentary stage. Hence, influences through changes in technology on the division of labour are less felt in the district. However, wherever such development is felt, they are associated with the males, as required training is targeted towards men but women tends to derive benefits from such technology use.

Due to progressive disintegration in joint family structures, changes are also taking place in the level of gender division of labour within the family. Work division and organization by gender within the family is closely related to the size of the family and to the availability and the amount of work needs to be done. The disintegration of the extended family and the transition to the nuclear family often results in a shortage of work within the family due to more involvement of women in all aspects of fieldwork in agriculture. The changes in family structures are accompanied by willingness and capacity on the part of the men to act supportively in works that are previously and exclusively performed by women.

In recent times, major economic and social transformations are occurring in cultural, household formations and patterns of obligations. Women's earnings form a

major part of the family income especially for those living below the poverty line. Moreover, an increase in women's income also increases their personal security and hence the security of children in poverty stricken households (Tripathi and Tiwari, 1999)[1]. However, even though such women contributes significantly to the household economy, they are traditionally perceived as dependants, which lead to low wages, and most of the strenuous jobs that they do are considered light and unskilled works.

Women's share in activities related to the animal husbandry sector is scattered across all ethnic groups. Women are experts in taking care of the domesticated animals including breeding, feeding, milking of cattle and buffaloes, pigs, chicken, ducks and goats etc. Women are familiar with the knowledge of the feed value of different fodder species. Women also actively participate and play an important role in running successfully other enterprises like poultry, piggery, goatary, duckery, quail rearing and sericulture. Imparting formal and scientific training on these sectors can greatly improve the economic conditions especially of small, marginal and landless rural households.

Access to resources of many women including energy need is declining, while their income needs are increasing. The focus of the green revolution has been on increasing grain yields by adopting scientific techniques. Introduction of high yielding varieties of rice has increased the rice production in many parts of the

[1] Tripathi, R.S. and Tiwari, R.P. (1999): Perspective on Indian Women. A.P.H. Publishing Corporation, New Delhi, and pp: 1-75.

district. However, women's lack of control over production process has been associated with an increase in the burden of work and increased dependence on wage labour. Agricultural labour is seasonal work with long period of unemployment and under employment during the year. The decline of women cultivators within the district can be attributed to frequent damage to the standing crops by floods, damage of family farm lands due to silting resulting in loss of inadequate growth of productive employment opportunities on family farm leading to withdrawal of women from active cultivation. The increases in the number of agricultural laborers are the greatest indicator of increasing poverty and reduction in the level of employment (Shiva and Dankelman, 1992)[1].

It is observed that only a negligible section of the tribal women are involved in activities other than agriculture and weaving in the district and is comparatively lower than that of females in general population of similar occupations. Sericulture practice is a major source of income for many women of the district. Almost all of the rural households of the district have looms for weaving. Sericulture is recognized as an intensive employment area for women. Women are actively involved in silkworm rearing including their feeding, silk reeling, spinning etc. Sericulture being a small-scale industry, is a source of subsidiary income in many rural households of the district, and is exclusively operated by women.

[1] Shiva, V. and Dankelman, I. (1992) Women and biological diversity: lessons from the Indian Himalaya. David, C. (Ed) *Growing diversity genetic resources and local food security*. Intermediate Technology Publications. p.44-52

Tribal women are working women almost without any exception. Working women in all social groups work harder than men. This is more so for the tribal women. They render help in agricultural activities, cook for the family, look after the children, do the washing etc. Though, traditionally women have played key roles in crop husbandry, animal husbandry; fisheries and post harvest technology, services and public policies for rural areas have often neglects the productive roles of women. Consequently, the development of technologies especially tailored to women-specific occupations and the involvement of women in technology development and transfer has received inadequate attention from both scientific and administrative angles. The economic development will be successful only when the needs of both women and men equally addressed. However, the intervention for development and technology seems to be associated with masculinity, making the linkage between technology and women invisible.

CHAPTER-VII

SUMMARY AND CONCLUSION

Chapter-VII

SUMMARY AND CONCLUSION.

Women make a considerable contribution to agricultural production in developing countries. Women workers in farming may be unpaid family labour or self-employed own-account workers and wage labourers on farms. The distinctions between these three categories are not always clear cut. Women's traditional jobs in agriculture are to transplant, sow, weed, harvest, winnow, and thresh. But due to reduction in size of land holding, increasing trend of poverty and natural calamities and increased male migration have seen many changes in the traditional roles played by women in the farms.

There needs a clear understanding of the role played by women in agriculture. The recognition that most women in rural areas are farmers necessitates a reorientation in research work related to women and agriculture.

The socio-economic characteristics have a definite role to play with FWPR. There is an increasing trend of shift of women workers engaged in their own family farms as agricultural labourers during the last decades due to damage of agricultural lands in Dhemaji district indicating increased poverty, although accurate data is not available in this regard.

The present research work as outlined in the preceding chapters basically embodies the detailed geographical treatment of the demographic and socio-economic characteristics of women population in the Dhemaji district of Assam. Main focus was given to the Mishing, the Deori and the Sonowal Kachari tribes and

their participation in the primary activities and their economic contribution to the family income. An analysis of the pattern of socio-economic characteristics of women at local level was also studied to know the position of women in various socio-economic and cultural situations in the region.

Chapter –I encompasses the research problem, its goal and significance. It also includes the relevant review of research in the related fields, which forms the basic foundation and direction of the study. Methods and approaches thought to be appropriate for the present study have been applied including field observations. It may be mentioned here that the analysis of the problem is sometimes constrained due to non availability of adequate data.

A study of the physical and socio-economic background of Dhemaji district is made in Chapter-II. Dhemaji district occupies a unique position amidst complex geological and physiographic makeup of the state of Assam. The district falls under the upper Brahmaputra valley agro climatic zone. The major tribes of the district include the Mishings, the Bodos, the Sonowal Kacharis and the Deoris. However, linguistically the actual population of these tribes in the district is not reflected in the census figures as some of them have adopted Assamese as their mother tongue. The topography of the district varies from undulating uplands on the northern foothills belt to low lying plains in the south. The climatic conditions of the district is hot humid during summer and cool dry during winter months. About 80 per cent of the total rainfall occurs during the summer months from May to September. As the district is located near the hills of Arunachal Pradesh, it exhibits differences in temperature, rainfall, fog, wind etc. All the tributaries of River Brahmaputra in the

district originate from the hills of Arunachal Pradesh and have a shorter course in the plains. Moreover, they reach the plains at an enormous speed carrying silts especially during the summer months when rainfall is abundant in the catchments of the rivers, resulting in flush floods and devastation in the plain regions.

The economy of the district is mainly agro-based. However silt deposition coupled with other adverse effects of chronic flood which is becoming worse due to mainly deforestation in the hill regions, have made cultivable lands almost useless rendering even erstwhile affluent families poor. Moreover lack of good communication system, shortage of power (electricity), lack of proper irrigation and marketing facilities adds to the backwardness of the district. Dearth of any major and small industry worth mentioning is also responsible for multiplying the problem of unemployment, while galloping explosion in the rate of population growth has already shown signs of negative impact.

Chapter-III deals with the inter tribal and inter ethnic variation in work participation of tribal women in Dhemaji district of Assam. Demographic feature of female population like age composition, age at marriage, health, care, fertility and child care practices, rural urban composition of population, nature of migration determine the potential labour force which can be utilized for productive purposes. Social status, prestige and customs, attitudes and religious believe affects the volume of female labour supply in the society. The work participation rate of female in Dhemaji district is 34.80 per cent which is much higher than the state average of 18.09 per cent. The percentage of female main workers to total population in the district is 9.88 per cent against 6.03 per cent for the state of Assam. The

corresponding figures in female marginal workers are 10.13 per cent and 0.43 per cent in Dhemaji district and Assam respectively. This indicates that FWPR in the district is much higher than the state average although the proportion of marginal workers indicates that most of the female workers in the district are underutilized.

Women within a geographical area, though not a homogenous group by way of caste, class or economic activity, the work participation in agriculture has a similarity in many aspects. Any assessment of the role and problem of women in agriculture has to be made not only on the nature and structure of the agricultural economy but also on the characteristic feature of land resources, labour utilization and the agro-ecological setting of a region. The agricultural sector employs as much as 85 per cent of all economically active women where there are two categories of women. The self employed women cultivators working on their own farm and the women working as agricultural labourers for wages or share of produce. In Dhemaji district it was observed that there has been a decline in the number of cultivators over the years and more and more women are working as agricultural labourers due to the impact of flood and declining trend of land holding. The study further reveals that the women work participation in agriculture is more or less similar among different tribal and ethnic groups except slight differences in some aspects. In some occasions it is found that the women have to work for more hours than men but gets less money or wage compared to men. Women are involved in transplantation, preparation of farm yard manure, seed selection, thinning, weeding, scaring of birds, using plant protection measures, harvesting and post harvest activities but are not involved in ploughing fields and marketing of crop; making female population a significant

workforce. Studies have shown that application of modern science to the agricultural sector raises the productivity factor more than similar investment made in the industrial sector and that agricultural growth has a greater effect on the reduction of poverty than do industrial growth.

Among social groups in Assam, the female work participation rate of upper caste women is the least in comparison to the scheduled tribes and scheduled caste. The average rate of participation for general women is 14 per cent which is significantly lower than that of scheduled tribes (37%) and scheduled caste (22%). This chapter also indicates the socio-economic characteristics namely age, education and land holding of different ethnic groups with their work participation rate in agricultural activities and the resultant support towards family income. It is evident that the percentage of workers of tribal women is substantially higher than non tribal women irrespective of age groups. The percentage of non workers irrespective of age groups reflects the higher FWPR of the tribes as compared to non tribal women. Moreover, it was observed that, women remained economically active up to 45 years of age after which their economic contribution tends to decline. The study revealed that the socio-economic characteristics have definite role to play with FWPR. In the present study the Mishing women are found to be more active than the other tribes in terms of work participation rate. However, proportion of main workers is observed to be higher in Sonowal Kachari and Deori tribe than the Mishing tribe. The FWPR of all the three tribes are much higher than their non tribal counterpart residing within the district.

The inter tribal and inter ethnic variation in occupational structure among the women in the region has been presented in Chapter-IV. It is observed that female work participation is much higher in the district (18.47%) than that of the state average (10.03). However, most of the main workers in the district are found in the primary sector of occupation. In contrast to the high proportion (88.45%) of female workers in the in the primary sector, only 4.07% and 7.48% female workers in the district are engaged in the household industry and other sector respectively. The present study found very little variations in the occupational structures among different ethnic groups of respondents residing within Dhemaji district.

Chapter-V tries to explain the female participation in light of sexual division of labour. Sexual division of labour in Dhemaji district varies very little by region and farming system but not among the tribes. Some tasks are almost exclusively undertaken by men, and some by women. Predominantly male tasks include the felling of trees, ploughing with oxen, digging etc. and the market related activities as purchase and use of pesticides/ fertilizers, sale of produce etc. Women, besides household task usually undertake transplanting, harvesting, threshing, crop drying, other post harvest operations, winnowing, fetching water and pig and poultry-rearing. Other tasks, such as weeding, bagging and crop storage, are almost equally undertaken by both women and men. It was also reflected that housework (child care and household chores) and economically extended work (as fetching of water), which is crucial for family's survival, is still a women's responsibility. On the whole, distribution of task responsibility and help received for housework and economically extended work was gender biased and divided along traditional lines.

Agriculture is the main source of income for rural households in Assam and is also the main occupation of women. Most of the women of the district work in agricultural fields and also weave in addition to the daily household chores. Although the cultural restrictions that women face are changing, women are still not as free as men to participate in the formal economy. In Dhemaji district women are over represented in the marginal workers category and account for a small proportion of the formal labor force. A very low percentage of female workers are engaged in other sector of the economy such as social work, government jobs, teaching, religious activities, household and non household industries etc. However, many women are involved in undocumented wage work than in the formal labor force. The informal sector includes jobs such as domestic servant, small trader, artisan, or field laborer on a family farm. Most of these jobs are unskilled and low paying and do not provide benefits to the worker.

Cash crops are not grown in a generalized way in the district. However, mustard seed plantation is carried out in many flood affected and sandy field areas. In the family farms where such crops were grown, men tend to be responsible for them, but much of male labour is withdrawn if those crops decrease in profitability. Women and children tend to be delegated the farm tasks that are tedious and time consuming.

Technological development in the district is at its rudimentary stage. Hence, influences through changes in technology on the division of labour are less felt in the district. However, wherever such development is felt, they are associated of with

males, as required training is targeted towards men and they tends to derive status benefits from use of such technologies.

Due to progressive disintegration in joint type of family structures, changes are also taking place on the level of the gender division of labour within the family. The transition to the nuclear family often results in a shortage of work capacity within the family resulting in more involvement of woman in all aspects of fieldwork and the field work in agriculture generally takes priority over all. The changes in family structure are accompanied by willingness and capacity on the part of the men to act supportively in works that are previously and exclusively performed by women.

Although the district posses multifaceted society, a generalized trend in gender division of labour is observable among various regional, religious, social, and economic groups, as most of the ethnic groups residing within the district are living at close proximity of one another hence, the pattern of gender division of labour of one ethnic group must have influenced the other groups resulting in similarity.

Chapter-VI is devoted towards explaining variation in agricultural work participation rate. The present study of female work participation rate among different ethnic groups reveals that the variations in agro-ecological conditions does not determine the extent of variations in female participation in work among the tribes as well as the non-tribal segments of the population. Although tribal women are involved in a higher proportion in various activities related to agriculture than their non tribal counterpart and the proportion of non workers is comparatively low.

However, significant differences of work participation rate among the different ethnic groups are observable even in similar agro-ecological units of the district. This may be because of differences of cultural, traditional and historical traditions among different ethnic groups despite the influence of one ethnic group over the other as they used to live in close proximity for decades together.

Some definite patterns in gender division of labour in agriculture in the district are observed during the study. However, gender division of labour in agriculture is subject to variation over time and generalization is difficult to make. However, some patterns of gender division of labour are observable in spheres like cooking, feeding the family, cleaning and washing household clothes and utensils, grinding grain, transplantation, harvesting etc. which are more commonly female activities while ploughing, preparation of field, carrying harvested crop home etc. are more commonly are male activities. However, increase in the numbers of nuclear type of families has in one hand expedited the concept of duel earner and in the other it gave flexibility to the traditional concept of the gender division of labour.

Although Dhemaji district possesses a multifaceted society and customs vary from region to region, a generalized pattern of gender division of labour is observable among various regional, religious, social, and economic groups. Most of the ethnic groups residing within the district are living at close proximity of each other and there are cross integration of each others cultures, traditions etc. and inter-caste, inter-tribe and inter-ethnic marriages are not also uncommon in the district. Hence, the pattern of gender division of labour of one ethnic group has definite influence on the other groups resulting in a generalized trend.

MAJOR FINDINGS OF THE STUDY

1. Dhemaji district has a substantial population of tribes (43.92%). The urban population is only 1.85%, indicating a rural character of the district. The district is situated in one of the heaviest rainfall areas of Assam and thus is most flood prone. The economy of the district is mainly agro based characterized by subsistence level of production and consumption. Sericulture, fishing and driftwood business are also carried out in smaller scales.

2. There exists a small difference in work participation pattern in agriculture among women of different ethnic and tribal population residing within the district. Agriculture is carried out through a traditional lines and customs and thus it is more labour intensive and low in productivity.

3. The proportion of female main workers involved in the agricultural sector is much higher than that of the state average. However, very few female main workers are found outside the primary sector. Similarly the proportions of female marginal workers are also much higher in Dhemaji district (10.13% of total population) than the state average of 0.43%.

4. The FWPR of tribal women are substantially higher than the non-tribal women irrespective of age groups. Women of the district remain economically active up to 45 years of age after which their economic contribution tends to decline. There is a significant relationship between age group and work participation rate in agriculture.

5. There exists an insignificant relationship between education level and FWPR in agriculture sector for all ethnic groups in the district probably due to lesser job opportunity outside the primary sector within the district.

6. Economic status of a family has a direct relationship with the women's work participation in agriculture, and thus land holding, which holds a direct relation to the economic connotation of a family, has shown a significant relationship with the FWPR of tribal women as well as of non tribal women.

7. Mishing women are found to be more active than the other two tribes in terms of work participation rate. However, proportions of main workers are observed to be higher in Sonowal-Kachari and Deori tribes. The FWPR for all three tribes are much higher than their non tribal counterpart residing within the district. There is an increasing trend of shift of women workers engaged in their own family farms to agricultural labourers during the last decades due to damage of agricultural lands by flood and erosion in Dhemaji district. This also indicates increase in landlessness and poverty, although accurate data is not available in this regard.

8. Very little variation in occupational structures among different ethnic groups of respondents residing in Dhemaji district was observed in the present study. Female workers in the district are mainly engaged in primary sector and work variation is relatively lower than the state scenario. As women workers prefer to work nearer to their homes, diversification of occupational structure of women in the district is found to be negligible. The shares of female workers in the primary occupations

among the non-tribal population in the district are considerably lower than the scheduled tribe population.

9. Most of female workers in the district are engaged in the primary sector (88.45%), while negligible proportions of female workers are found to be involved in household industry works (4.07%) and other sectors (7.48) respectively. Lack of industrial and associated infrastructure development in the district is the primary cause for low percentage share of female workers in other sectors in terms employment.

10. Over the years, there is a decline in the number of cultivators and more and more women are engaged as agricultural labourers in the district, mainly due to floods and resultant sand deposition and erosion making the farm lands unusable for cultivation. Moreover, there seems to be moving away from agriculture as the primary livelihood, to mix cultivation, small scale tea plantations and off-farm employment as wage labourers in the western part of the district (Bordoloni block) as subsidiary income-generating activity.

11. As most of the ethnic groups residing within the district are living at close proximity to one another and are interacting with each other for decades together hence, the pattern of gender division of labour of one ethnic group must have influenced the other groups resulting in similarity.

12. As in other cultures and societies, the sociological system of the region is also firmly rooted in a hierarchical system of economic, social and political relations based on the sexual difference between men and women, where male domination and

female submission form the basic structuring principle of society resulting in gender division of labour. Generally tasks related to the public domain and to the generation of family income were assigned to men, while women were assigned tasks of biological and human reproduction that were mostly limited to private, domestic domain.

13. Predominantly male tasks in the primary sector includes the felling of trees, ploughing with oxen, digging, preparation of field, carrying harvested crops to home etc and market related activities such as purchase and use of pesticides/ fertilizers, sale of produce etc. Women, besides household task usually undertake transplanting, harvesting, threshing, crop drying, other post harvest operations, grinding grain, winnowing, fetching water and pig and poultry rearing etc. Other tasks, such as weeding, bagging and crop storage are almost equally undertaken by both women and men.

14. Most of the women of the district work in agricultural fields and also do weaving activities. It was further revealed that livestock care was more or less a female work. Men's involvement in livestock activities was rather limited to cleaning, milking and market related activities of livestock and livestock products. Cash crops are not grown in a generalized way in the district. However, in the family farms where such crops were grown, men tend to be responsible for them.

15. Due to progressive disintegration in joint type of family structures, changes are also taking place on the level of the gender division of labour within the family. The changes in family structure are accompanied by willingness and capacity on the part

of the men to act supportively in works that are previously and exclusively performed by women. However, lack of elementary knowledge of work simplification techniques is increasing the drudgery of rural women's work.

16. The work participation rate of women within Dhemaji district does not differ significantly among different tribal groups and proportions of non workers are comparatively low. However, the non tribal counterpart had shown lower proportions of main workers and higher percentage of non workers.

17. Variations in agro-ecological conditions within the district had no effect on the extent of female work participation rate among the tribes as well as the non-tribal segment of the population.

18. Only a negligible section of the tribal women are involved in activities other than agriculture and weaving in the district and is comparatively lower than that of females in the general population in similar occupations. Sericulture practice is a major source of income for many women of the district. Almost all the rural households of the district have looms for weaving. Sericulture is recognized as an intensive employment area for women. Women are actively involved in silkworm rearing including their feed, silk reeling, spinning etc. Sericulture being a small-scale industry, is a source of subsidiary income in many rural households of the district, and is operated exclusively by women.

SUGGESTIONS:

1. Though considerable attention was paid to identify and calculating the value of women's unpaid work, there was hardly any attention paid to women's work in terms of income in the home based production. As the FWPR of tribal women is always higher than their non tribal counterpart hence, this fact assumes more importance in tribal societies. This is an area where statistical data is not available from official records, except a few. As rural women are becoming increasingly responsible for household activity and food production, development programs must adapt to this changing demographic profile so that rural women can acquire the necessary training on new productivity-enhancing techniques and technologies. The study of this sector assumes importance because most of the income derived from this work frequently provides the very basis for family survival particularly among the extremely poor farmers.
2. There are very few data available on the number of women engaged in home based production due to the lack of recognition of home based producers as workers in most data gathering system. A wide range of productive activities can be included in the home-based work as production of handicrafts, garments, rearing of small animals and poultry, grain cleaning etc. Women often combine their household tasks with income generating work. The hours of work vary from part time work to extended days work. Data on tribal women in this sphere may be gathered, which in turn can be analyzed in a meaningful way for the benefit and economic uplift of the district in general and the tribal societies in particular.

3. Tribes are always associated with the nature and agriculture is the main source of income for them. Tribal women always play a key role in agricultural production and thus there is a need for re-defining the concept of 'worker' and giving a monetary status for these activities. These should also be reflected in Gross National Product.
4. Analysis of rural women's work showed that there was increasing drudgery of the household work because of lack of elementary knowledge of work simplification techniques. This is particularly true for the tribal societies. It is, therefore, necessary to evolve time-saving technologies for these household chores. Non-formal education emphasizing work simplification, time and energy management can considerably reduce the physical labour of work, thereby releasing more time and energy for economically productive activities. Education programs on such areas can be incorporated in rural development programs.
5. Access to science, technology and information improve life for rural women and help to reduce poverty. Basic education for women has been shown to have significant impacts on agricultural production. However, women have lesser access to skill acquisition, skill training and skill up gradation. While women play a predominant role in agriculture and food provisioning women's participation in agriculture extension training and research in next to insignificant. These areas of consideration need immediate attention for uplifting the rural economy of the district.
6. With a commitment to sustainable development, priorities emerged to work with rural and tribal communities which are vulnerable to underdevelopment. Further, a growing realization of the need for a comprehensive process of development,

the significance issues of core areas are addressing Women's Development and Sustainable Agriculture.

7. Tribal women traditionally possess a commendable knowledge about feed value of various fodder plants, indigenous medicinal plants and about organic farming, though they themselves are ignorant about their knowledge. A systemic study of such know-how should be made for their maximum utilization and to promote organic farming so as to increase women's productive role in agriculture, decrease health hazards and avoid the drain of scarce family income to pay for unnecessary chemicals.

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Appendix-I

DHEMAJI DISTRICT PROFILE AT A GLANCE

Human Development Indices	**2003**		**District Information**	**1991**	**2001**
Human Development Index (HDI)	0.277		Number of Inhabited Villages	1110	-
HDI Rank	20		Number of CD Blocks		5
Gender Related Development Index (GDI)	0.41		Number of Towns	1	-
GDI Rank	13				
Population	**1991**	**2001**	**Education**	**1991**	**2001**
Share of State's population		2.14	Literacy Rate (%)	53.84	65.96
Area (Sq Km)	3237		Male Literacy Rate	65.4	75.15
Urban Population (%)		6.91	Female Literacy Rate	41.1	56.11
Scheduled Caste Population (%)	6.37		Scheduled Caste Male Literacy rate	52.14	
Scheduled Tribe Population (%)	43.92		Female Literacy rate	25.77	
Density of population (Per Sq Km)		176	Scheduled Tribe Male Literacy rate	63.08	
			Female Literacy rate	35.16	
Health	**1991**	**2001**	**Household Status (%)**	**1991**	
Child Mortality Rate (Upto 5 yrs)	139	-	Households in Pucca Houses	3.34	
Crude Birth rate (per 1000)	25.90	-	Households in Semipucca houses	5.06	
No. of			Households in Kucha Houses	91.6	
Hospitals		3	Households with access to		
PHCs		9	Electricity	3.52	
Dispensaries		5			
Beds (per 15,000 population)		5.66	Safe Drinking water	48.58	
			Toilet facilities	16.37	
			All of the above facilities	1.99	
			None of the above facilities	46.26	

Agriculture	**1991**	**1999**	**Gender**	**1991**	**2001**
Average land Holding Size (in hectares)	1.32	-	Infant Mortality (Girls)	117	-
Gini Co-efficient of operational Holding	0.493	-	Child Mortality (Girls) upto 5 yrs	138	-
Cropping intensity		160	Total fertility Rate	3.25	
Per capita forest area		0.11	Sex Ratio (per 1000 males		
Employment (%)	**1991**	**2001**	Rural	932	
Worker participation Rate			Urban	717	
Rural		45.31	Total		936
Urban		31.32	Sex Ratio		
Total		44.3	Scheduled Caste	917	
Share of primary sector	85.7	-	Scheduled Tribe	955	
Share of secondary sector	2.3		Female work participation		
Share of tertiary sector	12.0		Rate		38.20
Total employment in agriculture sector	85.7				
Agricultural Labour	5.0				
Children as main worker	9.56				
Share of female workers		41.66			

Source: Assam Human Development report-2003, Published by Planning and Development Department, Government of Assam, Dispur.

Appendix-II

HOUSEHOLD SCHEDULE

Department of Geography
North Eastern Hill University, Shillong

1. Respondents Name Date of survey

Sl.No	Name
1	
2	
3	
4	
5	

Name of the village	Block	Subdivision

2.No. of households in the village

Caste/Tribe	Number

3. Location of the village

High land	Low land	Inundation (not, occasional, annual)

4. Demographic and Social Structures

Sl No	Relation to the Head of the Family	Age	Educational Status	Marital Status	Family Type/Size	Occupation
1						
2						
3						
4						
5						

5. Family Workforce

Sl. No.	Type of work	Number of days					No of workers					Skill					Wage				
	Family No	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	Cultivators																				
2	Wage labourers																				
3	Petty Traders																				
4	Lumbering																				
5	Others																				

6. Land use pattern

Sl.No	Total land area	Home stead	Land under Misc. crops	Area sown more than once	Waste land	Current fallow	Fallow	Others	No.of poultry	No. of livestock
1										
2										
3										
4										
5										

7. Cropping pattern

Sl. No.	Crops grown		Yield/acre	Total yield	Production		
	HYV	Traditional			Sufficient	Surplus	Deficit
1							
2							
3							
4							
5							

8. Agricultural land use pattern

Sl. No	Cultivated land	Land leased in	Land leased out	Self cultivated	Cultivated with hired labour	Cultivable land	Area under Cash crops grown with name	Area under Horticultural crop with name	Area under fishery	others
1										
2										
3										
4										
5										

9. Facilities available:

Sl. No	Irrigation		Fertilizer						Machineries used	Source of drinking water
	Method	Area	Ravi			Kharif				
			Type	Amount	Total area	Type	Amount	Total area		
1										
2										
3										
4										
5										

10. Sexual division of labour (With Time devoted)

	Performed by men only										Performed by female only										Performed by both									
	Ravi					Kharif					Ravi					Kharif					Ravi					Kharif				
Respondent sl.no	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Plaughing																														
Field preparation																														
Seeding																														
Transplanting																														
Weeding																														
Harvesting																														
Carrying harvested crop																														
Thrashing																														
Husking																														
Preparation of food																														
Livestock maintenance																														
Kithen gardening																														
Hoticulture																														

11. Reasons of doing agricultural activities:

Sl. No	To support family	For economic reasons	As it is family tradition	Any other reason
1				
2				
3				
4				
5				

12. Animal Husbandry

Sl.No	Animal					No. Owned					No. Sold					Earnings Rs.				
Family No	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Cattle																				
Pig																				
Poultry																				
Others																				

PERSONAL BIODATA

1. Name	:	Ms. Mainu Goswami
2. Father's Name	:	Late M. N. Goswami
3. Occupation	:	Lecturer, Deptt. of Geography, Morigaon College, Morigaon, Assam
4. Permanent Address	:	C/O Dr. Paresh Ch. Sarma House No-12 Rukmini Nagar, Balibat Guwahati-781006

4. Academic Qualifications

Degree	University	Year of Passing	Division/Grade
MA	Gauhati University, Guwahati	1991	II
M. Phil	NE Hill University, Shillong	1999	A

5. National / International Seminars attended: 10 (Ten)

a. Participated in UGC Sponsored Seminar on "**Geo-Environmental problems in the Brahmaputra Valley with special reference to Nagaon District**" at Ananda Ram Dhekial Phookan College, Nagaon, Assam on 28th January'2001.

b. Presented paper titled " *Female work participation in primary activity: A case study of Tiwa tribe in Morigaon District of Assam*" in the **22nd Biennial Conference of North East India Geographical Society** held at Jagiroad Collge, Morigaon on 27-28 April'2002.

c. Participated in the **National Seminar** of The Indian Science Congress Association held at Guwahati on 17th March'2003 on **Science awareness and popularization.**

d. Presented paper on "*A Study of Landslides in Northeast India*" in the **International Conference** on "**Mountain Environment and Natural Hazards management**" held on 27th – 29th March, 2003 at Deptt. of Geography, NE Hill University, Shillong.

e. Presented a paper entitled "*Impact of Bank Erosion on Landuse Pattern in the Morigaon District of Assam*" in the Annual Academic Session of the **North East India Geographical Society** held at Cotton College on 24th may'2003.

f. Presented a paper titled "*Nature and Extent of Female Work Work Participation in Agriculture: A Case Study in Dhemaji District of Assam*" at the **XXVII Indian Social Science Congress** held on 3rd – 7th Dec'2003 at IIT, Kharagpur (West Bengal)

g. Presented a paper titled " *Tribal Women in Agriculture: A case Study of the Mishing Tribe in the Dhemaji District of Assam*" at the seminar on **Changing Agricultural Scenario in North-East India** organized by North-East India Council for Social Science Research, Shillong on 12-13th Dec'2003.

h. Presented a paper titled " *Landslides in Guwahati city and its Management*" at the state level seminar on **Healthy Environment is essential for survival of living being"** organized by Dimoria College, Khetri, Kamrup, Assam on 11th February/2004.

i. Presented a paper titled " *Socio-Economic conditions of female agricultural labourers in Dhemaji district of Assam*" at the National seminar on **Population and Development in North-East India** organized by International Institute for Population Sciences at NEHU, Shillong on 25-27 February/ 2004.

j. Presented a paper titled *Socio-economic conditions of Sonowal Kachari women in Dhemaji District of Assam* at the seminar on organized by **North-East India Council for Social Science Research, Shillong** on 12-13th Dec'2004.

6. Paper Published : 2 (Two)

a. " Landslides in Guwahati city and its Management" in booklet published in connection with the state level seminar on "***Healthy Environment is essential for survival of living beings***" Published by Deptt. of Education, Dimoria College, Khetri, Kamrup, Assam (2004) Ed by A. Bhattacharya and B. Majumder Bharali.

b. "Women in Agriculture: A Case Study of the Mishing Tribe in Dhemaji District of Assam" in ***Changing Agriculture Scenario In North East India*** 1st Ed (2006) Ed by B. J. Deb and B. Datta Ray, Concept Publishing Co, New Delhi. pp 301-312

7. Popular Articles Published : 3 (Three)

a. Published an article entitled "**Disaster management for Animals**" in English daily "Assam Tribune" on 1st February'2003.

b. Published an article titled "**Dream merchants?"** in English daily "Assam Tribune" on 22nd March'2003.

c. Published an article titled "**Disaster management**" in Northeast Veterinarian a quarterly journal published from Guwahati, Assam in Volume.2 No.II.

Date 29-03-06

Place Shillong .

Goswami

(Mainu Goswami)
Department of Geography