SHIFTING CULTIVATION TO SETTLED AGRICULTURE: AGRARIAN CHANGE AND TRIBAL DEVELOPMENT IN MIZORAM

C. LALENGZAMA

DEPARTMENT OF SOCIAL WORK

MIZORAM UNIVERSITY

SHIFTING CULTIVATION TO SETTLED AGRICULTURE: AGRARIAN CHANGE AND TRIBAL DEVELOPMENT IN MIZORAM

C. Lalengzama

Department Of Social Work

Submitted in partial fulfillment of the requirement of the Degree of Master of Philosophy in Social Work of Mizoram University, Aizawl.

D E C L A R A T I O N

I, Mr C. Lalengzama 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 bias of the award of any previous degree to me or to do the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/ Institute.

This is being submitted to the Mizoram University for the degree of Master of Philosophy in Social Work Department.

Date: 16th December, 2010
Place: Aizawl, Mizoram

(C. LALENGZAMA)
Research Scholar
Department of Social Work,
Mizoram University

C E R T I F I C A T E

This is to certify that the thesis **'Shifting cultivation to Settled Agriculture; Agrarian Change and Tribal Development in Mizoram'** Submitted by **Mr C. Lalengzama,** Department of Social Work, Mizoram University for the award of Master of Philosophy in Social Work is carried out under my guidance and incorporates the students bonafide research and this has not been submitted for award of any degree in this or any other university or institute of learning.

Date: 16th December, 2010
Place: Aizawl, Mizoram

(Dr.KALPANA SARATHY)
Head, Department of Social Work

(Dr. E. KANAGARAJ)
Supervisor

Department of Social Work,
Mizoram University.

ACKNOWLEDGEMENT

First of all I would like to thank the Almighty for giving me opportunities and health to complete my M.Phil course.

My acknowledgement would not be completed without mentioning the names of My Parents ***Mr C. Vanlaltluanga*** *and* ***Mrs Lalthasiami*** *for their support and endless prayer. I also want to dedicate this dissertation to them.*

I owe a deep sense of gratitude to my supervisor ***Dr E. Kanagaraj****, Lecturer, Department of Social Work, Mizoram University, Aizawl, who always had confidence in me and was a great person to motivate me to complete my work. Only his valuable guidance and his mighty scholarly touch help me in every stage of the study which was coupled with his unreserved and encouraging attitude for me that I could present this dissertation. I wish to take this opportunity to express my heartfelt thanks for his untiring help which was always there in a countless number of ways.*

I would like to express my deep appreciation to ***Dr. Kalpana Sarathy****, Head, Department of Social Work, Mizoram University, Aizawl for her support and encouragement throughout the course of my study.*

I also like to thank my colleagues ***Esther L. Chhakchhuak, B. Lalhmingmawii, Lalhruaitluangi Chhangte, Zothankimi Ralte*** *who always render their help and support for me.*

I also personally thank ***Mr David Zaitinvawra*** *for rendering help and providing necessary information throughout the study.*

I am also indebted to the farmers in both the ***villages of Sesawng and Lungdai*** *for rendering a cheerful cooperation while collecting data. I really cherish their efforts of helping in the process of study to bring out the living conditions of farmers to be able to represent the whole Mizoram.*

(C. LALENGZAMA)

CONTENTS

List of Tables

List of Figures

The present study attempts to assess the impact of agrarian change from shifting cultivation to settled agriculture on the tribal living conditions in Mizoram.

Shifting cultivation has been viewed as one of the challenges to tribal development India over many decades. According to the tenth five year plan, shifting cultivation has remained as one of the unresolved issues of planning for tribal development in India (GOI, 2001). According to the 2001 Census, the tribal population in the country was 84.3 million accounting for 8.2% of the total population. The tribes have traditionally lived in about 15% of the geographical area of the country, mainly in forests, hills and undulating inaccessible terrain in plateau areas which are rich in natural resources.

The origin of Shifting Cultivation could be traced back to the Neolithic period dated to 7000 BC on the basis of archeological data. This marked a revolutionary change in human societies from food gathering to food production. In fact its origin is traced to as far back as the Neolithic period between the years 1300 to 3000 B.C (Ninan, 1992). Shifting cultivation is accepted as an early stage of agricultural evolution which is practiced in different parts of the world across different culture (Rolwey-Conway, 1984). Shifting Cultivation is not only practiced in India, but it is widely persistent among the indigenous communities, particularly in Africa, Latin America and parts of Asia. Tribal communities and hill people from time immemorial have practiced shifting Cultivation in India. It is widely practiced in the hill region of North Eastern States of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. About 10 million hectare of tribal land stretched across 16 states is estimated to be under Shifting Cultivation in India.

In spite of its pivotal role in the culture and livelihood of tribal societies, shifting cultivation is often perceived as threat to the forests ecological system and the

environment as a whole. As shifting cultivation is always attended through clearing and burning of forests which destroys forest and the environment around us. The government and some initiatives always try to protect environment and forests' resources by rejecting and opposing the practice of shifting cultivation. But as there was no replacement for earning livelihood even which the government could not provide the practice of jhuming. So, shifting cultivation as declared by the government is the main sources to destroy forests ecology. But we cannot blame the people who practice it because it is their ways and means of surviving. Until and unless the people have other ways to earn their living we could not stop them from doing it.

1.1.Jhum in Mizoram: An Overview

Mizos have been agriculturists from the beginning of the 18th century when they made their western trek to the present Mizo hills. They know only the form of farming known as shifting cultivation which forms the major activity of the Mizo economic life even today, wet rice cultivation is reported to be first practices in the year 1921 by the Mizo residents of Burma which marked the recorded adoption of a new technology in the culture of rice farming among the ethnic group of Mizo (Thangchungnunga, 1997).

The culture of the Mizos is intrinsically woven with their practice of shifting cultivation. The important festivals of Mizos viz., Chapchar Kut , Pawl Kut , and Mim Kut , are in fact associated with the various stages of shifting cultivation (Sen, 1992:428).

In Mizoram the livelihood base of majority of the population is cultivation especially shifting cultivation. In Mizoram 61 per cent of the working population depends on agriculture of which nearly 55 percent were cultivators and 6 percent were

agricultural labourers according to the 2001 census. Out of 738 villages and 1,54,643 households 89,454 (57.85 %) are cultivator households in Mizoram. Among the cultivators 78,195 (87 %) households are practicing jhum and wet rice cultivation is practiced by 11,301 households (13%) (GoM 2004:17).

A predominant majority of the households are depending on shifting cultivation for their livelihood all over the districts of Mizoram excepting the Aizawl. Of the 1, 54,643 households in the state more than one half are depending on shifting cultivation (60%). More than three fourth of the households of the districts of Champhai (77%), Kolasib (77%) and Saiha (75%) are shifting cultivators. Likewise more than two thirds of the households of Mamit (68%) and Serchip (68%) are practicing shifting cultivation and one half of them in the districts of Lawngtlai (62%) and Lunglei (58%) are jhumias. On the other hand over one third of the households of the Aizawl (34%) district depend on shifting cultivation (source GOM, 2004:17).

As regards the agrarian structure of Mizoram a predominant majority of the cultivators of marginal farmers cultivating less than one hectare of land. 70 per cent of the cultivators are marginal farmers (less than 1 Hectare), 20 per cent of them are small farmers, while medium and large farmers constitute 6 and 4 per cent respectively. The mean size of land holding was worked out to 1.6 hectares.

A notable feature of the agrarian structure in Mizoram is that inequality is emerging in otherwise known as egalitarian tribal society. Seventy per cent of the marginal farmers are in possession of 21 percent of land while 10 per cent of medium and large farmers control over 60 per cent of land (source GOM 2004:17).

1.2.Overview of Literature

Agrarian structure and change have been the fertile areas of social science research in India. Economists, sociologists and historians have conducted a number of

studies on these aspects of social structure (see Athreya et al. 1990; Harris, 1982; Mukerjee, 1969; Shah, 1969; Gadgil, 1969; Thorner, 1969) in various agro climatic zones of India. There are studies on the changes in the agrarian structure and its impact on rural development (see Harris, 1992; GOI, 1954; Gupta, 1969). There are studies which focus on the agrarian reforms (see Thorner, 1969a; Joshi, 1969; Kushro, 1960) and agricultural technology (see Bras, 1990; Basant, 1987; Byres, 1981) and their impact on the agrarian structure as well as rural living conditions.

As agriculture is the main source of livelihood for most of the tribes, there are a number of studies on tribal agriculture in India. In this area, studies have concentrated on the agrarian structure, change as well as crucial agrarian issues of shifting cultivation (see for instance Conclin, 1961), and land alienation (see Saravanan, 2002; Karuppaiyan, 1998; Shanmugam, 2004). On shifting cultivation there is copious literature in India as many tribes depend upon that for their sustenance. The studies generally focus on social and economic aspects shifting cultivation in different contexts such as jhum cycle (See Ickowitz, 2004), ecological consequences (See Raman, Rawat and Johnsingh, 1998), cropping pattern (see Ickowitz, 2004), input use (Sachidananda, 1989), willingness to switchover to settled agriculture (Zaitinvawra and Kanagaraj, 2008) etc.

There are also studies on the tribal development especially the living conditions and the livelihood of the tribals which focus on the socio economic condition of tribal in areas (see Ramachandran, 1992; Rajarathnam and Guruswami, 1987; Karupaiyan, 1990; Manivannan, 1989). Some have attempted to study inter tribal variations in tribal development (see Kanagaraj, 2005).

From the overview of literature, it could be observed that there are a number of studies which have conducted in varied agrarian and tribal contexts. Social

scientists especially the economists, sociologists, anthropologists, historians etc., have explored the agrarian question from their disciplinary angles and varied theoretical perspectives and methodological orientations. Among the theoretical approaches political economy is predominant while the quantitative approach is the methodological orientation that is prominent. In spite of these, a few research gaps could be observed.

Firstly, there are a few empirical studies on this problem in Mizoram (except Zaitinvawra and Kanagaraj, 2008). Even this study has confined itself to one village in the vicinity of Aizawl town. The findings of this study may not be reflecting the real situation in Mizoram.

Secondly, a few studies focus on impact of switchover from shifting cultivation to settled agriculture on agrarian structure (See except Zaitinvawra and Kanagaraj, 2008; Ninan, 1989). Even these studies could not demonstrate clearly the effect of agrarian change on the tribal development as they did not operationalise the concept of tribal development from a theoretical perspective.

Thirdly, social workers have not adequately researched on tribal development i.e., tribal livelihood (except Zaitinvawra and Kanagaraj, 2008) or living conditions (see Kanagaraj, 2005).The present study tries to fill these gap by comparison the tribal livelihood and living conditions of the shifting cultivators and settled agriculturalists.

This study is policy oriented and its findings would be useful for policy makers, planners, civil society organizations as well as social workers at multilevel who are concerned with tribal welfare in the North East. The results will show the directions for designing appropriate policies for promoting sustainable agriculture in the North East. It will also benefit the civil society organizations to develop advocacy strategies. Social workers at micro, messo and macro levels will be able design

appropriate intervention strategies for promoting tribal development and empowerment.

1.3.Statement of the Problem

This study focuses on the bearing of change in agrarian structure i.e., switch over from shifting cultivation to settled agriculture on tribal development in Mizoram from a social policy and social work perspective. Agrarian structure will be probed in terms of the nature of land ownership, distribution of land across size of land holding. Further, the changing patterns of cropping, tools and implement use and input use will be studied. Tribal development will be probed in terms of the living conditions of the households. The study probes into the perception of cultivators on the ecological consequences of shifting cultivation as well as the various jhum control programmes including the ongoing New Land Use Policy (NLUP) of the Government of Mizoram.

1.4.Chapter Scheme

The present study is organised into the following six chapters.

1. Introduction.
2. Review of Literature.
3. Methodology.
4. Results and Discussion.
5. Conclusion and Policy Suggestions.

This chapter attempts to present the review of literature on shifting cultivation, agrarian change and tribal development. This chapter has been organised into two major sections viz., studies on shifting cultivation and studies on agrarian change.

2.1. Studies on Shifting Cultivation

Nye and Greenland (1960) in their studies highlighted that yield levels in shifting cultivation are influenced by a wide range of biophysical, socioeconomic, and cultural factors and it is difficult to isolate fallow length as a single determining factor. Yield decline in shifting cultivation systems when fields are cropped successively in two, three or more years is well documented**.** The causes of yield decline with continuous cultivation are attributed to weed infestation and soil nutrient deficiencies and depend very much on the specific area studied. Most studies on shifting cultivation have been based on the assumption that crop yields decline when the length of fallow periods is reduced and no chemical or organic fertilizers are introduced in the system. This is in many ways a logical theory as a decline in nutrient availability in the ecosystem can be expected with crop export, erosion, leaching, and volatilization of nitrogen during burning of the vegetation.

Niranjan Saha (1976) analysed the process of jhuming, jhum cycle and levels of production, cropping patterns, inputs of labour, productivity and return under jhuming North East India. As the level of income appears to be very low, he suggested for the replacement of the system by suitable alternative occupation like settled farming, horticulture, dairy and poultry farming, small scale industry etc.

B.N.Bordoloi (1976) analysed the demographic profile of shifting cultivators in North East India with special reference to the hill areas of Assam. He also analysed the schemes for rehabilitation of shifting cultivators based on Model village, cash

crop Plantation scheme, scheme for composite projects and scheme for agriculture, Concentrating centres. He observed that the successful implementation of the schemes depends on earnest zeal, unexhausted patience and with follow up programmes.

D.N. Majumdar, (1977) examined the relationship between Shifting Cultivation and permanent of terrace cultivation. He emphasised on villagers views regarding terrace cultivation among three villages in Garo Hills District of Meghalaya. He observed that Shifting Cultivation is still regarded by the villagers as a sure method of producing food crops and the attempt to introduce terrace cultivation in Garo Hills will succeed in those areas only and among those individuals only where economic condition have become such that terrace cultivation has remained the only untapped source of income.

D.J.Roy et al (1976) analysed the problem of jhuming, function of jhum control and co-operative approach. He suggested that there is a bright scope of expansion of jhum areas for cultivation through maintenance of livestock for direct and indirect source of income.

B.B.Dutta, (1976) analysed three different types of shifting cultivation control schemes in North Eastern India and the involvement of different departments in the scheme. He observed that lack of credit facilities allotment of infertile land, non-utilization of subsidy money and lack of proper coordination among different departments for the task of setting the shifting cultivators on land for permanent cultivation are the most different problem in the implementation of the schemes.

Baniprasanna Misra (1976) attempted a critique of shifting cultivation in North East India. He also analysed jhum cycle, income and the extent of shifting cultivation. He also suggested measures to control shifting cultivation.

D.C Das (1976) discussed the problems of jhuming like soil degradation and sedimentation. He suggested an integrated approach in land use management, which include watershed approach; mixed land use, water management and comprising of agro- horticulture programmes and livestock keeping. He observed that the need for permanent and stabilised land use as inescapable in North Eastern India.

D.C Das (1976) discussed the problems of jhuming like soil degradation and sedimentation. He suggested an integrated approach in land use management, which include watershed approach; mixed land use, water management and comprising of agro- horticulture programmes and livestock keeping. He observed that the need for permanent and stabilised land use as inescapable in North Eastern India.

D.N.Borthakur R.P.Awasthi and S.P Ghosh (1976) analysed the harmful effects of shifting cultivation in North East Region. According to them the basic approach to solve the problems include steps for increasing productivity of jhum land, by dividing short term and long term measures. They suggested horticulture crops as alternative system for shifting cultivation and two-stage plan i.e., short term till the permanent settlement of jhumias and long term permanent settlement. They also suggested animal husbandry including fisheries and poultry farming as sources of subsidiary income. According to them with the production technology in land and sound research base, demonstration, training and extension efforts, the gloomy picture of agriculture of North East Region could be change.

D.N.Majumdar (1976) analysed the linkage between Garo culture and shifting cultivation in terms of religious rites, rituals and festivals. He also analysed the problem relating to acceptance of plough cultivation. He observed that the importance

of traditional rites and festival is decreasing along with the decline of shifting cultivation.

P.R.Mawthoh, (1976) analysed the demographic profile of Meghalaya and the significant feature and evils of jhuming. He suggested that terracing, banding, trenching, check damming, gully plugging etc, be adopted according to the need of the areas as an alternative of jhuming.

S. Biswas and A.K. Ghosh (1976) examined the effects of shifting cultivation on wildlife, depletion of forest resources changes in the ecosystem and destruction of virgin forest in Meghalaya. They observed that there is a need of interdisciplinary approach, flexibility of thought and improvement of the relationship between man and the environment as important to deal with the problem of shifting cultivation.

S.K. Mukherjee (1976) discussed the area utilised and number of tribal people dependent on Shifting Cultivation. He also discussed the evil effects of jhuming, the problems of replacing jhum, socio-economic conditions of jhuming areas and alternative to jhuming in North East India. He suggested that the best way is to evolve ways and means to minimise the evils of jhuming.

Saradindu Bose (1976) studied the nature and extent of shifting cultivation with a case study of Juang tribe in one village of Orissa. He analysed the demographic profile of the population, land use pattern, loan pattern and cropping pattern. He observed that there is a tendency among the Juangs to concentrate their agricultural activity more on the plains of the valley bottom and prefer wet cultivation. He also suggested measures to control shifting cultivation.

Satya Dev Jha (1976) analysed the linkage between socio-cultural life of the people of North East India and jhuming. He also made a comparison between the food grains production under shifting cultivation and the population dependent on it, and the effects of jhuming. He emphasised the need for educating and properly guiding the jhumias to adopt the modern methods of permanent culture and scientific cultivation.

A.K. Agarwal (1980) analysed the process and jhum cycle, cropping pattern, extent, and observes views about jhuming in North East India. He also dealt with the produces and effects of Shifting Cultivation, the scope of settlement of jhumias in the region and programme for improvement on jhuming for high production and Permanent Settlement was also analysed. He observed that the alternative system of farming to replace jhuming to permanent cultivation should be in a planned manner with the policy of persuasion, demonstration and fundamental research of applied nature to win the confidence of jhumias.

F.K.Wadia, (1980) deals with cropping pattern jhum cycle, and schemes proposed for fifth Five Year Plan for the control of Shifting Cultivation in Assam Meghalaya Tripura and Mizoram. She also analysed two views of the debate on Shifting Cultivation. The observed that a programme that could inducted for the control of Shifting Cultivation is the Small and Marginal Farming Development Agency (SMFDA) with proper agricultural extension service which could provide improved irrigation inputs such as seeds and fertilizers, marketing of produce, easy availability of credit.

N. Patnaik (1982) analysed techniques and methods of shifting cultivation, area under shifting cultivation agricultural opportunities of terraced cultivation,

cropping pattern, jhum cycle economics of shifting cultivation of Soaras of Ganjam district, Orissa. He observed the devastating effects of shifting cultivation and recommended that in spite of the peoples resistance to switch over from jhuming to terrace cultivation people may be approached and persuaded to stop practising shifting cultivation and cultivation of hill tops should be banned forth with.

Pearson Hungyo (1982) discussed land tenure, the process of jhuming, jhum cycle, and cropping pattern, reasons for persistence of shifting cultivation etc in Nagaland. He observed that people realise the necessity of leaving the old method of slash and burn cultivation in future to cope with the problems of population increase. He also observed that marketing facilities and roads and communication are not properly available in this area.

Saradendu Bose, S.Ghatak and R.K Bera (1982) analysed ecological background of the regions under shifting cultivation, regional variation of land use practices, jhum cycle, cropping pattern, rainfall, density of population in North East. Even though shifting cultivation is accepted as a primitive system of land use by which soil fertility degenerates, he observed that it is not always destructive and it had its own merits too. He suggested that the region should be studied thoroughly from an insider's view through case studies among all communities to quantify the nature of the regional problems and based on that local remedies solution for evolving practical recommendation could be work out.

A.K. Agarwal (1985) analysed the process of Jhum Cultivation in North East Region, jhum cycle, cropping pattern, inputs of labour and productivity. He stressed the adverse effect of jhuming mainly that of soil erosion. He suggested for alternative

farming system like animal husbandry and settle cultivation for rapid economic development of the region.

S.P. Shukla and A.K. Agarwal (1986) observed jhuming as a system indigenous form of agriculture. They analysed the process, jhum cycle, and the role of NEC for the settlement of jhumias, and the consequences of jhuming. They also suggested for making by the jhuming enlightened about the balance of equation and of accepting the best part of jhuming instead of condemning it.

Sachchidananda (1989) discussed the geographical spread, typology, demographic distribution, ethnic composition of shifting cultivators, and reviewed of government policies and programmes related to shifting cultivation. He also analyzed the people's perception and attitude towards shifting cultivation. He made a plea for reviewing shifting cultivation not only as an economic activity but also in its specific historical and socio-political contents, and advocates improvement in its methodology so that its yield is increased and damage to the environment minimised. He felt the need for continuing jhum cultivation not only for emotional and socio-cultural considerations but also for the best economic opportunities it has in certain relatively remote and sparsely populated pockets.

R.N. Prasad and A.K. Agarwal (1991) analysed the governments programme of jhum control in Mizoram. Based on survey conducted in two villages, the author observed that the beneficiaries of the government's programme or project have stopped cutting jhum but the amount provided to them against work programme was not sufficient to engage all the working member of a family throughout the year. They also observed that one of the factors of failure in jhum control was lack of good communication in rural areas for marketing the products. They observed the issue of

land settlement certificate or periodic pattas to the settled cultivators, horticulturist, dairy farm owner and cash crop planters have proved very beneficial to divert jhumias from wasteful jhum cultivation.

K.N. Ninan, (1992) analyses the economics of Shifting Cultivation vis-à-vis settled cultivation in north east India, with the help of micro-level data and information available in the studies conducted by some agro- economic research centres. He also analysed productivity of crops and returns from crops under jhum and terrace cultivation. He observed that settled (terrace) cultivation is not as renumarative as shifting cultivation. He suggested that the strategy for hill area development in India which has hitherto focused on the narrow issue of drifting versus settled cultivation should shift its emphasis to the larger and more relevant issue of diversification of economic activities in the hill regions, which holds the key to the future and economic prosperity of hill and tribal regions.

P.S. Datta (1992) analysed the area under jhum in North East India, Jhum Cycle, number of families practising Shifting Cultivation. He asserted that the most remarkable feature of shifting cultivation is almost all varieties of cereal and vegetable are grown in one jhum field which is rather impossible to have in wet plain land. He observed difficulties in replacement to jhuming with terraces in certain regions with loose soil, its expensiveness and maintenance in rainy season. He suggested a re-orientation of analysis of shifting cultivation from deploring the practice as right and left of technological and scientific knowledge towards making the system more productive.

Husain Majid (1993) examined the jhuming scenario with a focus on the agricultural operations, rotation of crops, jhum cycle and the ecological consequence

of the existing utilisation of soil and forest resources in Nagaland. He was of the view that primitive technique of land utilisation in jhuming leads to many ecological crises and creates many socio – economic problems. Despite all the shortcomings, he observed that jhuming cannot be stopped completely as the lifestyle and cultural ethos of the tribal people of Nagaland is closely governed by jhuming operations. While introducing any innovation in jhuming, he suggested that it must be born in mind that the suggested changes and prepared policies should be socially acceptable, economically viable and environmentally sustainable.

Husain, Zabid (1993) analysed the place and role of Shifting Cultivation in eco-development and whether it is a stumbling-block or not in N.E. India observed that Shifting Cultivation is not a stumbling block in the development of ecosystem of North Eastern India provided it is practised on limited area with long jhum cycle. He is of the view that since Shifting Cultivation is a means of subsistent it cannot be given up rapidly. He suggested that the existing optimum laid of resource utilization under jhuming has to be reset at higher level but without disturbing the ecological balance and the future technology must to the traditional people and local environment to ensure on overall eco-development.

S.N. Chatterjee (1993) talked about three types of jhumias in Tripura viz, Pure Jhumias, Jhumias by choice, and Incipient Sedentary farmers, the operation of jhuming, cropping patterns and the effects of jhuming in Tripura. He observed that jhum Cultivation has deeper roots in the socio-economic life of different tribes and hence no common scheme is suitable for dealing with the problem. He suggested that based on agro-climatic Conditions, culture and behavioural pattern a mix activity such as terracing plantation, forestry etc. should be advocated.

Malabika Das Gupta (1994) analysed number of jhumias, viability of jhuming, characteristics of jhuming and jhum control and jhummia rehabilitation schemes in Tripura. According to her the relief for rehabilitating Jhumias have mainly concentrated on giving them ownership rights over land for practising settled cultivation or growing cash crops. She felt that this policy might create new vested interest among the jhumias by developing a new set of land relations among them.

William E Hyde et. al, (1996) in their studies said that traditional populations use the forest without destroying it. These populations have a deep understanding of the importance of nature to their society. Generally, traditional populations have survived by taking their food from the forest and by using the forest in a way such that there was no threat to the balance between entropic actions and nature. They lived by hunting, fishing and extracting (gathering) from the forest. Growing populations, increasing food consumption, and government policies that encourage agriculture all generate increasing demands for commercial agricultural land. They also push populations of shifting cultivators farther into the forested interior, where soils are often thinner and the shifting cultivators must either move and clear the forest more frequently or manage an increasingly degraded environment.

L.K. Jha (1997) discussed a comprehensive account of socio-economic and bio-physical problem associated with shifting cultivation in India particularly in North East India. He also discussed steps involved jhum cycle, cropping pattern, productivity effects, rites and virtual in Shifting Cultivation. He also covers socio-culture profiles and land development schemes to rehabilitate jhum farmers. He suggested measures to minimized or eliminate Shifting Cultivation. He observed that allotment of permanent land and demonstration of alternative models to the jhum farmers is necessary to minimize the practice of jhum cultivation.

Thangchungnunga(1997) analysed the history of shifting cultivation, the allotment of jhum plot, the process of site preparation, the labour of planting weeding and harvesting, tools and implements used etc. in Mizoram. He also discussed the institutional aspects of agricultural development in Mizoram, viz., agricultural finance, supply agricultural credit, etc. He suggested full and effective implementation of New Land Use Policy (NLUP) to facilitate application of better farming technology.

Mertz et al. (1999) viewed that the system certainly alters forest composition, but not as radically as agricultural land development, which leads to conversion of forest to permanent fields. Moreover, shifting cultivation is changing rapidly in many areas, partly because of population pressure and partly because livelihood strategies are diversified to include permanent cultivation of cash crops and off-farm work. The result is often a reduction in fallow periods rather than expansion into new areas of primary forest because villages are generally permanent - whether by choice or force – and distant areas are unattractive for farming.

P.N.Singh, Pramod Kumar, and D.N.Verma (2000) analysed the effect of Shifting Cultivation, effort on jhum control and agro-based industries as an alternative to Shifting Cultivation. They observed that Shifting Cultivation is no more profitable and suggested the suitability of effective development of agro-based industries such as Industries based on essential oils and medicinal plan and Fruit based industries for curbing the traditional Shifting Cultivation practices in North Eastern Hill Region.

A.K.Sinha, B.G.Beweryee. and R.N Vashisht (2004) discussed the origin, and essential pattern of shifting cultivation in North East India, regions and populations depending on it and reasons for continuing shifting cultivation. They observed that

studies from some of the villages in North East India do not reveal any distinct advantage of settled cultivation over jhum cultivation in terms of their economic return. They are of the view that finding alternative blue print for tackling the problem of shifting cultivation is difficult.

D.N. Borthakur (2002) discussed the method followed in Shifting Cultivation, cropping pattern, jhum cycle and attempts of jhum control in North East India. He also analysed research on jhuming and course out with two approaches – Improvement Approach and Replacement Approach. He observed that it is not possible to do away with jhuming in one stroke as it is very deeply rooted among the people who practiced it. He suggests that research must be strengthened and geared upto fund solution to meet all the Environment of the multifaceted problems of Shifting Cultivation. He observed that the word important entry point to achieve success in involving farmers and executing the alternative farming systems are awareness, irrigation and market.

Mertz (2002) in a study mentioned that yield levels in shifting cultivation are influenced by a wide range of biophysical, socioeconomic, and cultural factors. Several studies found no relationship between fallow length and yield, but these also lack information to verify the validity of the data. It is concluded that empirical studies focusing on this problem are needed to fully understand this relationship and develop feasible scenarios for the numerous attempts at modeling shifting cultivation development and it is difficult to isolate fallow length as a single determining factor. Rethinking the relationship between length of fallow and crop yields in shifting cultivation, he questioned the theory that a correlation between shortened fallow periods and yield decline in shifting cultivation exists. This relationship has been taken for granted, and because it shows that shifting cultivation will break down under

pressure, it has partly been responsible for negative government views on shifting cultivation.

Retna Raj (2003) marked that cropping pattern is conditioned by the geographic and natural features specializing in cultivating different crops. The geographical features have also very much favored the diversified land use pattern as well as diversified occupational pattern. The expansion of plantation sector in the forest region of Malabar attracted many enterprising cultivators (majority being Syrian Christians) of Travancore during 1920s. Unlike other states, the agriculture sector in Kerala has been dominated by commercial crops like coconut, rubber, tea, coffee and spices. There has been drastic shift in the cropping pattern over the decades. As a result of this commercial crops like rubber and coconut have substantially increased in the area coverage.

Seidenberg *et.al*., (2003) in their studies based on a case study of three villages in northern Lao PDR, surveying with a remote sensing based analysis of forest cover during the period 1989-1999, in order to analyze changes in shifting cultivation practices and livelihood strategies and the impact of these on deforestation. Shifting cultivation is often blamed for deforestation in tropical upland areas. They found out that shifting cultivation causes temporary deforestation during the cropping period, but allows for re-growth of secondary forest. Secondary vegetation exists in many different stages in shifting cultivation areas, and while lacking the conservation and carbon storage value of mature forest, it usually provides better ecosystem services than permanent farming. A reasonable measure of deforestation processes in a shifting cultivation area is therefore the increase in aggregate areas under annual cultivation.

Suguna Pathy (2003) argued that shifting cultivation is not solely responsible for deforestation, but the inherent structural factors are instead. Precisely, as forest resources can be managed with the people's involvement towards balanced utilization, subsistence and survival. Forest is the main source of food, shelter, culture and tribal corporate ethos. Besides it is a resource system for survival where the market economy fails. Several studies reveal that tribal people are slowly losing control and command of their traditional rights over the natural resources.

Ickowitz, (2004) in their studies clarify that a major consequence of declining fallow lengths is said to be deforestation. The idea is that when the fallow length becomes too short, the soil can no longer regenerate adequate fertility to support forest vegetation. While few of the reviewed studies provide data to show that fallow lengths have in fact declined anywhere, none provides evidence to show an overall decline in fallow lengths in tropical Africa. Farmers have continued to practice shifting cultivation and according to many, the practice has become more destructive (through the declining fallow lengths) so it would seem logical that there would be a steady, if not dramatic, change of forest into savanna. He also argued that the extent of deforestation in West Africa has been greatly exaggerated. They use historic al data, accounts from current inhabitants, aerial photographs, and satellite images to show that deforestation in West Africa is only about a third of what has been estimated and cited by most agencies.

2.2. Studies on Agrarian Change and Tribal Development

P.C. Joshi, (1969) emphasised the importance of the study of agrarian change in the analysis of political change or the agricultural transformation or changes in social institutions and values in India. In his opinion knowledge on the type or types

of agrarian social structures existed in India before independence is lacking. Lack of a very clear perception of the characteristics of the agrarian structure is wanting in the sphere of planning for rural change. He also that there has always existed a great hiatus between the images of the agrarian social structure in the minds of different sections of the political elite on the one hand and the actual conditions of agrarian society on the other. According to him the study of the agrarian social structure is primarily the study of groups connected with land. How to identify these groups and what concepts and categories to adopt for this purpose so as to capture as many features of reality as possible is the central question in any study of the agrarian social structure. Since land constitutes the chief basis of productive activity in the rural society, the formation of groups is primarily connected with the differentiation of rights over land. The agrarian structure can therefore be further defined in terms of the relationship which exists between those who have command over land and those who operate this land by supplying labor power for productive activity.

Khoda Newaj(1975) highlighted that in certain transformation of agrarian relations that has taken place in the Birbhum district of West Bengal consisting in a replacement of the Kisheni system of cultivation by conventional share cropping or cultivation with the help of hired laborers. Change in the supply of labour. There has been a great increase in the number of landless labourer families. In addition, there is seasonal immigration of labourers from, the adjoining district of Santhal P"arganas. Due to the absence of irrigation facilities earlier it was hardly possible to have a second crop in the district. The Mayurakshi River irrigation system has changed all this and made possible additional crops on a considerable part of the land. The same irrigation system has reduced the frequency of crop failures due to drought. The villagers' impression is that the market prices of crops are less stable nowadays than

during earlier times. This makes the giving of consumption loans to attached laborers, which had become traditionally, accepted as an obligation of the landowner towards the Kishen, less attractive. As such the landowners find it in their interest not to give out any part of the crop by way of share, but to sell the crops at advantageous prices and use the cash to give out loans to casual laborers by way of 'dadan', thereby obtaining control over a com- mitted labour supply. These are the reasons advanced by the villagers themselves. Another set of considerations relate to the change in the cost of production relative to the value of output. However, the relative decline in the profitability of the arrangements surely constitutes one factor, in addition to those cited by the villagers, causing the system to lose its appeal.

R.N. Rai, (1976) analyse land and water resources in North East India. Problems of land and water management like decline in soil fertility due to shifting cultivation land tenure systems and improper land use in North East India were also discussed. He suggested proper management of land and water resources like land use survey, watershed planning and terracing. He also suggested water resource development, provisions of infrastructure, and package of sources for jhum control and alternative farming system to replace jhuming.

Kalita et. al, (1977) in their study of the hill zone of Assam which comprised of Karbi Anglong and North Cacher Hill districts, they find out that the proportion of farm households below poverty line under settled and shifting cultivation and analysis was done by using two situation viz., only food expenditure and expenditure on food, clothing and housing together. On the basis of food requirement, about 43 per cent of the farm households were living below poverty line under settled and shifting cultivation. Across the different farm size groups, the proportion of the farm households living below poverty line under settled and shifting cultivation was

estimated to be the highest (47 per cent) in group-I and group-II farms respectively and lowest (40 and 34 per cent) in group-II and group-III farms. This might be due to increase in the size of land holding, which was the major determinant of farm income besides other sources of income.

P.C Goswami (1980) discussed characteristics of pattern and extent of Shifting Cultivation in North East India. He analysed jhum cycle the average size family farm in jhum cultivation cropping pattern, tools and implement used and the problem and effects of Shifting Cultivation. He also analysed factors in favour of jhuming and steps to control jhuming. He observed that in spite of many drawback associated with Shifting Cultivation, a large section of hill tribes still practice Shifting Cultivation as it is an integral part of tribal culture with many social institutional and economic factors. He also observed that it is not possible to abolish jhuming by legislation or administrative action alone or even by explaining the defects of jhuming and the benefit of settle farming.

S.G Morab (1982) analysed the settlement pattern, forms of land use, process, Cropping pattern, tools and implement used and economic implication of Shifting Cultivation among the hill Soliga tribe in Karnataka. He observed that the Soliga have preference for Shifting Cultivation. He suggested that to improve the economic conditions of the isolated and illiterate tribal people allotment of land and other facilities would bring about changes in the livelihood of them and integrate them with the socio-cultural life of the nation.

Dipankar Gupta (1986) in his field study on the Integrated Tribal Development Project (ITDP) in Birbhum District of West Bengal. It also discussed the incongruities in the ITDP administrative structure, the lack of control over resources, the complete absence of popular initiative, the non-involvement of popular

bodies, and the complete failure of its monitoring system. This study underscores the fact that developmental programmes which skirt around political issues have limited potentialities. The tribals were provided with lots of programmes designed for economic protection; programmes designed for economic uplift; programmes designed to involve tribals in the decision-making process and to promote popular participation; and prorammes to further social service facilities to tribals in order to render both humanitarian service to them which was hitherto unavailable, and to overcome the handicaps the tribals face in terms of skills required to promote themselves economically in the contemporary world. But According to the sub-plan of West Bengal the tribal earners are encouraged to engage in agriculture, forest, and livestock. But the tribal still lived in poverty as they faced problem in irrigation, supply of raw materials, fertilizers etc. But it may be noted that the issue of alienation of tribal lands in the strict sense of the term does not arise in this region, as it does in Orissa, Bihar, and Madhya Pradesh because Birbhum's tribal population is composed entirely of migrants, though they are not recent migrants. The kind of initiative and programmes that are required in other states for the protection of tribal lands and forests are, therefore, not necessary here.

Husain Majid (1993) examined the jhuming scenario with a focus on the agricultural operations, rotation of crops, jhum cycle and the ecological consequence of the existing utilisation of soil and forest resources in Nagaland. He was of the view that primitive technique of land utilisation in jhuming leads to many ecological crises and creates many socio – economic problems. Despite all the shortcomings, he observed that jhuming cannot be stopped completely as the lifestyle and cultural ethos of the tribal people of Nagaland is closely governed by jhuming operations. While introducing any innovation in jhuming, he suggested that it must be born in mind that

the suggested changes and prepared policies should be socially acceptable, economically viable and environmentally sustainable.

Pandey(1994) pointed out that the agrarian structure in colonial India was an admixture of feudal relations of productions and hybrid bourgeois property right on land. At the same time, the development of irrigation facilities and cultivation of commercial crops has been taking place since the late 19th century as subsistence agriculture had started providing space to market-based production under the aegis of 'colonial modernization and the resultant change in agriculture. The objective of the land reform measures in the main was to remove some of the vestiges of an outmoded order which had so long hampered progress and to allow land ownership to go into the hands of cultivators. The measures have left large sections of the small peasants, poorer tenants and landless laborers deprived of their due shares in agrarian production and benefits. It is of relevance here to see the exact nature of land reforms and co-operatives under 'mixed economy' which are quite distinct from collective/communal ownership, farming and distribution.

Girindra Nath Das, (2001) deals with the various aspects of Shifting Cultivation with reference to N.E. India general and Assam in particular. He also discussed an ethnographic note on the Karbis highlighting their life and culture occupational structure, land holding pattern; extend of influence of income and expenditure among the people. He also assessed different jhum control measures in the hill areas of Assam and the overall impact on the Karbis. He suggests some measures for effective implementation of jhum control programmes. He observed that even though it is a source Shifting Cultivation lands to soil erosion destruction of forest and low land of productivity.

Sethi(2001) held that the direction of land politics and land reform in India will continue to be one of struggle and hope. It will be important to widen the scope of land reforms beyond the mere activity of redistribution of land or revisions of ceiling limits. In order to be effective, land reform must be seen as part of a wider agenda of systemic restructuring that undertakes simultaneous reforms in the sectors of energy and water. Deeper structural reforms will ensure that the exercise of land redistribution actually becomes meaningful, enabling small farmers to turn their plots into productive assets.

Rao (2003) in his study on the life and livelihood of Santal Parganas focused on commercialization, export orientation and market development in agriculture and industry. A stated priority of land reform in the Santal Parganas is distribution of surplus lands to the landless. The task of distributing the land and fixing the rent payable amongst the 'raiyats' (cultivators) was left to the headman. With the stability of tenure and fixity of rent provided by this settlement, occupancy and cultivating rights became valuable. The studies also found out that to overcome the usury laws and the restriction on interest rates, peasants repaid debts with their land. Transfer of substantial parts of the paddy-growing lowlands followed, from Santals to non-Santals.

Retna Raj, (2003) in the traditional rice-based agricultural system of Kerala land was in the hands of a few households especially with the upper castes. Traditionally landholding was a major trait of status symbol and possession of land was solely confined to upper castes communities. However the pattern of land relation was not unique. It differed in three regions of Kerala. Due to the earlier phase of the land reform legislations in 19th and 20th centuries and the disintegration of matrilineal joint families, Christians and the advanced among the enterprising

backward classes gained ownership rights especially in Travancore and Cochin. The implementation of the land reform programmes of the Kerala Government subsequently brought out further changes. Data regarding the land holding pattern indicates that there is notable reduction in the land size over two successive generations. If the same trend persists over the next generation, majority of the farming households will be forced to pursue non-agricultural occupations to maintain their livelihood. The reduction in the size of the land will have serious implications in the livelihood choices of the agrarian households. One of the immediate consequences would be the tendency to aspire for supplementary occupations or leaving farming altogether.

Seidenberg, (2003) in his analysis of India's land reform program, most international financial institutions have highlighted the basic problems that rural poor people face is accessing land and security of tenure, and they advocate redress of this situation through the structural reform of property rights, to create land markets as part of a broader strategy of fostering economic growth and reducing rural poverty. While the revolution did ease India's grain situation and transformed the country from a food importer to an exporter, it also enabled the rich farming community to politicize subsidies, facilitate concentration of inputs, and increase dependence on greater use of capital inputs such as credit, technology, seeds, and fertilizers. Moreover, the green revolution had increased Indian food production. A large emphasis has, therefore, been placed on the need to establish the basic legal and institutional framework that would facilitate a market takeoff in land and resource exchange. The studies suggest for commercialization of agriculture which gained a foothold in India first in the 1960s, with the green revolution in Punjab, when the World Bank, along with the US Agency for International Development (USAID),

promoted agricultural productivity through importation of fertilizers, seeds, pesticides, and farm machinery. Farmers rate scarce labor as a major constraint on shifting cultivation nonetheless, a tendency towards lower labor input with shorter fallow periods is observed, shifting cultivation is likely to remain the most suitable farming system in the near future.

Ajami (2005) in his study on Land-reform program of the 1960s and the 1979 revolution found that it represent the primary turning points in the rural transformation. and reform, through intense state intervention, dramatically changed the traditional landlord share cropping system (nizam-i arbab-rayati) Peasant uprisings, the forcible occupation of large estates, and the agrarian policies of the post revolutionary regime have led to the demise of the urban agricultural bourgeoisie and the empowerment of the peasants. Agricultural production depended heavily on irrigation, the water being supplied by both the Sivand River and twenty-seven irrigation pumps tapping groundwater. The cropping pattern, mainly wheat, barley, and sugar beets, had changed little over the previous decades, except that the cultivation of melons had increased considerably. However, not all rural households benefited from the land reform. Due mainly to the scarcity of agricultural land, some 35 percent of the households from the studies did not hold cultivation rights (nasaq) were mostly employed in agriculture as wage laborers (khwushnishins) and were not included among the beneficiaries of the land-reform program. The implementation of land reform reinforced the trends toward development of capitalist agriculture adopting new agricultural technologies and increasing crop diversification. Most studies contend that the land-reform program did not succeed in improving the living conditions of the majority of the peasants and, in fact, was a major contributing factor to Iran's agricultural stagnation. The dramatic rise in yields is primarily the result of

the adoption of Green Revolution technologies, especially fertilizers and high-yielding seed varieties, and increased investment in irrigation pumps. The emerging production system is a shift from peasant labor–intensive agriculture to mechanized commercial agriculture and from large urban (absentee) landlord capitalist farming to small and petty capitalist farmers.

Mohanty (2005) in their studies on development on tribal pointed out that after independence when India launched the task of nation building; it chose the path of planned development. This was flagged off with the launching of Five-Year Plans. Since economic development was conspicuously poor, planners focused more on economic development defined mainly as the growth of GNP, which was symbolized by new factories, dams, mega projects, mining. The state has not taken this enormous problem seriously. The continued existence of the certain problems highlights the absence of an effective policy, and thus calls for in-depth research which in turn would improve the formulation of development and resettlement policies. He argued that displacement caused by large development projects has actually resulted in a transfer of resources from the weaker sections of society to more privileged ones. This has generally been the case with India's development model. Development projects have done little to alleviate existing social inequalities. On the contrary, they have further aggravated the social structure in favor of the already socially, economically and politically powerful.

Rath (2005) studied the historical aspects of land alienation among the Kandhas, the largest tribal group in Orissa and known for their daring and assertive attitude since centuries.

Panda, (2006) in highlighted the need for tribal development. Also mentioning that their primitive way of life, economic and social backwardness, low level of

literacy, hackneyed system of production, absence of value system, sparse physical infrastructure in backward tribal areas and demographic quality of tribal areas coupled together make it imperative for a systematic process of development of tribal and tribal areas. Raising their productivity in agriculture, horticulture, animal husbandry, forestry, cottage, village and small industries and provision of employment in all seasons will go a long way in reducing the incidence of poverty of Scheduled Tribes. However, creation of employment potential during the slack season is a prime need to ward off starvation for a few weeks in a year, which is a normal feature in some tribal areas. There should be provision of capital inputs, technology, marketing, training etc. to augment production in tribal areas. Implementation of effective programmes may go a long way in removing poverty to a great extent. There is, thus, a continued emphasis on raising the levels of productivity and creation of employment opportunities. This, in turn, will call for higher investment by way of special central assistance, flow from state plan, from financial institutions and central sector projects. This is inevitable as with increased price levels, a much higher investment would be necessary for a family in order that the assistance can have a dent on poverty and enable the family to have a sustained but reasonable level of income to cross the poverty line. These are the basic needs for any developmental effort in the tribal areas. Unless the forces of destabilization are checked and corrective measures applied, the provision of social and economic services will not have any significance. The levels of socio-economic development vary considerably between nontribal and tribal population, between one tribe and another tribe and even among different sub-groups of a tribal group.

S.L.Rao et. al (2006) argues that tribal development strategies need to go beyond land-based livelihoods and aim at emerging areas such as human capital,

infrastructure, food security and employment generation. Positive discrimination has great potential but the policy still needs to be more inclusive. Empowerment of tribal women through self-help groups has shown the way in several locations. During the second-half of the 19th century, the British started an indirect rule in tribal tracts of the coastal districts through feudal intermediaries such as 'zamindars' and 'muttadars'. Moneylending is among the earliest routes through which tribal land has been alienated in Andhra Pradesh. Non-tribal settlers advance petty cash to tribal taking tribal land as collateral. Loss of land has led to major changes in the livelihood pattern of tribal people. A major consequence is the growing number of agricultural laborers, an indication of the "depeasantization" process. The census data also shows that the proportion of agricultural laborers among the STs is on the rise. The alienated land cannot be restored because of legal loopholes, non retrospective land regulations, powerful outsiders and a continuing lack of political commitment to protecting tribal rights. Most non-tribal manages to hold on to their land by obtaining stay orders or producing false documents. So their studies suggest that Tribal development strategies, while respecting customary rights and tribal values, need to go beyond land-based activities. Human capital education and health in particular infrastructure, employment guarantee and food security are emerging as critical factors. Positive discrimination programmes have great potential to empower the STs.

Zaitinvawra and Kanagaraj (2009) attempted to study the changes in the agrarian structure in the wake of switch over from shifting cultivation to settled agriculture in Mizoram. They found that as a result of switch over from shifting cultivation to semi settled agriculture significant and substantial changes in the agrarian structure, tools and implement use, cropping pattern, input use, and perception of the farmers on the social ecological consequences undergo sea change.

Yet no significant difference in the income of the cultivators was observed by them.. In agrarian structure, the size of land holding had increased significantly but there was no change in the actual size of the land being cultivated (operational holding). In contrast to the expectation of reduction in the tools use significant increase in the total number tools and implements used was observed. The number of forest clearance tools and harvesting tools did not significantly decrease as expected. On the other hand, the number of weeding tools and land preparation tools has increased significantly. As switch over from shifting cultivation to semi settled agriculture occurs, the cropping pattern also undergoes significant and substantial change. Though the number of crops did not change significantly as excepted there is a qualitative transformation from subsistence to commercialization takes place. The number of subsistence i.e. food crops meant for household consumption decreased significantly while that of commercial crops i.e. vegetables and fruits increased significantly. As regards input use in cultivation no significant changes were observed in the seeds use, while there were significant changes observed in the case of organic and inorganic input use and labour use. The frequency of use of local seed as well as HYV seed did not change significantly. Unexpectedly use of both organic and in organic input use have increased significantly. As regards labour the frequency of use of both family labour as well as hired labour did not significantly change. But in the labour use the frequency of use of male labour did increase though the female labour use frequency did not change significantly. As regard standard of living of the cultivators the statistical analysis indicated no change in the income of cultivators as result of the switch over to semi settled cultivation though cropping pattern, tools use, inputs use and labour use have changed significantly. The farmer's perception on the problems of shifting cultivation seem to have changed due to the switch over

significantly with regard to the social ecological consequence but not with regard to the personal difficulties. Interestingly, a greater realisation of the social ecological consequences of shifting cultivation was observed due to the switch over to semi settled agriculture.

The review of literature presented above suggests that there is a copious literature on shifting cultivation the focal issue of the study. In the different tribal zones of the country attempts has been made to study the various aspects of shifting cultivation and their bearing on culture, livelihood and living conditions of the tribal people. In spite of the fact that the problem is widely and intensively studied, a few research gaps could be observed.

Firstly, there are a few studies on the actual living conditions of the tribal people involved in shifting cultivation. Secondly, there a few studies which actually assess the changes in the living conditions of the people in wake of their switch over to settled cultivation though majority of the scholars criticize this livelihood option of tribal masses in the difficult hilly terrain as ecologically unsound and economically not feasible. Thirdly, though the Government of India and other state governments are pumping crores or rupees for control of shifting cultivation and implemented a number of programmes over many decades, there are a few studies which empirically assess empirically assess their effectiveness and found their impact on the tribal living conditions. Fourthly, there a few studies on shifting cultivation in Mizoram. The lone empirical study which attempted to probe into the changes in agrarian structure and living condition has limited generality as only one village was studied in the vicinity of Mizoram. Further in this study, the concept of living condition or development was assessed in terms of a single indicator i.e. household income. The present is a modest attempt to address these research gaps by comparison agrarian

change and living conditions of two tribal villages in Mizoram representing the two modes of cultivation shifting and settled.

In this chapter an attempt has been made to present the review of literature and the research gaps therein. In the next chapter the methodological aspects are presented along with the setting of the study.

In the previous chapter the review of literature and research gaps were presented. In this chapter an attempt has been made to present the setting of the present study and methodological aspects of the present study are presented. This chapter has been presented in three major sections viz., the setting, objectives and methodology.

3.1. The Setting: Profile of Study Villages

For profiling the village communities, key informant interviews and participatory research methods as well as available secondary data with the village council was mainly used for profiling of community. Key informants interview at tea stalls and Bazar were conducted to have better understanding of the two communities. Participatory research methods of social map and seasonal calendar were used to understand the spatial and temporal features of the two villages. Social Mapping exercise was conducted in the two villages at Lungdai and Sesawng. A group of elder people and leaders of the organization were the participants so the information were relevant and reliable. The map was prepared by the local people on 7th June 2010 at Lungdai which is settled agricultural village and on 14th June 2010 at Sesawng which is shifting cultivators' village. The members were 13 members at Sesawng and 12 members at Lungdai. Different age group from adult to elderly participated to get rich information, in the mean time women were also participating as the women took major role in the process of cultivation. Seasonal diagram of two villages that is Sesawng and Lungdai were prepared by the key informants. The table was prepared by the local people on 7th June 2010 at Lungdai and on 14th June 2010 at Sesawng. The members were 13 members at Sesawng and 12 members at Lungdai after preparing social map. The original table was written in Mizo language which was translated into English.

3.1.1. Lungdai: A Settled Agriculturists Village

Lungdai Village is part of Kolasib District. It was established in 1908. It was located at a 30 km away in the northern side of Aizawl which is the capital of Mizoram. The proportion of female population was almost the same to male. As this village is a close knit community we observed little variety of church denominations where Presbyterian is the main denominations.

We could observe the households' access to government services in the community indicating that people in community have more access to the government services and banking system also. But there was no educational institution above matriculation which lower the educational status and more drop out after matriculation in the community. The percentages of households possessing the assets such as television, owning septic tank, vehicle, electrified house and vehicle were quite high as compared to the other villages. This indicates that the people in this community have better living condition (see table 3.1).

This community could be called a settled agriculture village as some few migrants practicing shifting cultivation. Most of the land were under Land Settlement Certificate and Periodic land pass from village council. The main crops cultivated in the village was squash in which the community was known for it. Most of the cultivation and crops were commercialized (see Figure 3.1).

Table 3.1 Lungdai Village

District	: Aizawl	
Location	: 30 KM in the northern side of Mizoram	
No of households	: 520	
Population	: Male	: 1280
	Female	: 1230

	Total : 2510
Cultivator	: 255 Households
Livestock Rearing	: 70 Households
Government Servant	: 98 Households
Business	:28 Households
Daily Laborers	: 34 Households
Others Occupation	: 35 Households
Phone	: 500
Gas Connection	: 510
Television	: 434
Vehicle	: 389
Septic tank	: 500
Electrified	: 490 Households
Educational Qualification	: Class X : 210
	Class XII : 100
	BA : 70
	PG : 16
No of Primary School	: 3 Government and 1 Private School
No of Middle School	: 2 Government and 1 Private School
No of High School	: 1 Government School
Government Centers	: Sub Centre, Post Office, Sericulture Department
	Food and Civil Supply, P.H.E , Rural Bank
	Agriculture Department , Horticulture Department
	Power and Electricity, AH and Vet. Department
	Telecom Department

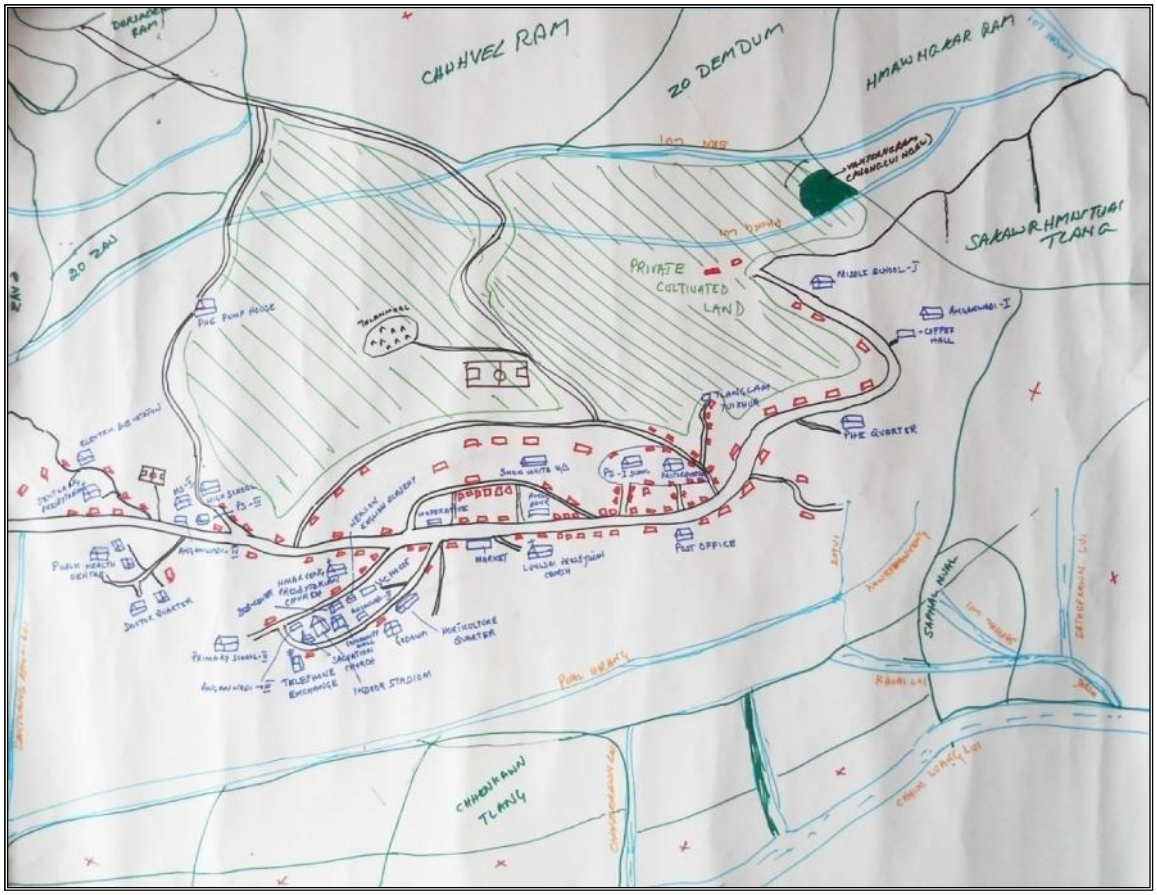

Figure 3.1. Lungdai Village

1.2. Seasonality, Agricultural Activity and Type of Food

From seasonal calendar of the Lungdai village we could observe that the activity of settled agriculturalist was adjusted mainly on the basis of crop cultivated in their land. The activity of sowing, weeding and harvesting took place according to the seasonality of crops. Sometimes the process of cultivation come at the same time while it is weeding time for the squash cultivation it was sowing time for bean and other winter crops.

Table 3.2 Seasonal Diagram of Lungdai Village

Month	Activity	Type of Food
January	• Laboring • Rearing animal(pig, cow, poultry) • Looking after their land • Collecting firewood • Harvesting coffee • Preparing land for bean cultivation	• Zikhlum, tomato, parbawr, bawkbawn, bean, alu, antam, dal, behlawirep, rawtuai rep, bepui, aidu, tumbu
February	• Laboring • Clearing Forest for cultivation • Cleaning land for cultivation • Rearing animal(pig, cow, poultry) • Sowing chili and samtawk • Harvesting coffee and ginger • Collecting Aidu and Tumbu from forest • Rearing animal(pig, cow, poultry)	• Bean, zikhlum, parbawr, bawkbawn, alu, antam, dal thlairep
March	• Laboring • Burning land for cultivation • Sowing seeds • Collecting firewood • Harvesting coffee and ginger • Collecting Aidu and Tumbu from forest • Cleaning land for cultivation • Rearing animal(pig, cow, poultry)	• Antam rep, phaithlai, bamboo shoot, alu, dal, aidu, tumbu, khanghu, thingthupui, phuihnam,
April	• Laboring • Collecting firewood • Burning Charcoal • Weeding • Sowing Buhban (Traditional Rice) • Harvesting Ginger • Harvesting Coffee	• Bean, Dal, Alu, Nutrela, Khanghu, thingthupui, phuihnam, Bambooshoot, vegetables from their fields.
May	• Laboring • Collecting firewood • Weeding • Voluntary work in community • Preparing place for Squash	• Bean, Dal, Alu, Nutrela, Khanghu, thingthupui, phuihnam, Bambooshoot, squash, behlawi, vegetables from their fields.

	• Harvesting Coffee and Ginger • Harvesting corn	
June	• Laboring • Weeding • Collecting firewood • Preparation of land for winter crops	• Fanghma, Samtawk, Brinjal, Lengser, anthur, corn, Bean, Dal, Alu, Nutrela, Khanghu, thingthupui, phuihnam, Bambooshoot, squash, behlawi, vegetables from their fields.
July	• Weeding • Laboring • Rearing animals • Harvesting squash and Bean • Cleaning rotten leaves of squash	• Baibing, ankasa, Pumpkin, Fanghma, Samtawk, Brinjal, Lengser, anthur, corn, Bean, Dal, Alu, Nutrela, Khanghu, thingthupui, phuihnam, Bambooshoot, squash, behlawi, vegetables from their fields.
August	• Weeding • Preparing land with manure • Rearing animals • Laboring • Cleaning rotten leaves of squash • Harvesting squash • Collecting firewood	• Pumpkin, Baibing, Fanghma, Samtawk, Brinjal, Lengser, anthur, corn, Bean, Bawrhsaiabe, bête, Khanghu, thingthupui, phuihnam, Bambooshoot, squash, behlawi, vegetables from their fields.
September	• Laboring • Sowing bean • Weeding • Harvesting squash • Collecting firewood • Rearing animals • Cleaning rotten leaves of squash • Harvesting Rice	• Mustard, Pumpkin, Baibing, Fanghma, Samtawk, Brinjal, Lengser, anthur, corn, Bean, Bawrhsaiabe, bête, Khanghu, Bambooshoot, squash, behlawi, vegetables from their fields.
October	• Laboring • Weeding • Harvesting squash • Collecting firewood • Sowing Mustard • Preparing land and weeding for Bean • Selling squash • Rearing animals	• Fanghma, Samtawk, Brinjal, Lengser, Anthur, Corn, Bean, Dal, Alu, Nutrela, Khanghu, Thingthupui, Phuihnam, Bambooshoot, Squash, Behlawi, Vegetables From Their Fields.
November	• Laboring • Selling squash, mustard, • Weeding	• Mustard, Pumpkin, Baibing, Fanghma, Samtawk, Brinjal, Lengser, Anthur, Corn, Bean,

	• Collecting firewood • Harvesting rice	Bawrhsaiabe, Bête, Khanghu, Bambooshoot, Squash, Behlawi, Vegetables From Their Fields.
December	• Laboring • Collecting firewood • Harvesting rice, Coffee, ginger • Harvesting squash, bean, mustard • Rearing animals	• Mustard, Pumpkin, Bean, Coffee, Zawngtah, Cabbage, Broccoli, Cauliflower, Chili, Dal, Alu, Squash, White Pumpkin, Bête, Berul

Source: PRA Exercise

3.1.2. Profile of Sesawng: The Shifting Cultivators' Village

Sesawng Village is an old village where many generations of Mizos lived till today. It is a place where Lalburha one of the famous chief of Mizos who along with other seven village chief gathered to oppose the invasion by the British. As it is 48 km north from the heart of Aizawl the capital of Mizoram less government departments were observed (see Figure 3.2).

There was also less government school. This clearly indicates that the people of this community have little access to government services as compared to the other village. Moreover, there was no educational institution above matriculation which lower the educational status of the community. We could observe that the migrant population is increasing due to the presence of Central Training Institute where many family migrated to this village. This on the other side increase the percentages of government servants in the community. The percentages of family assets such as television, owning septic tank, vehicle, electrified house and vehicle were less as compared to the other villages.

It is a traditional village where most of the villagers were depending on shifiting cultivation. Although some few semi-settled agriculture were observed most of them failed because of the lack of irrigation. Shifting cultivation is still widely

practiced. Moreover few people who practice settled agriculture also grow crops like banana and other crops which lasted only for few years. Most of the lands near settlement were owned by the rich people from Aizawl (see table 3.3).

Table 3.3 Profile of Lungdai Village

District	: Aizawl (Thingsulthliah Tlangnuam Block)				
Location	: 48 km North from Aizawl City				
No of households	: 818				
Population	: Male	: 2019	Female: 2056	Total	: 4075
Disabled	: Male	: 24	Female: 15	Total	: 39
Cultivator	: 517 Households				
Government Servants	: 107 Households				
Business	: 23 Households				
Daily Laborers	: 351 Households				
Carpentry	: 14 Households				
Smith	: 6 Households				
Others Occupation	: 79 Households				
Phone	: 474				
Gas Connection	: 404				
Television	: 255				
Vehicle	: 104				
Septic tank	: 210				
Pit Latrine	: 533				
Electrified	: 614 Households				
Educational Qualification	:	Class X	: 95,		
		Class XII	: 70		
		BA	: 36		
		PG	: 6		

No of Primary School : 2 Government and 2 Private Schools

No of Middle School : 3 Government and 1 Private Schools

No of High School : 1 Government School

Government Centers : 1 Sub Centre, 1Central Training Institute

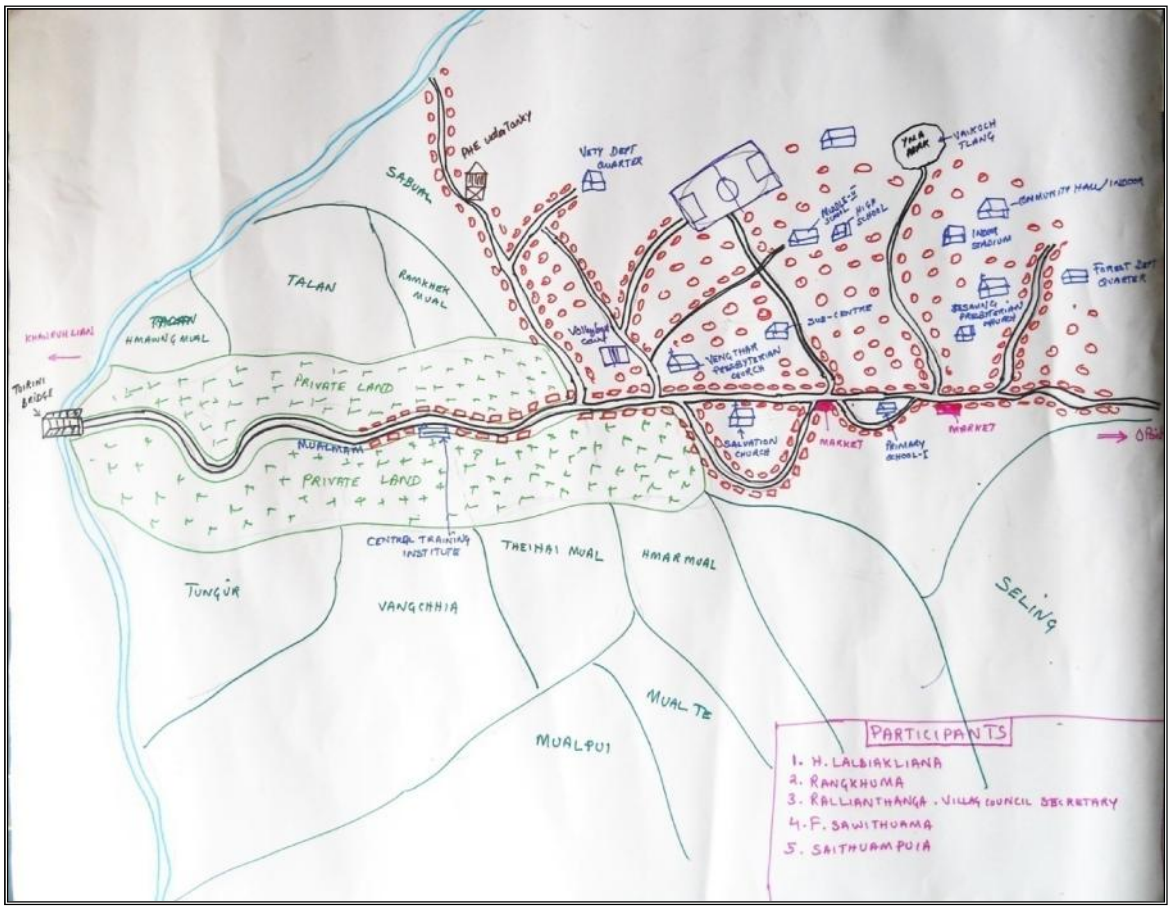

Figure 3.2 Sesawng Village

3.1.3. Seasonality, Agricultural Activity and Type of Food

The activities among the shifting cultivators village was mainly depending on the process of shifting cultivation. Most of their activities revolve around shifting cultivation as the process of shifting cultivation is a whole year process. Most of the land preparation and sowing were mostly at the beginning of the year and weeding and harvesting always at the end of the year. We could also observe that the activity

of settled agriculturalist was adjusted mainly on the basis of crop cultivated in their land. The activity of sowing, weeding and harvesting took place according to the seasonality of crops. Sometimes the process of cultivation come at the same time while it is weeding time for the squash cultivation it was sowing time for bean and other winter crops.

Table 3.4. Seasonal Diagram & Type of Food in Sesawng

Month	Activity	Type of Food
January	• Clearing Forest • Paving approach road for cultivation • Collecting the remaining crop from old field • Laboring	• Bal, Bawkbawn, Behlawirep, Mai, Maipawl
February	• Clearing Forest • Collecting raw material for household purpose. Eg firewood, house building material • Harvesting broom from forest • Fishing • Collecting the remaining crop from previous field • Laboring	• Bal, Bawkbawn, Behlawi rep, Dawltawm, zikhlum, antam, tomato, parbawr, alu, dal
March	• Cleaning cultivation area for to protect wasteful burning of forest • Burning fields • Sowing seeds • Cleaning remaining wood and leaves in the field • Building hut in the field • Repairing houses • Laboring	• Aidu, Tumbu, Bal, Nul antam, alu, dal, nutrela, Iskut, zikhlum
April	• Sowing rice • Weeding of fields • Building hut in the field • Planting ginger • Laboring	• Behlawirah, Chul bawkbawn, Aidu, Tumbu, alu, dal

May	• Weeding • Collecting vegetables and leaves • Laboring	• Antam, maian, alu, dal, berul, changkha, behlawi
June	• Cleaning the approach road collectively • Weeding • Reaping corn • Laboring	• Antam, maian, berul, behlawi, changkha, baibing
July	• Weeding • Reaping corn • Laboring	• Antam, maian, berul, behlawi, changkha, baibing, dal, alu
August	• Weeding • Reaping corn • Harvesting vegetables • Laboring	• Antam, maian, berul, behlawi, changkha, baibing, dal, alu
September	• Harvesting rice • Harvesting vegetables • Laboring	• Antam, maian, berul, behlawi, changkha, baibing, dal, alu
October	• Harvesting vegetables • Preparing place for stocking of rice • Laboring	• Antam, maian, berul, behlawi, changkha, baibing, dal, alu
November	• Harvesting rice • Preparing place for stocking of rice • Laboring	• Antam, changkha, mai, bal, alu, dal
December	• Transporting the harvested rice to home • Harvesting vegetables • Laboring	• Antam, changkha, mai, bal, alu, dal

Source: PRA Exercise

3.2. Objectives

The following are the objectives of the present study.

1. To assess the differential patterns of agrarian structure between the shifting cultivators and settled agriculturists.
2. To assess the ex post impact of switch over from shifting cultivation to settled agriculture on the living conditions of tribal households.
3. To study the perception of the cultivators on the implementation of various jhum control programmes of Government of Mizoram.
4. To suggest appropriate measures for socio economic policy and social work intervention to promote living conditions in the rural areas of Mizoram.

3.3. Methodology

This study is descriptive in design and cross sectional in nature. It is mainly based on the primary data collected through structured interview schedule in two sample villages. In addition, the participatory methods such as social map, seasonal diagram etc. were used to understand social and ecological context of sample villages and cultivation practices.

The study adopted a multi stage sampling procedure to select district, block, villages and households. The study was conducted in Aizawl and Kolasib districts. They were selected in view of the fact that they constitute majority of the rural households in Mizoram. In Aizawl district, one representative village predominantly occupied by settled agriculturists were chosen and in Kolasib district, one representative village predominantly relying on shifting cultivation were chosen purposively. In each of the villages, the lists of very poor, poor and non poor households were collected from the village council presidents. In each of the categories, using systematic random sampling households were proportionately selected.

The quantitative data collected through field survey was processed with computer packages of MS excel and SPSS. To analyse the data cross tabulation, simple statistical methods of averages, percentages, ratios and proportions were used. Apart from that t test and Karl Pearson's Product moment correlation were used.

The present study aims to probe into the impact of agrarian change i.e. the switchover from shifting cultivation to settled agriculture on the development from a

policy perspective. This chapter has been presented in five major sections. The first section is devoted to present the demographic, social and economic structural bases of the respondents and their households. In the second section the patterns of agrarian structure is presented in terms of a number of indicators. The third section presents the discussion on the tribal development in terms of indicators of living conditions. In the forth section probes into the patterns of relationship between the relationship between the indicators of agrarian change and tribal development. The last section presents the perception of the respondents on successive jhum control programmes implemented in Mizoram.

4.1. Structural Bases of Cultivators

In this section, the demographic profile of the respondents, the social and economic structural bases are described.

4.1.1. Demographic Profile of Respondents

The demographic characteristics of the respondents presented are age group, gender, marital status, and education status(please refer table 4.1).

Most of the respondents among 170 samples were the heads of family. The age of respondents is also mainly middle age between 35 -60 years which constitutes 54.12%. While the rest Young (below 35 years) constitutes 14.71% and old (above 60 years) constitute 31.18%. The data collected were mainly from adults and head of family which truly indicate that the data collected were mostly reliable to a great extent. As Mizo society is Patriarchal society most of the respondents were male comprising 80% out of 170 samples. The rest 20% were women.

Most of the respondents were married with stable family comprising 79.41% out of 170 samples. While 17.65% were widowed and separated families. Also 2.94% were unmarried which were mainly joint family.

Most of the respondents were literate but not with high educational background. Primary level with highest constitute 40.59% followed by High school level with 29.41%. Among the respondents 2.35% were illiterate. Higher standard with higher secondary and graduate were low with 4.12% and 2.35% respectively. The mean educational status of shifting Cultivators is 5.7 where settled agriculturalist is 6.0 and there is no difference between the two. The reason for low education is mainly as the respondents were above 35 years where the chances of higher education were very less during their time as Mizoram face certain insurgency and other conflict. Moreover, the people who attended middle schools were considered highly educated. So, keeping all these in mind the respondents were educated enough and had certain experiences to give reliable data to bring out the real image of the present agrarian structure of Mizoram.

4.1.2. Social Structural Bases of Respondents

The social structural characteristics of the respondents described in this section include sub-tribe, denomination, type of family, size of family and form of family(se table 4.2).

Out of 170 households surveyed 41.18% belongs to Lusei sub-tribe, followed by Hmar and Ralte 28.82% and 23.53% respectively. Among them the least Paite constitute only 6.47%. The majority of settled agriculturalists belong to Lusei but the shifting cultivators were mostly belonging to Hmar sub-tribe.

As data is collected at the northern part of Mizoram most of the respondents belongs to Presbyterian Church constituting 54.71% while the rest were contributed by The Salvation Army, UPC(M), Seventh day Adventist, UPC(NE), Baptist and other local denominations.

Most of the respondents of shifting cultivators which is 91.43% belong to nuclear family. While the settled agriculturalists were almost belonging to joint family constituting 88% of the total settled agriculturalist. This is mainly due to the system of farming where settled agricultural requires more family labor and need more capital for setting up plot. Whereas shifting cultivation could be managed by a couple as the duration is only one year requiring less labor.

Most of the families were belonging to stable forms of families which are 91.18%. While the rest constitute broken and reconstituted family.

The size of families was divided into small, medium and large. Medium size family constitutes 67.06% which is four to six members. Small (1-3 members) constitutes 19.41% and Large constitutes 13.53% which is more than 7 members. The mean size of families of both settled and shifting Cultivators is 4.8 showing no difference between them.

4.1.3. Socio Economic Structural Bases

The occupational structure of the households studied mainly comprise of cultivation, government servant, business, animal rearing as Primary Occupation and Wage labor, Petty business, animal rearing, cultivation as Secondary Occupation.

Cultivation is the main occupation for the settled and shifting cultivators. Among the shifting cultivators 100% of them use cultivation as primary occupation

whereas in case of settled agriculturalist 61% use cultivation as primary occupation. Diversification of occupation emerged among the settled agriculturalist with 21% of them were rearing animals such as pigs, cow, goat, poultry which acted as primary occupation for them. 3% of them run business for their primary income. Secondary occupation is more diversified than the primary occupation where wage laboring is higher among shifting cultivators constituting 44.29%. 38% of settled agriculturalist used cultivation as secondary source of income and 22% used animal rearing as secondary occupation.

The types of cultivation constitute settled, semi-settled and shifting cultivators. Semi-settled agriculturalists are the one who were allotted land periodically and temporary by the village council constituting 11.43% among shifting cultivators and 12% among settled agriculturalist. 88.57% were practicing shifting cultivation among shifting cultivators and 84% practice settled agriculture among settled agriculturalist. Changing from shifting to settle do not really bring transformation to settled agriculture as indicate below that among settled agriculturalist 4% of them also practice shifting cultivation.

The socio-economic category of households could be mainly classified into BPL, AAY, APL, and Annapurna. BPL constitute the highest among the category where shifting cultivators constituting 58.57% among shifting cultivators which is more than the settled agriculturalist which is 39% among settled agriculturalist. APL (Above Poverty Line) is higher among settled agriculturalist constituting 52% while it was only 11.43% among shifting cultivators. This clearly indicate that the socio-economic condition of the settled agriculturalists were better than that of shifting cultivators.

4.2. Patterns of Agrarian Structure

To understand the changes in the agrarian structure patterns of land possessed, cropping pattern, patterns of input use, tools use, livestock ownership are discussed in this section.

4.2.1.Patterns of Land Possessed

Four types of land possession were observed such as Land Settlement Certificate (LSC), Periodic Land Pass (PLP), Temporary Pass (VC), and Common Land(see table 4.4).

Most of the lands possessed by settled cultivators are under LSC (64%) and some under PLP (26%). In the process of transformation from shifting cultivation to settled agriculturalist the system of land distribution changed as the rich dominate to own most of the land. The settled agriculturalist owned most of the land with Land Settlement Certificate and land with Temporary Pass than the shifting cultivators. 64% of settled agriculturalist owned more than 2 Acres of Land with Land Settlement Certificate. While only 7.28% of among shifting cultivators owned land with Land Settlement Certificate. The occupying of common land was relatively high among the shifting cultivators as 84.93% of them were depending on common land for cultivation.

In the total area of land holding there was no much difference among the settled agriculturalist and the shifting cultivators. The mean area of land holding of settled agriculturalist is 1.27 Acres and the shifting cultivator is also 1.04 Acres. The land distribution is still equal to some extend as the process of transformation is still at the beginning process.

4.2.2. Duration of Land Holding

The duration of land possession differ as the mean year of land possession is significantly higher among settled agriculturalist (17 years) as compared to the shifting cultivator (1 year). Most shifting cultivators possessed land for cultivation but settled agriculturalist possessed land but they sometimes used common land for cultivation as we have seen in the table that mean year of land possession is 17 and the mean year of cultivation is 12.

4.2.3. Size of Land Holding

The size of land holding is categorized into three classes such as marginal (Below 2 acres), Small (2-5 Acres), and Medium (5-10 Acres) according to Ministry of Rural Development Classification. Most of the shifting cultivators are marginal farmers (53%) while most of the settled agriculturalists were small farmers (54%). The size of land possessed by the settled agriculturalist (3.4 Acres) is significantly greater than that of the shifting cultivators (2.94 Acres). The mean land holding size is more among the settled agriculturalist and the medium size land holders are also more among the settled agriculturalist. Marginal land holders are more among the shifting cultivators with. Medium land holders are more among settled agriculturalist as they need more land to cultivate. The possession of land increases in the process of agrarian transformation(see table 4.5).

4.2.4. Cropping Pattern

Crops cultivated were classified into seven types viz., Cereals, Pulses, Oilseeds, Vegetables, Fruit, Trees, and Other Commercial crops. Diversification of crops exists among the shifting cultivators (Average 7 crops) while the settled agriculturalists follow mono-cropping patterns and concentrated (Average 3 crops). This is mainly due to the commercialization of crops and ideas for more production. Both shifting cultivators and settled agriculturalist grow more vegetables than the other crops.

Shifting cultivators also grow more cereals after vegetables. Most of the area used for cultivation under shifting cultivation is used for cereals crops (72%). Among the Cereals the main crop cultivated is rice. The people grow different kinds of rice where the main food consumed among the Mizos was Rice.

Most of the area under settled agriculture is used for cultivating vegetables. The main crop is Squash. As the settled agriculturalist move from diversification of crops to mono cropping they started to look after only one or two crops concentrating their effort and skills to increase production.

The settled agriculturalist grow more commercial crops such as coffee, Zawngtah, Hmunphiah etc than cereals and the area used for cultivated land was also larger than other crops. The shifting cultivators do not grow any commercial crops in particular, but they consume most of their products and also sell their products beside what they consume.

Tree crops are absent in shifting cultivation and pulses is absent in both the cultivators. When cultivation changed from shifting to settled agriculture, the areas of cultivated land and number of crops decline. Most of the crops were commercialized and mono cropping began to appear in the agrarian structure of Mizoram.

From the cropping pattern two main shifts were observed. While moving from shifting cultivation to settled agriculturalist the patterns of cropping moved from crop diversity to mono cropping and also subsistence to commercialization of crops. This increases the income of the cultivators and enhance their living condition to a great extends(see table 4.6).

4.2.5. Pattern of Tools Use

The tools used could be classified into four categorized viz., Forest Clearance tools, Land preparation tools, Weeding tools, and Harvesting tools. They are mainly local tools which were used since long time back and some of them were made from bamboo.

As we have seen in table No… the number of tools used by shifting cultivators (22 Tools on an Average) is significantly higher than the tools used by settled agriculturalist (14 Tools on an Average). The tools used on an average were declining in the process of change from shifting cultivation to settled agriculture. This is mainly because that the land and terraces which is already prepared needs not to be prepared as compared to shifting cultivation.

The weeding tools were mainly Chemkawm and tuthlawh both were traditional. The settled agriculturalist used more weeding tools than shifting cultivators as the settled were cultivating on the same land where weeding was the main activity for land preparation.

As the settled agriculturalist practice mono-cropping they used less harvesting tools than the shifting cultivators, while the shifting cultivators need more tools as they grow more crops in their field where different crops needs different tools. Moreover, the number of tools used is more among shifting cultivation clearly showing that more number of labors is required(see table 4.7).

4.2.6. Patterns of Input Use

Pattern of input used in cultivation determines the level of productivity, production and income of the cultivator. Generally increase in the use of chemical inputs; human labour and animal power are expected in the wake of switch over. Input use in cultivation was observed in terms of seed, labour, manure and Pesticides(see table 4.8).

In the process of agrarian change the dependence on local seeds does not decline among both the shifting cultivators and settled agriculturalist, but the settled agriculturalist started to introduce High Yielding variety seeds which were mainly for commercial purpose.

Female hired labor as well as male hired labor is more among shifting cultivators. As settled agriculturalists were mostly joint family the female and male family labor is more among settled agriculturalist.

Animal laboring is almost absent in both of the mode of cultivation. For the preparation of land the settled agriculturalist used human labor. In the mean time the settled agriculturalist also started to employ machine but which is still very less.

The use of manure and fertilizers both organic and chemical were absent among shifting cultivators. The lands are still fertile enough to produce the crops abundantly. In the mean time the settled agriculturalist used both organic and chemical manure supplied by the government as well as from an open market. Because of this the production also increases.

The use of both organic and chemical pesticides is also absent among the shifting cultivators. But some of the settled agriculturalists use both pesticides in small amount. These pesticides were provided by the government.

The people started using these chemical manure and fertilizers mainly because of the policy of the government giving them legal right to use through the NLUP programme.

4.2.7. Patterns of Livestock Ownership

The patterns of Livestock owned among the shifting and settled agriculturalist comprises four types of lives stock viz., Pig, Goat, Poultry Bird and Cow were observed(see table 4.9).

The settled agriculturalist reared more number of livestock than the shifting cultivators. Moreover the value of livestock held by households on an average was greater among the settled cultivators (Rs 81,210) as compared to that of shifting cultivator village (Rs 8,075). The settled cultivation and livestock rearing are interdependent as the bi-products of cultivation are useful to feed the livestock. Moreover in return livestock rearing helps in weeding and they also supply organic manure for the cultivation.

Cow rearing has emerged among the settled cultivators. Besides, the value of pigs owned is also greater among the settled agriculturalist (Rs 21,576) than that of shifting cultivators (Rs 7,640).

These livestock also increases the income which alleviated the standards of the living of the people. For some of the settled agriculturalist livestock rearing is the main occupation where settled cultivation became secondary to them. This clearly shows that moving from shifting cultivation to settled agriculture results in the diversification of occupation. And in return increase income and alleviate the standard of living of the cultivators. It is observed that settled agriculture alone do not develop the living standard of the cultivators to a great extend, but the diversification of

occupation increase income of households further develop the living standards of the households.

4.3. Tribal Development: Living Conditions

To understand the Living conditions and development patterns of the shifting cultivators and settled agriculturists the study focuses on certain comprehensive discussions viz., Annual Income of Households, Annual Households Expenditure, Household Saving, and Housing and Amenity Index(see tables 4.10-4.12).

4.3.1. Annual Household Income

The sources of income observed are Agriculture, Government Service, Business, Agriculture labor and Livestock Rearing(see table 4.10).

The main sources of household income among the shifting cultivators were Agriculture (67%) and Agricultural Labor (29%). While, among the settled agriculturalist the main sources of income was Livestock Rearing (39%) and Agriculture (36%). We can clearly observe that changing from shifting cultivation to settled agriculture create diversification of occupation resulting in the rise of income.

The average income from Livestock rearing is relatively greater among the settled agriculturalist (Rs 42,114) than those of the shifting cultivators (Rs 1,276). Livestock rearing is more among the settled agriculturalist and is contributing towards improvement of the standards of the people through high income. The income of the settled agriculturalist is higher than the shifting cultivators.

The average household income from agriculture was significantly greater among the settled cultivators (Rs 38,860) as compared to those of shifting cultivators (Rs 27,540). This indicate that moving from shifting cultivation to settled agriculture improve the standards of the living of the people. Livestock rearing contribute a lot in the income as we could observed that income from agriculture between the settled

agriculturalist (Rs 38,860) and the shifting cultivators (Rs 27540) was not so much while there is so much difference in income from livestock rearing among the shifting cultivators (Rs 1,276) and settled agriculturalist (Rs 42,114).

4.3.2. Annual Household Expenditure

The household expenditure is categorized on food and non-food. The annual household expenditure is significantly higher among the settled agriculturalist (Rs 4,930) as compared to the shifting cultivators (Rs 2,249).

The average expenditure on food is higher among the settled agriculturalists (Rs 2,994) than the shifting cultivators (Rs 1009). It is observed that the shifting cultivators have lower average expenditure as they consume most of their production which lessened their expenditure on food. The expenditure on non-food is also higher among the settled agriculturalist (Rs 1937) than those of shifting cultivators (Rs 1240). This is mainly because of the high income and diversification of occupation viz., livestock the rearing, business etc where the maintenance cost is high resulting in higher expenditure. The overall expenditure is higher among the settled agriculturalist which in turn shows that the living condition of settled agriculturalist is more developed than those of shifting cultivators(table 4.11)

4.3.3. Household Saving

The annual household saving place was categorized into five viz., In Cash, Friend and relatives, Money Lenders, Commercial Banks and Post office. The total household savings is greater among the settled cultivators (Rs 62,232) than that of the shifting cultivators (Rs 5,448). The settled cultivators do not put their income in cash at their hand and instead spent most of their income and put the rest in commercial bank.

The amount of money put in commercial bank is relatively higher among the settled agriculturalist (Rs 62,062) than that of the shifting cultivators (Rs 2,463). It is observed that the settled agriculturalist put almost all of their income in commercial bank while the shifting cultivators can put only less than half of their production in commercial bank although their income is relatively low than the settled agriculturalist(table 4.12).

4.3.4. Household Debts

A household debt is not so much among both the settled and shifting cultivator. Most of the debts among the shifting cultivators are mainly from friends and relatives where as the settled agriculturalist borrowed money only from commercial bank. The total number of debts among the settled agriculturalist is relatively higher than the shifting cultivators(table 4.12).

4.3.5. Housing and Amenities

Housing and Amenities Index was observed through certain categories viz., Own House, Electricity, Water Connection, Gas Connection, Phone/ Mobile, Vehicle and Septic Tank. The percentages of households with own house is significantly higher among the settled agriculturalists (98%) as compared to that of shifting cultivators (81%).

The percentages of household having electricity is significantly higher among the settled agriculturalist (99%) as compared to that of shifting cultivators (90%). The percentage of household having Gas Connection is significantly higher among the settled agriculturalist (95%) as compared to that of shifting cultivators (64%). The percentage of household having Phone/ Mobile is significantly higher among the

settled agriculturalist (96%) as compared to that of shifting cultivators (79%). The percentage of household having Vehicle is significantly higher among the settled agriculturalist (19%) as compared to that of shifting cultivators (6%). All the respondents among settled agriculturalist owned Septic tank while only 73 per cent among the shifting cultivators owned septic tank of their own. Others have pit latrine and some of them share with others family.

The Housing and Amenities Index is higher among the settled cultivator household as compared to the shifting cultivators. The settled agriculturalists have greater percentages of Own House, Electricity, Water Connection, Gas Connection, Phone/ Mobile, Vehicle and Septic Tank as compared to shifting cultivators. From this we could observed that the settled agriculturalist were having better living condition than the shifting cultivators(table 4.13).

4.4. Patterns of Relationship between Agrarian structure and Tribal Development

Karl Pearson's Coefficient of Correlation is used to understand the Patterns of Relationship between Agrarian structure and Tribal Development. The indicators of agrarian structure viz., Area under Land Settlement Certificate, Periodic Land Pass have significant positive relationship with the indicators of Tribal Development viz., Annual Household Income, Annual Household Expenditure, Total Household Saving, Total Household Debt, Housing and Amenity Index. On the other hand the indicators of Tribal Development viz., Annual Household Income, Annual Household Expenditure, Total Household Saving, Total Household Debt, Housing and Amenity Index have negative relationship with area under Common Land(table 4.14).

It is clear from the results that as the switch over to settled agriculture from shifting cultivation occurs the annual household income, household expenditure, saving also increase. Further the housing conditions also improve significantly.

4.5. Perception of People on Successive Jhum Control Programmes

The perception of the people is observed through Perception on Performance of the Successive Jhum Control Programmes, Perceived problems and Expectations. These perceptions were rated in to four categories viz., Agree, Strongly Agree, Disagree and Strongly Disagree(see table 4.15).

4.5.1. Perception on Performance of the Successive Jhum Control Programmes

Perception of the people was observed on certain Jhum Control Programmes of Mizoram government viz., MIP, NLUP (Old), BAFFACOS and NLUP (Ongoing). As the latest NLUP programmes was not implemented fully so the perception on the present status is being perceived by the people.

The perception between the shifting cultivators and the settled agriculturalist differ as most of the settled agriculturalist perceived that only NLUP (Old) and NLUP (Ongoing) were successful and in the mean time they perceived that MIP and BAFFACOS were not successful.

Most of the settled agriculturalists were the product of the NLUP (old) where these people moved from shifting cultivation to settled agriculturalist along with the project of the NLUP (Old). Most of their lands were possessed through the NLUP (Old) through the Village Council by allotting them periodical land pass after which they were given Land Settlement Certificate.

The shifting cultivators perceived that MIP, BAFFACOS and NLUP (Ongoing) were highly successful. For the shifting cultivators the only project that support them were MIP and BAFFACOS. In the mean time they have high hope on the ongoing NLUP programmes.

Through the perception of the people on certain jhum control programmes we could clearly observed the rate of its impact at the grass root level. When the people perceived the rate of success they mostly based their criteria on the rate of how their household benefit from it. So sometimes it is not reliable for data to be brought up at the record. But in some way it highlights the present scenario on how the people receive the benefit from the programmes and participation of the people.

4.5.2. Perceived Problems in the Implementation

The problems perceived by the people could be categorized into five problems viz., Lack of Peoples Cooperation, Corruption, Lack of Relevance and Fitness, Poor Technology Support, and Politics in Selection of Beneficiaries.

The perception of settled cultivators the main problems were Lack of Peoples, Cooperation, Lack of Relevance and Fitness, Poor Technology Support, and Politics in Selection of Beneficiaries. But the shifting cultivators felt that only poor technology support and Politics in Selection of Beneficiaries as the main problems in the implementation of programmes.

Sometimes the programme failed due to the lack of cooperation. The government selects beneficiaries who cannot carry out the intention and objective of the programmes. Sometimes the programmes formulated have no relevance among the tribal. In the mean time the beneficiaries are not competent enough as they lack

skills and are not fit enough to be successful. Sometimes the involvement of politics in the selection of beneficiaries diverted the resources from the needy to the party worker.

4.5.3. Expectations from Ongoing NLUP

The expectations of the tribal were observed mainly on the present Jhum Control Programme i.e. NLUP (Ongoing). The expectations of the people on the ongoing NLUP Programme were mainly categorized into five viz., Confer Land Rights to People, Settle Jhumias in Permanent Land Settlement Certificate, Enhance the income of the people, Enhance the wealth of the people and Increase inequality in land distribution.

The shifting cultivators believed that the ongoing NLUP Programme will confer land right to the people. While the settled agriculturalists do not believe that it will really confer land right to the people.

Both the settled and shifting cultivators do not believe that the ongoing NLUP Programme will settle shifting cultivators in Permanent Land Settlement Certificate.

The settled agriculturalist believed that the ongoing NLUP programme will enhance the income of the people. But the shifting cultivators do not believe that the ongoing NLUP programme will enhance the income of the people. This is because that the settled agriculturalists already experience how settled agriculture enhanced their income.

In this chapter the results of the present study are discussed in terms of differential agrarian structure in the two Mizo villages and their bearing on the tribal development. It also presented the perception of respondents on the successive jhum

control programmes implemented by state governments. In the next chapter the major conclusions are presented along with their implications for social work practice and policy making.

Table 4.1 Demographic Profile of Respondents

Sl.No	Characteristic	Mode of Cultivation		Total N = 170
		Settled n = 100	Shifting n = 70	
I	Age Group			

	Young (Below 35 Years)	9 (9.00)	16 (22.86)	25 (14.71)
	Middle(35 -60 Years)	54 (54.00)	38 (54.29)	92 (54.12)
	Old(60 Years and Above)	37 (37.00)	16 (22.86)	53 (31.18)
	Mean Age	53.61 ± 14.84	46.50 ± 14.32	50.68 ± 15.00
II	**Gender**			
	Female	19 (19.00)	15 (21.43)	34 (20.00)
	Male	81 (81.00)	55 (78.57)	136 (80.00)
III	**Marital Status**			
	Unmarried	2 (2.00)	3 (4.29)	5 (2.94)
	Married	75 (75.00)	60 (85.71)	135 (79.41)
	Separated/Divorced/Widowed	23 (23.00)	7 (10.00)	30 (17.65)
IV	**Education Status**			
	Illiterate	4 (4.00)	0 (0.00)	4 (2.35)
	Primary(1-4)	38 (38.00)	31 (44.29)	69 (40.59)
	Middle(5-7)	19 (19.00)	17 (24.29)	36 (21.18)
	High School(8-10)	31 (31.00)	19 (27.14)	50 (29.41)
	Higher Secondary	5 (5.00)	2 (2.86)	7 (4.12)
	College	3 (3.00)	1 (1.43)	4 (2.35)
	Mean status of Education	6.0 ± 3.6	5.7 ± 3.0	5.9 ± 3.3

Source: Computed Figures in the parentheses are percentages Mean ± SD

Table 4.2 Social Structural Bases of Respondents

Sl.No	Characteristic	Mode of Cultivation		Total N = 170
		Settled n = 100	Shifting n = 70	

I	**Sub Tribe**			
	Lusei	65 (65.00)	5 (7.14)	70 (41.18)
	Ralte	24 (24.00)	16 (22.86)	40 (23.53)
	Hmar	7 (7.00)	42 (60.00)	49 (28.82)
	Paite	4 (4.00)	7 (10.00)	11 (6.47)
II	**Denomination**			
	Presbyterian	60 (60.00)	33 (47.14)	93 (54.71)
	Local Denomination	15 (15.00)	7 (10.00)	22 (12.94)
	The Salvation Army	9 (9.00)	10 (14.29)	19 (11.18)
	United Pentecostal Church (Mizoram)	4 (4.00)	11 (15.71)	15 (8.82)
	Seventh day Adventist	6 (6.00)	5 (7.14)	11 (6.47)
	United Pentecostal Church (NE)	4 (4.00)	4 (5.71)	8 (4.71)
	Baptist	2 (2.00)	0 0.00	2 (1.18)
III	**Type of Family**			
	Nuclear	12 (12.00)	64 (91.43)	76 (44.71)
	Joint	88 (88.00)	6 (8.57)	94 (55.29)
IV	**Form of Family**			
	Stable	88 (88.00)	67 (95.71)	155 (91.18)
	Broken	2 (2.00)	0 0.00	2 (1.18)
	Reconstituted	10 (10.00)	3 (4.29)	13 (7.65)
V	**Size of Family**			
	Small(1-3)	19 (19.00)	14 (20.00)	33 (19.41)
	Medium(4-6)	69 (69.00)	45 (64.29)	114 (67.06)
	Large(7 and Above)	12 (12.00)	11 (15.71)	23 (13.53)
	Mean Size of Family	4.8 ± 1.5	4.8 ± 1.7	4.8 ± 1.6

Source: Computed Figures in the parentheses are percentages Mean ± SD

Table 4. 3 Socio Economic Structural Bases

Sl.No	Characteristic	Mode of Cultivation		
		Settled n = 100	Shifting n = 70	Total N = 170

I	**Primary Occupation**			
	Cultivation	61 (61.00)	70 (100.00)	131 (77.06)
	Government Servant	15 (15.00)	0 (0.00)	15 (8.82)
	Business	3 (3.00)	0 (0.00)	3 (1.76)
	Livestock Rearing	21 (21.00)	0 (0.00)	21 (12.35)
II	**Secondary Occupation**			
	None	6 (6.00)	29 (41.43)	35 (20.59)
	Cultivation	38 (38.00)	0 (0.00)	38 (22.35)
	Daily Wage Labour	25 (25.00)	31 (44.29)	56 (32.94)
	Animal Rearing	22 (22.00)	9 (12.86)	31 (18.24)
	Petty Business	9 (9.00)	1 (1.43)	10 (5.88)
III	**Type of Cultivator**			
	Shifting Cultivators	4 (4.00)	62 (88.57)	66 (38.82)
	Semi-Settled	12 (12.00)	8 (11.43)	20 (11.76)
	Settled	84 (84.00)	0 (0.00)	84 (49.41)
IV	**Socio-economic category**			
	AAY	6 (6.00)	21 (30.00)	27 (15.88)
	BPL	39 (39.00)	41 (58.57)	80 (47.06)
	APL	52 (52.00)	8 (11.43)	60 (35.29)
	Annapurna	3 (3.00)	0 (0.00)	3 (1.76)

Source: Computed Figures in the parentheses are percentages

Table 4. 4 Patterns of Agrarian Structure

Sl.No	Particulars	Mode of Cultivation			
		Settled n = 100	**Shifting n = 70**	**Total N = 170**	

		Mean	SD	Mean	SD	Mean	SD	t	Sig.
I	**Area of Land Possessed (Acres)**								
	Land Settlement Certificate	2.20 (63.62)	2.07	0.21 (7.28)	1.03	1.38 (42.56)	1.97	7.39	0.00
	Periodic Land Pass	0.91 (26.23)	1.75	0.03 (0.97)	0.24	0.54 (16.79)	1.42	4.15	0.00
	Temporary Pass(VC)	0.15 (4.35)	0.72	0.47 (16.02)	1.61	0.28 (8.71)	1.18	1.76	0.08
	Common Land	0.20 (5.80)	0.67	2.23 (75.73)	1.35	1.04 (31.94)	1.42	12.93	0.00
	Total Area of Land Possessed	3.45 (100)	5.20	2.94 (100)	4.24	3.24 (100)	5.99	9.25	0.00
II	**Area of Land Possessed (No. of Plots)**								
	Land Settlement Certificate	0.72 (56.69)	0.59	0.04 (4.11)	0.20	0.44 (37.50)	0.58	5.56	0.00
	Periodic Land Pass	0.37 (29.13)	0.53	0.01 (1.37)	0.12	0.22 (19.00)	0.45	0.42	0.67
	Temporary Pass(VC)	0.08 (6.30)	0.31	0.10 (9.59)	0.30	0.09 (7.50)	0.30	16.29	0.00
	Common Land	0.10 (7.87)	0.30	0.89 (84.93)	0.32	0.42 (36.00)	0.50	7.87	0.00
	Total Area of Land Possessed	1.27 (100)	1.72	1.04 (100)	0.95	1.18 (100)	1.82	3.44	0.00
III	**Duration of Land Possession(Years)**								
	Land Settlement Certificate	17.04	17.70	0.33	1.62	10.16	15.90	0.51	0.61
	Periodic Land Pass	5.28	12.63	0.07	0.60	3.14	10.01	0.27	0.79
	Temporary Pass(VC)	0.61	3.65	0.90	3.63	0.73	3.63	6.54	0.00
	Common Land	0.72	5.10	0.89	0.32	0.79	3.91	3.47	0.00
IV	**Duration of Land Cultivation(Years)**								
	Land Settlement Certificate	11.98	14.83	0.33	1.62	7.18	12.77	0.12	0.90
	Periodic Land Pass	3.95	9.32	0.07	0.60	2.35	7.40	0.27	0.79
	Temporary Pass(VC)	0.61	3.65	0.67	2.40	0.64	3.19	6.93	0.00
	Common Land	0.72	5.10	0.89	0.32	0.79	3.91	4.86	0.00

Source: Computed Figures in the parentheses are percentages

Table 4.5 Size of Land Holding

Sl.No	Size of Landholding	Mode of Cultivation		Total N = 170
		Settled n = 100	Shifting n = 70	
1	Marginal(Below 2 Acres)	31 (31.00)	37 (52.86)	68 (40.00)
2	Small(2-5 Acres)	54 (54.00)	28 (40.00)	82 (48.24)
3	Medium(5-10 Acres)	15 (15.00)	5 (7.14)	20 (11.76)
	Total	100 (100)	70 (100)	170 (100)
	Mean Size of Landholding	3.45 ± 2.14	2.94 ± 1.84	3.24 ± 2.03
	T	1.61		
	Sig(two tailed)	0.11		

Source: Computed Figures in the parentheses are percentages Mean ± SD

Table 4.6 Cropping Pattern

Sl.No		Mode of Cultivation					
		Settled n = 100		Shifting n = 70		Total N = 170	
		Mean	SD	Mean	SD	Mean	SD
I	**No. of Crops Cultivated**						
	Cereals	0.11 (3.6)	0.31	0.97 (14.7)	0.17	0.46 (11.0)	0.50
	Pulses	0.00 (0.00)	0.00	0.00 (0.00)	0.00	0.00 (0.00)	0.00
	Oil seeds	0.32 (10.4)	0.58	0.36 (5.4)	0.48	0.34 (7.9)	0.54
	Vegetables	1.52 (49.2)	0.90	5.16 (77.8)	1.07	3.02 (71.3)	2.04
	Fruits	0.37 (12.0)	0.77	0.14 (2.2)	0.60	0.28 (6.5)	0.71
	Tree Crops	0.24 (7.8)	0.67	0.00 (0.00)	0.00	0.14 (3.3)	0.53
	Other Commercial Crops	0.53 (17.2)	0.56	0 (0.00)	0	0.31 (7.4)	0.50
	Total	3.09 (100)	3.25	6.63 (100)	2.32	4.24 (100)	4.32
II	**Area Under Cultivation**						
	Cereals	0.24 (9.7)	0.77	2.40 (72.3)	1.13	1.13 (39.9)	1.42
	Pulses	0 (0.00)	0	0 (0.00)	0	0 (0.00)	0
	Oil Seeds	0.27 (10.7)	0.50	0.26 (8.0)	0.39	0.26 (9.4)	0.46
	Vegetables	1.58 (63.4)	0.98	0.61 (18.3)	0.25	1.18 (41.6)	0.90
	Fruits	0.28 (11.1)	0.62	0.05 (1.5)	0.21	0.18 (6.4)	0.51
	Trees	0.13 (5.2)	0.39	0.00 (0.00)	0.00	0.08 (2.7)	0.31
	Other Commercial Crops	0.91 (36.4)	1.26	0 (0.00)	0	0.53 (18.8)	1.06
	Gross Cropped Area	2.49 (100)	3.26	3.32 (100)	1.99	2.83 (100)	3.59
	t	1.61					
	Sig. (2-tailed)	0.11					

Source: Computed Figures in the parentheses are percentages Mean ± SD

Table 4.7. Patterns of Tools Use

Sl.No	Tool	Mode of Cultivation				Total N = 170	
		Settled n = 100		Shifting n = 70			
		Mean	SD	Mean	SD	Mean	SD
1	Chempui	2.1	1.0	2.6	1.3	2.3	1.2
2	Hreipui	0.0	0.0	1.8	1.6	0.7	1.3
3	Chem Sei	2.1	1.4	0.6	1.2	1.5	1.5
4	Thirtiang (Crowbar)	0.7	0.9	1.2	1.0	0.9	0.9
5	Suahdur (Spade)	0.6	0.6	1.0	0.8	0.7	0.7
6	Chemkawm (Invented)	2.1	1.1	2.7	1.4	2.3	1.3
7	Tuthlawh (Traditional)	1.6	1.0	2.7	1.4	2.0	1.3
8	Dawrawn (Bamboo Basket)	0.0	0.3	0.3	0.7	0.1	0.5
9	Em (Basket)	0.0	0.0	2.1	1.4	0.9	1.4
10	Favah(Sickle)	0.1	0.4	2.6	1.3	1.1	1.5
11	Empai (Bamboo Basket)	1.6	1.1	1.0	1.0	1.3	1.1
12	Paikawng (Basket)	1.5	0.9	0.9	1.0	1.2	0.9
13	Tlam Em (Bamboo Basket)	0.0	0.0	0.7	0.6	0.3	0.5
14	Iptepui(Bag made of cloth)	1.3	1.5	1.9	0.9	1.6	1.3
I	Forest Clearance Tools (1:3)	4.2 (31.18)	2.4	5.0 (23.02)	4.1	4.6 (26.86)	4.0
II	Land Preparation Tools (4:5)	1.3 (9.49)	1.5	2.1 (9.81)	1.8	1.6 (9.66)	1.7
III	Weeding Tools (6:7)	3.6 (26.62)	2.1	5.4 (24.85)	2.8	4.4 (25.68)	2.6
IV	Harvesting Tools (9:13)	4.5 (32.72)	3.9	9.2 (42.32)	6.2	6.4 (37.80)	6.8
	Total Number of Tools (I: V)	13.6 (100)	9.9	21.8 (100)	14.8	17.0 (100)	15.0

Source: Computed Figures in the parentheses are percentages

Table 4.8. Patterns of Input Use

Sl.No	Input	Mode of Cultivation					
		Settled n = 100		Shifting n = 70		Total N = 170	
		Mean	SD	Mean	SD	Mean	SD
I	**Seed**						
	Local	2.8	0.6	2.8	0.5	2.8	0.6
	HYV	1.0	0.8	0.1	0.6	0.6	0.9
II	**Human Labour**						
	Male Hired Labour	0.7	0.9	1.0	0.9	0.8	0.9
	Female Hired Labour	0.6	0.8	0.9	0.9	0.7	0.9
	Male Family Labour	2.6	0.9	2.3	1.1	2.5	1.0
	Female Family Labour	2.4	1.1	2.3	1.2	2.4	1.1
III	**Animal Labour**						
	Owned Animal Labour	0.0	0.3	0.0	0.4	0.0	0.3
	Hired Animal Labour	0.0	0.0	0.0	0.0	0.0	0.0
IV	**Machinery**						
	Owned Machinery	0.0	0.0	0.0	0.0	0.0	0.0
	Hired Machinery	0.0	0.2	0.0	0.0	0.0	0.2
V	**Manure**						
	Organic Manure	1.9	1.2	0.0	0.0	1.1	1.3
	Chemical Fertilizers(NPK)	1.2	1.1	0.0	0.0	0.7	1.0
	Chemical Fertilizers(Minor)	0.9	1.1	0.0	0.0	0.6	0.9
VI	**Pesticide**						
	Organic Pesticides	0.5	0.9	0.0	0.0	0.3	0.7
	Chemical Pesticides	0.4	0.7	0.0	0.0	0.2	0.5

Source: Computed

Table 4.9 Patterns of Livestock Ownership

Sl.No	Livestock	Mode of Cultivation					
		Settled n = 100		Shifting n = 70		Total N = 170	
		Mean	SD	Mean	SD	Mean	SD
1	Pigs	21576 (56.8)	33061.97	7640 (94.6)	19348.09	15837.65 (61.7)	28991.25
2	Goat	0 (0.0)	0	28.57143 (0.4)	239.0457	11.76471 (0.0)	153.393
3	Poultry Birds	328 (0.9)	1688.887	407 (5.0)	726.8761	360.5294 (1.4)	1374.094
4	Cow	16110 (42)	46459.69	0 (0.0)	0	9476.471 (37)	36437.38
5	Total	38014 (100)	81210.54	8075.571 (100)	20314.01	25686.41 (100)	66956.12

Source: Computed Figures in the parentheses are percentages

Table 4.10. Patterns of Annual Households' Income

Sl.No	Source	Mode of Cultivation						t	Sig. (2-tailed)
		Settled n = 100		Shifting n = 70		Total N = 170			
		Mean	S.D	Mean	S.D	Mean	S.D		
1	Agriculture	38860 (36.36)	30063	27540 (67.40)	14468	34199 (42.91)	25419	2.92**	0.00
2	Government Service	13640 (12.76)	38419	0 (0.00)	0	8024 (10.07)	30166	2.97**	0.00
3	Business	4210 (3.94)	14292	171 (0.42)	1434	2547 (3.20)	11157	2.35*	0.02
4	Agricultural Labour	8020 (7.50)	15742	11871 (29.05)	17038	9606 (12.05)	16349	1.52	0.13
5	Livestock Rearing	42144 (39.43)	105609	1276 (3.12)	3802	25316 (31.77)	83345	3.23**	0.00
6	Total Household Income	106874 (100)	110981	40859 (100)	26667	79691 (100)	92560	4.88**	0.00

Source: Computed Figures in the parentheses are percentages

** P < 0.01 * P<0.05

Table 4.11 Patterns of Annual Households' Expenditure

Sl.No	Item	Mode of Cultivation						t	Sig.(2 tailed)
		Settled n = 100		Shifting n = 70		Total N = 170			
		Mean	SD	Mean	SD	Mean	SD		
1	Food	2994.0 (60.72)	1193.0	1009.3 (44.87)	496.0	2176.8 (56.88)	1376.2	13.14**	0.00
2	Non- Food	1936.9 (39.28)	1496.2	1240.0 (55.13)	423.4	1649.9 (43.12)	1225.9	3.79**	0.00
3	Annual Household Expenditure	4930.9 (100)	2314.4	2249.3 (100)	639.2	3826.7 (100)	2248.7	9.44**	0.00

Source: Computed Figures in the parentheses are percentages

** P < 0.01 * P<0.05

Table 4. 12. Households' Savings and Debt

Sl.No		Mode of Cultivation					
		Settled n = 100		Shifting n = 70		Total N = 170	
		Mean	SD	Mean	SD	Mean	SD
I	**Savings and Investments**						
	In Cash	0.0 (0.00)	0.0	2448.6 (44.9)	3624.5	1008.2 (2.6)	2612.3
	Friend and relatives	0.0 (0.00)	0.0	0.0 (0.00)	0.0	0.0 (0.00)	0.0
	Money Lenders	170.0 (0.3)	1700.0	508.6 (9.3)	3602.0	309.4 (0.8)	2649.2
	Commercial Banks	62062.0 (99.7)	117474.1	2462.9 (45.2)	9893.4	37521.2 (96.6)	94813.1
	Post office	0.0 0.0	0.0	28.6 (0.5)	239.0	11.8 (0.0)	153.4
	Total Household Savings	62232.0 (100)	119174.1	5448.6 (100)	17358.9	38850.6 (100)	100228.1
II	**Debt**						
	In Cash	0 (0.00)	0	40 (32.94)	197.3741	16.47059 (0.60)	127.6525
	Friend and relatives	0 (0.00)	0	81.42857 (67.06)	289.5738	33.52941 (1.22)	189.3446
	Commercial Banks	4600 (100)	40262.27	0 (0.00)	0	2705.882 (98.19)	30899.27
	Total Household Debt	4600 (100)	40262.27	121.4286 (100)	486.9479	2755.882 (100)	31216.27

Source: Computed Figures in the parentheses are percentages

Table 4.13 Housing and Amenities

Sl.No	Particulars	Mode of Cultivation				
		Settled n = 100	Shifting n = 70	Total N = 170	t	Sig. (2-tailed)
1	Own House	98 (98.00)	57 (81.43)	155 (91.18)	3.89**	0.00
2	Electricity	99 (99.00)	63 (90.00)	162 (95.29)	2.77**	0.01
3	Water Connection	5 (5.00)	1 (1.43)	6 (3.53)	1.24	0.22
4	Gas Connection	95 (95.00)	45 (64.29)	140 (82.35)	5.59**	0.00
5	Phone/ Mobile	96 (96.00)	55 (78.57)	151 (88.82)	3.66**	0.00
6	Vehicle	19 (19.00)	4 (5.71)	23 (13.53)	2.52**	0.01
7	Septic Tank	100 (100.00)	51 (72.86)	151 (88.82)	6.07**	0.00
	Housing and Amenities Index	0.73 ± 0.10	0.56 ± 0.19	0.66 ± 0.16	7.6	0.00

Source: Computed Figures in the parentheses are percentages Mean ± SD

** P < 0.01 * P<0.05

Table 4.14 Patterns of Relationship Between Agrarian Structure and Tribal Development: Zero Order Correlation

N = 170

Sl.No	Agrarian Structure	Tribal Development (Living Conditions)				
		Annual Household Income	Annual Household Expenditure	Total Household Saving	Total Household Debt	Housing and Amenities Index
1	Land Settlement Certificate	0.25**	0.36**	0.21**	0.14	0.35**
2	Periodic Land Pass	0.21**	0.32**	0.18*	0.24**	0.10
3	Temporary Pass(VC)	-0.07	-0.12	-0.08	0.00	0.05
4	Common Land	-0.32**	-0.46	-0.24**	-0.06	-0.31**
5	Size of Landholding	0.14	0.18	0.12	0.26**	0.23**
6	Forest Clearance Tools	0.03	0.06	-0.02	0.08	0.21**
7	Land Preparation Tools	-0.15	-0.22	-0.11	-0.10	0.01
8	Weeding Tools	-0.01	-0.08	-0.08	0.02	0.10
9	Harvesting Tools	-0.13	-0.28	-0.10	-0.06	-0.04
10	Number of Tools	-0.08	-0.17	-0.10	-0.01	0.09
11	Gross Cropped Area	0.07	0.18	0.25	-0.03	0.21**
12	No. of Crops Cultivated	-0.32**	-0.34**	-0.24	-0.05	-0.31**
13	Value of Livestock	0.67**	0.52**	0.34**	0.37**	0.27**

Source: Computed ** P < 0.01 * P<0.05

Table 4.15 Perception on Jhum Control Programmes: Performance, Benefits, Problems and Expectations

Sl.No	Performance	Mode of Cultivation						t	Sig. (2-tailed)
		Settled n = 100		Shifting n = 70		Total N = 170			
I		Mean	SD	Mean	SD	Mean	SD		
	MIP	1.4	0.6	2.6	0.7	1.9	0.9	11.87**	0.00
	NLUP(Old)	2.6	0.8	2.4	0.6	2.6	0.7	1.74	0.08
	BAFFACOS	1.5	0.6	2.5	0.6	1.9	0.8	11.77**	0.00
	NLUP (Ongoing)	2.5	0.8	2.6	0.8	2.6	0.8	1.01	0.31
II	**Benefits**								
	MIP	1.4	0.6	2.2	0.7	1.7	0.7	8.36**	0.00
	NLUP(Old)	2.7	0.9	2.4	0.8	2.6	0.9	2.60**	0.01
	BAFFACOS	1.4	0.5	2.3	0.7	1.8	0.8	8.59**	0.00
	NLUP (Ongoing)	2.5	0.8	2.7	1.0	2.6	0.9	0.97	0.33
III	**Problems**								
	Lack of Peoples Cooperation	0.7	0.4	0.4	0.5	0.6	0.5	4.96**	0.00
	Corruption	0.4	0.5	0.3	0.5	0.4	0.5	1.80	0.07
	Lack of Relevance and Fitness	0.5	0.5	0.4	0.5	0.5	0.5	1.16	0.25
	Poor Technology Support	0.6	0.5	0.5	0.5	0.5	0.5	1.01	0.32
	Politics in Selection of Beneficiaries	0.5	0.5	0.5	0.5	0.5	0.5	0.27	0.78
IV	**Expectations from NLUP(Ongoing)**								
	Confer Land Rights to People	2.4	0.7	2.8	1.0	2.6	0.8	2.82**	0.01
	Settle Jhumias in Permanently	2.2	0.5	2.1	1.1	2.1	0.8	0.95	0.34
	Enhance the income of the people	2.8	0.5	2.5	0.7	2.7	0.6	3.82**	0.00
	Enhance the wealth of the people	2.8	0.6	2.4	0.8	2.6	0.7	3.30**	0.00
	Increase inequality in land distribution	3.1	0.8	2.9	0.7	3.0	0.8	1.54	0.13

Source: Computed ** P < 0.01 * P<0.05

In the previous chapter the results and discussions were presented. The major conclusions thus drawn are presented in this chapter along with suggestions for policy making and social work practice.

5.1. Conclusions

As a result of switch over from shifting cultivation to semi settled agriculture significant and substantial changes were observed in the agrarian structure, tools and implement use, cropping pattern, input use, patterns of livestock ownership, household income, household expenditure, household debt, household saving, amenities, perception of the farmers on the performance of various Jhum Control Programmes and expectations of the farmers on the present Jhum Control Programme.

Therefore the change of agrarian structure from shifting cultivation to settled agriculture results in the emergence of mono cropping. Further it results in the diversification of occupation. Live stock rearing emerged especially rearing of cows and also the rearing of pig increased which have contributed a lot to create a better living condition. The interdependency between livestock rearing and settled cultivation help the settled agriculturalist to be more self sufficient in terms of capital, manure and also helps in weeding. Agriculture alone does not bring better living condition but diversification of occupation helps to have more income besides cultivation.

In the process of moving from shifting cultivation to settled agriculture significant change occur in the occupation of households. Diversification of crops emerged among the settled agriculturalist where livestock rearing contribute a lot to improve the income of the settled agriculturalist. The settled agriculture and livestock rearing depends on each other as the bi-product from cultivation could be used for

rearing livestock. On the other hand livestock are the main sources of manure for the field and also these livestock especially cows and goats are useful tools for weeding. Rearing of cows emerged among the settled agriculturalist and in the mean time rearing of pigs also increased among the settled agriculturalist.

In the patterns of agrarian structure, the size of land holding had increased significantly among the settled agriculturalist. Most of the shifting cultivators were marginal farmers and in the mean time the majority of settled agriculturalists were small farmers. While the settled agriculturalist owned more than 2 Acres of land on an average, the shifting cultivators owned less than one acres of land. Most of the cultivation among the shifting cultivation was on common land. But the settled agriculturalist cultivate mostly on Land under Land settlement certificate. The duration of cultivation was significantly higher among the settled agriculturalist as cultivation on common land was for one year only.

As switch over from shifting cultivation to semi settled agriculture occurs the cropping pattern also undergoes significant and substantial change. In the process of transformation the number of crops decline significantly and the cropping pattern moved from crop diversification to mono cropping. There is also a qualitative transformation from subsistence to commercialization as most of the crops were cultivated in settled agriculture for commercial purpose while shifting cultivators cultivated for household consumption. The number of subsistence i.e. food crops meant for household consumption decreased significantly while that of commercial crops i.e. vegetables and fruits increased significantly. Most of the land among the shifting cultivators was used for cereals cultivation mainly rice. But among the settled agriculture most of the land was used for vegetables and other commercial crops.

Following our expectation of reduction in the tools use significant increase in the total number tools and implements used was observed. The number of forest clearance tools not significantly decrease as expected. On the other hand the number of weeding tools land preparation tools and harvesting tools has decreased significantly. Most of the tools used decline as the need for tool decrease for cultivation at the same place.

As regards input use in cultivation no significant changes were observed in the local seeds use. The frequency of use of HYV seed emerged among the settled agriculturalist while it was absent among the shifting cultivators. Female hired labor as well as male hired labor is more among shifting cultivators. As settled agriculturalists were mostly joint family the female and male family labor is more among settled agriculturalist. Animal laboring is almost absent in both of the mode of cultivation. For the preparation of land the settled agriculturalist used human labor. In the mean time the settled agriculturalist also started to employ machine but which is still very less. The use of manure and fertilizers both organic and chemical were absent among shifting cultivators. The lands are still fertile enough to produce the crops abundantly. In the mean time the settled agriculturalist used both organic and chemical manure supplied by the government as well as from an open market. Because of this the production also increases. The use of both organic and chemical pesticides is also absent among the shifting cultivators. But some of the settled agriculturalists use both pesticides in small amount. These pesticides were provided by the government.

Livestock ownership contributed a lot for the improvement of living condition of the tribal household. Cow rearing has emerged among the settled cultivators. Besides, the value of pigs owned is also greater among the settled agriculturalist than

that of shifting cultivators. In contrary to our expectations livestock rearing is the main occupation among the majority of settled agriculturalist. Livestock rearing enhanced the living condition of the people and moving from shifting cultivation to settled agriculture results in the diversification of occupation. And in return livestock rearing increases income and alleviate the standard of living of the cultivators. It is observed that settled agriculture alone do not develop the living standard of the cultivators to a great extend, but the diversification of occupation increase income of households further develop the living standards of the households.

Agriculture constitutes the main income for the shifting cultivators and livestock rearing among the settled agriculturalist. Moving from shifting cultivation to settled agriculture improve the standards of the living of the people. Livestock rearing contribute alot in the income as we could observed that difference in income from agriculture between the settled agriculturalist and the shifting cultivators was not so much while there is so much difference in income from livestock rearing among the shifting cultivators and settled agriculturalist.

The household expenditure is categorized as on food and non-food. As the income is higher and commercialization of crops and livestock rearing is more popular among the settled agriculturalist, the household expenditure is also significantly higher. The overall expenditure is higher among the settled agriculturalist which in turn shows that the living condition of settled agriculturalist is more developed than those of shifting cultivators.

The total households saving are significantly higher among the settled agriculturalist than the shifting cultivators. The shifting cultivators have put half of their income in a commercial bank and the remaining cash in hand. The settled

agriculturalist put most of their income in a commercial bank. As the settled agriculturalist have more access to banking system their debt are also from commercial banks.

As the living condition of the settled agriculturalist is higher they have better facilities in which they have greater percentages of Own House, Electricity, Water Connection, Gas Connection, Phone/ Mobile, Vehicle and Septic Tank as compared to shifting cultivators.

As the settled agriculturalists are the beneficiaries of old NLUP they perceived the NLUP both old and ongoing as successful. Political system also plays a significant role in the selection of beneficiaries. Where, a member of the ruling party will benefit more from certain programmes. Sometimes the programme failed due to the lack of cooperation. The government selects beneficiaries who cannot carry out the intention and objective of the programmes. Sometimes the programmes formulated have no relevance among the tribal. In the mean time the beneficiaries are not competent enough as they lack skills and are not fit enough to be successful. Sometimes the involvement of politics in the selection of beneficiaries diverted the resources from the needy to the party worker.

The settled agriculturalist believed that the ongoing NLUP will have a great influence on the people. They believed that it will confer land rights and increase their income.

5.2. Suggestions

In this section the suggestions for policy and social work practice are presented in two subsections.

5.2.1. Policy Implication

In the process of switch over from shifting cultivation to settled agriculture the households living conditions improve significantly mainly because of commercialization mono cropping of agriculture and enhanced live stock rearing. Hence, it is necessary that policy makers pay adequate attention for rural economic diversification. Rural economic base must be diversified first within agriculture and then between agricultural and non-agricultural activities. Since agricultural sector in rural areas is over-saturated, the growth of rural non –farm sector especially livestock rearing is a promising one for generation of sustainable employment and removal of rural poverty. The future challenge is not only to create more jobs to keep face with the growth in the labor force, but also to increase the average productivity of all jobs.

From this study we could observe that diversification of occupation takes place in the process of shifting in mode of production. Livestock rearing emerged as an important factor determining the development of tribal living conditions. So the government and policy makers also have to aware of this to adjust their policy to improve livestock rearing in the tribal rural areas.

The people also shift from diversification of crops to mono cropping where the settled agriculturalist grow only two or three types of crops in their fields. The main intention of mono cropping goes with commercialization of crops. Most of the farmers grow crops based on the market value. The policy makers should know that it is really important that new types of crops with high yielding and more profiting in the global market should be introduced in order to improve the living condition of the tribal households.

Most of the problems faced by the farmers were poor technology and facilities. The use of machines even among the settled agriculturalist was very less. Nowadays many simple technology and ways to improve agriculture came up which could be aware to improve their cultivation. Moreover, the approach road and transport of raw materials and products is still the blocking stone for the tribal farmers. The cost of production is high when using human labor so the market price grows up. Marketing became a problem for the farmers and they were absorbed by private entrepreneurs. Moreover, the farmers need the development of Agro based Industries within their reach. Many times their production goes waste as they do not have a place to store. So, food processing and storage industries are really needed to provide security to the farmers.

In the mean time the tribal cultivators could not develop due to the lack of skills and knowledge. To introduce new machines and new technology the cultivators always need necessary skills and training. More programmes and training for farmers should be organized at the grass root level. Moreover, the farmer should be aware of their right and which is beyond their power. Sometimes they are needed to aware about the transfer of land to the capitalist which could be the main way to lose control over their land and bring them to poverty. Moreover, the people need a cooperative society, Farmers club and Self Help Group to prevent them from exploitation and for their security.

So, in short the policy makers should be aware of the present scenario of tribal development in areas of agriculture. Mono cropping emerged and they also moved to commercialization of crops where the government really needs to take care of the market and technological input. There also emerged new forms of occupation that is livestock rearing among the tribal households. In order to really improve the living

condition of the tribal household policy should be framed in line with diversification of occupation among the tribal where the present NLUP programme will be of great help to improve the tribal living condition.

5.2.2. Social Work Practice

Social workers and organizations committed to tribal development and working towards the goal of tribal welfare have to advocate appropriate policy measures for promoting occupational and farm diversifications in the tribal areas where jhum control measures are implemented by governments.

An important issue for advocacy is prevention of concentration of landholdings and transfer of lands. There are symptoms that in case of permanent settlement there would be land alienation. Hence, social workers and peoples organizations have to come forward to press the government for enactment of legislation for the prevention of land transformation for at least next 50 years.

They need to organize awareness generation programmes on the governments jhum control programmes so that they will be effectively utilized. They need to mobilize people for plugging the loop holes in the implementation of these programmes especially the problems of corruption and improper targeting.

References

Achard, F., Eva, H., Glinni, A., Mayaux, P., Richards, T., & Stibig, H. (1998). 'Identification of Deforestation Hot Spot Areas in the Humid Tropics'. *Trees Publication*, 4:1-81

Agarwal, A.K. (1985). North East India: An Economic Perspective. Allahabad, Chugh Publication

Ajami, Amir Ismail. (2005). From peasant to farmer: a study of Agrarian transformation in an Iran Village 1967–2002. *International Journal of Middle East Studies*, 37:327–349.

Aryal, K.P. & Kerkhoff, E.E. (2008). 'The right to practice shifting cultivation as a traditional occupation in Nepal A case study to apply ILO Conventions'. *International Labour Organization.*111 (169)

Asiatic Society (undated) '*Carrying Capacity of Land Under Shifting Cultivation'*., Kolkata. Bose S.

Athreya, V., Djurfeld, G. Lindberg. (1990). Barriers Broken: Production relation and agrarian Change. *Social Scientist*, 14(5) (May): 3-14.

Basant, Rakesh. (1987). Agriculture Technology and employment in India: A survey of Recent research. *Economic and Political Weekly,* 22(32) (Aug. 8):1348-1364.

Brass, T. (1990). Class struggle and the deproletarianisation of Agriculture Labour in Haryana (India), *Journal of peasant studies*, 18(1): 36-67.

Breman, Jan (1989). Agrarian Change and Class Conflict in Gujarat, India. Population and Development Review, Vol. 15, Supplement: Rural Development and Population: Institutions and Policy: 301-323. Published by Population Council.

Byres, T. (1981). The new technology, Class formation, Class action in the Indian country side, *Journal of peasant studies,* 8(4) 405-454.

FAO (1995). 'Sustainable Forest Management and Conservation of Tropical Rainforests'. FAO, Rome.

Freitas, Carlos E. C., Kahn, James R., and Rivas, Alexandre, A. F. (2004). Indigenous people and sustainable development in Amazonas. *International Journal of Sustainable Development & World Ecology*, 11 (3), 312-325.

Government of India (2001). Tenth Five Year Plan. Planning Commission. New Delhi.

Government of India. (2007). Publication division, Ministry of Information and Broadcasting, New Delhi, Soochna Bhawan, C.G.O. Complex. 64-118.

Greenland, D. J. (1975). Bringing the Green Revolution to the shifting cultivator. *Science.* 190,841-844.

Gupta, Dipankar. (1986). Tribal Development in a West Bengal District Programmes, Structure, and Process. *Economic and Political Weekly*, 21(1), (January 4), 35-45.

Harris, J. (1982). Capitalism and peasant farming: Agrarian structure and ideology in northern Tamil Nadu. Discussion paper, Madras institute of Development studies.

Harrison, P. (1993). The Third Revolution: Population, Environment and a Sustainable World. *Penguin,* Harmondsworth, (34), 34-45

Harwood, R. R. (1996). Development pathways toward sustainable systems following slash-and-burn. Agriculture, Ecosystems and Environment Geografisk Tidsskrift. *Danish Journal of Geography,* 103(2), 75-86

Husain, Majid. (1993). Shifting Cultivation and Sustainable development in Nagaland. In Amitava Mukherjee, and V.K. Agnihotri (eds.) *Environment and Development*. New Delhi: Concept Publishing Company.

Hyde, William E., Amacher, Gregory S. and McGrath, William (1996).Deforestation And Forest Land Use: Theory, Evidence, And Policy Implications. *The World Bank Research Observer,* 11(2):223-48.

Ickowitz, Amy. (2004). *Shifting Cultivation and Deforestation: Questioning the dominant narrative in tropical Africa*. Retrieved April 1, 2010, from University of California. website: http://www.peri.umass.edu/fileadmin/.../Ickowitz_paper_Griffin_conference.pdf

Joshi, P. C. (1969). Agrarian Social Structure and Social Change. *Sankhyā: The Indian Journal of Statistics,* Series B, 31(3/4), (December), 479-490.

Kalita D.C., Cochran, G.W., & Bhowmick B.C. (1977). Living Standard under settled and shifting Cultivation – A Study on Hill Agriculture of Assam. Department of Agricultural Economics Nagaland University, SASRD Medziphema Campus. New Delhi. 1,127-129

Kanagaraj, E. (2005). *Human Development and Social Exclusion of Scheduled*

Tribes in Tamil Nadu. Unpublished Ph.D thesis, Annamalai Nagar: Department of Economics, Annamalai University.

Karuppaiyan, E. (1990). Alienation of Tribal Lands in Tamil Nadu. *Economic & Political Weekly,* 25(22),1185-1186

Kerkhoff, E. & Sharma E. (2006). Debating Shifting Cultivation in the Eastern Himalayas:

Farmers' Innovations as Lessons for Policy. *Kathmandu, ICIMOD*

Kleinman, P. J. A., Pimentel, D., & Bryant, R. B. (1995). The ecological sustainability of slash-and-burn agriculture. *Agriculture, Ecosystems and Environment,* (52), 235-249

Kurien, C. T. (1980). Dynamics of Rural Transformation: A Case Study of Tamil Nadu. *Economic and Political Weekly*, 15(5/7), (February), 365-390.

Lianzela. (2008). Political Economy of Mizoram: A study of MIP'. In J. K. Patnaik (Ed.) *Mizoram Dimensions and Perspectives: Society, Economy and Polity* (pp.142-52). New Delhi: Concept Publishing Company.

Lieten, G.K. (1990). Depeasantisation Discontinued: Land Reforms in West Bengal. *Economic and Political Weekly*, 25(40), 2265-71

Madegowda, C. (2009). Traditional Knowledge and Conservation. *Economic & Political Weekly,* vol xliv(21)

Mertz, Ole & Kias, Morten Bilde. (2003). Fallow, labour and livelihood in shifting

cultivation: implications for deforestation in northern Lao PDR Charlotte Seidenberg. *Danish Journal of Geography, 103(2), 71-80.*

Mertz, O. (2002). The relationship between length of fallow and crop yields in shifting cultivation: a rethinking. *Agroforestry Systems, (*55),149–159.

Mertz, O., Wadley, R. L., & Christensen, A. E. (eds.) (2003). *Land use and economic change in the post-frontier upland Philippines*. *Local Land Use Strategies in a Globalizing World: Shaping Sustainable Social and Natural Environments*. Copenhagen; Institute of Geography, University of Copenhagen. 1 (August), 79-101

Mohanty, B.B. (2006). Scheduled tribe and development. In H.S. Saksena (Ed.), *Land and Agriculture among Scheduled tribes in Maharashtra.* New Delhi: Serials Publications.

Mukherjee, Ramkrishna. (1948). Economic Structure of Rural Bengal: A Survey of Six Villages. *American Sociological Review*, 13(6), (December), 660-672.

Mukherjee, Ramkrishna. (1949). The Economic Structure and Social Life in Six Villages of Bengal. *American Sociological Review*, 14(3), (June), 415-425.

Mukherjee, Ramkrishna. (1981). Realities of Agrarian Relations in India. *Economic and Political Weekly*, 16(4), (Jan. 24), 109-116.

Newaj, Khoda and Ashok Rudra. (1975). Agrarian Transformation in a District of West Bengal. *Economic and Political Weekly*, 10(13), (March 29), A22-A23.

Newaj, Khoda (1975). Agrarian Transformation in a District of West Bengal. *Economic and Political Weekly*, 10(32), (Aug. 9), 1182-1183.

Newaj, Khoda. (1975). Agrarian Transformation in a District of West Bengal. *Economic and Political Weekly*, 10(32), (Aug. 9), 1182-1183

Nielsen, Uffe. (2006). The Rationality of Shifting Cultivation Systems: Labor Productivity Revisited, *Human Ecology, 34(2), 201-218.*

Ninan, K.N. (1992). Economics of Shifting Cultivation in India. *Economic and Political Weekly*, 27(13), 67-91.

Occasional Papers in Sociology and Anthropology, Katmandu: Central Department of Sociology and Anthropology, Tribhuvan University (2000). An anthropological perspective on shifting cultivation: A Case Study of Khoriya Cultivation in the Arun Valley of Eastern Nepal., Dhakal, Suresh. 6: 93-111. http://www.nepjol.info/index.php/OPSA/article/view/1104/1600

Panda, Nishakar. (2006). *Tribal Development: Imperatives and Compulsions*. Retrieved April, 2, 2010, from Orissa Review Website: *www.orissa.gov.in/e-magazine/Orissareview/dec-2006/engpdf/37-42.pdf*

Paul, Mithu and Paul, Partha Pratim. (2009). Beneficial effects of shifting cultivation (jhum). *Current Science,* 96(1),10.

Purushothaman, Seema. (2006). Land-Use Strategies for Tribals: A Socio-Economic Analysis. *Economic and Political Weekly,* 40(53), (December 31 – January 06), 5611-19.

Rajarathnam, T.N., and Guruswami, P.A. (1987). Taking Technology to Tribal People and Communities: Report of the Phase I (Survey) of the Project, Coimbatore:

Sri Ramakrishna Mission Vidyalaya Arts College.

Rao, S. L., Deshingkar Priya, & Farrington John. (2006). Tribal Land Alienation in Andhra Pradesh Processes, Impacts and Policy Concerns. *Economic and Political Weekly,* 453, 23-45

Rogaly, Ben, Harriss-White, Barbara., and Bose, Sugata. (1995). Sonar Bangla? Agricultural Growth and Agrarian Change in West Bengal and Bangladesh. *Economic and Political Weekly*, 30(29), (Jul. 22),1862-1868.

Rolwey-Conway. (1984). Slash and Burn in the Temperate European Neolithic. In R. Mercer (Ed.), *Farming Practice in British prehistory.* Edinburgh: Edinburgh University Press.

Rowe, R. (1992). Deforestation: problems, causes and Concerns. In Sharma, N. P. (ed.), *Managing the Worlds' Forests: Looking for a Balance between Conservation and Development*. Iowa; Kendall/Hunt, Dubuque.

Rudolph, L.I and Rudolph, S.H. (1984). Determinants and Varieties of Agrarian Mobilization. In M. Desai et.al (Eds), *Agrarian Power and Agricultural Productivity in South Asia*. Delhi: OUP

Sachidananda. (1989). Shifting cultivation in India. New Delhi: Concept Publishing. Company.

Saravanan, Velayutham. (2001). Tribal Land Alienation in Madras Presidency during the colonial Period: 1792-1947. *Review of Development and Change,* 6(1),73-104.

Scand. J. & Vennesland, B. (2004). Social capital and networks in forest-based rura economic development. *Høgskoleveien:* Norwegian Forest Research Institute, 19(5) 82-89.

Sethi Manpreet. (Undated). Land Reform in India: Issues and Challenges. *Unpublish Phd Thesis*

Shankar Raman, T. R., Rawat, G. S. and Johnsingh, A. J. T. (1998). Recovery of tropical rainforest avifauna in relation to vegetation succession following shifting cultivation in Mizoram, north-east India. *Journal of Applied Ecology,* 35, 214-231.

Singh, A. K. (2003). *Dynamics of tribal economy*. New Delhi: Serials Publication.

Thangchungnunga. (1997). Shifting Cultivation and emerging pattern of change in land relation. In L.K. Jha (Ed), *Natural Resource Management Mizoram*. New Delhi. APH Publishing Corporation.

Thorner, Daniel. (1968). Predatory Capitalism in Indian Agriculture. *Economic and Political Weekly*, 3(43), (October 26), A3-A4.

Zaitinvawra, D. and Kanagaraj, E. (2008). Changing Agrarian structure and livelihood options. In J. K. Patnaik (Ed.), *Mizoram Dimensions and Perspectives: Society, Economy and Polity* (pp. 7:91-125). New Delhi: Concept Publishing Company.

Shifting Cultivation to Settled Agriculture:
Agrarian Change and Tribal Development in Mizoram

Research Scholar
Mr. C. Lalengzama
M.Phil Scholar
Department of Social Work
Mizoram University

Research Supervisor
Dr.E.Kanagaraj
Assistant Professor
Department of Social Work
Mizoram University

HOUSEHOLD INTERVIEW SCHEDULE

(*Confidential and for research purpose only*)

I. Respondent Profile

I.	**Identification Information**	
	Schedule No.:	Date of Interview
	Village:	District
II.	**Profile of Respondent**	
	Name:	
	Tribe	Non-Mizo; 1. Mizo
	Sub-Tribe	Non-Mizo; 1 Lusei; 2 Paite; 3 Ralte; 4Hmar
	Religion	1 Christian; 2 Hindu; 3 Bhuddist
	Denomination	1. Presbyterian; 2 Baptist 3 UPC(M); 4 UPC(NE); 5 Salvation Army; 6 Seventh Day; 7 Local Denomination
	Type of Family	0 Nuclear; 1 Joint
	Form of Family	1. Stable; 2. Broken; 3. Reconstituted
	Socio-economic Category	0 AAY; 1 BPL; 2 APL
	Type of Cultivators	1. Shifting Cultivator; 2. Semi-settled; 3 Settled Cultivator
	Experience in Cultivation(years):	

II. Kindly furnish the details of household particulars.

	Name	**Age**	**Sex #**	**Marital Status**	**Clan**	**Education**	**Earner/ Dependent**	**Relation**
1								
2								
3								
4								
5								
6								

***1.Unmarried; 2 Married 3. Divorced/Separated 4. Remarried

** 0. Dependent 1. Earner

*0. Head; 1. Wife; 2. Son; 3. Daughter; 4. Parents; 5. Others

0. Male; 1. Female

III. Facilities and Amenities

S.No	Items	No of Items
1.	Water connection	
2.	Electricity	
3.	Septic tank/ Pit Latrine	
4.	Gas	
5.	Land	
6.	Ration card	
7.	Phone/ Mobile	
8.	Vehicle/ 2 Wheeler	
9.	Housing	

IV. Please give us the details of the occupation of the earning members of your household

ID	Sex	Occupation		Annual Income	
		#Primary	##Secondary	Primary	Secondary

V. Kindly furnish the details of average Monthly Expenditure of your household.

Sl.No	Items	Average Amount in Rupees
1.	Food	
2.	Electricity	
3.	Water	
4.	Phone	
5.	Clothing	
6.	Transport	
7.	Medication	
8.	Others (Specify)	

VI. Kindly furnish the details of Household Saving and Debt

From	Saving in Rupees	Debt in Rupees
In Cash		
Friend and relatives		
Money Lenders		
Commercial Banks		
Post office		
Life Insurance		
Cooperatives/SHGs		
Others (Specify)		

VII. Details of Land Possessions/ Ownership

S.No	Type of title	No of Plots	Area (Tins)	Duration(Years)		Source
				Possession	Cultivation	
1	Land Settlement Certificate					
2	Periodic Land Pass					
3	Temporary Pass(VC)					
4	Common Land					

VIII. Livestock Owned

S.No	Livestock	Number	Current Value	Annual Income	Source of Purchase
1.	Pig				
2.	Goat				
3.	Poultry Birds				
4.	Cow				
5.	Fish				
6.	Other (Specify)				

IX. Kindly furnish the details of your cultivation

S.No	Crop	Specify	Area (Tins)	Annual Income	Primary Purpose(√)	
					Household	Market
1.	Cereals					
2.	Pulses					
3.	Oil seeds					
4.	Vegetables					
5.	Fruits					
6.	Medicinal Plants					
7.	Tree Crops					
8.	Commercial Cro					

X. Kindly furnish the tools used for Cultivation and harvesting.

Sl.No	Tools	Number	Usage
1.	Chempui (Dao)		
2.	Hreipui (Axe)		
3.	Chem Sei (Big Dao)		
4.	Thirtiang (Crowbar)		
5.	Suahdur (Spade)		
6.	Chemkawm (Invented)		
7.	Tuthlawh (Traditional)		
8.	Dawrawn (Bamboo Basket)		
9.	Em (Basket)		
10.	Favah(Sickle)		
11.	Empai (Bamboo Basket)		

12.	Paikawng (Basket)		
13.	Tlam Em (Bamboo Basket)		
14.	Others(Specify)		

XI. How frequently are you using the following inputs in cultivation? (√)

Sl.No	Input	Frequency of Usage			
		Always	**Mostly**	**Sometimes**	**Never**
1	Seed				
	Local	3	2	1	0
	HYV	3	2	1	0
2	Human Labour				
	Male Hired Labour	3	2	1	0
	Female Hired Labour	3	2	1	0
	Male Family Labour	3	2	1	0
	Female Family Labour	3	2	1	0
3	Animal Labour				
	Own(Specify)	3	2	1	0
	Hired(Specify)	3	2	1	0
4	Machinery				
	Own(Specify)	3	2	1	0
	Hired(Specify)	3	2	1	0
5	Fertilizer				
	Organic Manure(Specify)	3	2	1	0
	Chemical Fertilizers(NPK)	3	2	1	0
	Chemical Fertilizers(Minor)	3	2	1	0
6	Pesticide				
	Organic Pesticides	3	2	1	0
	Chemical Pesticides	3	2	1	0

XII. How far do you agree to switchover?

Switchover	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
From Jhum to settled Agriculture	4	3	2	1
Common ownership of land to private ownership	4	3	2	1
Have right in land to transfer/sell	4	3	2	1
Have right in land to lease or contract	4	3	2	1
Hire non Mizo migrants in cultivation	4	3	2	1
Lease land to non-mizo migrants for cultivation	4	3	2	1
Lease land to private corporations for cultivation	4	3	2	1

XIII. How do you rate the performance of the successive jhum control programmes in improving the livelihood and living conditions of the jhumiahs?

Sl.No	Programme	Very High	High	Low	Very Low
1.	MIP	4	3	2	1
2.	NLUP(Old)	4	3	2	1
3.	BAFFACOS	4	3	2	1
4.	NLUP (New)	4	3	2	1
5.	Others(Specify)	4	3	2	1

XIV. Please tell us the benefits your family derived from earlier jhum control programmes of the government.

Sl.No	Benefits	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	MIP	4	3	2	1
2.	NLUP(Old)				
3.	BAFFACOS				
4.	NLUP (New)				
5.	Others(Specify)				

XV. In your understanding what are the main problems with earlier Jhum control Programmes.

Sl.No	Problem/Difficulty	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	Peoples participation/ Coopera	4	3	2	1
2.	Corruption				
3.	Politics in selection of beneficiaries				
4.	Others (Specify)				

XVI. Do you think the NLUP of the present state government lead by Congress will lead to…

Sl.No		Strongly Agree	Agree	Disagree	Strongly Disagree
1.	Confer Land Rights to People	4	3	2	1
2.	Settle Jhumias in Permanent Land	4	3	2	1
3.	Enhance the income of the people	4	3	2	1
4.	Enhance the wealth of the people	4	3	2	1
5.	Increase inequality in land distribu	4	3	2	1
6.	Others(Specify)	4	3	2	1

XVII. Please rate the following Problem Faced as Agriculturalist

Sl.No	**Problem/Difficulty**	
1	Lack of adequate funds	
2	Non suitability of land for settlement	
3	Lack of Irrigation facilities or sources	
4	Lack of technical know how	
5	Inadequate labour	
6	Lack of marketing facilities	
7	Non remunerative price	
8	Lack of transport and communication	

XVIII. Suggestion to improve agriculture in Mizoram.

Sl.No	**Suggestion**	
1.		
2.		
3.		
4.		
5.		
6.		

PARTICULARS OF THE CANDIDATE

NAME OF THE CANDIDATE : **C. Lalengzama**

DEGREE : **M.Phil**

DEPARTMENT : **Social Work**

TITLE OF DISSERTATION : **Shifting Cultivation to Settled Agriculture; Agrarian Change and Tribal Development.**

DATE OF PAYMENT OF ADMISSION : **27th July, 2009**

COMMENCEMENT OF SECOND SEM/

DISSERTATION : **4th February, 2010**

APPROVAL OF RESEARCH PROPOSAL

1. **BPGS** : **15th April, 2010**

2. **SCHOOL BOARD** : **27th April, 2010**

REGISTRATION NO. & DATE : **MZU/Mphil/19 of 27.4.2010**

DUE DATE OF SUBMISSION : **16th December, 2010**

EXTENSION (IF ANY) : **N.A.**

(Dr.KALPANA SARATHY)
Head, Department of Social Work,
Mizoram University

BIO-DATA

Name : C. Lalengzama.

Date of Birth : 28th December, 1985 (as per Matriculation Certificate)

Father's Name : C. Vanlaltluanga.

E-mail ID : **teachongthu@gmail.com**

Permanent Address : s/o C. Vanlaltluanga

Section- III, Lunglawn,

Lunglei -796701, Mizoram

Telephone No. 9862501778

Educational Qualification

Sno	Class	Div	Percentage	Subject	School/University
1	X	II	55.7	Arts	MBSE
2	XII	II	52.8	Arts	MBSE
3	BA	Distn	72.5	Geography	Pune University
4	MA/MSW	I	64.19	Social Work	Mizoram University

Related Experience

- **Field Work at Child Welfare Committee (CWC):** The field work focus on identifying and studying children in need of care and protection in and around Aizawl. Working as a field worker to identify, collect information and submitting report of children to the Child Welfare committee.

- **Field Work Zoram Drivers Union, Mizoram (ZDU):** Works with drivers and other risk population understanding the problems and causes. Spending 10 days in one of their De-addict centre at Zuangtui for better understanding of their problems. Conducted Case Study and Group Work.

- **Field Work in a Community (Zemabawk), Mizoram:** Learning the community structure and decision making process, work and contributions of local CBOs, identification of needs and resources with local leaders, villagers and key persons and motivating the communities towards development through available resources. Conducted Case Study, Group Work, Participatory Rural Appraisal (PRA) and Socio-economic Survey, organized HIV/AIDS Awareness Campaign, Career Guidance, Free Clinic and Nutrition Awareness Campaign.

- **15 Days Field Work in a Rural Village (Tawipui), Mizoram:** For better understanding of the rural households and their dependency on agriculture 15 days fieldwork was conducted between 1st to 15th october 2009. During the fieldwork key informants interview, Focus group discussion and PRA was conducted.

- **Project Work at Zemabawk, Mizoram:** Carried out a project on "Livelihood of Migrants in Zemabawk" and dealing with issues and challenges of migrants through process of social study, assessment, intervention and evaluation. Dealing with Government Officials, Community Leaders and Local People to tackle the problems and challenges faced by migrants.

- **Block Placement at EFICOR, Delhi:** For better understanding of rural indian village 20 days fiedwork was attended in the state of Jharkhand in Barharwa

District. PRA and Focus Group Discussion were used to have better understanding of the living conditions of rural and tribal areas. The running project and activities of the EFICOR were observed and studied.

- **Attending State Level Seminars, Social Work, Mizoram University:** Attended State Level seminar on Social Science Research; Qualitative and Quantitative at department of Social Work, Mizoram University between 4th-6th March 2010.

- **Attending Training on Trainers for Grassroot Comics:** Attended training on trainers for Grassroot comics on 2nd to 7th February organised by World Comics India and was qualified for trainer.

(C. LALENGZAMA)

Research Scholar

Department of Social Work,

Mizoram University

SHIFTING CULTIVATION TO SETTLED AGRICULTURE: AGRARIAN CHANGE AND TRIBAL DEVELOPMENT IN MIZORAM

ABSTRACT

C. Lalengzama

Department Of Social Work

Submitted in partial fulfillment of the requirement of the Degree of

Master of Philosophy in Social Work of

Mizoram University, Aizawl.

‘Shifting cultivation to Settled Agriculture; Agrarian Change and Tribal Development in Mizoram’

Introduction

The present study attempts to assess the impact of agrarian change from shifting cultivation to settled agriculture on the tribal living conditions in Mizoram.

Shifting cultivation has been viewed as one of the challenges to tribal development India over many decades. According to the tenth five year plan, shifting cultivation has remained as one of the unresolved issues of planning for tribal development in India (GOI, 2001). According to the 2001 Census, the tribal population in the country was 84.3 million accounting for 8.2% of the total population. The tribes have traditionally lived in about 15% of the geographical area of the country, mainly in forests, hills and undulating inaccessible terrain in plateau areas which are rich in natural resources.

The origin of Shifting Cultivation could be traced back to the Neolithic period dated to 7000 BC on the basis of archeological data. This marked a revolutionary change in human societies from food gathering to food production. In fact its origin is traced to as far back as the Neolithic period between the years 1300 to 3000 B.C (Ninan, 1992). Shifting cultivation is accepted as an early stage of agricultural evolution which is practiced in different parts of the world across different culture (Rolwey-Conway, 1984). Shifting Cultivation is not only practiced in India, but it is widely persistent among the indigenous communities, particularly in Africa, Latin America and parts of Asia. Tribal communities and hill people from time immemorial have practiced shifting Cultivation in India. It is widely practiced in the hill region of North Eastern States of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura.

About 10 million hectare of tribal land stretched across 16 states is estimated to be under Shifting Cultivation in India.

Mizos have been agriculturists from the start of the 18th century when they made their western trek to the present Mizo Hills. They know only the form of farming known as Shifting Cultivation which forms the major activity of the Mizo economic life even today, wet rice cultivation is reported to be first practices in the year 1921 by the Mizo residents of Burma which marked the recorded adoption of a new technology in the culture of rice farming among the ethnic group of Mizo (Thangchungnunga, 1990).

Out of 702 villages and 1,43,240 household 71,658 families ie.e. 50.02% belonged to cultivators families (GOM 2002 – 2003) in Mizoram with an area of 21,087, Sq. km area of forest has been affected by Shifting Cultivation. (FSI, 1997).

Shifting Cultivation has been a subject of debate and intervention since colonial era and has often been a victim of public misconception and simplified as stereotypes. The practice has been criticized by environmentalists, foresters, development practitioners and policy makers as being primitive backward destructive or wasteful.

From the last few decades the practice of jhum has become a burning issue. Opinion of the Researcher on shifting Cultivation is divided into two. Number of them consider it as a wasteful land use with primitive Technology which is harmful to Eco system. On the other many scholars (e.g. Elwin 1959, Chaturvedi and Uppal 1960, Shivaram 1957 and others) have considered jhuming as a most possible human response to fragile tropical hill Eco system(Hamid Hussain 1993). Moreover there are two school of thought about the practice of shifting

Cultivation, the one who think it as a way of life and the other think it as a wasteful method of Cultivation (A.K Agarwal 1998).

Research and Development Organization including government Agencies have been involved in developing alternative approaches to transform Shifting Cultivation system into most sustainable form of land use. Moreover shifting Cultivators are often blamed for Environmental Degradation and are under tremendous pressure from authorities to adopt more permanent form of Agriculture.

Despite the varying circumstances and policies to wean away Farmer from practicing shifting cultivation, not much has been achieved as most of those communities still continue to practice shifting cultivation.

Overview of Literature

Agrarian structure and change have been one of the fertile areas of social science research in India. Economists, sociologists and historians have conducted a number of studies on these aspects of social structure (see Athreya et al. 1990; Harris, 1982; Mukerjee, 1969; Shah, 1969; Gadgil, 1969; Thorner, 1969) in various agro climatic zones of India. There are studies on the changes in the agrarian structure and its impact on rural development (see Harris, 1992; GOI, 1954; Gupta, 1969). There are studies which focus on the agrarian reforms (see Thorner, 1969a; Joshi, 1969; Kushro, 1960) and agricultural technology (see Bras, 1990; Basant, 1987; Byres, 1981) and their impact on the agrarian structure as well as rural living conditions.

As agriculture is the main source of livelihood of most of the tribes, there are a number of studies on tribal agriculture in India. In this area, studies have concentrated on the agrarian structure, change as well as crucial agrarian issues of shifting cultivation (see for instance

Conclin, 1961), and land alienation (see Saravanan, 2002; Karuppaiyan, 1998; Shanmugam, 2004). On shifting cultivation there is copious literature in India as many tribes depend upon that for their sustenance. The studies generally focus on social and economic aspects shifting cultivation in different contexts such as jhum cycle (See Ickowitz, 2004), ecological consequences (See Raman, Rawat and Johnsingh, 1998), cropping pattern (see Ickowitz, 2004), input use (Sachidananda, 1989), willingness to switchover to settled agriculture (Zaitinvawra and Kanagaraj, 2008) etc.

There are also studies on the tribal development especially the living conditions and the livelihood of the tribals which focus on the socio economic condition of tribal in areas (see Ramachandran, 1992; Rajarathnam and Guruswami, 1987; Karupaiyan, 1990; Manivannan, 1989). Some have attempted to study inter tribal variations in tribal development (see Kanagaraj, 2005).

From the overview of literature, it could be observed that there are a number of studies which have conducted in varied agrarian and tribal contexts. Social scientists especially the economists, sociologists, anthropologists, historians etc., have explored the agrarian question from their disciplinary angles and varied theoretical perspectives and methodological orientations. Among the theoretical approaches political economy is predominant while the quantitative approach is the methodological orientation that is prominent. In spite of these, a few research gaps could be observed.

Firstly, there are a few empirical studies on this problem in Mizoram (except Zaitinvawra and Kanagaraj, 2008). Even this study has confined it self to one village in the vicinity of Aizawl town. The findings of this study may not be reflecting the real situation in Mizoram.

Secondly, a few studies focus on impact of switchover from shifting cultivation to settled agriculture on agrarian structure (See except Zaitinvawra and Kanagaraj, 2008; Ninan, 1989). Even these studies could not demonstrate clearly the effect of agrarian change on the tribal development as they did not operationalise the concept of tribal development from a theoretical perspective.

Thirdly, social workers have not adequately researched on tribal development i.e., tribal livelihood (except Zaitinvawra and Kanagaraj, 2008) or living conditions (see Kanagaraj, 2005).The present study tries to fill these gap by comparison the tribal livelihood and living conditions of the shifting cultivators and settled agriculturalists.

Methodology

This study is descriptive in design and cross sectional in nature. It is mainly based on the primary data collected through structured interview schedule in two sample villages. In addition, the participatory methods such as social map, seasonal diagram etc. were used to understand social and ecological context of sample villages and cultivation practices.

The study adopted a multi stage sampling procedure to select district, block, villages and households. The study was conducted in Aizawl and Kolasib districts. They were selected in view of the fact that they constitute majority of the rural households in Mizoram. In Aizawl district, one representative village predominantly occupied by settled agriculturists were chosen and in Kolasib district, one representative village predominantly relying on shifting cultivation were chosen purposively. In each of the villages, the lists of very poor, poor and non poor households were collected from the village council presidents. In each of the categories, using systematic random sampling households were proportionately selected.

The quantitative data collected through field survey was processed with computer packages of MS excel and SPSS. To analyse the data cross tabulation, simple statistical methods of averages, percentages, ratios and proportions were used. Apart from that t test and Karl Pearson's Product moment correlation were used.

Conclusion

As a result of switch over from shifting cultivation to semi settled agriculture significant and substantial changes were observed in the agrarian structure, tools and implement use, cropping pattern, input use, patterns of livestock ownership, household income, household expenditure, household debt, household saving, amenities, perception of the farmers on the performance of various Jhum Control Programmes and expectations of the farmers on the present Jhum Control Programme.

Therefore the change of agrarian structure from shifting cultivation to settled agriculture results in the emerging of mono cropping. Further it results in the diversification of occupation. Live stock rearing emerged especially rearing of cows and also the rearing of pig increased which have contributed a lot to create a better living condition. The interdependency between livestock rearing and settled cultivation help the settled agriculturalist to be more self sufficient in terms of capital, manure and also helps in weeding. Agriculture alone does not bring better living condition but diversification of occupation helps to have more income besides cultivation.

In the process of moving from shifting cultivation to settled agriculture significant change occur in the occupation of households. Diversification of crops emerged among the settled agriculturalist where livestock rearing contribute a lot to improve the income of the settled agriculturalist. The settled agriculture and livestock rearing depends on each other as the bi-

product from cultivation could be used for rearing livestock. On the other hand livestock are the main sources of manure for the field and also these livestock especially cows and goats are useful tools for weeding. Rearing of cows emerged among the settled agriculturalist and in the mean time rearing of pigs also increased among the settled agriculturalist.

In the patterns of agrarian structure, the size of land holding had increased significantly among the settled agriculturalist. Most of the shifting cultivators were marginal farmers and in the mean time the majority of settled agriculturalists were small farmers. While the settled agriculturalist owned more than 2 Acres of land on an average, the shifting cultivators owned less than one acres of land. Most of the cultivation among the shifting cultivation was on common land. But the settled agriculturalist cultivate mostly on Land under Land settlement certificate. The duration of cultivation was significantly higher among the settled agriculturalist as cultivation on common land was for one year only.

As switch over from shifting cultivation to semi settled agriculture occurs the cropping pattern also undergoes significant and substantial change. In the process of transformation the number of crops decline significantly and the cropping pattern moved from crop diversification to mono cropping. There is also a qualitative transformation from subsistence to commercialization as most of the crops were cultivated in settled agriculture for commercial purpose while shifting cultivators cultivated for household consumption. The number of subsistence i.e. food crops meant for household consumption decreased significantly while that of commercial crops i.e. vegetables and fruits increased significantly. Most of the land among the shifting cultivators was used for cereals cultivation mainly rice. But among the settled agriculture most of the land was used for vegetables and other commercial crops.

As the settled agriculturalists are the beneficiaries of old NLUP they perceived the NLUP both old and ongoing as successful. Political system also plays a significant role in the selection of beneficiaries. Where, a member of the ruling party will benefit more from certain programmes. Sometimes the programme failed due to the lack of cooperation. The government selects beneficiaries who cannot carry out the intention and objective of the programmes. Sometimes the programmes formulated have no relevance among the tribal. In the mean time the beneficiaries are not competent enough as they lack skills and are not fit enough to be successful. Sometimes the involvement of politics in the selection of beneficiaries diverted the resources from the needy to the party worker.

The settled agriculturalist believed that the ongoing NLUP will have a great influence on the people. They believed that it will confer land rights and increase their income.

Policy Suggestion

In the process of change from shifting cultivation to settled agriculture many changes and development take place in the households living condition. It has to be understood that the solution to poverty does not lie in agriculture alone. Rural economic base must be diversified first within agriculture and then between agricultural and non-agricultural activities. Since agricultural sector in rural areas is over-saturated, the growth of rural non –farm sector especially livestock rearing is a promising one for generation of sustainable employment and removal of rural poverty. The future challenge is not only to create more jobs to keep face with the growth in the labor force, but also to increase the average productivity of all jobs.

From this study we could clearly observed that diversification of occupation takes place in the process of shifting in mode of production. Livestock rearing emerged as an important

factor determining the development of tribal living conditions. So the government and policy makers also have to aware of this to adjust their policy to improve livestock rearing in the tribal rural areas. Moreover mono cropping emerged as an important issue to give change to the patterns of agriculture. So the policy maker has to give importance to introduce new crops which could have a better scope for market in the international market. The use of machines and animal labour also emerged among the settled agriculture where the government has a large portion to be undertaken.

Social Work Practice

Social workers and organizations committed to tribal development and working towards the goal of tribal welfare have to advocate appropriate policy measures for promoting occupational and farm diversifications in the tribal areas where jhum control measures are implemented by governments.

An important issue for advocacy is prevention of concentration of landholdings and transfer of lands. There are symptoms that in case of permanent settlement there would be land alienation. Hence, social workers and peoples organizations have to come forward to press the government for enactment of legislation for the prevention of land transformation for at least next 50 years.

They need to organize awareness generation programmes on the governments jhum control programmes so that they will be effectively utilized. They need to mobilize people for plugging the loop holes in the implementation of these programmes especially the problems of corruption and improper targeting.