LIVELIHOOD DIVERSIFICATION AMONG THE TEA PLANTATION WORKERS IN WEST BENGAL: A CASE STUDY OF DARJEELING HILLS

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CERTIFICATE

This is to certify that the thesis entitled **" Livelihood Diversification among the tea plantation workers in West Bengal: A Case Study of Darjeeling Hills**" by Mamta Gurung has been written under my supervision. The thesis is the result of her investigation into the subject. Neither the thesis as a whole nor any part of it was ever submitted to any other University for any research degree.

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Supervisor

Declaration

I, **Mamta Gurung**, 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 the basis of the award of any previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/Institute.

This is being submitted to Mizoram University for the Degree of Doctor of Philosophy in Economics.

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Date_____ Mamta Gurung

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LIST OF ABBREVIATIONS

CAGR	:	Compound Annual Growth Rate
CARE	:	Cooperative for Assistance and Relief Everywhere
CW	:	Casual Workers
DBT	:	Direct Benefit Transfer
DFID	:	Department of International Development
DTDPLU	:	Darjeeling Terai Dooars Plantation Labour Union
ELP	:	Extra Leaf Price
ERA	:	Equal Remuneration Act
FAWLOI	:	Financial Assistance to the Workers in Locked-out Industrial Units
FGD	:	Focus Group Discussion
GEN	:	General
GJMM	:	Gorkha Jan Mukti Morcha
Hh(s)	:	Household(s)
HHI	:	Herfindahl-Hirschman Diversity Index
IRDP	:	Integrated Rural Development Planning
LPG	:	Liquified Petroleum Gas
MGNREGS	:	Mahatma Gandhi National Rural Employment Guarantee Scheme
MPI	:	Multidimensional Poverty Index
MWA	:	Minimum Wages Act
NCRL	:	National Commission on Rural Labour
NFLMW	:	National Floor Level Minimum Wage
OBC	:	Other Backward Class
OMRE	:	Other Monthly Rated Employees
OR	:	Odd Ratio
OWS	:	Occupational Wage Survey
OXFAM	:	Oxford Committee for Famine Relief
PLA	:	Plantation Labour Act

PRA	:	Participatory Rural Appraisal
PW	:	Permanent Workers
RRA	:	Rapid Rural Appraisal
SC	:	Scheduled Caste
SHG	:	Self Help Group
SHD	:	Sustainable Human Development
SL	:	Sustainable Livelihood
SLF	:	Sustainable Livelihood Framework
ST	:	Scheduled Tribe
TG	:	Tea Garden
TE	:	Tea Estate
TU	:	Trade Union
UNDP	:	United Nations Development Programme

Chapter 1

INTRODUCTION

1.1. Introduction

The concept of sustainable livelihood first emerged in the Brundtland Commission. Accordingly, the first definitions of sustainable livelihood are found in Brundtland Report (Our Common Future) of 1987 (Scoones, 1998). The literature provides a variety of definitions given by many academicians and development practitioners for example Chambers and Conway (1992), defined livelihood as, “a livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the long and short term ”. Ellis (1999), defines livelihood as “the activities, the assets, and the access that jointly determine the living gained by an individual or household”. To Scoones (2009), the term "livelihoods" is a versatile and adaptable term that can be combined with a variety of other words to form entire fields of development research and practise. These include things like locations (rural or urban livelihoods), occupations (farming, pastoral, or fishing livelihoods), social differences (gender- and age-defined livelihoods), directions (livelihood pathways, trajectories), dynamic patterns (sustainable or resilient livelihoods), and many more. The various definitions of livelihoods bring to our attention that (i) livelihood deals with the ways and means to secure basic necessities of life (ii) livelihoods are concerned with the availability of resources and their use. Livelihood encompasses both material and non-material aspects of well-being. Thus, the concept of livelihood should be viewed as dynamic and holistic (De Haan and Zoomers, 2005).

The concept of livelihood resources has been described in various ways by different authors. Chambers and Conway (1992) describe livelihood resources into two categories: (i) tangible assets (resources and stores) and (ii) intangible assets

(claims and access). According to Scoones (1998), there are four distinct categories of livelihood resources: (i) natural capital refers to the natural resources that are used to achieve the desired livelihoods; (ii) economic/financial capital refers to the financial resources that individuals use to create and consume goods and services, such as savings, credit, remittance, and pensions; (iii) human capital consists of skill, knowledge, good health, and the labour capacity to carry out livelihood activities; (iv) social capital consists of social resources such as connectivity, networks, kinship, and organisational memberships. Carney (1998) has recognised one additional capital asset, namely physical capital that constitutes infrastructure, production tools and equipment that help people to be more productive. Thus, the asset pentagon, which represents human capital, natural capital, social capital, financial capital, and physical capital, is at the centre of the livelihoods framework.

Livelihoods are determined by the access to and control over these resources which are further influenced by political, economic, and socio-cultural contexts (Carney, 1998). Access is a problem that affects not only the use or acquisition of capital but also the efficient use of livelihood opportunities (De Haan and Zoomers, 2005). Furthermore, individuals must deal with stress and shocks while simultaneously creating and embracing new opportunities in the process of earning a living (Scoones, 1998). These vulnerability variables have varying effects on different individuals/households. To analyse a sustainable livelihood, it is critical to have a good grasp of the vulnerability situation. The vulnerabilities, as well as opportunities, have an impact on resource management and usage, as well as on the decisions taken. In the end, a household's or individual's livelihood outcome is the result of the successful livelihood strategies adopted.

Livelihood strategies are a dynamic process in which individuals engage in a variety of activities to fulfil their needs and achieve their desired outcomes by manipulating livelihood resources and establishing regulatory mechanisms at various levels of society (Dharmawan and Manig, 2000).Scoones (1998) classified livelihood strategies into three categories. First, agricultural intensification/extensification, in this strategy, communities derive the majority of their income from farming, either through intensification (increased output per unit area through capital investment or

increased labour inputs) or extensification (bringing more area under cultivation). The second livelihood strategy is livelihood diversification, which Ellis (1999) defines as "the process by which families build a varied portfolio of activities and social support capacities to survive and enhance their quality of life." Several studies have reported that farming alone is not enough to earn a livelihood in rural parts of low-income nations (Barrett, Reardon, and Webb, 2001; Adi, 2007). As a consequence, most rural households rely on different sources of income in addition to farming such as off-farm activities, non-farm activities, and migration. Migration is the third livelihood strategy, which may be voluntary or involuntary. According to Ellis (1998), migration may be seasonal (in response to agricultural seasons), circular (in response to cyclical labour needs in non-farm labour markets), permanent (typically from rural to urban), and international. These three tactics may be used individually, or in combination, or order by a household. This approach illuminates numerous aspects of rural livelihoods and is critical in comprehending the complexity of rural livelihoods, which is influenced by interactions between livelihood assets, vulnerability situations, policies, institutions, organisations, and livelihood strategies.

1.2. Introduction to Livelihood Approach: A Conceptual Framework

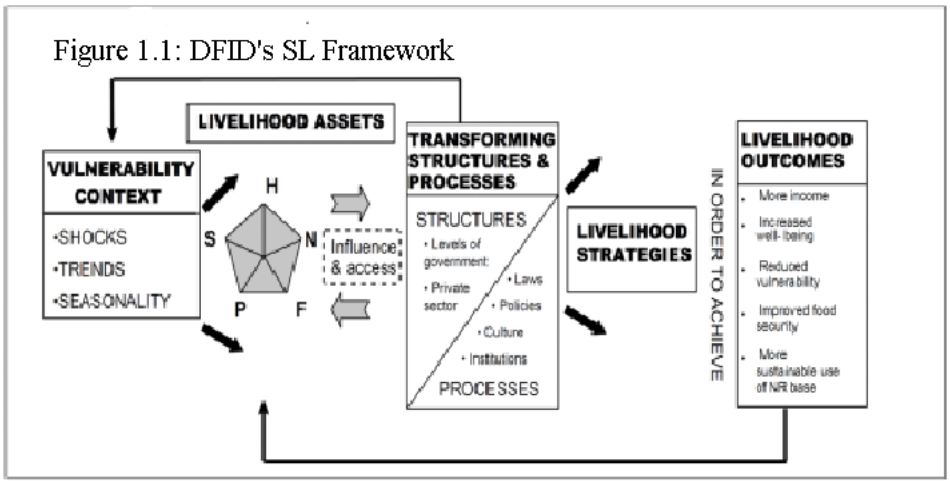
With the introduction of livelihood frameworks, diversification in rural regions has gained significance in literature and research in the developing world since the 1990s (Israr et al., 2014). Sustainable livelihood provides a more rational and combined approach to alleviating poverty and has gained prominence in Department for International Development (DFID) since 1998 (Carney, 2002). Other organizations namely United Nations Development Programme (UNDP), OXFAM and CARE have embraced the sustainable livelihood approaches that have much in common, but their emphasis varies and differs from one another (Carney et al. 1999).

1.2.1. The DFID Framework

The Department of International Development (DFID) is accountable for encouraging development and poverty reduction by the British government department. The DFID incorporated the implementation of a sustainable livelihood strategy in its 1997 White Paper on International Development (Carney et al., 1999). One of the livelihood frameworks most commonly used in development discourse is the Sustainable Livelihood Framework (SLF) of DFID. It modifies Chambers and Conway's (1992) definition of livelihoods: "A livelihood comprises the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base." (Carney et al., 1999).

The core principles of the SL approach are: dynamism, people-centred, holistic, participatory in nature, building on strengths, operating at various levels and having a sustainability vision (ibid.). The SLF identifies and distinguishes five types of assets upon which livelihoods are built, namely human capital, social capital, natural capital, physical capital and financial capital and how these assets can be combined in a variety of ways to create positive livelihood outcomes and eliminate poverty. It also highlights structures (or organisations) and procedures (societal standards, incentives, policies, and legislation) that affect asset access, control, and use and how it can limit or allow people's livelihood choices and decide on the sustainability of such choices. Vulnerability environments such as shocks, trends and seasonality can affect people's livelihoods and their access and control of resources. The next significant factor in the DFID model is livelihood strategies. In the context of structures, procedures and vulnerability context, people choose their livelihood strategies based on their asset ownership. According to DFID, a livelihood outcome leads to concentrating on accomplishments, indicators and advancement that are the results of strategies taken (DFID, 1999).

Figure 1.1: DFID's SL Framework



Source: Carney et al., 1999, p.9

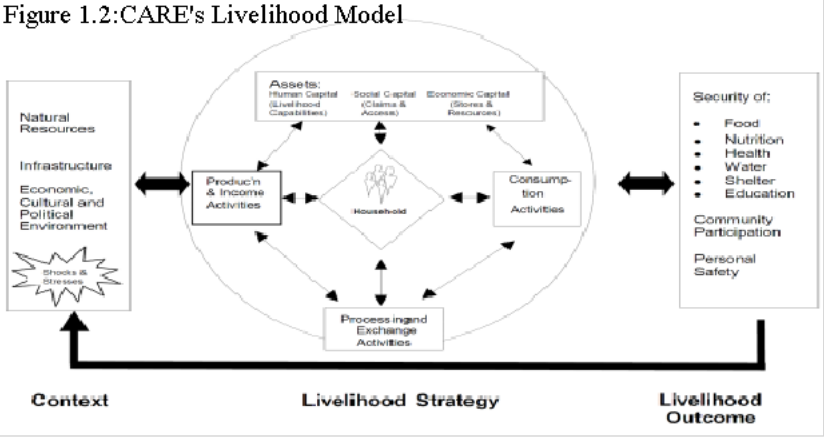
1.2.2. The CARE Framework

CARE is an international non-governmental organization focusing on household livelihood security related to primary needs. Its idea of livelihood is derived from Chambers and Conway's definition of livelihood, " a livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the long and short term.". CARE reflects three basic attributes to livelihood: (i) human capital possession (e.g. education, health, skills, psychological orientation); (ii) Access to other tangible and intangible assets (social, natural, and economic capital); and (iii) the presence of economic activities. The interaction among these attributes decides for which livelihood strategy a household will choose (Carney et al., 1999).

The framework helps to identify the most vulnerable households and places individuals' priorities and aspirations at the centre of the analytic and planning process. The CARE framework distinguishes between assets, capabilities and activities but does not explicitly focus on structures and processes and places less emphasis on macro-micro links within the framework, although these are important in many aspects of its work. It identifies three categories of livelihood activity that

are non-exclusive: promotion of livelihood, protecting livelihood and provision of livelihood. CARE's three focus areas of activity: empowering individuals, empowering society and delivering services to the poor (ibid.).

Figure 1.2:CARE's Livelihood Model

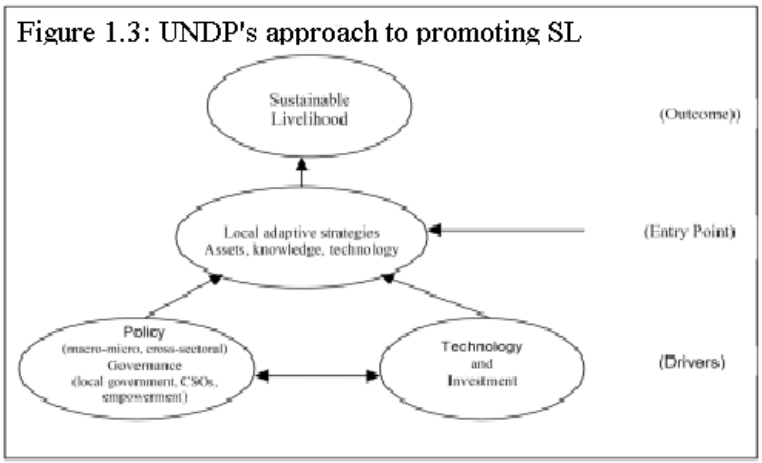


Source: Carney et. al., 1999, p.7

1.2.3. The UNDP Framework

The agenda for sustainable livelihoods is part of the UNDP's overall mandate for sustainable human development (SHD) adopted in 1995. It recognizes livelihoods as the means, activities, rights and resources that individuals make a living through. Assets are characterised as (i) natural capital (i.e. land, water, common-property resources, flora, and fauna); (ii) social capital (i.e. community, family, social networks); (iii) political (i.e. participation, empowerment – sometimes included in the 'social' category); (iv) human capital (i.e. education, labour, health, nutrition); (v) physical capital (i.e. roads, clinics, markets, schools, bridges); and (vi) financial capital (i.e., employment, savings, credit). Sustainable livelihoods are characterised as (i) capable of dealing with and recovering from shocks and stresses (ii) economically efficient; (iii) environmentally sound, ensuring that livelihood activities do not irreversibly degrade natural resources within a specified ecosystem; and (iv) socially equitable, which indicates that promoting one group's livelihood possibilities should not preclude other groups ' choices, either now or in the future. Like DFID, UNDP focuses primarily on the strengths of people rather than needs, the

significance of creating micro-macro connections and sustainability should be evaluated and endorsed on an ongoing basis (Carney et al. 1999).

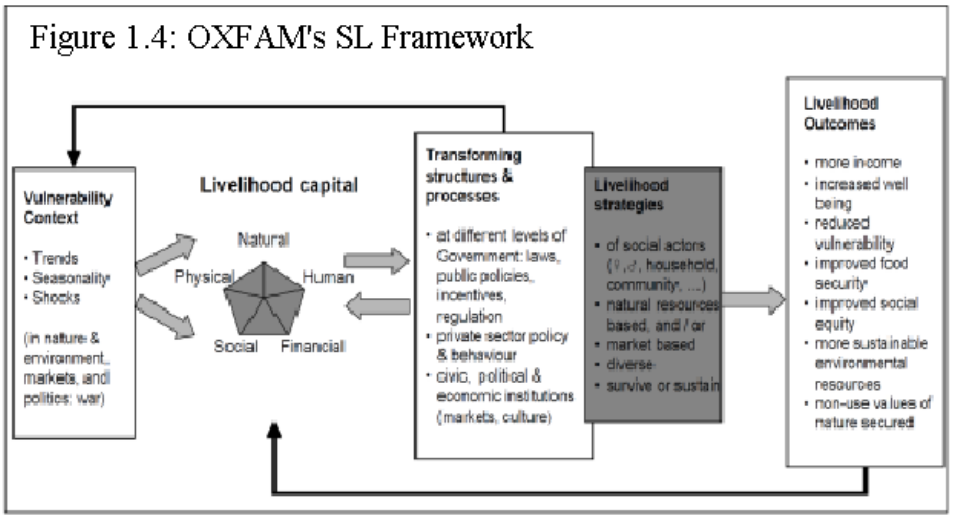


Source: Carney et al., 1999, p.13

1.2.4. The OXFAM Framework

Oxfam, a decentralized organization, adopted a sustainable livelihoods approach in the early 1990s. Oxfam uses a semi-official livelihoods framework which has much in common with the DFID framework. It emphasizes that defined rules do not exist and Oxfam also draws on Chambers and Conway's definition of sustainable livelihoods and also draws on Chambers and Conway's for its definition of sustainable livelihoods and points out that sustainability has different dimensions: (i) financial (for example, the functioning of market functioning and loan supply); (ii) social (networks of reciprocity, gender equity); (iii) institutional (capacity building, access to services and technology, political freedom) and (iv) ecological (quality and availability of environmental resources). Oxfam addresses the issue of environmental change as the main aim to eliminate poverty as well as concerns about globalizing markets, deteriorating economic rights, gender and wider social inequality, and the need to reinforce the participation of deprived people in the SL approach to development (Carney et al., 1999).

Figure 1.4: OXFAM's SL Framework



Source: Carney et al., 1999, p.11

The approaches implemented by different agencies are all built on earlier development theories. These include aspects of the integrated rural development planning (IRDP) approaches of the 1970s; food security initiatives during the 1980s; rapid rural appraisal (RRA); participatory rural appraisal (PRA); farming systems research; gender analysis; new understandings of poverty and well-being; risk and vulnerability assessment; and agrarian reform but there are differences of interpretation and different variations of the livelihoods framework.

1.3. The Concept of Livelihood Diversification

Ellis (2000) defines rural livelihood diversification as 'the process by which rural households construct an increasingly diverse portfolio of activities and assets to survive and improve their standard of living'. Livelihood diversification is an important strategy by which individuals and households seek to increase incomes and decrease environmental risk, with varying degrees of freedom of choice (to diversify or not) and reversibility of the outcome. Chambers (1997) argues that to exist in a risky and unpredictable environment, impoverished people, in particular, must diversify their sources of income. Several studies from various disciplines in Africa and Asia have found that rather than becoming passive victims, the majority of rural

people have diversified their economic activity and adopted various strategies to reduce poverty and sustain their livelihoods (De Haan and Zoomers, 2005).

Diversification of rural livelihoods might suggest a shift from agriculture to non-agricultural activities. It encompasses both non-farm and off-farm activities that are carried out to supplement earnings earned by the household's primary agricultural activities. In Sub-Saharan Africa, non-agricultural income makes up a large part of diversification (Elmqvist et al., 2007). In a similar vein, Bryceson (1996) offers evidence that Sub-Saharan Africa, is growing less agricultural over time. In rural India, there has been some evidence of non-agricultural employment diversification (Unni,1996). As a result, pursuing non-agricultural work is a risk-mitigation approach for meeting basic household subsistence requirements (Dercon and Krishnan 1996). Thus, non-farm income is becoming increasingly important in developing countries (Arnold, 1994; Bernstein et al., 1992).

Rural farming households participated in the low-skilled non-farm activities such as artisanship, casual wage workers, petty trading, hunting, fishing and some in skilled non-farm activities such as civil service, private sector employment and other paid employment, sport, sales, carpentry, photography, mechanic/electricians, clergy, blacksmith and sewing (Awotide et al., 2010; Sealza, 1984; Adi, 2007). However, it is important to note that many livelihood diversification strategies are often gendered. Gender is an integral and inseparable part of rural livelihood. Although the evidence indicates that women may engage in a comparable variety of diversification activities as males, men can often take advantage of diversification possibilities that are not available to women owing to cultural limitations in many cases. For example, Smith's (2014) study in Northern Tanzania shows that women who travel long distances to work face unfavourable societal consequences. According to Haggblade et al. (1989), women participate in non-farm work at a rate of 16 % in rural Mali, compared to 84 % for males. This suggests that men have more opportunities than women. Women's diversification activities are those that require less skill and investment such as petty trading, crop processing farming and reselling of farm produce (Adesoji et al., 2014) which generates low income. Haan (1989) refers to these diversified activities as survival actions.

Using the large and disparate literature on rural livelihoods as references the study examines the association between tea plantations and livelihood diversification. Since tea is an agricultural as well as industrial produce many authors have highlighted the disadvantageous position that the workers are faced in tea plantations despite being in the organized sector such as employment opportunities, upward mobility, poor socio-economic conditions, appalling wages due to the profit-driven motive of the planters'. The tea industry has prevented the establishment of any other viable livelihoods and made people dependent on it. Hence it is to be viewed as possible push factors to rural livelihood diversification such as the sale of wage labour, self-employment, petty trading, migration, etc.

1.4. The Indian Tea Industry

The tea industry is one of India's oldest organized industries with more than 160 years long history. The tea industry is of considerable importance in the national economy in terms of revenue generation, earning foreign exchange, generating employment. India is the second-largest tea producer and produces 22.4 % of the total world production while it ranks fourth in export, contributing 13.4 % of the total world export (Tea Board, 2019). The four major tea producing states are Assam, West Bengal, Tamil Nadu and Kerala. An overview of tea plantations in India is illustrated in Tables 1.1 to 1.4.

Table 1.1 shows that in the year 2000 there was a phenomenal growth in the number of tea estates in India particularly in Assam and Tamil Nadu. However, there is a sharp decline in the number of tea estates in 2014 except in Assam (0.01%) and Karnataka (0.24%). The decline in the growth of tea estates is higher in South India (-3.48%) compared to North Indian tea estates (-1.1%). Overall the compound annual growth rate of the number of tea estates in India is -2.16%. Table 1.2 shows that the compound annual growth rate of labour employed from 1951 to 2014 has been negative for all the tea producing states, the least being Assam (-0.02%). Amongst, the major tea producing states Karnataka has the highest negative growth rate of labour employed (-3.03%) and in the North Indian state, West Bengal has the highest

Table 1.1: Number of Tea Estates in India (1951-2014)

States	1951	1961	1971	1981	1990	2000	2010	2014	CAGR(%)
Assam	785	744	750	777	848	39151	808	792	0.01
West Bengal	296	301	296	305	347	1540	278	283	-0.07
Tripura	55	55	53	57	58	292	51	49	-0.18
Himachal Pradesh	1115	1385	1385	1385	1660	3679	16	17	-6.42
Others	54	36	33	37	20	540	0	9	-2.8
North India Total	2305	2521	2517	2561	2933	45202	1153	1150	-1.1
Tamil Nadu	2772	4989	6450	6725	6817	60618	NR	282	-3.56
Kerala	1125	1976	3032	4109	4089	6153	95	123	-3.45
Karnataka	12	13	16	15	21	37	14	14	0.24
South India Total	3909	6978	9498	10849	10927	66808	109	419	-3.48
All India	6214	9499	12015	13410	13860	112010	1262	1569	-2.16

Source: Tea Statistics, 2001, Tea Board of India; Labour Bureau, (2013; 2017): Report on the Working of the Plantation Labour Act, 1951 for the years 2010 and 2014.

Table 1.2: Estimated Average Daily Number of Labour Employed in Tea Plantation in India

States	1951	1961	1971	1981	1990	2000	2010	2014	CAGR(%)
Assam	538863	439120	397370	458494	541661	602531	416369	532787	-0.02
West Bengal	265064	193511	198074	213662	248671	253459	162748	111181	-1.37
Others	22181	19263	19377	18354	15058	17410	9605	9597	-1.32
North India Total	826108	651894	614821	690510	805390	873400	588722	653565	-0.37
Tamil Nadu	91358	76604	75721	85162	102786	255780	NR	39814	-1.31
Kerala	94528	90302	72745	69773	74388	77086	39938	24375	-2.13
Karnataka	5995	4034	3306	3761	4217	3789	1335	861	-3.03
South India Total	191881	170940	151772	158696	181391	336655	41273	65050	-1.7
All India	1017989	822834	766593	849206	986781	1210055	629995	718615	-0.55

Source: Tea Statistics, 2001, Tea Board of India; Labour Bureau, (2013; 2017): Report on the Working of the Plantation Labour Act, 1951 for the years 2010 and 2014.

Table 1.3: Area Under Tea in India (in hectares)

States	1951	1961	1971	1981	1990	2000	2018	CAGR(%)
Assam	155674	162367	182325	203038	230363	266512	337690.4	1.16
West Bengal	79580	82705	88499	93971	101170	107479	148121.7	0.93
Others*	13339	11856	11905	12057	9471	16915	49816.95	1.99
North India Total	248593	256928	282729	309066	341004	390906	535629	1.15
Tamil Nadu	33375	32723	34646	37073	38603	74398	62885.13	0.95
Kerala	33203	39784	37271	35589	34686	36940	35871.16	0.12
Karnataka	1669	1794	1870	1901	1976	2122	2171.74	0.39
South India Total	68247	74301	73787	74563	75265	113460	100928	0.59
All India	316840	331229	356516	383629	416269	504366	636557.1	1.05

Source: Tea Statistics,2001, Tea Board of India; Baseline Survey, 2018, Tea Board of India.
Note: *- all the minor tea producing states of North India have been clubbed together.

Table 1.4: Production of Tea in India (in thousand Kgs)

States	1951	1961	1971	1981	1990	2000	2020	CAGR(%)
Assam	150370	182311	223665	305130	388181	449219	618200	2.07
West Bengal	78158	86258	104087	128259	149753	181536	389250	2.35
Others*	4997	4736	4579	4401	7172	10001	28030	2.53
North India Total	233525	273305	332331	437790	545106	640756	1035480	2.18
Tamil Nadu	25225	39768	57531	71597	110576	131812	153830	2.65
Kerala	25775	39545	42729	47631	60665	68947	63090	1.31
Karnataka	874	1779	2877	3409	3991	5407	5130	2.6
South India Total	51874	81092	103137	122637	175232	206166	222050	2.13
All India	285399	354397	435468	560427	720338	846922	1257530	2.17

Source: Tea Statistics, 2001, Tea Board of India
Note: *- all the minor tea producing states of North India have been clubbed together.

negative growth rate of labour employment (-1.37%). The growth rate of labour employed in all the tea estates of India is -0.55%.

Table 1.3 shows that although there has been a sharp decline in the number of tea estates in all the tea producing states the area under tea plantation has increased which is shown by the compound annual growth rate of 1.05%. The increase in area under tea is more in North Indian tea estates, 1.15% compared to the South Indian tea estates 0.59%. Assam and Tamil Nadu have the highest increase area under tea in North India and South India which stood at 1.16% and 0.95% respectively. The production of tea has been increasing significantly as shown in Table 1.4 despite the reduction in the number of tea estates. The growth in the production of tea is recorded at 2.17% for all of India. In terms of production, West Bengal (2.35%) is ahead of the other North Indian states while Tamil Nadu (2.65%) has increased production of tea compared to all other tea producing states.

1.5. Background of the Study

The tea industry is a labour-intensive industry where employment has been made hereditary since the colonial era and has been formally organized with a proper legal provision in India for a very long time. However, during recent years this industry has failed to generate employment for the increasing labour force (refer to Table 1.2). The planters are the employers of tea workers where regular payment of wages and provisions of housing and other amenities for the workers are the responsibility of the former. Even though the tea industry is one of the oldest organised industries, no proper provision is made for the workers and labour regulations are ineffective (discussed in detail in Chapter 3). One of the defining features is of the tea industry the predominance of female workers. The key explanation for women's high employment is their low cost and docility, as well as the fact that work in tea plantations is mostly gendered (Mukherjee, 2007).

Tea workers are socially, culturally, and politically disadvantaged, with the majority of their families living in poverty. The tea industry is facing issues such as ageing tea bushes, soil erosion and low profit. Tea plantations are known for their low

wages, which has significant implications for labour relations such as employment, division of labour, skill distribution, and workplace controls. These characteristics made them the ideal workers for capitalist endeavours (Gordon, 2001). The rural population of the hills are mostly employed in the tea gardens and working in the tea garden is already the livelihood of last resort. Lack of livelihood, either as additional or alternative sources of income, have forced the workers to accept low wages. Their dependency on labour-intensive activities is explained by a lack of access to education, training, and other skills. This has been a prevalent issue among the worker households and is perceived as one of the main causes of poverty.

Darjeeling district is the northernmost district in the state of West Bengal which lies in the eastern part of the Great Himalayas. The name Darjeeling is derived from the Tibetan words 'Dorje' which means thunderbolt from the sceptre of Indra and ling means land, so Darjeeling means the land of the thunderbolts. Geographically, the district can be divided into two broad divisions: the hills and the plains (Terai). The Darjeeling Hills comprises of four hill sub-divisions namely, Darjeeling Sadar, Kurseong, Mirik and Kalimpong. Siliguri sub-division lies in the foothills of the Darjeeling Himalayas and is known as the Terai. However, there are three tea plantation regions in West Bengal namely Darjeeling Hills, Terai and Dooars.

According to the Census (2011), Darjeeling district has a total population of 18,46,823. Darjeeling hill makes up 47.42 % of the total Darjeeling district population. Darjeeling hills have a total population of 8,75,703 of which 4,40,257 are males and 4,35,446 are females. The sex ratio of Darjeeling hill is 989 females per 1000 males. The rural population of Darjeeling Hills is 5,83,639 and the urban population is 2,92,064. Therefore, the rural population forms 66.7 % of the total Darjeeling hill population and the majority of the rural population are tea garden labourers. Tea, Timber and Tourism are the three Ts, which form the backbone of the hill economy. The economy of Darjeeling Hills has traditionally been dominated by the tea industry. Darjeeling Hills' economy has been dominated by the tea industry.

Darjeeling, the Queen of the Hills, is known around the world for its natural beauty and world-class tea.

Darjeeling Tea is only grown and produced in the hill areas of the Darjeeling district because of the favourable climatic conditions, fertile soil, elevation and meticulous processing. Tea grown in this area is of exceptional quality with its distinct aroma. Under the Tea Act of 1953, the Tea Board of India has full power over the growing and exporting of Darjeeling Tea, and to authenticate the regional origin of Darjeeling Tea, it has created a unique logo known as the Darjeeling logo. Furthermore, Darjeeling tea was the first Geographical Indications to be registered in India in the name of the Tea Board under the Geographical Indications of Goods (Registration and Protection) Act, 1999. This study is confined to the tea gardens of Darjeeling Hills because hill regions are more vulnerable to poverty due to inaccessibility, marginality and fragility.

1.6. Significance of the Study

Literature on rural livelihoods in West Bengal is few and those studies have examined determinants and extent of livelihood diversification in West Bengal (Khatun and Roy, 2012; Saha and Bahal, 2010). Studies on livelihood diversification of tea garden workers in West Bengal and the factors affecting livelihood diversification is also very few. A comprehensive study of the various aspects of tea workers' households has enabled us to ascertain that the tea plantations alone cannot be relied upon as the core activity for rural households as a means of improving lives and reducing poverty. This study provides empirical evidence, based on the primary data, on how the tea workers are diversifying their livelihoods in different tea producing regions of Darjeeling Hills, West Bengal. It also identified the factors that determine the diversification of livelihoods. By examining the livelihood patterns, the study presented various sources of income and their contribution to the overall household income. Households are diversifying their livelihoods by adopting a multitude of activities. These activities are affecting the lives and livelihoods of the

tea workers to a great extent. It is therefore important to know the current patterns of income and occupational diversification occurring at the household level. Such information is required to enhance the understanding of the policymakers on the existing scenario and problems so that they can devise effective public policy interventions addressing the socio-economic problems of tea workers as well as sustainable livelihoods in the study area. Further, though there is a plethora of literature, that enlightens us on the economy of tea plantations, but literature on livelihood diversification of tea gardens in the existing set of the empirical literature is very few. Thus, this study is also expected to fill this literature gap adequately.

1.7. Statement of the Problem

The tea industry is the major means of rural livelihoods but with the low wage paid by the tea estates and lack of proper housing, education and health facilities, the tea plantation workers are facing serious problems in their socio-economic development. The limited income earned by a worker is not sufficient to meet even the bare family consumption needs. Rural livelihood diversification has generally occurred as a result of growing casualization of the workforce, poverty and struggle for decent wages. The need for rural household livelihood diversification is centred on the need for household food security, generation of additional income, meeting exigencies, reduction of poverty and vulnerability. Moreover, the tea workers do not possess adequate skills to seek gainful employment in other sectors, and thus, the surplus working force in the families are lying idle and unemployed for most of the season.

In addition, the government employment and anti-poverty schemes are not implemented effectively to benefit the poor tea workers in the area. Despite the limited opportunities available to them, the families have to seek additional livelihoods in whatever way they can to save themselves from hunger and extreme poverty. Under such a situation, the tea workers are compelled to diversify livelihoods through various means in agriculture and allied activities, livestock, wage labour, petty trade, migration, services, etc. They have to trade off leisure which makes them time-poor even after a hard day’s work. This problem could prove to be detrimental to

those low-wage workers who work long hours to earn more money. Diversification is imperative for the livelihoods and survival of tea worker households. As this is the case, it is critical to undertake a systematic study on the livelihood diversification among the tea workers to find out reliable academic inputs on the existing scenario encompassing its pattern, problems, limitations and opportunities.

1.8. Objectives of the Study

The study is intended mainly to examine the existing livelihood opportunities and diversification *vis-a-vis* the socio-economic condition of the tea workers in Darjeeling hill of West Bengal with the following specific objectives in mind:

- To study the institutional framework of employment opportunities in tea plantations and their socio-economic impact on the workers.
- To examine the existing socio-economic conditions of tea plantation workers and their dynamics in the face of available livelihood options.
- To study the factors that cause or compel the workers to diversify livelihoods.
- To identify the various livelihood diversification activities adopted by the tea worker households.
- To examine the patterns, distribution of family man-days, seasonal behaviour and the contribution of diversified activities to household income.
- To measure the level of livelihood diversification and determine the factors affecting rural livelihood diversification.
- To examine the nature and extent of deprivation prevailing among the tea workers.
- To study the key issues inhibiting the opening of more livelihood opportunities.

1.9. Hypotheses

To generate a concrete and meaningful conclusion, it is proposed to test the following hypotheses

1. Households that diversify livelihoods enjoy higher income than those who do not diversify.
2. Household adoption of livelihood diversification significantly depends on the availability of a surplus workforce in the family.
3. Gender and educational level determine the household's adoption of livelihood diversification activities
4. Livelihood diversification has a significant impact on the alleviation of poverty and human deprivation among tea workers.

1.10. Methodology

1.10.1. Data Base

The study used a combination of both primary and secondary data. Firstly, the secondary data for the analysis were collected from the Labour Bureau, Tea Statistics, Baseline Survey, Tea Board of India, Annual Report: Labour in West Bengal, Population Census 2011, journals, newspapers, books and other published and unpublished records.

Secondly, primary data were obtained from the sample worker households by using a structured questionnaire through in-person interviews conducted from January 2018 to April 2018. To select sample households for the study, two stages sampling design was adopted: first, selection of sample tea estate and second, selection of tea workers following simple random sampling method. Firstly, three (3) tea estates were selected randomly from the list of existing tea estates in Darjeeling Hills of West Bengal. Secondly, from each of the selected Tea Estates required numbers of sample tea workers were selected by following a simple random method. The list of tea worker households, obtained at the time of preliminary visit was the adopted frame of

the sample survey. A total of 300 samples were selected initially. However, as many as 86 samples had to be rejected after the post-survey validation exercise due to a lack of sufficient information and data inconsistency. The distribution of the sample over the four selected Tea Gardens are as follows: Sivitar – 70, Soureni – 70 and Tukvar – 74, and thereby, a total of 214 samples were considered in this study.

In addition, to gain a better understanding of socioeconomic conditions in these areas, participatory rural appraisal (PRA) and focus group discussions (FGD) were conducted as a part of an initial exploratory study to gather information about tea worker households and understand their livelihood context. These exercises helped to understand the collective dynamics of socio-economic conditions, identifying various sources of household income available opportunities in the TGs and challenges associated with it.

1.10.2. Analytical Tools

Firstly, to examine the general patterns and trends of various parameters of interest, descriptive statistics like percentage, mean, standard deviation were used. Secondly, to measure the degree of individual household's adoption of livelihood diversification, inverse Herfindahl-Hirschman Index (HHI) was constructed, while the multidimensional poverty index (MPI) was constructed to examine the interrelatedness of livelihoods and poverty and deprivation. Thirdly, to test the study hypotheses and to chalk out clear conclusions based on the analysis, test statistics like chi-square and t-test were adopted. Further, to examine the impact and relationship between livelihood diversification and several socio-economic factors, the logistic regression model was estimated and the significance and magnitude of the odd-ratios were taken as the basis of the interpretation and conclusion. The detailed methodology on the construction of diversification indices, MPIs and a logistic regression model is presented in Chapter 5.

1.10.3. Limitations of the Study

The study was cross-sectional since it was a one-time investigation of tea workers' households and their livelihood diversification strategies. As a result, a single time frame study may not have caught long-term dynamics such as people's gradual shift to improved conditions through intensified strategy, investments, and migration outside of the tea garden, among other things. With the decline in employment prospects in the tea plantations and appalling wages, each household opts for a diverse combination of activities. However, the rural livelihood diversification strategies adopted by the tea worker households of Darjeeling Hills may differ from the other tea growing regions of the Terai and Dooars owing to topography, climatic conditions, social and political ecology. As a result, comparative studies should not be based on the premise that diversification strategies are all the same for the tea plantations of West Bengal.

1.11. Brief Descriptions of the Study Areas

The study was carried out in three tea gardens namely Tukvar (Pattabong) from Darjeeling Sadar, Sivitar from the Kurseong sub-division and Soureni from the Mirik sub-division. Tea plantations are often called tea estates or tea gardens; therefore, these three terms have been used interchangeably. A brief description of the sample tea gardens is given below and the study is confined to the tea plantations of Darjeeling Hills only.

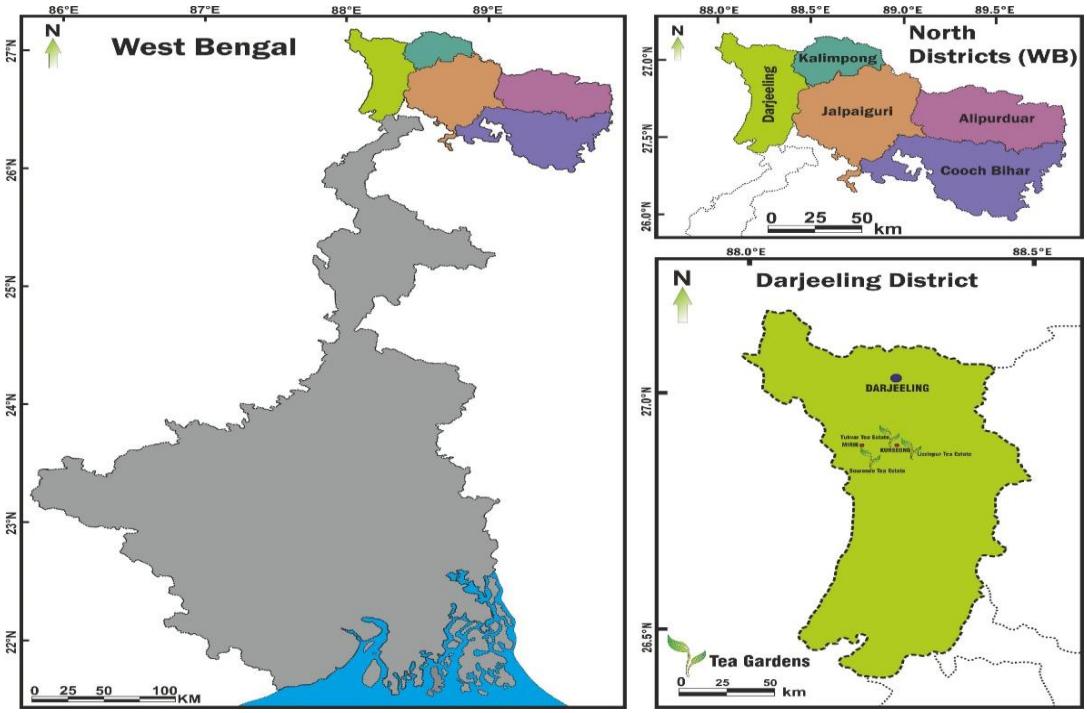


Figure 1.5: Location map of the study area

1.11.1. Sivitar Tea Estate

It is a medium size village located in the Community Development Block of the Kurseong sub-division. The year of its establishment is unknown and Kurseong is the nearest town to Sivitar Tea Garden which is approximately 14km away. Mahanadi is the gram panchayat of Sivitar Tea Garden village. The area under tea cultivation is 263 hectares out of the gross area of 525.03 hectares under the management**.** The river Mahanadi flows through the garden which nourishes the soil and favours the prolific growth of tea. Darjeeling Organic Tea Estates Private Ltd owns and manages the Tea Estate since 2004.

1.11.2. Soureni Tea Estate

It is situated in the picturesque Mirik Valley which is also known for its tea estate tourism. It is a village in the Community Development Block of the Mirik sub-division. The Soureni Tea Estate was formally established in 1902 by the Tiwari brothers and is located at a distance of 8 km from the Mirik town. The elevation of the

tea estate is 2500 to 5000 feet msl. Tea is cultivated on 99 hectares out of the total 137 hectares under its management. The Soureni Bazar market caters to many nearby villages and tea gardens. Near Soureni Bazar there are two tea estates – Soureni Tea Estate and Mechi Tea Estate. The Black Blossom a second flush black tea is the most popular among its premium teas. Titagarh Wagons Ltd took over the tea estate in 2007 and Soureni Leaves Pvt Ltd currently operates the tea garden as a result of such takeover.

1.11.3. Tukvar (Pattabong) Tea Estate

It is the first tea estate in the history of Darjeeling Tea Plantation planted in 1852 by Dr Campbell. It is a village in the Darjeeling Pulbazar Community Development Block in the Darjeeling Sadar sub-division. This tea estate is located at a distance of 9 kilometres towards the northeast of Darjeeling town. The elevation of the tea estate is 1500 to 6500 feet msl. This garden is one of the largest tea estates in Darjeeling comprising of 5 divisions namely and stretches approximately 20 Km from Darjeeling city to the Sikkim State border. In 1992, Tukvar was the first tea estate to fetch the World record price of Rs 10,001 per kg for its Antique tea. The Rangeet River flows through a portion of the tea estate which contributes to the rich diversity of the tea estate. Tea is cultivated on 436.72 hectares of land and the gross yield per year is 245 tons. It is owned and managed by Jayshree Tea & Industries Ltd.

Table 1.5: Basic Information of the Sample Tea Estates

Tea Gardens	Sample Hhs	Total Worker Hhs	% Share	Sample Pop.	Total Pop.	% Share	Total Hh Size	Sample Hh Size
Sivitar	70	285	24.6	304	1745	17.4	6.1	4.3
Soureni	70	226	31	319	1081	29.5	4.8	4.6
Tukvar	74	506	14.6	313	2347	13.3	4.6	4.2
Total	214	1017	21	936	5173	18.1	5.1	4.4

Source: Field Data, 2018
Note: Hhs-Households, Pop.- Population

1.12. Scheme of Chapterisation

This study is organized into six chapters as follows:

Chapter 1 is the introduction to the study and it discusses the importance of the study, selection of the study area, objectives and hypotheses and methodology used to establish those objectives in brief. Chapter 1 also presents a concise overview of the chapters.

Literature review on livelihood diversification concerning gender dimension, the importance of asset possession, pattern, factors and determinants of livelihood diversification and issues related to livelihood diversification is discussed in Chapter 2.

Chapter 3 compares the employment of workers in the major tea producing states of India, their workforce participation. The labour productivity of tea workers in West Bengal is compared for various years 1950-2012. The categories of labour and extent of casualisation of the tea workforce are examined using the data available for the average number of daily labour employed as a resident and outside workers during 1965-200. It also helps to assess the employment percentage of outside workers in West Bengal to all Indian figures. The later part of the study discusses the role of trade unions and trends in wage increases of the plantation labourers in West Bengal. The concluding part of the chapter focuses on the plantation laws namely The Minimum Wage Act, 1948, The Plantation Labour Act, 1951 and The Equal Remuneration Act, 1972. This is done by comparing the coverage provided by the various laws enacted for safeguarding the workers' interests. The last section involves the assessment of statutory non-wage benefits.

Chapter 4 comprises the field study conducted in three tea gardens of Darjeeling hills to examine the socio-economic conditions of tea worker's households. The first half of the chapter sheds information about their household characteristics, nature of employment and recruitment in tea gardens, living conditions, health issues, access to banks, welfare schemes of the Gram Panchayat and their participation in trade union activities and village communities. The second

half brings before us the income earned by the different categories of workers from tea gardens, additional sources of household income which includes income from diversification and other sources (salary, transfer payments, MGNREGS work), the worker household's income-expenditure pattern, consumption pattern of the worker households.

Chapter 5 also uses the field data to analyse the livelihood diversification of the tea worker households. The chapter identifies the diversification activities (agriculture, horticulture, livestock, wage labour, petty trade and migration) carried out by the worker households and then looks into the number of man-days devoted to each activity. It also discusses the seasonality of the diversified activities and the income generated from each of those activities. The level/extent of livelihood diversification is measured using the Inverse Herfindahl-Hirschman Diversification Index. The concluding part of the chapter discusses the results of the logistic regression model used to examine the factors that affect livelihood diversification and the impact of livelihood diversification on poverty status.

Chapter 6 gives the main and findings of the study, the conclusion of the study and some policy recommendations.

Chapter 2

REVIEW OF LITERATURE

The introduction of livelihood frameworks since the 1990s has helped livelihood diversification in rural areas gain importance in literature and research in the developing world. A bulk of literature on livelihood diversification has analyzed the individual and household characteristics, institutions and infrastructure, assets and gender dimensions that shape household's livelihood strategies. A summary of all the literature reviewed has been attempted to be categorized into broad sections as discussed below.

2.1. Gender Dimensions to Livelihood Diversification

The patriarchal society has inherently considered women subordinate to men. Women's involvement in productive or economic activities, whether in rural or urban regions, has always been significantly smaller than that of males, be it in urban or rural areas. The undervaluation of women's work is reflected by wage disparity, lack of access and control over resources, absence of equivalence in infrastructural assistance, bad instructional performance, absence of training, limited level of exposure to the outside world, socio-cultural biases stemming from gender discrimination. Fuller accounting of the many labour contributions made by rural women also helps to clarify their significance within development processes. The access of women to productive resources and their power to control or dispose of these is an important indicator of their economic status.

Mittra et al. (2021) studied the livelihood diversification of rural women farmers in the Bakergong Upazila of Barishal district, Bangladesh. The women farmers' livelihood diversification was measured using Simpson's diversification index (SDI). The respondents' livelihood diversification scores ranged between 0.2 to 0.78. 54.2% of farmers had a moderate degree of livelihood diversification (0.29 to

0.58) compared to 18.3% who had a low level of livelihood diversification (<0.29) and 27.5% who had a high level of livelihood diversification (>0.58). The average livelihood diversification score was 0.41. The coefficient of correlation was calculated between the variables to determine the relationship between the selected thirteen factors of the farmers and their livelihood diversification. Education (0.48), family education (0.240), income-generating experience (0.512), household annual income (0.302), communication exposure (0.522), organisational participation (0.346), and attitude toward livelihood diversification (0.376) were the variables that were positively associated and significant at 1% among the thirteen variables of livelihood diversification. It means that any rise in these variables will result in a favourable shift in the farmers' livelihood diversification. The study found that non-farm income plays a critical role in supplementing farm income, with nearly three-quarters of respondents combining farm and non-farm strategies. This shows that farming alone isn't a sufficient source of income for rural households. As a result, encouraging non-farm employment could be a useful technique for augmenting farmers' income while also ensuring equitable rural growth. Women farmers in rural areas should be enrolled in strong motivational programmes and given enough training in skill development, modern technology utilisation, enhanced infrastructures, education, and financial markets. This can be accomplished by enlisting the help of local governments and non-governmental groups, as well as women farmers.

Chattopadhyay and Seddon (2002) have analysed the life histories to understand rural livelihoods and gender relations in a West Bengal village. They categorised the surveyed household into three different types of household based on the autonomy of women: general caste (GC), scheduled caste (SC) and scheduled tribe (ST) households. Their notion of autonomy is indicated by women's right to (i) keep the cash that she earns or her dowry money, jewellery in case of Hindu households; (ii) reject the prospective groom arranged by her father; (iii) whether she can buy things on her own without seeking the husband's permission and (iv) the involvement of women in decision making about household matters. Women belonging to SC and ST households who retain their earnings, their husbands also hand over their earnings after keeping some money for their expenses. ST households

enjoy greater autonomy as compared to SC and GC women. Among GC households who own land, there is a wide range of female autonomy; the most important factor affecting female autonomy is social prestige associated with higher caste Hindu households. Despite women being significant economic contributors to the household, social constraints pose serious impediments to improving her status and position within the household. Women's control of their product of labour depends on many factors. Women who work as agricultural labourers do not enjoy some rights; it is dependent upon caste hierarchy and her educational level. Various cultural and socio-psychological factors play a significant part in determining the autonomy of women.

Smith (2014) has compared the women's market activities in Simanjiro and Mererani, Northern Tanzania to examine the gender system. Women's contributions to household economies through market participation and income-earning activities have made women key players in the diversification of pastoral livelihood and reduced their dependence on their husbands. The study shows that the patriarchal pastoral society encourages women's engagement in income-generating activities in Simanjiro as it does not threaten the men's power, since they are conducted with their permission and stay close to home. On the other side, women who go afar to work in Mererani bear the burden of negative social sanctions. The study shows that age, status in the society, poverty, cultural standards, agency and authority intersect to affect the productive activities of pastoral women and that these intersections have great consequences for a scheme of pastoral gender.

Adesoji et al. (2014) made an investigation on the livelihood of female-headed households in rural communities of Osun State, Nigeria. The study found that only one respondent out of 120 female respondents was involved in salaried work, the remaining 119 respondents were engaged in farming, personal business, crafts and unskilled work, in line with the claim that female-headed households diversify into casual and informal activities. The main sources of livelihoods were petty trading (97.5%), processing of crops (57.5%), farming (48.3%) and farm products reselling (22.2%). 96.2% of the respondents experienced difficulties in acquiring loans and 89.2% faced discrimination between the sexes in acquiring leased land. These factors hindered the diversification activities of female-headed households, as a result of

which they were primarily diversified within agricultural and trading companies. Female-headed households are restricted by poor asset base, bad financial circumstances, and gender-based social relegation in their access to productive resources.

Gladwin et al. (2000) linked the issue of food security to rural African women farmers following Amartya Sen's thought that food insecurity is an issue of households with low incomes and poverty and not just insufficient production of food. They regarded women as heterogeneous groups in male-headed households and women in female-headed households. Gender-related limitations lower women's productivity therefore income-earning activities like the production of cash crops and non-farm micro-enterprises may not be feasible for women in male-headed households in many African societies where money earnings are considered part of the male domain. They suggest that policymakers adopt a complex four-pronged strategy to tackle the food insecurity of women farmers, including various developmental measures in both policies and technology. The development initiatives should promote women with income-generating activities and various livelihood schemes; aim to increase women's agricultural productivity; understand that women farmers are themselves a varied group, and provide productivity-enhancing safety nets for the poorest of them while recognizing the fact that the early phases of structural transformation in African nations may require a lengthy adjustment period for women farmers to fully diversify their sources of revenue.

In a similar tone, Krishnaraj (2005) analysed the impact of gender on food security. She has noted that some economists do not address problems of intra-household food distribution, but draw attention to women's resources for food procurement primarily through employment. They concentrate on exchange rights and narrate trends that are disquieting to them. In addition to unequal wage labour opportunities, the absence of control over productive resources acts as a major barrier for those women who undertake household farming.

Cahn and Liu (2008) studied the efficacy of the Integrated Agriculture Training Program (IATP) to improve the rural communities' livelihoods, especially of

women, in Papua New Guinea (PNG). In terms of rural livelihoods, women have been confined to subsistence food production and informal sector and men are the major decision-makers. Women are considered subordinate to men so the gender roles and gendered division of labour are clearly defined. Traditionally, the rural extension and training programmes have concentrated on men. Although the programme has been successful in developing adequate training for both men and women by offering women with the abilities and expertise to enhance their livelihoods, meeting women's requirements and having a beneficial effect on women's livelihood, its success in addressing gender issues has been restricted by limitations that are themselves caused by gender inequality. These limitations are smaller than expected participation of women because of cultural in the course due to cultural bias, heavy workloads, household and community economy, duration of the course, distance to the training centre; low literacy rate and difficulties faced by women in applying changes in their livelihoods after training. Their findings reveal that gender-sensitive training requires analysis by understanding the needs of the society to incorporate women's interest and issues in rural livelihood training, tracking and assessment to highlight both beneficial effects and limitations; the interaction and collaboration between organisations such as academic, economic institutions, national government agencies, provincial government, local-level government, NGO and donors; to arrange courses at the village and not at the district level.

2.2. Role of Livelihood Diversification

Mahama and Nkegbe (2021) used the Ghana Living Standards Survey Round 6 to investigate the impact of livelihood diversification on welfare (GLSS 6). The natural logarithm of real daily consumption expenditure per adult equivalent and the asset index is used to measure welfare. The Count and Margalef indexes are used to assess livelihood diversification. Diversification rises in tandem with the age of the household head and the size of the household. Increased educational attainment is associated with higher consumption and asset welfare, according to an inverted U-shape pattern exhibited on diversification. The household's labour force is U-shaped which means doubling labour leads to more diversification. In comparison to female-

headed households, a male-headed household is related to a 0.296 rise in the diversification index. When the proportion of household members with savings rises by one unit, consumption expenditure rises by 11.9 % and the asset index rises by 0.543 %. As a result, savings play a crucial role in a household's welfare analysis. Access to credit, on the other hand, boosts current consumption but has a detrimental influence on asset accumulation; possession of productive assets is inversely proportional to diversification. The likelihood of household diversification is influenced by the household's location, which has implications for welfare. In comparison to urban households, rural households are not only impoverished in terms of consumption but also in terms of assets. The well-being of a household is determined by its asset stock, and diversification increases the asset stock. The household asset index increases by 0.577 units for every unit increase in the diversification index. As a result, that livelihood diversification offers both short-run consumption gain and long-run wealth creation.

Asmah (2011) has observed a notable diversification trend in rural Ghana characterised by the development of non-agricultural rural enterprises since the Structural Adjustment Program in the agricultural sector were implemented in Ghana. The study examines and evaluates the importance of assets, market access and institutions in affecting the diversification of rural livelihoods and the welfare of households. The data were pooled from the Ghana Living Standards Survey of 1991/1992 and 2005/2006 using the Mover or Stayer model. In terms of factors linked to household resources, markets and institutions, diverse households and less diverse households varied considerably. Household assets, including good health, education, household age structure and gender, drive choices on family welfare and non-farm rural diversification. Households living in societies with access to fertilizers, public transportation and local produce markets are more likely to participate in non-farm diversification and enjoy better welfare. The role of media access such as television, newspaper and radio are efficient tools in affecting diversification of household livelihoods and welfare.

Samsudin and Kamaruddin (2013) used Sustainable Livelihood Analysis (SLA) to analyze the allocation of the livelihood assets among the hardcore

impoverished people in Kupang, Kedah. The indicators for five livelihood assets were standardized. Based on the calculated standardization index, on average, the ownership of natural assets among the hardcore poor was average was the lowest as compared to other assets and their human and social asset were relatively small. Nearly half of the household's head had no formal education and without the absence of natural resource ownership, any type of support particularly financial support does not verify the sustainability of the livelihood of the poor. Otherwise, this would only encourage their dependence on government assistance. In terms of physical assets, most of the households have their own house with adequate basic infrastructure except for clean tap water. Their study facilitates effective intervention by the local and state governments in understanding the root cause of poverty in Kedah indicating that the ownership of natural and human assets among the hardcore poor should be emphasized, rather than depending heavily on financial assistance policies.

Idowu et al. (2014) analyzed the pattern of the livelihood and crop diversification among rural farm households in the Remo Division of Ogun State, Nigeria. A sample of 120 households was drawn using multi-stage sampling and the primary data was analyzed using Simpson's index and Tobit regression model. Results show that most rural farm households head had no formal education. Religion was observed to influence livestock holdings. The Tobit analysis showed that farm household's crop diversification is driven by increased household size, farm size, membership of cooperative societies and education but decrease with age and farming experience. In terms of access to basic social amenities and living conditions, 72% of the farming communities had their road tarred but still in a poor state, 82.5% of households used boreholes as a source of drinking water, 85% of the communities had no access to postal service and 85.8% had no public land telecommunication system. Poor road infrastructure increases the cost of transporting their bulky farm produce to market with a tendency to increase net farm income and increase the poverty situation. They used private mobiles as the only available telecommunication system to guarantee communication and other market information. Policies should aim at the provision of adequate and functioning social amenities in rural areas to aid farmers in crop diversification, market access and overcome the barriers they are faced with.

Parker et al. (2015) evaluated the effectiveness of the decentralized system of management in Nepal's Kanchenjunga Conservation Area Project by assessing the various livelihood strategies adopted by a household and identifying the factors influencing diversification of livelihood in Kanchenjunga. They used a cluster analysis with the ten most prevalent income-generating activities both on and off-farm to group the household strategies for diversifying livelihoods and a multinomial logistic regression to identify predictors of livelihood diversification. The predictors of diversification of livelihood were more linked to pre-existing socio-economic and demographic variables such as land ownership, livestock, ethnicity, dependents, remittances and household elevation than activities supported by decentralizing conservation such as microcredit, training, education, interaction with project personnel. Their findings contradict the belief that decentralized conservation inherently increases livelihoods and diversifies them. Effective measures to reduce poverty and enhance livelihoods depend on local individuals being mobilised, empowered, raising consciousness and education. Their results suggest that decentralised conservation in Kanchenjunga will continue to exclude marginalised groups without direct measures aimed at marginalised groups restricting the capacity of households to diversify their livelihoods and perpetuating their reliance on natural resources.

Martin and Lorenzen (2016) investigate the motivations for livelihood diversification in rural areas of southern Laos, Savannakhet Province through progress-pulled and distressed-pushed diversification theories. The participatory Wealth Ranking method ranked the households in the study area into three groups: poor, middle and rich. A wealth index was developed using an asset-based approach. ANOVA was used to analyze the relationship between wealth and occupational diversity which yielded a positive relationship between the two suggesting that distress is not the main reason for diversification. The number of different assets held by a household possessed was significantly correlated with occupational diversity ($p<0.02$) and highly significant ($p<0.01$) when the total number of livelihood activities were used rather than occupational diversity, indicating that the diversity of assets is more crucial than the quantity to enable diversification of livelihoods.

The household survey result indicated that rice farming was the most prevalent activity with 94.2 % of the households engaged in it, followed by 87.3% in poultry farming, 71.5% in cattle farming and 57.9% in fishing. Richer households undertook a considerably larger total number of non-farm activities and received greater remittances from migration, thereby reducing their reliance on farming. The poorer groups, however, also participated in the non-farm sector and received remittances may be due to the high availability of non-skilled wage labour work in Thailand but are often dependent on agriculture. This may be attributed to the lack of access to land, high financial, human, political capital leading to an increase in wealth inequality. Wealth and prosperity are more probable reasons to encourage migration than poverty. This indicates that the types of migration conducted by different wealth groups are different. For diversification in the agricultural and non-agricultural sectors, opportunities for diversification through migration are unequal. Results have implications for rural Southern Laos development policy, emphasizing the significance of recognizing the beneficial elements of diversification of livelihoods for reducing rural poverty. Broad policy mechanisms that support increasing the diversity of assets of the poor are more likely to succeed in promoting diversification of livelihoods and decreasing vulnerability.

2.3. Patterns and Determinants of Livelihood Diversification

Ayana et al. (2021) examined the determinants of livelihood diversification to investigate the households' degree of livelihood diversification in Assosa wereda, Benshangul Gumuz Regional State, in western Ethiopia. The household head's education level, dependence ratio, irrigation access, credit access, and urban linkage were statistically significant among the fourteen drivers of livelihood diversification, according to multinomial logit regression. However, the predictor variables such as ages of household head, sex of household head, distance from the road and media exposure of the households were found to be inversely correlated to livelihood diversification. The size of livestock, the size of landholdings, total household income, household extension connections, and cooperatives, on the other hand, had no relation to livelihood diversification. The value of Simpson's Diversity Index (SDI)

was 0.02, indicating that the study area's livelihoods were not diverse, but rather "specialised" in subsistence agriculture. The determinants of livelihood diversification contributed very little and were not sustainable. As a result, food insecurity, pervasive poverty, exacerbated vulnerabilities, overexploitation of natural resources, and unsustainability was all prominent in the study area. Furthermore, in the absence of other options, natural resource-based livelihoods were the sole option available in the study area.

Ghosh and Ghosal (2021) investigated the factors that influence households' decisions to engage in non-farm economic activities in the Jalpaiguri and Alipurduar districts of West Bengal. The primary data was collected using a multi-stage random sample procedure. The deciding factors of rural households that have chosen non-farm economic activity as their livelihood have been rigorously examined using multinomial logistic regression (MLR) and focus group discussion (FGD). The MLR model is statistically significant (p 0.001) and accounts for 51.8% of the variance in non-farm choices in rural areas. In the study, 14.1% of households did not choose non-farm livelihood practises over farm-related employment, whereas 85.9% did. Wage labour accounts for a large share of non-farm livelihood (38.3%), followed by non-farm activities (19.8%), service providers (18.0%), and salaried jobs (3.4%). It was found that the majority of the household were male-headed and men were more likely than women to engage in non-farm related self-employment. Upper-class rural people were more motivated to engage in non-farm activities than their lower caste counterparts. This is because rural resource allocation is skewed in favour of the upper caste. The educational attainment determines the choice of non-farm livelihoods. It was found that people who chose non-farm businesses in the previous year were largely secondary school graduates. According to the MLR model, the style of housing has a considerable impact on households' decisions to pursue non-farm livelihoods. Similarly, households who received microfinance services considerably diversified or switched to non-farm livelihood activities. Other factors such as the size of the agricultural land, migration, food insecurity of the households, distance to the nearest town, MGNREGA, changes in the availability of surface or groundwater, changes in soil quality, and rainfall and temperature disasters were statistically

significant factors in choosing a non-farm economic activity. A non-farm livelihood diversification determinant is more varied, according to the study, and is mostly dependent on household strategic decisions. The binary characteristics of opportunity-driven versus distress-driven govern a household's non-farm livelihood activity, however, it is a complicated transformation phenomenon.

Abera et al. (2021) looked at the factors that influence resettler households' livelihood diversification techniques in Ethiopia's Chewaka district. To examine the data, descriptive and inferential statistics, as well as a multinomial logit model, were used. Agriculture (43.2%), agriculture plus non-farm (25.5%), agriculture plus off-farm (19.3%), and a combination of agriculture plus non-farm plus off-farm (12%) are the most relevant livelihood strategies in the research region, according to the findings. According to the income portfolio study, agriculture accounts for 72.5% of total household income, followed by non-farm activities and off-farm activities account for 20 % and 7.5% of the total household income, respectively. Size of the landholding, educational attainment, livestock holding, sex, age, market distance, loan availability, annual income, access to training, and household sizes was found to be the most important drivers of livelihood diversification strategies, according to the results of a multinomial logit model. Furthermore, poor infrastructure development, a lack of operating capital, a lack of technical support, insufficient skill training, and a lack of awareness are all obstacles to the area's livelihood diversification. The study indicates that the agricultural sector alone cannot be relied on to reduce poverty, provide food security, and improve livelihoods in the study region. As a result, a comprehensive development plan that promotes successful livelihood diversification is deemed necessary. To achieve a long-term livelihood outcome in the area, policies and measures aimed at improving the livelihood of resettlers' communities should emphasise the expansion of rural infrastructure, increased awareness-raising efforts, and stakeholder cooperation.

Unni (1996) views that a household can diversify its economic activities in two ways: (i) allocating time of different family members to different activities and/or (ii) each member of the household participating in more than one economic activity. From the view of an individual worker in a rural family in Gujarat, he analyzed the

determinants of economic activities and involvement in non-agricultural jobs. A single multiple-choice model combines and analyzes the decision as to whether to participate in economic activity, the number of activities to be performed and the sector of activity. The model revealed that an important factor facilitating this process was access to land. Households, where men possess very high land value and other resources, are more likely to specialize in non-farm operations. External regional variables such as greater population density, proximity to the town and better-developed villages also encourage specialization in one non-agricultural activity. Access to land, except for a very high value of land and other resources, encourages diversification in terms of various activities per worker. Younger and less-educated men and women are also engaged in multiple activities. Households that depended mainly on agriculture were more likely to diversify for their livelihood. The probability of agricultural workers undertaking multiple activities is higher with a greater distance from a nearby town. Agricultural seasonality, uncertainty and production risks also generate a higher need for diversification. Diversification is probable to be due to small and uncertain revenues from one economic activity in far and less developed villages.

Abdulai and CroleRees (2001) used the household-level panel data to investigate the determinants of rural household income diversification in Southern Mali. They examined farm household revenue portfolios, concentrating on four primary operations: production of food crops; production of cash crops; rearing of livestock; and non-farm jobs. To regulate household-specific impacts, a conditional fixed effects logit model is used in the assessment. The findings indicate that an average of 42% of poorer families have fewer possibilities in non-farming operations like cattle rearing and non-farm work, and therefore less diverse incomes owing to comparative absence of capital, making it hard for them to diversify from subsistence agriculture. The findings also show that households in distant regions are less likely to engage in the non-farm sector vis-a-vis than those closer to local markets, whereas educated household's heads are more likely to engage in the non-farm sector than the illiterate household heads. The importance of entry constraints in explaining diversification of portfolios suggest that the role of government in obtaining and

sharing information and making resources accessible to poorer households, as well as enhanced infrastructure available, is still crucial in encouraging diversification of income.

Bhaumik (2007) examined the trends and drivers of employment and diversification of income in his study of two districts in West Bengal: one, which is socio-economically advanced and agriculturally developed (Hooghly) and the other is very backward (Cooch Behar). His data shows that one-third or less of rural families relied solely on the agricultural sector for their living. Almost 7% of households in the developed area and 4% in the backward area were restricted to the non-agricultural sector only. On the other side, a large majority of the households (approximately 63% in the developed regions and 60% in the backward areas) were multi-active, because they participated in both the farming and non-farming sectors. He discovered that solely crop production could satisfy one-fifth of their total employment and one-half of the household income needs in the advanced region whereas in the backward region it provided one-fourth of their total employment and one-third of household incomes. Besides crop production, non-farm self-employment and wage employment were more crucial for rural households from the viewpoint of employment and income generation, especially for landless and semi-marginal groups. In the study areas, the socio-economically better-off families also had higher access to the more productive non-farm jobs.

The multiple regression analysis showed that households with education, more working members and young workers tend to diversify more. Land-poor households are forced to embrace a more diverse employment or earnings structure. Diversification is encouraged by the accessibility of institutional agencies' loans and possession of certain non-farm resources. The degree of diversification is also high for the households living in the vicinity of some urban centres and/or those living in agriculturally advanced regions. He believes that, together with agricultural advancement, the non-farm sector has to be strongly encouraged. Furthermore, as a strategy for transforming the financial circumstances of poorer families, the development of the non-farm sector is a must, since jobs possibilities are likely to benefit landless and poor families comparatively more than land-rich families, but

attempts should be made to enhance their skills/education, non-agricultural resource base and availability of institutional credit to guarantee higher involvement in more remunerative non-farm activities in rural West Bengal.

Khatun and Roy (2012) conducted their field study in the Burdwan and Purulia districts of West Bengal to analyze the determinants and limitations to the diversification of livelihood between different livelihood groups. Using Simpson's index as a measure of livelihood diversification and multi regression analysis revealed that age of the household head, level of education, status in the society, training, possession of assets, credit availability, rural infrastructure, agro-climatic condition and the overall economic development of a region are the major drivers of livelihood in the state. Their study also showed that many limitations behave as barriers to the diversification of livelihoods, but the nature of these limitations varies across areas and livelihood groups. The asset poor is especially susceptible and unable to diversify due to entry barriers constrained by their weak asset base.

The major limitations households face in diversified areas are a weak asset base, absence of loan services, absence of consciousness and training, fear of taking the risk, inadequate rural infrastructure, and lower opportunities in the non-farm sector. On the other hand, the major limitations in less-diversified areas are bad transport facilities, weak asset base, unfavourable agro-climatic conditions, lack of loan services, absence of consciousness and training facilities, and inadequate infrastructure. The study proposed the need to create several policies to promote effective diversification of livelihoods, particularly for the poor. This involves developing rural infrastructure in terms of roads, markets, electrifications, telecommunications, and storage facilities, etc., as well as institutional developments to decrease entry costs and obstacles to poor livelihood groups. A detailed development plan for the backward areas is most important, including enhanced scope for non-farm activities.

In a similar tone, Walelign et al. (2016) have combined income and asset data using Nepal's three-wave household-level panel dataset to provide a better understanding of factors of preference for household activity, characterize clusters of

livelihood strategy, and analyze movements between strategies. They noted that rural households are heterogeneous in developing nations: their socio-economic features and asset endowments vary, as does their asset allocation to income-generating operations. Households accumulate wealth as their intermediate stage to emerge from poverty through farming, small-scale trading, and migratory work. Their empirical approach to rural livelihoods in Nepal suggests that government policy interventions should be aimed at (i) constructing resource endowments in low remuneration strategies, (ii) improving remittance generating opportunities and allowing petty trade to support the intermediate step on the way out of poverty, and (iii) promoting business ventures.

Reardon et al. (1992) used four years of household information from three agro-ecological areas in Burkina Faso-Sahelian, Sudanese, and Guinean to examine the determinants and impacts of household diversification of income. Diversification is driven by shortcomings in harvesting and trade terms, but not by land limitations. Non-farm revenue is used to offset these shortcomings, but access to this revenue seems to be unequal, and the distribution of inter-household revenue in two of the three non-farm revenue areas has not improved. Cash cropping does not seem to replace non-farm activity because of loan constraints for non-farm operations. Higher incomes and food consumption and more stable incomes and consumption over the years are correlated with revenue diversification. Their findings suggest that non-farm activities need to be promoted alongside efforts to develop farming, enhance credit and insurance markets, target food assistance, social security and food-for-work schemes for those recognized with the lowest buying power, not just the poorest crop outcomes.

Barett and Reardon (2000) conducted a comparative assessment of the variation in limitations, incentives and earnings at the household level that induces differentiated strategic decisions for a living. They used data from three different countries that vary significantly in agro-ecological and infrastructural conditions: humid-to-sub humid Côte d'Ivoire, arid-to-semi-arid north of central Kenya, and highland. They found that livelihood strategies that include sources of non-farm revenue are correlated with higher revenue realizations and greater mobility of

income, particularly those obtained from non-skilled labour. On the other hand, households that do not have access to non-farm operations or adequate productive non-labour resources (i.e., land and livestock) participate exclusively in on-farm agricultural production, which yields a low return and make them completely dependent on the agricultural sector and increase their poverty situation. Rural African households depend heavily on agriculture for employment and wage goods, thus, the donors and policymakers must aim at improving agricultural productivity and also recognize the role of the rural non-farm economy to combat rural poverty problems in Africa.

Similarly, Rawal et al. (2008) conducted a field survey with distinct agro-ecological areas of the state in three villages of Andhra Pradesh to analyze the problem of rural household income diversification. They found that most families in all three villages had much lower per capita household income than the SDP per capita (State Domestic Product). Second, the primary sector dominated income generation in two villages: Ananthavaram (65%), Bukkacherla (59%) compared to Kothapalle (43%). The primary source of revenue in Ananthavaram is agriculture (crop and animal husbandry), a high-yielding canal-irrigated paddy village in southern Andhra and also in Bukkacherla. Kothapalle is the only village that has shown higher income diversification since it is located on the main highway. Finally, there was no easy connection between reliance on the primary sector and the amount of assets owned. However, the villages varied in terms of the rich's source of revenue. In Ananthavaram, 77% of their income was obtained from agriculture and allied activities by the richest families. In Kothapalle, on the other hand, only 26% of the rich's income came from agriculture-related activities.

Kalinga et al. (2019) have conducted their study to ascertain the factors that influence the diversification of livelihoods in six villages of Rungwe District, Tanzania. Nearly all households in six villages stated that they were engaged in the cultivation of food crops. 80% of the respondents stated that the reason to engage in non-farming activities for additional income was due to land shortage which forced them to pursue other livelihoods activities. The increasing population triggered the households to diversify their livelihood through activities such as dairy farming and

crops that matured faster than the traditional ones to meet the growing market needs of both the rural and urban people. To mitigate the vagaries of climatic changes and variability like inadequate and unreliable rainfall in the study villages, households have diversified from traditional crop varieties into improved crop varieties which are fast maturing as an adaptation mechanism. Farmers are compelled to be engaged in activities like wage labour, trade and motorcycle riding other than farming. Institutions have also played a crucial role in the study areas by teaching the villagers on the significance of diversifying to reduce poverty and by promoting farmers to diversify into petty business and trade, livestock rearing, production of cash crop by providing them with enhanced livestock breeds and seeds in the district.

Households' heads had obtained primary education and only a few household heads achieved secondary or post-secondary education. Most of the households owned just the basic tools like hand hoes, axes and machetes. Good transport and communication facilities in three villages have allowed households to access markets that are very crucial for livelihood diversification while the other two villages have poor transport services. It was noted that 73% of the respondents are members of various social and economic organisations. The findings revealed many factors that have influenced livelihoods diversification in which, market, shortage of land, climate and population were among the key variables. However, Chi-square test showed a statistically significant association between market and livelihoods diversification into trade (13.349, P = 0.000), land rent (10.886, P = 0.001), production of cash crop (9.185, P =0.002), lumbering (8.878, P = 0.003) and honey production (8.633, P = 0.003). This means that the market was seen as the most significant factor influencing the diversification of livelihoods compared to other variables in the study area.

2.4. Other Related Studies

Kassegn and Endris (2021) conducted an in-depth review of related literature using secondary data from journal articles, books, published and unpublished reports of national and international organisations, and policy briefs to examine livelihood diversification and food security situations in Ethiopia. More than 80% of Ethiopians

rely on agriculture and livestock for a living, and there is an urgent need to increase household food security. Food insecurity in Ethiopia stems from a reliance on a single source of income based on low-input, low-output rain-fed agriculture. Non-farm livelihood diversification strategies, on the other hand, play a critical role in improving household food security in Ethiopia, where non-farm livelihood strategies are used by the majority of rural households (57%). According to the study, the age of the household head, the size of the rural household head's land, and the size of the rural household head's livestock all had a negative and substantial impact on the level of rural household livelihood diversification in non-farm and off-farm activities. The household heads' educational level, the size of the family, access to formal credit, distance to the local market, and the household heads' annual cash income were all found to have a positive and significant relationship with rural livelihood diversification strategies and food security. It was also discovered that having the ability to receive remittances and having a diverse set of non-farm income sources were positive and significantly associated. The conflict between bordering ethnic communities within the same region causes transitory disruptions in rural households' participation in non-farm and off-farm economic activities, as well as the loss of lives and property, according to the study. Thus, rural livelihood diversification is a constructive initiative and a solution for improving and realising household food security, particularly in rural areas of the country. As a result, rather than relying simply on insufficient and drought-prone farm revenue, the government should identify and devote proper attention to non-farm livelihood diversification plans as part of the country's national objectives to attain food security. To ensure rural households' food security situations in the country, all actors (governments, stakeholders, and rural households) must work together to address the aforementioned significant determinant factors of rural livelihood diversification strategies by implementing integrated policies, strategies, and programmes that support non-farm livelihood diversification strategies in the most appropriate ways of enabling them.

Malmberg and Tegenu (2007) analyzed the processes and effects of population pressure on the rural livelihood scheme in the South Central Ethiopian village of Gimisie between 1950 and 2004. In sub-Saharan Africa, the four main livelihood

approaches taken by agricultural households were extensification, intensification, diversification and migration. There are two distinct types of population stress: change in the dependence ratio of the family and change in the density ratio. The study mixed Boserup and Chayanov's methods to comprehend how families make their living when the relationship between dependence and density changes over time. Population pressure is taken in two different forms: change in household dependency ratio and change in density ratio. The information was gathered using a course of life and approaches to the cohort study to capture the dynamics and compare the past with the present. An inter-cohort comparison shows that distinct age groups share comparable demographic behaviour despite time differences. Because of the relative supply of land, the livelihood strategy took the form of agricultural extension when both ratios were small. The livelihood strategy took forms of agricultural intensification (soil enhancement, shortened fallow cycle, multiple cropping, etc.) and diversification (primarily off-farm activities) was taken when both ratios were increasing. Economic growth does not result in intensification and diversification. It is due to the scarce resources and the household's attempt to "self-improve" during the era of constant population pressure to satisfy the basic requirements. The case study demonstrates that population growth is accelerated by the access of households to various kinds of asset and their concentrations. Economic and institutional reforms directed at enhancing a household's quality of life and addressing inequality problems can be used as a means to address various demographic events.

Saha and Bahal (2010) conducted their study on livelihood diversification undertaken by the farmers in Uttar Dinajpur district and Darjeeling district of West Bengal. The Average Diversification Index in the study area was 0.46. The adults from Darjeeling district were more diverse (52%) as compared to Uttar Dinajpur district (39%). This can be attributed to the non-farm sector's scope and marketing; unavailability and unproductive land in the hill region and relatively high living costs. Nearly two-thirds of farmers were engaged in various non-farm and off-farm activities as the percentage of total money income from such activities is greater for poorer wealth groups. Women are highly involved in various diversification activities (24%). Trading, cattle and casual labour were the most significant diversification

activities. Some of the households had an extremely diverse livelihood, including agriculture, non-farming, migration and combinations of these. Despite the vast potential for diversifying livelihoods towards the farm and non-farm activities in the study area, issues such as negative community perception, obsolete production methods lack of enhanced technology and expertise, lack of capital, and absence of a wide market for the non-farm output have arisen.

Awotide et al. (2010) tried to empirically link poverty to the diversification of livelihoods in southwestern Nigeria. Using poverty depth assessment (Foster-Greer-Thorbecke class) and Tobit regression model, cross-sectional data from the study of 213 farming households in Yewa North and Odeda Local Government Areas of Ogun State were analyzed. The incidence of poverty in the study indicated that 47% of farming households had per capita expenditures below the poverty line. It was found that the squared poverty gap index is 8%. In addition to agriculture, farming households participated in eleven livelihood activities, of which hunting, trading and crafts were the favoured livelihood activities. Income from livelihood activities was negatively associated with a household's likelihood of being poor, which indicates that engaging in livelihood operations decreases the danger of poverty among farmers. The findings showed that household head's sex, family size, dependency ratio, household-owned land area, revenue from livelihood operations and hunting as a livelihood means substantially determined the farming household's poverty status.

Tashikalma et al. (2015) examined the impact of diversification of livelihoods on the food security status of rural farming households in Adamawa, Nigeria. Rapid population growth, climate changes have posed serious challenges to the farmers resulting in an increased incidence of poverty and malnutrition in the state. The data released by the National Bureau of Statistics (2013) showed that Adamawa has about 74.2% of its citizens below the poverty line of $1.25 per day. To determine respondents' food security status, Food Security Line was used and estimated to be two-thirds of the average monthly per capita expenditures of all respondents and accordingly classified as food secure household and food-insecure household. 56.53% of the respondents were food secured while the remaining 43.57% were food insecure, which indicates food security attainment is still a challenge. The types of livelihood

activities that the people participated in were farm, non-farm and off-farm. These activities were broadly classified into four groups namely: farming, trading, skilled non-farm (such as civil service, carpentry, photography, mechanic/electricians, clergy, blacksmith and sewing) and low skilled non-farm activities (such as artisanship, casual wage workers, and motorcycle transport). Farming was the most important source of livelihood. Low skilled non-farm activities ranked second with about 43.57% participation rate. Trading was the least among the categories of activities with about a 12.14% participation rate. Lack of basic infrastructure, lack of funds and also low skill and training are the main problems faced by people. Other problems included tax, cultural issues, distance to market and poor leadership within their co-operative societies. These constraints limit the livelihood diversification activities that the people could have undertaken.

Safdar et al. (2015) examined livelihood diversification and the role of agriculture in resource-scarce regions in Kaghan Valley, Northwest Pakistan. They found that in the past ten years, people were dependent on farming to sustain their livelihood but with time, climatic variations such as an increase in temperature, rainfall and flood caused substantial damage to crops, livestock and infrastructure and thus severely affected the livelihood of the rural community especially the small farmers became more vulnerable. Most of the respondents moved from single to double livelihood activities. Their livelihood pattern was shifted from farming to labour. Two-third of the sampled households were dependent on unskilled wage labour of which the majority of the respondents earned less than Rs.5000 and 40% of the respondents earned between Rs.5000-10000 monthly. 20% of the households were dependent on remittances as their main livelihood activity and 16% of respondents relied on food crop production as their major livelihood activity with less than Rs.5000 average monthly income. Fewer households adopted strategies such as private business, skilled labour and employment. The main cash-oriented livelihood activity of the households was unskilled wage labour while remittances and farming are the secondary and tertiary sources of income.

2.5. Concluding Remarks

The extant literature on diversification of livelihoods reviewed so far provides many interesting case studies on the diversification behaviour of individuals/households. Some households have options so they diversify into comparatively profitable activities, while those with little option have to diversify into comparatively unrewarding activities. However, limitations not only hinder certain types of diversification, but they can also compel to diversify in activities that give low returns. Poor asset endowments usually compel the socio-economically backward families to accept meagre wages in exchange for their labour-power in the labour market. The study of diversification behaviour provides a deeper understanding of what kinds of activities, policies or institutional interventions can effectively overcome the constraints to livelihood diversification and reduce poverty.

Gender is an important factor in social development because more female-headed households are living in poverty than male-headed households A gender analysis of livelihoods shows how gender asymmetry in access to and control over resources, and how participation in and power over resources, information networks, and markets affects men and women. It is a way of looking at how social norms and power dynamics differ between men and women and how it affects the lives and opportunities available to men and women. The empowerment of women is crucial for social and structural change to contribute to sustainable development with equality and growth.

The studies on livelihood diversification that have been done so far have focused on the assets, gender, non-farm sector, etc. but the study that has covered the plantation industry and unorganized sector is scant. The large body of literature on tea plantations emphasizes the vulnerability and disadvantaged position of the tea workers in the organized sector (which is discussed in detail in the next chapter). The tea workers do not have adequate livelihood options hence this anaemia in the labour market situation may prompt a worker to think about alternative sources of livelihood. As such, they might be compelled to migrate or to diversify under distress conditions due to poverty, rapid population growth, declining productivity, etc. The various issues the workers face and the actions needed can be regarded in

terms of handling the livelihood activities of the tea plantation workers including primary, additional and alternative employment.

Chapter 3

STATUS AND CONDITIONS OF EMPLOYMENT UNDER TEA INDUSTRY IN WEST BENGAL

3.1. Introduction

According to Xaxa (1997), the word plantation originally referred to the transfer and settlement of Europeans in an overseas area. For Buchanan (1938), the word "plantation" meant "colony" as the colony itself was planted. The Plantation Labour Act, 1951 defines plantation as a piece of land, twenty-five acres or more which is used for growing tea, coffee, rubber, cinchona or cardamom where fifteen or more persons were employed on any day of the preceding year. Coercion, immigration and low wages were the three key components of the plantation economy. The foundation of the plantation economy was envisaged on cheap exploitation of labour. Plantations had to depend on migrant labour, for instance, the plantation industry of South-East Asia was established due to plenty of labour supplies from Java, China and India (Gordon, 2001). The sugar plantations of Mauritius, Natal, Fiji, and British Guiana drew their labour supply from India. Similarly, the tea plantations of Ceylon and rubber plantations of British Malaya depend almost entirely on Tamils. Filipinos and Japanese predominated in the Hawaiian Islands (Buchanan, 1938).

Plantations have behind it a long history and it produces export-oriented crops. The plantation is a part of the agricultural sector but it has many characteristics in common with the industry. Employment in factories is done on an individual basis, on the contrary, employment in the plantations is family-based. Plantations are mostly situated in backward and rural regions, thus offering the rural population with livelihood and employment (Joseph and George, 2010)**.** The majority of the plantation workers are unskilled and the plantation sector directly employs more than 2 million employees in India out of which female workers make up 50 % of the total workforce (Labour Bureau, 2009).

The tea industry is one of India's oldest organised sectors and plays a major role in the economic development of the country in terms of employment generation and foreign exchange. Due to its socio-economic structure, it varies from other sectors, characterized by heavy reliance on manual labour and the use of less sophisticated technology. The tea plantations originated in India around 1774 with the arrival of China tea seeds. Some people believe that Assam is home to this shrub and it later spread to China in the 3rd century A.D, to Europe by the Dutch and to England around 1645. According to Kar (1984), the word tea originates probably from the Chinese *'thea'* and some hold the view that in China it was called "cha" or "tscha". Tea was an important item of a trade by the British East India Company. The East India Company had a monopoly of tea trade with China but the political hostility aroused the company officials to explore the cultivation of tea in India (Savur, 1973).

A rise in Indian tea popularity over Chinese tea due to its thicker brew in Britain resulted in the growth of India's tea plantations (Bhowmik, 1980). The regions adjoining China and Bhutan had a favourable climate for growing tea, which attracted the British. Thus, the major tea growing tracts in the Darjeeling hills, the Terai and the Dooars were soon annexed from Sikkim and Bhutan to the British territories, which had much waste and jungle land and sparse population (Mukherjee, 2007). In North-East India, the tribal population of the Chhotanagpur plateau were the main source of labour supply in the plantation estates. Labourers were secured by recruiting them from distant parts of India. The labour force employed in the Terai and Dooars plantation are exclusively immigrants primarily of tribal origin and hailed from Chhotanagpur and Santhal Paragana in Bihar and Raigarh, Raipur and Nagpur region of Central Province(Madhya Pradesh) and part of the labourers are from Nepal. In the Darjeeling hills, the labourers were immigrants from Eastern Nepal. The stagnant economy of Nepal put economic pressure on its population to find a channel for employment. These immigrants were also absorbed in the cinchona plantations, Darjeeling Himalayan Railway (DHR) and British Army (Sharma, 2003). The northern part of West Bengal known as North Bengal was one of the first areas of Bengal to have been penetrated by large-scale capitalistic plantation agriculture introduced in the mid 19th century through foreign capital investment (Xaxa, 1997).

Given this background, this chapter attempts to study the general scenario of employment and institutional and statutory provisions for the protection of labours' welfare under the tea industry in West Bengal. The rest of the chapter is organised in different sections as plantation hierarchy, tea plantation as a source of employment, tea plantation in West Bengal, conditions of employment in tea estates, regulation of wages, the status of labour welfare, state intervention in tea plantation, and conclusion.

3.2. Plantation Hierarchy

In the tea plantations, three distinct social categories namely the managerial-supervisory class, the clerical staff and the plantation labourers form the major components of the tea plantation social structure. The only similarity between the three classes is that none of them owns the means of production. Nonetheless, they differ from one another like work performed, remuneration, social status and power in the plantation hierarchy.

The managers are at the top of the hierarchal structure and they look after the daily administration of the estate. The general manager is known as the '*bara saheb'* and his assistants are known as *'chhota sahebs'*. They are paid monthly salaries along with benefits and perquisites such as a free and furnished bungalow, free domestic services of a security guard, gardener, sweeper, bearer and other servants. The clerical staffs are subordinate to the managerial class and superior to the plantation labourers. The medical staffs comprise a medical officer a nurse and two other medical sub-staffs: a midwife and a compounder, Computer operator and other sub-staff (OMRE) too are included in this category of the social structure of the plantation estates. They vary from one another in terms of authority held and statuses enjoyed and are paid in three distinct pay scales. The plantation workers or the working class (including both the field and factory workers) constitutes the lowest rank in the plantation hierarchy. The plantation labourers are the daily rated workers who exchange their labour for cash wages.

3.3. Tea Plantations as Source of Employment

According to ILO, employment plays a twin role economically and socially; while it is a source of income, social protection and well-being to the individual it contributes to the productive capacity and growth of an economy (Hansenne, 1994). As per the record of Tea Board (2015), the area under tea plantation in India has increased from 3,15,656 hectares in 1950 to 5,63,960 hectares in 2014, while the average number of labour employed under tea industry has increased from 9,48,598 to 12,59,950 during the same period. The gender distribution of the daily employment in the tea plantations of various states in India is presented in Table 3.1.

Table 3.1: Gender-Wise and State-Wise Average Daily Employment in the Tea Plantations of India for the Year 2014

States	Male workers	Female workers	Total Workers
Assam	250528	282259	532787
Himachal Pradesh	65	75	140
Karnataka	332	529	861
Kerala	9892	14483	24375
Tamil Nadu	13111	26703	39814
Tripura	3514	4116	7630
Uttarakhand	732	1095	1827
West Bengal	47417	63764	111181
Grand Total	325591 (45.3)	393024 (54.7)	718165 (100)

Source: Labour Bureau, 2017: Report On The Working Of The Plantation Labour Act, 1951 For The Year, 2014.

Assam accounts for the highest average daily employment in tea plantations (69%) and has the highest number of women workforce. In addition, the female workers outnumber the male workers across states. These plantation workers are mostly unskilled workers and the tea industry directly employs more than seven lakhs workers in the country of which women form 54.7% of the total workforce. The dominance of women workers is the most striking feature of the plantation industry. Kerala is the only tea producing state which has higher employment of male workers (52.2%) compared to female workers (47.8%).

3.4. Tea Plantations in West Bengal

The tea industry is one of West Bengal's major industries besides the Jute industry, Cotton textile and Engineering industry. It covers over 24.8% of the total tea cultivation area and produces 26.7% of the total tea production in India (Tea Board, 2015). Tea is grown in five districts, namely, Darjeeling, Jalpaiguri, Alipurduar, Coochbehar and Uttar Dinajpur. The three hill sub-divisions i.e. Darjeeling Sadar, Kurseong and Kalimpong of Darjeeling district produce orthodox tea, which is globally known as Darjeeling tea is renowned for its aroma and flavour. Siliguri sub-division of Darjeeling district produces mostly CTC variety of tea and the tea gardens in the region are categorised as Terai Gardens. The tea gardens in Jalpaiguri, Alipurduar and Coochbehar districts adjoining the Terai region are known as Dooars Gardens. Thus, North Bengal specializes in tea production with three major tea producing areas, namely, Darjeeling hill, Terai and Dooars. In addition to the tea plantations, West Bengal also has cinchona and some medicinal plantations. At present, there are 283 registered tea gardens in the Darjeeling hill, Terai and Dooars regions of North Bengal employing about three lakh people (Annual Report, 2015-16, Government of West Bengal).

The tea estates in West Bengal are marked by considerable diversity- socially, economically, politically, geographically and culturally. Plantation workers in the hills comprise different ethnic groups such as Kiratis (Rais, Subbas, Limbus), Tamang, Gurung, Mangar, Newar, Kamis, Damais, Sarkis, Brahmins, etc. In the Terai and Dooars, plantation workers are mostly Adivasis such as Oraons, Mundas, and partly Nepalese in the Terai plantations (Gurung and Mukherjee, 2018).

3.4.1. Labour, Employment and Productivity

A profile of the labour force engagement is given in Table 3.2. It shows that the compound annual growth rate of labour employed from 1950 to 2014 has been negative for the three major tea producing states except for Assam. West Bengal has the highest negative growth in terms of labour employment (-1.68%) which is less than the overall India figure (-0.57%). This is indicative of the fact that the highly

Table 3.2: Average Daily Number of Labour Employed in the Major Tea Producing States of India, during the years 1950-2014

Plantation Region	1950	1960	1970	1980	1990	2000	2004	2010	2014	CAGR
Assam	515422	453761	394410	448949	541661	602531	617518	416369	532787	0.05
West Bengal	329034	197165	200280	218848	248671	253459	262672	162748	111181	-1.68
Tamil Nadu	89949	78342	71790	86359	102786	255780	266027	-----	39814	-1.27
Kerala	70054	93672	71165	71086	74388	77086	90358	39814	39938	-0.87
All India	1033090	845166	759646	846659	986781	1210055	1257610	629995	718615	-0.57

Source: The data has been compiled from calculated from the following: (1) Various issues of Tea Statistics, Tea Board of India ; (2) Labour Bureau, 2017: Report On The Working Of The Plantation Labour Act, 1951 For The Year, 2014.
Note: CAGR- Compound Annual Growth Rate. '-----'- Nil

Table 3.3: Tea Plantations in West Bengal

Year	No. of Tea Estates	Area in Hectares	Average Plantation Size	Plantation Workers	Average Workers per Plantation
1950	296	79641	269.1	329034	1112
1960	303	82331	271.7	197165	651
1974	297	88224	297.1	199793	673
1980	305	93497	306.5	218848	718
1990	347	101170	291.6	248671	717
2000	1540	107479	69.8	253459	165
2004	8709	114003	13.1	262672	30
2012	276	--	--	218968	793

Source: The data has been compiled from calculated from the following: (1) Various issues of Tea Statistics, Tea Board of India ; (2) Synopsis On Survey of Tea Gardens, Government of West Bengal, 2013.
Note: '--': not available

labour-intensive tea has failed to generate employment for the increasing labour force in recent years. Tables 3.3 and 3.4 reveals that in the year, 2000 and 2004 there was a phenomenal growth in the number of tea estates but there is a sharp decline in the number of tea estates in 2012. The average plantation size has reduced from 269.1 hectares in 1950 to 13.1 hectares in 2004 and the average number of workers per tea estate from 1112 in 1950 to 793 in 2012. Despite having the lowest number of tea estates in 2012, the productivity is the highest recorded at 665057 kg per tea estate and productivity per worker is 838 kg, which is, also the highest compared to all the years.

Table 3.4: Productivity of Worker in Tea Plantations of West Bengal

Year	Tea Production (in Th kg)	Productivity per Tea Estate (in kg)	Worker per hectare	Productivity per hectare (in Kg)	Productivity per worker (in kg)
1950	81464	275216	4.13	1023	248
1960	81523	269053	2.39	990	413
1974	118028	397401	2.26	1338	591
1980	133185	436672	2.34	1424	609
1990	149753	431565	2.46	1480	602
2000	181536	117881	2.36	1689	716
2004	214541	24634	2.30	1882	817
2012	183555	665057	--	--	838

Source: The data has been compiled from calculated from the following: (1) Various issues of Tea Statistics, Tea Board of India ; (2) Labour Bureau, 2014: Report On The Working Of The Plantation Labour Act, 1951 For The Year, 2012.

3.4.2. Workforce Composition

The labour force constitutes four categories of workers: male, female, adolescents and children[1]. The Child Labour (Abolition & Regulation) Act, 1986 banned the employment of children below 14 years of age, so now there are only three categories of workers. Before the implementation of the Act, children were another source of cheap labour and were paid half the adult wage. The employment of children workers was the characteristic feature of the plantation system. From the table, it can be seen that up to 1990, children workers were employed on the tea

1Male and female workers are adult workers who are above 18 years of age. Adolescents are workers between 16 to 18 years of age and children are workers between 12 to 16 years of age (Tea Board of India, 2004).

plantations and they outnumbered the adolescent workers. Table 3.5 shows that the share of women workers has increased from 46% in 1961 to 57.8% in 2015. Although the annual compound growth rate is negative for all the three categories of workers the negative growth is the lowest for women workers (-0.82%) when compared with the annual compound growth rate of the total labour force (-1.82%).

Table 3.5: Category-Wise Average Daily Number of Labour Employed in the Tea Plantations of West Bengal, 1961-2015

Year	Male	Female	Adolescent	Children	Total
1950	-	-	-	-	329034
1961	90285 (47)	89854 (46)	6384 (3)	6988 (4)	193511 (100)
1974	85278 (43)	95557 (48)	6667 (3)	12291 (6)	199793 (100)
1980	97374 (45)	100388 (46)	9005 (4)	12081 (5)	218848 (100)
1990	114003 (46)	119889 (48)	5821 (2)	8958 (4)	248671 (100)
2000	118177 (47)	128399 (51)	6883 (2)	--	253459 (100)
2004	122983 (47)	133702 (51)	5987 (2)	--	262672 (100)
2015	42045 (42)	57668 (57.8)	118 (0.2)	--	99831 (100)
CAGR (%)	-1.41	-0.82	-7.12	--	-1.82

Source: The data has been compiled from calculated from the following: (1) Various issues of Tea Statistics, Tea Board of India; (2) Annual Report 2015-2016, Government of West Bengal.
Note: The figures in the bracket indicate the percentage in the total labour force.
For the year 1950, data on labour employed was not available for the categories of workers. Hence, the CAGR for male, female and adolescent workers is calculated from the year 1961-2015.

The plantation sector accounts for the largest female organised employment and is likely liable for improving the national average sex ratio in organised employment (Joshi, 1976)**.** Women's docility, dispensability and low absenteeism make them very attractive to employers. The primary reason behind women's high employment in the tea plantations is that work is largely gendered specific (Mukherjee, 2007). Plucking of tea leaves is the most crucial activity in tea plantations. Women workers are exclusively engaged in tea plucking due to their smaller hands and greater dexterity in tea plantations. The planter's extensive

employment of women workers is to maintain low wages (Bhowmik, 1982) and high employment of women workers does not result in greater productivity per worker or hectare but is an indication of the existence of feminised labour in tea plantations (Gurung and Mukherjee, 2018).

3.5. Conditions of Employment in Tea Estates

In the tea plantation depending on the nature of employment, there are two kinds of workers: permanent and temporary workers. During the peak season, when there is enough flush and additional hands are required, the management hires temporary workers to meet the plantation's seasonal requirements (Kar, 1984). The managements take advantage of the large pool of surplus labour available by hiring them from the permanent worker households as there are few job opportunities outside the plantation system. The outcome is the high incidence of casual workers (Bhowmik, 2011). Besides wages, the benefits admissible to permanent workers are: (1.) Free housing accommodation, (2) Contribution towards Provident Fund, (3) Free medical care, (4) Leave with wages, (5) Provision of firewood, (6) Subsidised ration and free tea leaf, (7) Bonus and (8) Gratuity. The temporary or casual workers who work for a maximum period of 150 days can avail the benefits 3, 4, 6 and 7.

Apart from the permanent resident workers and the temporary or casual workers, there has emerged a new category of '*outside*' workers who are hired as permanent outside workers and temporary outside workers (Sankrityayana, 2006). From Table 3.6 it can be seen that up to 1990, children workers were employed on the tea plantations and in fact, they outnumbered the adolescent workers, both resident and outside workers taken together. Table 3.6 shows that the annual compound growth rate of resident women workers (0.82%) is lower compared to outside women workers (1.86%). The annual compound growth rate shows that there has been a phenomenal increase of outside male (3.57%) and adolescent (5.45%) in comparison to the resident male (0.39%) and adolescent (-4.76%) workers. Overall, the annual compound growth rate of the total resident labour force (0.47%) is lower than the total outside labour force (2.67%).

Table 3.6: Category-Wise Break–up of Average Daily Number of Labour Employed as Resident and Outside Workers in the Tea Plantations of West Bengal, 1961-2004.

Year	Resident Workers*					Outside Workers*					Ave. No. of Labour Employed
	Male	Female	Adolescent	Children	Total	Male	Female	Adolescent	Children	Total	
1950	-	-	-	-	-	-	-	-	-	-	329034
1961	85476	82457	5950	5968	179851	4809	7397	434	1020	13660	193511
1974	77394	83138	5929	6704	173165	7884	12419	738	5587	26628	199793
1980	85255	84158	6531	5009	180953	12119	16230	2474	7072	37895	218848
1990	97353	98092	4311	3992	203748	16650	21797	1510	4966	44923	248671
2000	97467	99291	2091		198849	20710	29108	4792		54610	253459
2004	101254	117346	1732		220332	21729	16356	4255		42340	262672
CAGR	0.39%	0.82%	-4.76%		0.47%	3.57%	1.86%	5.45%		2.67%	0.71%

Source: Various issues of Tea Statistics, Tea Board of India.
Note: * - includes both field and factory workers.

Table 3.7: Category of Resident and Outside Workers during 1965-2004

Year	Resident Workers		Outside Workers				Total Outside Workers	
			Permanent		Temporary			
	West Bengal	All India*	West Bengal	All India*	West Bengal	All India*	West Bengal	All India*
1965	202865 (93)	596076 (86)	3791 (2)	43550 (6)	11054 (5)	55845 (8)	14845 (7)	99395 (14)
1972	204961 (94)	539536 (83)	4318 (2)	39847 (6)	8175 (4)	69446 (11)	12493 (6)	109293 (17)
1980	211145 (92)	551002 (81)	6221 (3)	37979 (6)	11339 (5)	94836 (13)	17560 (8)	132815 (19)
1990	223483 (92)	474763 (79)	4672 (2)	35254 (6)	14019 (6)	88043 (15)	18691 (8)	123297 (21)
2000	198849 (55)	637378 (67)	12083 (5)	73754 (8)	42527 (40)	245132 (25)	54610 (45)	318886 (33)
2004	220332 (84)	723418 (73)	12200 (5)	74292 (8)	30140 (11)	197228 (19)	42340 (16)	271520 (27)
CAGR (%)	0.21	0.50	3.04	1.38	2.61	3.29	2.72	2.61

Source: Calculated from the data given in various issues of Tea Statistics, Tea Board of India.
Note *: excludes West Bengal. Figure in the bracket is the percentage of resident workers and outside workers in the total labour force.

Table 3.7 reveals that the share of outside workers has been increasing while the share of resident workers shows a decreasing trend. In the outside worker category, it is noticed that the share of temporary workers has been on the increase. The annual compound growth rate of outside workers for West Bengal is 2.72%, which is higher than that of the resident workers 0.21%. In West Bengal, temporary outside workers increased from 8% in 1965 to 25% in 2000 but fell to 11% in 2004. However, the annual compound growth rate of outside temporary workers is 2.61%, which is lower than that of outside permanent workers that are 3.04%. On the other hand for the rest of India's tea-growing states, the annual compound growth rate of outside workers is 2.61% and for the resident, workers are 0.50%. The temporary outside workers increased from 5% in 1965 to 40% in 2000 but fell to 19% in 2004. The annual compound growth rate of outside temporary workers is 3.29%, which is higher than that of outside permanent workers that are 1.38%.

In the overall comparison between the West Bengal tea plantations and the rest of India's tea-growing states, it is seen that the annual compound growth rate of outside workers is highest in West Bengal that is 2.72%. Although outside workers have been increasingly used in the tea plantations all over India the calculations show even more widespread casualisation of the workforce in West Bengal's tea plantations. This phenomenon enables the tea estates to carry a smaller amount of labour force permanently. To avoid the financial liabilities, outside workers are employed who can only draw the money wage and none of the statutory non-wage benefits. They can be hired and fired as and when needed. Employers now use the existence of casual labour to depress the general wage levels. Thus, various categories of plantation workers were created to promote the development of a highly segmented labour market (Sankrityayana, 2006).

3.6. Regulations of Wages

During the British Raj, the government adopted the policy of *laissez-faire* and left the fixation of wages of the tea plantation workers at the discretion of the planters through their organisation. The workers could not enunciate their demands and

grievances as they were unorganised (Xaxa, 1997, p.187). In Assam and West Bengal, the wages of the tea plantations workers were kept at very low levels such that even when the family members contributed to the wage earnings it together constituted between 62 to 78% of the family expenditure. Thus, even the family wage earnings remained below the subsistence level of a family (Dasgupta, 1986). In this regard, the Royal Commission on Labour in 1930, strongly suggested the establishment of wage-fixing machinery in the tea industry even though the planters thought that setting minimum wages was unnecessary (Bhowmik, 1980). The planters were of the view that an increase in wages above the subsistence level would increase *'coolie indolence'* (Dasgupta, 1986). The Rege Commission made similar recommendations in 1944 as the workers lacked the spirit of collective bargaining. In December 1947, the Industrial Truce Resolution passed a tripartite meeting of the Central and State government officials, employers and employees' representatives to advocate the need for fair wage payments to workers. The Government of India consonant with this resolution constituted a tripartite Committee on Fair Wages in 1948 (Fonseca, 1969). The Committee developed three concepts concerning the levels of wages namely the living wage, minimum wage and fair wage.

1) **Living wage**:

   The living wage is defined as one, which meets not merely the absolute essentials of food, clothing and shelter but a measure of comfort including education for children, protection against ill health, requirements of essential social needs and a measure of insurance against more important misfortunes including old age (Labour Bureau, 2014).

2) **Minimum wage**:

   The Fair Wage Committee noted that minimum wages should not only satisfy the worker's bare subsistence but should also provide for the worker with education, medical services and other amenities (ibid.).

3) **Fair wage:**

The Committee observed that wages to be determined should not only be fair but should also see if employment is retained and could potentially be improved at the current level. Wages should allow the industries to effectively retain the production. The Committee also recommended that the wages should be linked with productivity after assuring living wage and further recommended that fair wage should be linked with the prevailing rates of wages (ibid.).

3.6.1. Existing Practices of Wage Fixation and Payment

In the tea plantations, there are two ways to pay for labour services: the time rate system and the piece-rate system. The Time-rate system pays the worker according to the amount of time spent in plucking while workers are paid according to the quantity of leaves plucked in the piece-rate system. The piece-rate system is not applicable in the case of factory workers despite being daily wage earners. They work for eight hours a day to earn the daily rate of wages known as hazira. The piece rates are the same for both the men and women workers.

In West Bengal, the piece-rating modes are **'**thika'(task) and 'doubly'(extra task). In the Dooars and Terai regions of West Bengal, wage payments are generally made based on 'thika' and 'doubli'. The 'thika' is the first task fixed for the morning and 'doubli' is the second task set out for the afternoon. The 'doubli' is smaller than 'thika' but the rates are the same for both. The dearness allowance is paid for both 'thika'and 'doubli' (Mukherjee, 2007). In the Darjeeling hills, the entire work is paid on 'thika' basis as the workers are engaged in fine plucking, two leaves and a bud. Completion of the task requires about six to eight hours. The workers are entitled to earn 'extra leaf price' (ELP) for every kilogram plucked above the minimum quota. While the workers are paid extra leaf price for each kilogram plucked above the minimum quota (*thika*), the extra leaf price varies with different quantities of leaves plucked and with different plucking cycles as well. This implies the employees have to sweat for longer hours during the lean season to earn the extra wage. However, this

incentive scheme contributes to the management's advantage as the employees put in more than a day's effort without being properly compensated for the extra time spent completing the task (Savur, 1973). Every worker, whether permanent or casual, young or old, experienced or inexperienced, receives the same wage (Gurung and Mukherjee, 2018).

Table 3.8: Incentive Wage System in the Tea Plantations of West Bengal as per Memorandum of Settlement (20.02.2015)

Plantation Region	**Basic Task**	**Extra task A @ Rs 3/kg**	**Extra Task B @ Rs 3.50/kg**	**Gross Wage**
	24 kg	30 kg	36 kg	
Dooars and Terai	Rs 132.50	Rs 18	Rs 21	Rs 171.50
	8 kg	@ Rs 5/kg 12 kg	-----	
Darjeeling Hills	Rs 132.50	Rs 20	-----	Rs 152.50

Source: The data has been compiled from the following: (1) Annual Report 2014-15, Government of West Bengal; (2) Field Survey, 2018.

Workers are also entitled to food grains at concessional rates. The subsidy forms a part of the worker's wage. A worker is entitled to a weekly ration of 1 kg rice and 2.26 kg of wheat at the rate of 0.40 paisa per kg. For each bonafide adult-dependent in the age group of 12 to 18 years, 1 kg of rice and 1.44 kg of wheat and for every bonafide minor dependent in the age group of 2 to 12 years 500gm of rice and 720 gm of wheat is provided at the same rate. These rations are linked to the worker's attendance. If a worker is absent from work, the wages and rations are deducted proportionately (Gurung and Thanga, 2018). Even after considering the subsidised food grains, the wages of the tea workers in West Bengal are significantly lower compared to that of the South Indian tea plantation workers.

3.6.2. Roles of the Wage Board and Wage Agreements Mechanism

The four major industries of West Bengal namely the jute industry, cotton textile, engineering industry and tea industry are regulated by industry-wide tripartite agreements. In tea plantations, the problem of wage determination and regulation has been entrusted to tripartite Wage Boards. In pursuance of the recommendations contained in the Second Five Year Plan regarding the establishment of tripartite wage boards for individual industries, the Government of India, Ministry of Labour and Employment appointed the Central Wage Board for Tea Plantation Industry on 5 December 1960**.** The Wage Board's role is to develop a wage structure based on fair wage principles as set out in the Fair Wages Committee Report. In organised industries where low wages prevail the Committee observed that the minimum wage is lower than the living wage and recommended that wages should be above the minimum wage and below the living wage.

The wages of the daily-rated tea plantation workers are revised every three years through collective bargaining between employers' associations, workers' unions and the state government officials. The operating trade unions submit their respective Charter of Demands to the Labour Commissionerate. Wage agreements in the Darjeeling Hills are bipartite so the negotiations are made between the planters' and workers' union whereas in the Dooars and Terai it is tripartite so the negotiations are made between the planters' union, workers' union and the State Government. Since the last agreement lapsed on March 31, 2017, and wage revision was due since April 1, 2017, so the tea workers went on a three days strike from July 24 to July 26, 2017. The Government of West Bengal proposed to increase the daily wage from Rs 132.50 to Rs 150 with effect from January 1, 2018.

The tea garden owners have stopped providing food grains at concessional rates so an increment of Rs.9 was granted to the workers with the increased wage so the wages stood at Rs 159. Another two interim wage hikes were made on September 1, 2018, and October 1, 2018, of Rs 10 and Rs 7 respectively as per the memorandum issued by Javed Akhtar, the State Labour Commissioner on August 29, 2018. The workers are now paid Rs 176 per day but these increments are just interim arrangements (Bhaduri, 2018). Table 3.9 shows the trends in wage increments of the

Table 3.9: Trends in Wage Increments of Tea Plantation Workers in West Bengal as Per the Wage Agreements

Basic (in Rs)	Increment (in Rs)	Total wage (in Rs)	Period of Validity	Date of Agreement
11.19	0.85	12.04	1.6.1987-30.5.1988	10.06.1987
12.04	0.85	12.89	1.6.1988-30.5.1989	
12.89	0.85	13.74	1.6.1989-30.5.1990	
13.74	2.70	16.44	1.6.1990-30.5.1991	10.08.1990
16.44	1.40	17.84	1.6.1991-30.5.1992	
17.84	1.40	19.24	1.6.1992-30.5.1993	
19.30	2.50	21.80	1.4.1994-31.3.1995	2.06.1994
21.80	2.50	24.30	1.4.1995-31.3.1996	
24.30	2.00	26.30	1.4.1996-31.3.1997	
26.30	3.00	29.30	1.4.1997-31.3.1998	16.06.1998
29.30	3.00	32.30	1.4.1998-31.3.1999	
32.30	2.50	34.80	1.4.1999-31.3.2000	
34.80	3.00	37.80	1.4.2000-31.3.2001	03.02.2001
37.80	4.00	41.80	1.4.2001-31.3.2002	
41.80	4.10	45.90	1.4.2002-31.3.2003	
45.90	2.50	48.40	1.4.2005-31.3.2006	25.07.2005
48.40	2.50	50.90	1.4.2006-31.3.2007	
50.90	3.00	53.90	1.4.2007-31.3.2008	
53.90	4.10	58.00	1.4.2008-31.3.2009	23.08.2008
58.00	4.50	62.50	1.4.2009-31.3.2010	
62.50	4.50	67.00	1.4.2010-31.3.2011	
67.00	18.00	85.00	1.4.2011-31.3.2012	31.03.2011
85.00	5.00	90.00	1.4.2012-31.3.2013	
90.00	5.00	95.00	1.4.2013-31.3.2014	
95.00	22.50	112.50	1.4.2014-31.3.2015	20.02.2015
112.50	10.00	122.50	1.4.2015-31.3.2016	
122.50	10.00	132.50	1.4.2016-31.3.2017	

Source: West Bengal Tea Employees'Association internal documents.

tea workers as per the different Wage Agreements. The Central Wage Boards for Tea Plantation Industry was unable to ensure the workers a minimum wage based on need. The planters take 1.5 units of consumption per worker while the standard consumption is three units regardless of the earnings of women, children and adolescents. They find that the ratio of 1:3 is too high due to family-based employment in the plantations, thus being uncompromising and stubbornly adhering

to their notion of wage determination (Bhowmik, 1982). Other lame excuses include the need for employers to fulfil other obligations to provide for the workers under various legislations such as Industrial Disputes Act, Factories Act, Provident Fund, Gratuity Act and the Plantations Labour Act (PLA).

3.7. Labour Laws in the Tea Plantations

The Government of India has enacted various laws to safeguard and protect the worker's interests in the plantation social structure. Some of the important legislations may be discussed as follows:

3.7.1. The Minimum Wage Act, 1948

It is based on Article 43 of the Indian Constitution which states that "The State shall endeavour to secure by suitable legislation or economic organisation or in any other way to all workers, agricultural, industrial or otherwise, work, a living wage, conditions of work ensuring a decent standard of life and full enjoyment of leisure and social and cultural opportunities". The 15th session of the Indian Labour Conference made the first-ever attempt to define and quantify the minimum wage based on need. The guidelines for all wage fixing authorities to be followed in determining the need-based minimum wage are:

(i) The standard working-class family should constitute three consumption units for one earner, the earnings of women, adolescents and children should not be taken into account.

(ii) Minimum food intake of 2700 calories per unit per day.

(iii) Annual consumption of 72 yards of cloth per household.

(iv) In the case of housing, the rent corresponding to the minimum area provided for under the government industrial housing scheme should be taken into consideration in fixing the minimum wage.

(v) Fuel, lighting, medical and educational expenditures are 20% of the total minimum wages (Labour Bureau, 2014).

3.7.2. Minimum Wage Protection

After independence, the tea industry was scheduled to be regulated under the Minimum Wages Act, 1948. The State Government appointed the Minimum Wages Advisory Committee for Tea Plantations in 1950. Even the minimum wages fixed by the Committee could be considered as 'subsistence' wages based on the 1952 Consumer Price Index (CPI) level (Sharma, 2003). Although the industrial and plantation workers were protected by the Act, the benefits realised by the workers from the MWA, 1948 showed marked variation between economic sectors and regions. Wages have been observed to differ markedly within the country for the same employments owing to differences in prices of essential commodities, paying capacity, productivity, local conditions, socio-economic and agro-climatic conditions. The Report on the working of Minimum Wages Act, 1948 shows the variation in minimum wages of the unskilled workers in the tea plantations of India. Over the years, the wages of tea plantation workers is highest in the South Indian states. The daily wage of tea plantation workers is Rs 310 in Kerala, Rs 263 in Karnataka and Rs 241 in Tamil Nadu (Ghosh, 2018). It is important to mention that while Assam and West Bengal are the largest tea producing states, the minimum wages of the tea plantation workers in other tea growing states such as Himachal Pradesh is Rs 225 higher than that of Assam's (Rs 167 in the Brahmaputra Valley and Rs 145 in the Barak Valley) and West Bengal's (Rs 176).

In West Bengal, cinchona and other medicinal plants are also grown although not as extensively as tea. Despite very few cinchonas and other medicinal plantations, the wages of the workers is Rs 244 per day higher than the tea plantation workers' wages (Government of West Bengal, 2018). To reduce disparity in minimum wages across the country and to have a uniform wage structure The National Commission on Rural Labour (NCRL) recommended the concept of National Floor Level Minimum Wage (NFLMW). From June 1, 2017, the national minimum floor wage level has been revised to Rs.176 per day for all scheduled employment however in 2017 the revised and the prevailing wage rate was Rs.132.50 which has now been revised to Rs 176 in West Bengal's tea plantations. Moreover, the wages of the tea plantation workers revised and fixed through bipartite and tripartite negotiations are lower than

the minimum wages prescribed for other scheduled employment by the Minimum Wages Advisory Committee of West Bengal.

The Occupational Wage Survey conducted by the Labour Bureau in Table 3.10 shows a considerable increase in the wages of the industrial workers due to enormous emphasis laid on the development of the basic and heavy industry by planning process in India. The wages of the plantation workers have somewhat increased but are far behind the wages of the industrial workers. In the plantation sector, wages of the rubber plantations are higher than that of the coffee and tea plantation workers but the average annual growth rate shows that the rise in wages of coffee workers are higher than the increase in wages in tea and rubber plantations. The wages of the tea plantation workers are abysmally low. The tea plantation workers are the most depressed and forgotten category compared to other workers in the organised sector (Sankrityayana, 2006).

Table 3.10: Trends in the Average Daily Earnings of Mining, Plantation and Textile Workers in India, 1958-59 to 2002- Continued

Industry	Daily labour earnings (in Rs)						Average Annual Growth Rate
	1st OWS (1958-1959)	2nd OWS (1963-1965)	3rd OWS (1974-1979)	4th OWS (1985-1992)	5th OWS (1993-2002)	6th OWS (2002-Contd)	
Mines							
Coal	3.46	4.60	14.82	67.34	138.02	441	127.5
Indexed Change	100	133	428	1946	3989	12746	
Iron-Ore	1.86	3.93	11.81	38.80	100.39	300.69	161.7
Indexed Change	100	211	635	2086	5397	16166	
Manganese	1.96	2.08	5.33	20.18	55.21	166.34	848.7
Indexed Change	100	106	272	1030	2817	8487	
Plantations							
Coffee	1.32	1.56	4.16	11.58	24.39	72.95	552.7
Indexed Change	100	118	315	877	1848	5527	
Rubber	1.88	2.17	6.37	21.00	40.24	93.97	499.8
Indexed Change	100	115	339	1117	2140	4998	
Tea	1.66	2.15	3.60	15.86	28.08	63.20	380.7
Indexed Change	100	130	217	955	1692	3807	
Textiles							
Cotton	3.94	5.69	11.9	42.22	77.77	120.88	306.8
Indexed Change	100	144	304	1072	1974	3068	
Woollen	3.47	4.84	10.04	35.84	68.96	175.93	507
Indexed Change	100	140	289	1033	1987	5070	
Silk	3.89	4.67	9.61	28.93	57.58	134.67	346.2
Indexed Change	100	120	247	744	1480	3462	
Jute	3.27	3.78	14.69	42.21	89.63	215.31	658.4
Indexed Change	100	116	449	1291	2741	6584	
Mean wage	2.671	3.547	9.242	32.396	68.027	178.494	66.8
Std	0.967	1.371	3.961	15.699	33.248	110.529	
Indexed Change	100	133	346	1213	2547	6687	

Source: Labour Bureau, 2016: Occupational Wage Surveys (OWS).

3.7.3. The Plantation Labour Act, 1951

The Plantation Labour Act, 1951 (hereinafter called PLA Act, 1951) is the most important act among the laws affecting the plantation sector. It is a landmark for the plantation workers because it regulates the worker's working and living conditions of the workers. The PLA, 1951 mandates the employers to provide housing accommodation for the workers and their families residing within the plantation. The plantations were to provide the workers and their dependents with free healthcare and bear the full cost borne by the workers when the patients are referred to hospitals outside the estate. The workers and their children are to be provided with recreational facilities by the plantations. Plantations are required to provide canteen facilities wherein 150 or more employees are employed; Crèches for infants below 6 years and primary school where there were 25 or more children between the age group of 6-12 years. Provision of other basic amenities such as drinking water, sanitation facilities, protective accoutrements such as umbrellas, raincoats, blankets. Appointment of Welfare Officers in each plantation wherein 300 or more workers are employed. Double wages are to be paid to workers for performing overtime work.

The PLA, 1951 also regulates the working hour set for adult workers at 48 hours a week and non-adult workers at 27 hours a week. After every five hours of work, the workers are needed to be given half an hour of break every day. Furthermore, female employees with an infant have the right to two extra breaks per day to nurse the infant until he/she reaches 15 months of age. The Act also provides for leave with wages whereby, to ordinary holidays, employees receive a day's paid leave for 20 working days and adolescents for every 15 working days. All workers are entitled to sick leave in the event of illness plus female employees are entitled to maternity allowances and other benefits under the Maternity Benefit Act, 1961.

3.7.4. Non – Wage Benefits

The planters and management assert that the low wages paid to the workers are compensated in the form of non-wage benefits such as accommodation, medical services, education, subsidized ration, water supply, free land for cultivation and

firewood. However, under the Plantation Labor Act, 1951, these non-wage benefits are statutory obligations. The permanent workers and their bonafide dependents are eligible for these statutory non-wage benefits but the benefits of this Act cannot be availed by temporary or casual workers who constitute a large portion of the workforce. This makes their condition more vulnerable. In the early years of the plantation when the wages were very meagre, the workers were allowed to cultivate small plots of land, which was not either, brought under tea or were encroached land on the periphery of tea plantation that involved no monetary loss for the planter. Thus, the free land given for cultivation is not free but simply a tool to keep the wages depressed and this system is still prevalent.

3.7.5. Status of Labour Welfare in Tea Plantation

In West Bengal, the Plantation Labour Rules was passed in 1956. Other than tea plantations, West Bengal also has some cinchona plantations and medicinal plants. Table 3.11 shows us that the number of tea plantations submitting returns fell from 47% in 2013-14 to 37% in 2015-16. The total number of plantations submitting returns including both the tea and cinchona has declined from 48% in 2013-14 to 37% in 2015-16. The figures relate only to plantations submitting returns. From Table 3.12, it is seen that in 2013-14 although 1558 new houses were constructed only 2676 workers were upgraded to better houses whereas in 2015-16, 554 new houses were constructed and 4251 were upgraded to better houses.

As women constitute more than half of the total workforce, crèche plays a significant role in the plantations. The absence of crèche could lead to the temporary withdrawal of women from the labour force, school dropout of plantation wards, as childcare would devolve to the female juveniles or the other non-contributing family members. It is very heartwarming to note from Table 3.13 that the number of plantation maintaining crèches has increased from 91% in 2013-14 to 100% in 2015-16. The average number of children per plantation increased from 31 in 2013-14 to 34 in 2015-16 and the average daily attendance per crèche, which was on the increase from 12 in 2013-14 to 17 in 2014-15 fell to 15 again in 2015-16.

Table 3.11: Number of Plantations covered under the PLA, 1951 and the number of Plantations Submitting Returns the year 2013-16

Year	No of Plantations Covered		No of Plantations Submitting Returns		Total No of Plantations Submitting Returns
	Tea	Cinchona	Tea	Cinchona	
2013-14	283	03	134 (47)	01 (33)	135 (48)
2014-15	283	03	118 (42)	01(33)	119 (42)
2015-16	283	03	104 (37)	--	104 (37)

Source: Annual Report: 2013-2014; 2014-15;2015-16, Government of West Bengal.
Note: '—' : Nil. The figures in the bracket indicate the percentage.

Table 3.12: Housing Facilities for Tea Workers in the Plantations Submitting Returns in West Bengal, during the year 2013-16

Year	No. of workers employed	No. of new houses constructed	No. of workers Adapted	Performance<30% of total requirement
2013-14	122693	1588	2676	31
2014-15	111181	519	3062	27
2015-16	99831	554	4251	29

Source: Annual Report: 2013-2014; 2014-15;2015-16, Government of West Bengal.

Table 3.13: Crèche Facilities provided to the Tea Workers in the Plantations Submitting Returns in West Bengal, during the year 2013-16

Year	No of Plantations Submitting Returns	No. of plantation maintaining crèches	No. of crèches	Average daily attendance in crèches	Average. no of children per plantation	Average daily attendance per creche
2013-14	134 (47)	122 (91)	308	3740	31	12
2014-15	118 (42)	113 (96)	272	4686	42	17
2015-16	104 (37)	104 (100)	240	3562	34	15

Source: Annual Report: 2013-2014; 2014-15;2015-16; Government of West Bengal.
Note: The figures in the bracket indicate the percentage.

However, the Annual Report did not furnish any information about the condition of the crèches maintained by the tea plantations. Table 3.14 reveals the family dependence pattern on the plantations of North Bengal based on the data from Annual Report 2015-2016, Labour in West Bengal. In North Bengal, each plantation worker has around five dependents on average. In Coochbehar the average dependent per worker, being the highest is recorded at 13.5. From Table 3.15, it is seen that in 104 tea plantations, 1900 beds are available for a total population of 4,79,799. The bed availability per plantation is the lowest in the tea plantations of Darjeeling hills compared to Dooars tea plantations. Accordingly, patients have to be referred for medical facilities outside the estates whose costs have to be ultimately borne by the worker and his family.

From the data presented in Table 3.16, we can see that although seven decades have passed since the PLA, 1951 came into force, employers in most tea plantations still have to fully implement its provisions. The laxity on the part of the Government and the trade unions has encouraged the employers and managements to violate rather than comply with the enforcement of the acts. The welfare legislation is not backed by sanctions to compel the defaulters to fulfil their statutory obligations. The planters and managements find it more convenient to pay small fines rather than providing the workers with statutory welfare benefits. The difference between the number of infringements detected and the no of convictions obtained in the tea plantations of West Bengal has been increasing which is a clear indication that the planters and managements have repeatedly defaulted in providing workers with the statutory benefits that they are entitled owing to the indifference of the state and the lack of workers' unity. Therefore, the costs claimed by the planters for the implementation of provisions made under the PLA are groundless. The wage rate of the tea plantation workers is still far below the subsistence wages and lowest compared to other organised and unorganised sectors.

Table 3.14: Family Dependence on the Tea Plantations in West Bengal

Plantation Region	Plantation Returns Received	Total Population	Plantation Workers	Avg. Worker per Garden	%age of Plantation Workers	Avg. Dependent per Worker
Darjeeling	9	17675	5739	638	33	3.1
Kurseong	11	29930	5530	503	19	5.4
Kalimpong	2	5285	564	282	11	9.4
Siliguri	17	47491	11710	689	25	4.1
Jalpaiguri	18	111152	21871	1215	20	5.1
Malbazar	28	149503	30176	1078	20	5
Alipurduar	12	84762	15652	1304	19	5.4
Birpara	6	32704	5343	891	16	6.1
CoochBehar	1	1297	96	96	7	13.5
Total Tea Estates	104	479799	96681	930	20	5

Source: Annual Report: 2015-16, Government of West Bengal.

Table 3.15: Medical Facilities available to the Tea Plantation Workers in West Bengal

Plantation Region	Plantation Returns Received	Total Population	Plantation Workers	No. of Hospitals	No. of Dispensaries	No. of Beds	Bed availability per plantation	Hospital Referral	Hospital Referral Per plantation
Darjeeling	9	17675	5739	8	4	82	9	1290	143
Kurseong	11	29930	5530	4	8	53	5	830	76
Kalimpong	2	5285	564	--	2	1	0.5	53	27
Siliguri	17	47491	11710	11	9	167	10	1506	89
Jalpaiguri	18	111152	21871	18	4	414	23	2635	146
Malbazar	28	149503	30176	29	20	575	21	5604	200
Alipurduar	12	84762	15652	11	3	476	40	769	64
Birpara	6	32704	5343	6	3	121	20	912	152
CoochBehar	1	1297	96	--	1	11	11	411	411
Total	104	479799	96681	87	54	1900	18	14010	135

Source: Annual Report: 2015-16, Government of West Bengal.

Note: --- = not given.

Table 3.16: Enforcement of the Plantation Labour Act, 1951 in Tea Plantations of West Bengal

Year	No. of inspections made	No. of infringements Detected	No. of prosecutions launched	No. of convictions obtained	Amount of fine imposed
2013-14	81	611	72	12	45,000
2014-15	69	365	41	10	88,000
2015-16	78	760	169	01	5,000

Source: Annual Report: 2013-2014; 2014-15; 2015-16, Government of West Bengal.

3.7.6. Implementation of Equal Remuneration Act (ERA), 1976

The Plantation Enquiry Commission states that "Owing to wage differentials between men and women, the latter though more efficient in plucking also get a less wage" (Savur, 1973). According to Western culture, men were formalised as the breadwinners and engaged in public spheres while women were dependents and engaged in the production of use-values such as reproduction of labour. Wage structure was devised on grounds that men's wages had a family to support whereas women were paid wages on the belief that women were partly supported by men or women only had to support themselves (Kaur, 2000). Similarly, the Committee on Fair Wages fixed " man's living wage for the maintenance of a family with average size while the woman's living wage is based on the requirements of a woman maintaining herself" (Varghese, 2003)**.**

The Equal remuneration Act, 1976 offers "payment of equal remuneration to men and women workers and for prevention of discrimination on grounds of sex, in the matters of employment and other incidental matters connected therewith". Despite such legal provisions, up to 1986, there existed a wage differential of 17 paise for women workers compared to their male counterparts as shown in Table 3.17. Women workers are an asset and backbone of the tea industry, despite their contributions women workers have always been relegated to the bottom strata and considered the most abundant and cheapest labour force rather than as a source of specialised labour. Widespread employment of women workers by the planters is to keep the wages depressed (Bhowmik, 1982). The Equal Remuneration Act (ERA), 1976 has been ineffective in protecting women plantation workers' interests and privileges as it has

led to the replacement of permanent women workers by casual workers and as partial substitutes of male labour (Mukherjee, 2007).

Table 3.17: Category-wise Wage Increments in Tea Plantations of West Bengal

Category of Workers	1966	1976	1986	1996	2006	2016
Male	1.75	4.24	11.19	26.30	50.90	132.50
Female	1.64	4.07	11.02	26.30	50.90	132.50
Children	0.95	2.21	5.70	13.24	-- --	

Source: West Bengal Tea Employees' Association internal documents.
Note:'—' – Not Applicable.

3.8. Government Schemes for in Tea Plantation Worker

According to the Annual Report on Labour in West Bengal, 2015-16, the Government of West Bengal set up a Group of Ministers on August 7, 2015, to examine the tea industry-related issues. Forty-five tea gardens were identified as abandoned, sick and stressed tea gardens. Furthermore, the Group of Ministers recommended the formation of District Level Task forces in the districts of Darjeeling, Jalpaiguri and Alipurduar which is headed by the District Magistrate to ensure adequate relief measures for closed and stressed tea garden workers. On May 25, 2016, a committee was formed for the settlement of closed tea gardens that examined the revival aspect of closed tea gardens. It also intends to investigate alternative land use and labour rehabilitation if any garden is found to be unviable. Department of Commerce and Industries to ensure adequate relief measures for the workers of closed and stressed gardens. In association with Tea Board, the Department of Commerce and Industries is working on formulating the Revival package for tea gardens that are closed and sick. The State Government has taken numerous developmental and relief measures through its various departments to alleviate the suffering of tea workers such as mobile health camps, provision of medicines, ICDS for undernourished, subsidized food grains cooked food under SAHAI for the disabled and the needy National Social Assistance Programme, Sanitation Programme, Wage employment under MGNREGS, Oldage pension, etc.

The state government introduced the scheme of Financial Assistance to the Workers in Locked-out Industrial Units (FAWLOI) where industrial workers had been out of work for more than a year in registered plantations and factories. The workers of the seven tea gardens that the management has abandoned, namely Dheklapara, Bundapani, Raipur, Redbank, Surendranagar, Dharanipur and Ringtong Tea Estate, and the reopened gardens were also covered under this scheme. Financial assistance has been raised to Rs.1500 from Rs.500 with effect from 01.04.2010. Also, Rs. 1500 per head was paid to the beneficiaries as one time Id / Puja Ex-gratia. With effect from 01.03.2013, badli and special badli workers who have rendered their continuous service were also brought under the cover of FAWLOI to mitigate their financial crisis and hardship. After three months of such abandonment, eligible tea garden workers may be covered under the FAWLOI scheme (Annual Report, 2012-2013, Government of West Bengal).

3.9. Concluding Note

Although the tea industry continues to play a significant part in the country's economic development, ironically the level of poverty of worker households are so appalling and the managements have failed to cater to the basic needs, the standard of living and welfare of the tea plantation workers. Recent employment trends in tea plantations show that the majority of employment increase in recent years has been in casual works. The wages of tea workers is the lowest in the organised sector employment. Such meagre wages cannot fulfil their basic needs and achieve a fair standard of living. So, they are compelled to seek additional income sources in whatever way possible, and thereby livelihood diversification has become a part and parcel of their daily life and their struggle for survival. At the same time, though the workers are provided with infrastructures for primary health facilities and primary education, these are hardly functional fully. To seek proper health care and education above the middle standard, they have to travel a long distance by foot. Thus, entrapping the workers' lives in poverty and cutting them off from the mainstream. This is due to the laxity on the part of the government that has encouraged the employers and managements to violate rather than comply with the enforcement of

the Acts. The planters and managements find it more convenient to pay small fines rather than providing the workers with the statutory welfare benefits thus marginalising the already vulnerable workers and feminising the workforce as partial substitutes of male labour.

The workers are still lagging and remain under the invisible shackles of the management, as they do not have adequate livelihood choices that dismissal from their present engagement with tea estate merely implies loss of livelihood. The casualisation of the workforce needs active interventions of the trade unions to enrol them in the permanent workforce. The trade unions must also safeguard and protect the workers' interests and pursue a solid wage bargaining strategy, weighed in favour of the working class and in favour of fulfilling the norms set by the Plantation Labour Act, 1951. The trade unions and state governments must safeguard these vulnerable tea workers and take responsibility otherwise, the prospects for considerable changes in economic and social wellbeing may be grim and impossible to achieve.

Chapter 4

SOCIO-ECONOMIC CONDITIONS OF TEA PLANTATION WORKERS IN DARJEELING HILLS

4.1. Introduction

The tea plantations in Darjeeling are indebted to Dr Campbell who experimented on a trial and error basis in his garden at Beechwood, by planting the first tea seeds of Chinese origin brought from the Kumaon hills of North India in the early 1800s. The cool and moist climate, the soil and the sloping terrains well suited the cultivation of tea in Darjeeling, thus we owe its existence to its pioneers. Darjeeling Tea is grown and produced only in the hill areas of the Darjeeling district. The tea grown in this region has a unique quality and flavour due to its locational climate, soil conditions, altitude and meticulous processing. The Tea Board of India under the Tea Act, 1953, has had sole control over the growing and exporting of Darjeeling Tea and in its role of authenticating the regional origin of Darjeeling Tea, it has developed a unique logo, known as the Darjeeling logo. Further, the Geographical Indications of Goods (Registration and Protection) Act, 1999 for Darjeeling tea was the first Geographical Indication to be registered in India in the name of the Tea Board.

Analysis of the socio-economic conditions of the tea plantation workers is considered necessary to have a better understanding of them having diversified their livelihoods to sustain a decent life. Normally, literature on the study of livelihoods among the tea community presents their socio-economic conditions. The tea workers have poor living and working conditions and they lacked basic sanitation and access to drinking water and had limited access to the electric power supply (Majumder & Roy, 2012). The tea workers are poor and have low educational attainment. Low literacy and limited exposure to the external world stood in their way to explore livelihood options outside tea gardens (Rahman et al., 2018). According to Ansari and Sheereen (2016), the wages of the tea workers were below the prescribed minimum wages and this had an adverse impact on health, low expenditure on education. The

majority of the workers' houses were kutcha and did not have basic sanitation facilities and defecated in the open. In examining the socio-economic conditions of plantation workers in the tea industry of Darjeeling, Rai (2019) pointed out that workers solely rely on the appallingly low wages for their living; the misery and hardship of workers have increased driving some of them to the verge of suicide. Kamruzzaman et al. (2015) determined the survival strategies adopted by the women tea workers to maintain a livelihood in tea gardens of Bangladesh and they observed that the male members of the family cut down trees and sold them as timber, charcoal and firewood to generate some additional income.

The chapter will present the socio-economic conditions of the tea workers in Darjeeling hills. The entire analysis is based on the sample from the selected tea gardens (TGs) namely Sivitar, Soureni and Tukvar (Puttabong). As tea plantations are often called tea estates or tea gardens; therefore, these three terms have been used interchangeably. Required information is collected from the sampled workers using structured questionnaires administered through in-person interviews conducted from January 2018 to April 2018. The key socio-economic parameters used in this chapter are household demographic characteristics, level of education, asset holdings, livelihoods, income and membership of formal or informal organizations.

4.2. Basic Profiles of the Worker

The study is based on the data obtained from 214 households' interviews and the age distribution of all the respondents of three tea gardens (TGs) are shown in Table 4.1. The modal age of the respondents in Sivitar TG is between 51-60 years. In Soureni and Tukvar TG, the modal age is between 41-50 years. For the whole sample, the modal age is between 41-50 years (26.6%) followed by 31-40 years (25.7%). Very few households that are 3.3% of the households had respondents who were of 71 years of age and above. While the rest is distributed within the other age groups.

Table 4.1: Classification of Respondents based on Age

Age of the Respondents	Sivitar	Soureni	Tukvar	Total
21-30	10 (14.3)	9 (12.9)	3 (4.1)	22 (10.9)
31-40	12 (17.1)	19 (27.1)	24 (32.4)	55 (25.7)
41-50	17 (24.3)	18 (25.7)	22 (29.7)	57 (26.6)
51-60	23 (32.9)	15 (21.4)	16 (21.6)	54 (25.2)
61-70	5 (7.1)	9 (1.3)	5 (6.8)	19 (8.9)
>=71	3 (4.3)	0 (0.0)	4 (5.4)	7 (3.3)
Total	70 (100)	70 (100)	74 (100)	214 (100)

Source: Field Data, 2018.
Figure in parentheses indicates percentages.

The respondents are classified according to their marital status which is presented in Table 4.2. The table reveals that the majority of the respondents were married with 61.2% representation, 25.2% were widows and a small proportion of the respondents i.e. 4.7% were unmarried and 8.9% were either separated or divorced.

Table 4.2: Classification of Respondents based on Marital Status

Marital Status	Sivitar	Soureni	Tukvar	Total
Married	44 (62.9)	41 (58.6)	46 (62.1)	131 (61.2)
Single	2 (2.9)	3 (4.3)	5 (6.8)	10 (4.7)
Widow	15 (21.4)	22 (31.4)	17 (23)	54 (25.2)
Divorced/Separated	9 (12.9)	4 (5.7)	6 (8.1)	19 (8.9)
Total	70 (100)	70 (100)	74 (100)	214 (100)

Source: Field Data, 2018.
Figure in parentheses indicates percentages.

The tea (especially Gorkha) community is a mixture of various castes, ethnic groups and tribal clans. The lingua franca of the people of Darjeeling hills is the Nepali language with the Devnagiri script. Limbu (Subba) and Tamang constitute the Schedule Tribes (STs). Dalits such as Kami, Damai and Sarki are the Scheduled Castes (SCs). Newar (Pradhan), Thapa (Mangar), Thami, Gurung and Rai are the Other Backward Classes (OBCs). Brahmins and Chettris fall under the General category in the study. In Table 4.3 the households have been classified according to the caste and religion the workers' households practised. The majority of the households, 43% are Scheduled Tribes (ST) followed by 38.3% Other Backward

Class (OBC) households, 12.6% households are of General (GEN) category and the least 6.1% are Schedule Caste (SC) households. All the ST households practised Buddhism except in Sivitar where 2.9% of the households were Christian and 2.9% practised Christianity and Buddhism within the same households. All the General category households were Hindu and most of the OBC households except Gurung and Shakya (Pradhan) who fall under OBC follow Buddhism while the remaining are Hindus. Of the 4.3% SC households, 1.4% were Christians in Soureni and 1.4% were Christians out of 13.5 SC households in Tukvar.

Table 4.3: Distribution of Tea Worker Households by Social Categories

Tea Gardens	Religions	Caste				Total
		ST	SC	GEN	OBC	
Sivitar	Christian	2 (2.9)	0 (0.0)	0 (0.0)	0 (0.0)	2 (2.9)
	Hindu	0 (0.0)	0 (0.0)	1 (1.4)	26 (37.1)	27 (38.6)
	Buddhist	37 (52.9)	0 (0.0)	0 (0.0)	2 (2.9)	38 (54.3)
	Mixed	2 (2.9)	0 (0.0)	0 (0.0)	0 (0.0)	2 (2.9)
	Total	41 (58.6)	0 (0.0)	1 (1.4)	28 (40)	70 (100)
Soureni	Christian	0 (0.0)	1 (1.4)	0 (0.0)	1 (1.4)	2 (2.9)
	Hindu	0 (0.0)	2 (2.9)	10 (14.3)	17 (24.3)	29 (41.4)
	Buddhist	39 (55.7)	0 (0.0)	0 (0.0)	0 (0.0)	39 (55.7)
	Total	39 (55.7)	3 (4.3)	10 (14.3)	18 (25.7)	70 (100)
Tukvar	Christian	0 (0.0)	1 (1.4)	3 (4.1)	6 (8.1)	10 (13.5)
	Hindu	0 (0.0)	9 (12.2)	13 (17.6)	29 (39.2)	51 (68.9)
	Buddhist	12 (16.2)	0 (0.0)	0 (0.0)	1 (1.4)	13 (17.6)
	Total	12 (16.2)	10 (13.5)	16 (21.6)	36 (48.6)	74 (100)
All Gardens		92 (43)	13 (6.1)	27 (12.6)	82 (38.3)	214 (100)

Source: Field Data, 2018.
Note: Figure in parentheses indicates percentages.
SC – Schedule Caste, ST- Schedule Tribe, GEN – General and OBC – Other Backward Classes.

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Further, the sample households were categorised into small, medium and large families according to the number of family members living within households. It is presented in Table 4.4. Most of the worker households are small which indicate nuclear families with 60.3% representation. 38.3% of the households are medium-

sized families and 1.4% of the households have large families which are absent in the case of Sivitar and Soureni Tea Gardens.

Table 4.4: Distribution of Households according to Households Size

Household Size	Sivitar	Soureni	Tukvar	Total
1-4 (Small)	42 (60)	37 (52.9)	50 (67.6)	129 (60.3)
5-7 (Medium)	28 (40)	33 (47.1)	21 (28.4)	82 (38.3)
>7 (Large)	0 (0.0)	0 (0.0)	3 (4.1)	3 (4.1)
Total	70 (100)	70 (100)	74 (100)	214 (100)

Source: Field Data, 2018.
Note: Figure in parentheses indicates percentages.

4.3. Household Types

In the study, we categorised the households into three types: households with only permanent workers, households with only casual workers and households which had permanent as well as casual workers. Tukvar (Puttabong) and Sivitar tea gardens only have permanent workers which include the labourers and the staff/sub-staffs. The distribution of the sample households on the three types is given in Table 4.5. No casual/bigha workers are employed in both the tea estates. In Tukvar the permanent workers' households was 100%. However, in the case of Sivitar tea garden, the family members of the permanent worker households go to Ghomtee and Giddapahar tea garden to work as casual/bigha workers. 71.4% of the households were permanent workers' households, 4.3% were casual workers' households and 24.3% included both. In Soureni, 82.9% of the households were of permanent category, 7.1% of the households were casual workers' households and 10% of the households included both categories of workers. Overall, 85% of the sampled households were of permanent workers, 4% were of casual workers and 11% of the households comprised of both the category of workers.

Table 4.5: Distribution of Households based on the Type of Workers

Tea Gardens	PW Households	CW Households	PW & CW Households	Total Households
Sivitar	50 (71.4)	3 (4.3)	17 (24.3)	70 (100)
Soureni	58 (82.9)	5(7.1)	7(10)	70 (100)
Tukvar	74 (100)	0 (0.0)	0 (0.0)	74(100)
All Gardens	182 (85.1)	8 (3.7)	24 (11.2)	214 (100)

Source: Field Data, 2018.

Note: PW Households- permanent worker households (permanent workers and staffs/ sub-staffs). CW Households- casual worker households. Figure in parentheses indicates percentages.

4.4. Family Type and Earning Status

Table 4.6 shows that 56.5% of the households are nuclear families and the remaining 43.5% are joint families. Within the nuclear and joint families, the households are further divided according to the number of earning members. In Sivitar TG, 51.4% of the households are nuclear families with joint earning members and 4.3% is a nuclear family with a sole earner. 44.3% of the households are joint families with more than one earning member. In Soureni TG, 44.3% of the households are nuclear families with two (joint) earning members and 5.7% is a nuclear family with a sole earner. 48.6% of the households are joint families with more than one earning member whereas 1.4% of the households with a joint family have a single earner. In Tukvar TG, 55.4% of the households are nuclear families with joint earning members and 8.1% is a nuclear family with a sole earner. 36.5% of the households are joint families with more than one earning member. Tukvar TG has the highest number of households which are nuclear families having more than one earning member and Soureni TG has an equal percentage of nuclear and joint families. Sivitar has the highest number of joint earners (including the nuclear and joint families) which make up 95.7% of the total households.

Table 4.6: Distribution of Households by Family Type and Earning Members

Tea Gardens	Earning members	Family Type		Total
		Nuclear	Joint	
Sivitar	Sole earner	3 (4.3)	0 (0.0)	3 (4.3)
	Joint earners	36 (51.4)	31 (44.3)	67 (95.7)
	Total	39 (55.7)	31 (44.3)	70 (100)
Soureni	Sole earner	4 (5.7)	1 (1.4)	5 (7.1)
	Joint earners	31 (44.3)	34 (48.6)	65 (92.9)
	Total	35 (50)	35 (50)	70 (100)
Tukvar	Sole earner	6 (8.1)	0 (0.0)	6 (8.1)
	Joint earners	41 (55.4)	27 (36.5)	68 (91.9)
	Total	47 (63.5)	27 (36.5)	74 (100)
All Gardens		121 (56.5)	93 (43.5)	214 (100)

Source: Field Data, 2018.
Figure in parentheses indicates percentages.

4.5. Educational Attainment

The educational attainment of the members of the workers' households is given in Table 4.7. From the table, it is evident that the female folks are more illiterate compared to their male counterparts in Sivitar (18.1%) and Soureni (18.6%) than in Tukvar (8%). There are no family members with Post-Graduate degrees in Sivitar and Soureni while there were 1.6% of the households with Post-Graduates degrees and above in Tukvar. In totality, 25% of the households had middle-school education while 20.2% were illiterates. There were fewer households with Higher Secondary education and above. The other category represents infants who are too young to go to school. Lack of education in the tea plantation economy directly renders the workers and their families to be dependent on their employers and restricts their access to more remunerative jobs through which they can earn more money. This translates into a lack of economic growth and even the exploitation of the community in general.

Table 4.7: Gender-wise Educational Attainment of the Worker Households (Households)

		Levels of Education									
Tea Gardens	**Gender**	**Illiterate**	**Primary School**	**Middle School**	**Secondary**	**Higher Secondary**	**Diploma/ Certificate Course**	**Under Graduate**	**Post Graduate**	**Others**	**Total**
	Male	14 (4.6)	29 (9.5)	43 (14.1)	41 (13.5)	17 (5.6)	1 (0.35)	4 (1.3)	0 (0.0)	4 (1.3)	153 (50.3)
Sivitar	Female	55 (18.1)	25 (8.3)	25 (8.3)	19 (6.2)	17 (5.6)	1 (0.35)	4 (1.3)	0 (0.0)	5 (1.6)	151 (49.7)
	Total	69 (22.7)	54 (17.8)	68 (22.4)	60 (19.7)	34 (11.2)	2 (0.7)	8 (2.6)	0 (0.0)	9 (2.9)	304 (100)
	Male	21 (6.8)	39 (12.2)	46 (14.4)	22 (6.9)	17 (5.3)	3 (0.9)	1 (0.4)	0 (0.0)	5 (1.6)	154 (48.3)
Soureni	Female	60 (18.6)	30 (9.4)	32 (10.1)	21 (6.6)	11 (3.5)	2 (0.7)	3 (0.9)	0 (0.0)	6 (1.9)	165 (51.7)
	Total	81 (25.4)	69 (21.6)	78 (24.5)	43 (13.5)	28 (8.8)	5 (1.6)	4 (1.3)	0 (0.0)	11 (3.5)	319 (100)
	Male	14 (4.5)	18 (5.8)	39(12.4)	44 (14.1)	20 (6.4)	3 (0.95)	7 (2.2)	1(0.3)	4(1.3)	150 (47.9)
Tukvar	Female	25 (8)	35 (11.1)	49 (15.7)	31 (9.8)	7 (2.2)	3 0.95)	5 (1.6)	4 (1.3)	4(1.3)	163 (52.1)
	Total	39 (12.5)	53 (16.9)	88 (28.1)	75 (23.9)	27 (8.6)	6 (1.9)	12 (3.8)	5 (1.6)	8 (2.6)	313 (100)
All Gardens		189 (20.2)	176 (18.8)	234 (25)	178 (19)	89 (9.5)	13 (1.4)	24 (2.6)	5 (0.53)	28 (3)	936 (100)

Source: Field Data, 2018.
Note: Figure in parentheses indicate percentages.

4.6. Employment in Tea Gardens

Table 4.8 shows the share of TG employees in the sample population according to the nature of work performed. The employees in the tea industry are usually classified into (i) plantation workers or labourers (including both field and factory workers); (ii) staff/sub-staff (including office, factory, field, medical, educational and welfare department staff); (iii) other monthly rated employees (OMRE) and (iv) managers. In tea plantations, a common practice of identifying employees is with the respective departments in which they work. Accordingly, we have field workers, factory workers, field staff, office staff, artisans and technicians, medical staff, teachers, sub-staff, etc. Amongst these categories of workers, the field and factory workers are at the bottom level who are daily-rated wage workers while the remaining are monthly-rated or salaried employees.

Table 4.8: Share of TG Employees and Nature of Work

Tea Gardens	Permanent Workers	Staff / Sub-staff	Casual workers	Total
Sivitar	86 (74.8)	10 (8.7)	19 (16.5)	115 (100)
Soureni	79 (80.6)	4 (4.1)	15 (15.3)	98 (100)
Tukvar	92 (88.5)	12 (11.5)	0 (0.0)	104 (100)
All Gardens	257 (81.1)	26 (8.2)	34 (10.7)	317 (100)

Source: Field Data, 2018.
Note: Figure in parentheses indicate percentages.

81.1% of the workers are enrolled in the permanent category. 8.2% are the staff/ sub-staffs mainly engaged in the field activities who are known as Kaamdaris, Chaprasis and Munshis and 10.7% were the casual (or bigha) workers. In Tukvar and Sivitar Tea Estate, all the workers employed are permanent, but in Sivitar Tea Estate there is the presence of casual workers who went to Ghoomtee Tea Estate as casual outside workers. Since the outside workers are not eligible to draw any statutory non-wage benefits, deploying these outside workers for seasonal work saves the labour cost of the management. This has led to greater labour flexibility and casualization of the workforce. The total sample population of the three tea gardens was 936 of which 317 (33.9%) were TG employees.

4.7. Nature of Employment

Table 4.9 shows how the workers were appointed as its employees. From the outset employment in tea plantations has always been based on kinship, caste, and regional links. Another factor that may be related to this is the nature of appointment where it is found that 75.1% of the workers were hired based on family retirement which in tea parlance is known as 'badli' workers – that is they were hired to take the place of their mothers-in-law and husbands proving that garden work continues in perpetuity. Interestingly, some of the retiring workers auctioned their nomination to non-kin candidates based on the highest bid (maximum of Rs. 70,000), resulting in the recruitment of 4.1% of the workers in the sample. 13.9% were freshly appointed who were mostly casual workers. There are households who have more than family member one working in the TEs. Therefore, 6.9% of these workers' nature of appointment was a mix of the fresh recruits, against family retirement or auction of badli.

Table 4.9: Distribution of TG Employees based on the nature of recruitment

Tea Gardens	Fresh	Against Family Retirement	Auction of Badli	Mixed	Total
Sivitar	19 (16.5)	81 (70.4)	3 (2.6)	12 (10.4)	115 (100)
Soureni	15 (15.3)	74 (75.5)	3 (3.1)	6 (6.1)	98 (100)
Tukvar	10 (9.6)	83 (79.8)	7 (6.7)	4 (3.9)	104 (100)
All Gardens	44 (13.9)	238 (75.1)	13 (4.1)	22 (6.9)	317 (100)

Source: Field Data, 2018.
Note: Figure in parentheses indicates percentages.

4.8. Household Assets

This section discusses the assets owned by worker households of the three tea gardens. The majority of the households, 70.1% had television sets. In the case of vehicles, a significant proportion of the households 95.8% did not own any vehicle. Similar is the case of two-wheelers, only 5.1% of the households had bike/scooty. In the case of furniture, 49% of the households had basic furniture while 51% of the

households did not have any kind of furniture. The situation is very much different in the case of mobile phones where 91.6% of the households have mobile phones as a means of communication yet for 8.4% of the households having mobile phones is still a luxury. 66.4% of the households have other assets such as radio, iron, bluetooth speakers, agricultural tools, etc. Of the various assets listed in Table 4.10, it is noticed that Soureni Tea Estate has the least possession of all the assets and is lagging behind Sivitar and Tukvar Tea Estate.

Table 4.10: Asset Possession of the Workers' Households

		Tea Gardens			
Assets	**Response**	**Sivitar**	**Soureni**	**Tukvar**	**Total**
	Yes	52 (74.3)	40 (57.1)	58 (78.4)	150 (70.1)
Television	No	18 (25.7)	30 (42.9)	16 (21.6)	64 (29.9)
	Yes	4 (5.7)	1 (1.4)	4 (5.4)	9 (4.2)
Vehicle	No	66 (94.3)	69 (98.6)	70 (94.6)	205 (95.8)
	Yes	4 (5.7)	1 (1.4)	6 (8.1)	11 (5.1)
Bike/Scooty	No	66 (94.3)	69 (98.6)	68 (91.9)	203 (94.9)
	Yes	65 (92.9)	60 (85.7)	71(95.9)	196 (91.6)
Mobile phone	No	5 (7.1)	10 (14.3)	3 (4.1)	18 (8.4)
	Yes	34 (48.6)	26 (37.1)	45 (60.8)	105 (49.1)
Furniture	No	36 (51.4)	44 (62.9)	29 (39.2)	109 (50.9)
	Yes	45(64.3)	38 (54.3)	59 (79.7)	142 (66.4)
Others	No	25 (35.7)	32 (45.7)	15 (20.3)	72(33.6)

Source: Field Data, 2018.
Note: Figure in parentheses indicates percentages.

4.9. Access to Basic Amenities

The Plantation Labour Act of 1951 requires employers to make arrangements for the workers' welfare, such as providing accommodation for workers and their families living on the plantation; providing free healthcare to workers and their dependents, and bearing the full cost of treatment when patients are referred to hospitals outside the estate; provision of drinking water, sanitation facilities, subsidised food grains and fuelwood. Plantations are expected to have canteen facilities for 150 or more employees; crèches for infants under the age of six years, and primary schools for 25 or more children aged six to twelve years. In each

plantation employing 300 or more employees, recreational facilities for the workers and their children must be provided, as well as the appointment of Welfare Officers. These statutory non-wage benefits are admissible to permanent employees only. This section discusses the living conditions of the workers' households.

4.9.1. Housing

Housing is one of the basic requirements of human well-being. Table 4.11a shows that 63.6% of the workers' households have kutcha houses, most of which were dilapidated or in deplorable condition. In Sivitar and Soureni TGs, the managements had stopped the construction and repair of workers' quarters for many years. Thus, inadequate and inappropriate housing is a manifestation of deprivation of the marginalised and vulnerable workers. However, in Tukvar TG, the management was still repairing the workers' houses. Only those households where at least one member of the family had Government services had pucca houses.

Table 4.11a: Distribution of Households by Type of Houses

Tea Gardens	Pucca House	Semi-Pucca House	Kutcha House	Total
Sivitar	16 (22.9)	13 (18.6)	41 (58.6)	70 (100)
Soureni	18 (25.7)	4 (5.7)	48 (68.6)	70 (100)
Tukvar	19 (25.7)	8 (10.8)	47 (63.5)	74(100)
Grand Total	53 (24.8)	25 (11.7)	136 (63.6)	214 (100)

Source: Field Data, 2018**.**
Note: Figure in parentheses indicates percentages.

To get a better picture of the housing condition we look into the number of living rooms in the dwelling. Table 4.11b shows that a major proportion of the households, 44.4% are living in 2 rooms and 6.1% t of the households have only one room excluding Kitchen which shows a high degree of congestion in the houses.

Table 4.11b: Number of rooms excluding Kitchen

Tea Gardens	1 Room	2 Rooms	3 Rooms	>= 4 Rooms	Total
Sivitar	3 (4.3)	30 (42.9)	22 (31.4)	15 (21.4)	70 (100)
Soureni	6 (8.6)	28 (40)	20 (28.6)	16 (22.9)	70 (100)
Tukvar	4 (5.4)	37 (50)	20 (28.6)	13 (17.6)	74(100)
Grand Total	13 (6.1)	95 (44.4)	62 (28.9)	44 (20.6)	214 (100)

Source: Field Data, 2018.
Note: Figure in parentheses indicate percentages.

4.9.2. Sanitation

Access to sanitation is a basic human right and a necessity for everyone. Table 4.12 shows that 96.3% of the sample households used at least basic sanitation services while 3.7% of the households still do not have toilets or latrines. These households still defecate in the open which results in the transmission of diseases and reduced well-being. Toilets are so central to the existence of the family but that seems to be a luxury for some of the sampled households.

Table 4.12: Toilet Facilities

Tea Gardens	Attached Toilet	Within the Premises	No Toilets	Total
Sivitar	0 (0.0)	69 (98.6)	1 (1.4)	70 (100)
Soureni	0 (0.0	68 (97.1)	2 (2.9)	70 (100)
Tukvar	5 (6.8)	64 (86.5)	5 (6.8)	74(100)
All Gardens	5 (2.3)	201 (93.9)	8 (3.7)	214 (100)

Source: Field Data, 2018.
Note: Figure in parentheses indicate percentages.

4.9.3. Drinking Water

Springwater serves as the main source of fresh water for rural households to meet various purposes such as domestic, livestock and agricultural needs. Clean accessible water is critical to human health. It is observed from Table 4.13 that springs have a significant impact on maintaining the Himalayan ecosystem. 70.1 % of the households fetch drinking water from the community taps and about 29.9% of the households had a private connection of water for their exclusive use.

Table 4.13: Drinking Water

Tea Gardens	Community Tap	Domestic Tap	Total
Sivitar	42 (60)	28 (40)	70 (100)
Soureni	66 (94.3	4(5.7)	70 (100)
Tukvar	56 (75.7)	18 (24.3)	70 (100)
All Gardens	150 (70.1)	64 (29.9)	214 (100)

Source: Field Data, 2018.
Note: Figure in parentheses indicates percentages.

4.9.4. Cooking Fuel

The findings, presented in Table 4.14, on the distribution of households by fuel used for cooking indicates that firewood is the predominant source of fuel with 65.9% of the households fully dependent on it. 29.9% of the households use both firewood and LPG. LPG is used only in times of emergencies and needed when the worker households have guests or they are running short of time. 4.2% of the households only use LPG as the main source of cooking.

Table 4.14 : Sources of Fuel for Cooking

Tea Gardens	Wood and Bamboo	Liquid Petroleum Gas (LPG)	Wood and Bamboo + LPG	Total
Sivitar	45 (64.3)	2 (2.9)	23 (32.9)	70 (100)
Soureni	60 (85.7)	0 (0.0)	10 (14.3)	70 (100)
Tukvar	36 (48.6)	7 (9.5)	31 (41.9)	74(100)
All Gardens	141 (65.9)	9 (4.2)	64 (29.9)	214 (100)

Source: Field Data, 2018.
Note: Figure in parentheses indicate percentages.

4.9.5. Sources of Lighting

Our analysis of the households' data given in Table 4.15 shows that in 96.3% of the workers' households electricity is the main source of lighting. In some of the labour lines in Tukvar TG, the electricity was cut off from 5 am to 5 pm due to the outstanding bill which was unpaid due to political issues. After electricity, kerosene is the second most source of lighting which all the households resort to during the power cut.

Table 4.15: Sources of Lighting

Tea Gardens	Kerosene Lamps	Electricity	Total
Sivitar	1 (1.4)	69 (98.6)	70 (100)
Soureni	4 (5.7)	66 (94.3)	70 (100)
Tukvar	3 (4.1)	71 (95.9)	74(100)
All Gardens	8 (3.7)	206 (96.3)	214 (100)

Source: Field Data, 2018.
Note: Figure in parentheses indicate percentages.

4.9.6. Access to Medical Facilities

Health is an important indicator of human development which in turn depends on economic condition, living and working conditions, access to safe drinking water and sanitation. Since the work in tea plantations are physically taxing even more so in the hill areas due to uneven terrain and weather conditions. The workers and their family members suffered from various health issues and their responses are recorded in this section in Table 4.16a.

Table 4.16a: Major Health Issues Among the TG Workers

Sivitar	Soureni	Tukvar
Ankle Fracture	Arthritis	Asthma
Arthritis	Asthma	Blood Pressure
Arm fracture	Blood Pressure	Dysentry
Asthma	Burns and bruises	Diabetes
Blood Pressure	Diabetes	Gastric ulcer
Cancer	Eye operation	Hand fracture
Diabetes	Gynae problems	Heart Stroke
Eye operation	Gall bladder stone	Jaundice
Epilepsy	Gastric ulcer	Joint Pain
Gall bladder stone	Heart Stroke	Kidney infection
Gastritis	Liver problems	Kidney stone
Joint Pain	Piles	Migrane
Neuro problems	Pregnancy	Nose bleeding
Paralysis	Thyroid	Pancreatitis
Tumour removal	Tuberculosis	Thyroid
Typhoid	Typhoid	Typhoid

Source: Field Data, 2018.

The sick workers were given two-thirds of their daily wage in all three TGs. The place of the treatment of these health issues is shown in Table 4.16b. 61.22% of the households were treated at the Sub-Divisional hospital. 28% went to the TG dispensaries for minor problems such as headache, fever and cold. 10.8% of the households were referred to North Bengal Medical College Hospital. Sivitar and Soureni had TG dispensaries but Tukvar TG had a garden hospital. The pregnant women were granted Maternity Leave but were paid for only six days a week while in the PLA, 1951 wages must also be paid for Sundays. The medical bills of the workers who were referred to Sub-divisional hospitals or referred outside the town had also not been reimbursed by the estate management which means that the full cost of the treatment incurred was borne by the workers' households.

Table 4.16b: Place of Treatment

Tea Gardens	TG Dispensary	Sub-Divisional Hospital	Referred Outside	Total
Sivitar	17 (24.3)	44 (62.9)	9 (12.8)	70 (100)
Soureni	14 (20)	49 (70)	7 (10)	70 (100)
Tukvar	29 (39.2)	38 (51.4)	7 (9.4)	74 (100)
Total	60 (28)	131 (61.2)	23 (10.8)	214 (100)

Source: Field Data, 2018.
Note: Figure in parentheses indicates percentages.

4.9.7. Other Amenities

All three Tea Estates had crèches but did not have canteens, recreational facilities and welfare officers as laid in the PLA, 1951. Protective accoutrements such as umbrellas, raincoats, and blankets were given once in three years but of very poor quality. In Sivitar, the workers were given Rs 120 for gumboots.

4.10. Access to Institutional Finances

Table 4. 17 shows that 80.6% of the sample population have a savings account of which 76.8% of the sample population opened bank accounts as a result of the

Pradhan Mantri Jan Dhan Yojana, a financial inclusion drive, which has resulted in the proliferation of bank accounts. In addition, the Direct Benefit Transfer (DBT) scheme launched by the Government of India to transfer the benefits and subsidies of various welfare schemes like LPG subsidy, old-age pension, widow pension, scholarships and the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) under which wages payable to the workers are channelled through banks has rendered inclusive banking to be more imperative.

Table 4.17: Access to Financial Institutions, Credit & Insurance Coverage
(Members of the Sample Households)

	No. of Members			% of Members		
Tea Garden/Parameter	**Yes**	**No**	**Total**	**Yes**	**No**	**Total**
1. Have Bank Account						
Sivitar	256	48	304	84.2	15.8	100
Soureni	242	77	319	75.9	24.1	100
Tukvar	256	57	313	81.8	18.2	100
All Gardens	754	182	936	80.6	19.4	100
2. Have Availed Loan						
Sivitar	7	297	304	2.3	97.7	100
Soureni	6	313	319	1.9	98.1	100
Tukvar	10	303	313	3.2	96.8	100
All Gardens	23	913	936	2.5	97.5	100
3. Have Insurance Policy						
Sivitar	64	240	304	21.1	78.9	100
Soureni	39	280	319	12.2	87.8	100
Tukvar	17	296	313	5.4	94.6	100
All Gardens	120	816	936	12.8	87.2	100

Source: Field Data, 2018.
Note: Figure in parentheses indicates percentages.

Although 80.6% of the sample population had a savings account only 2.5% had availed loans. One female member in Sivitar had no bank account but she could still avail loan as she was a member of Self Help Group (SHG). The main sources of loans for worker households were money lenders and SHGs. However, the loans from SHGs were limited to their members' households only, 97.5% of the total workers' households were found to have no access to credit. None of the households had availed loans from the commercial or co-operative banks as the households were unable to provide collateral security for their borrowings. Since the worker

households do not have land ownership (pattas), this stood in the way of the poorer sections accessing bank credit.

4.11. Assistance from Local Government (Gram Panchayat)

Table 4.18 shows that in Sivitar and Soureni TE, 10% of the senior citizens from worker households received the oldage pension although 25.7% of the households in Sivitar and 35.7% of the households were eligible for the oldage pension scheme. In Tukvar TG only 1.4% of the households was a beneficiary of the Oldage pension when almost 30 percent were eligible for it. The scenario is worst in the case of Widow pension as is evident in Table 4.18. A very negligible proportion of the widow households were beneficiaries of the Widow pension scheme, 1.4% in Sivitar, 5.7% in Soureni and 4.1% in Tukvar. Around 87% of the worker households received wage work from the Gram Panchayat in the form of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) popularly known as 100 days' work. The remaining 12.6% did not possess job cards so they were excluded from it.

Table 4.18: Welfare Schemes Availed by the Households

Schemes	**Tea Gardens**			
Oldage Pension	**Sivitar**	**Soureni**	**Tukvar**	**Total**
Yes	7 (10)	7 (10)	1 (1.4)	15 (7)
No	11 (15.7)	18 (25.7)	20 (27)	49 (22.9)
Not Eligible	52 (74.3)	45 (64.3)	53 (72)	150 (70.1)
Widow Pension				
Yes	1 (1.4)	4 (5.7)	3 (4.1)	8 (3.7)
No	15 (21.4)	17 (24.3)	13 (17.6)	45 (21)
Not Eligible	54 (77.2)	49 (70)	58 (78.3)	161 (75.3)
Wage Work (MGNREGS)				
Yes	66 (94.3)	63 (90)	58 (78.4)	187 (87.4)
No	4 (5.7)	7 (10)	16 (21.6)	27 (12.6)

Source: Field Data, 2018.
Note: Figure in parentheses indicate percentages.

4.12. Household Participation in Organisations

4.12.1. Trade Union

All of the tea garden workers' households were members of the Darjeeling Terai Dooars Plantation Labour Union (DTDPLU), which was affiliated with the local regional party Gorkha Jan Mukti Morcha (GJMM). The trade union leaders were neither tea garden workers nor members of the working class. Wage agreements achieved by collective bargaining in the tea industry are valid for three years, and the wage was due for revision since April 1, 2017 (at the time of the field survey). Since the workers feel unheard and powerless, the majority of households declined to attend the meetings because they were discontent with the performance of the trade union leaders. The old wage of Rs. 132.50 per day was still being paid to the employees. In Darjeeling Hills, the operating trade union, DTDPLU, has failed to link the tea workers' wages to the state's statutory minimum wages, let alone the actual market wage, which is far higher than the statutory minimum wages. After further questioning, the workers concluded that since the trade union leaders did not work in tea gardens and were only politicians, they could not understand the pain and concerns of the tea workers. The workers did not have an option because their annual trade union subscriptions were deducted directly from their pay.

4.12.2. Village Community

As the tea gardens are located in the backward regions and are cut off from the mainstream, the workers have established a community organisation known as the ‘Samaj’, which plays a prominent role in binding the residents of the tea gardens. Since tea garden dwellers share similar traditions, conventions, and culture, the Samaj allows members to assist and support one another in social, physical, and financial needs. As a result, they have the closest neighbourhood relations. Members must pay a monthly subscription, which varies between Rs. 50 and Rs. 100 per household. It serves as a self-governing body that resolves interpersonal conflicts and maintains power over the community's deviant members. It is an effective coping mechanism used by workers in times of crisis. All the household members actively participate in

monthly meetings and they have a fair voice in the decision-making process. The Samaj acts as a microcredit lending and grant-making body in times of death, sickness and marriage. Aside from financial assistance, the Samaj owns tables, benches, pandals, cutlery, crockery, gas stoves, and other items that member households can use for social functions such as weddings, pujas, and funeral rites. In rural communities, social regulation is informal and direct, so the Samaj is a powerful social control agency.

4.13. Income from Tea Garden

From Chapter 3 we know how the tea workers' despite being employed in the organised sector on the outside are the most oppressed and vulnerable categories on the inside at multiple forefronts. The workers were paid wages for 12-days fortnightly. The wages of the workers at the time of the survey stood at Rs. 132.50 per day irrespective of the gender and category of workers (permanent and casual labours). In the case of the permanent workers, a part of the wages was deducted for the Provident Fund and they were given subsidized food grains for the worker themselves and their bonafide dependents. The casual workers were only entitled to money wages. On the other hand, the permanent staff/ sub-staffs were paid salaries monthly. Table 4.19 shows the earnings of the permanent employees and casual workers from the tea estates.

Table 4.19: Category-wise Income from the Tea Gardens (In Rupees)

Tea Gardens	Annual Income of Permanent* Employees	Average Income of Permanent Employees	Annual Income of Casual Workers	Average Income of Casual Workers	Total Annual Income	Average Annual Income	Average Monthly Income
Sivitar	3739591	53423	438045	6258	4177636	59681	4973
Soureni	2981075	42587	423735	6053	3404810	48640	4053
Tukvar	3779280	51071	0	0	3779280	51071	4256
All Gardens	10499946	49065	861780	12311	11361726	53092	4424

Source: Field Data, 2018.
Note: Permanent Employees include permanent workers and staff/ sub-staffs.

The average annual income of the permanent employees and casual workers is the lowest in Soureni TG. Tukvar TG did not have any casual workers as all the workers were enrolled in the permanent category. Sivitar has the highest income from TG as the family members of the permanent workers' households were staff/sub-staffs and others went to Ghoomtee TE to work as casual outside workers. The average monthly income of the workers' households stood at Rs 4224 which is very less.

4.14. Income Pattern of the Households

Table 4.19 gives us the average earnings of the worker households from tea plantations for each of the tea estates. The average income from the tea gardens stood at Rs 4224. Thus, to purchase the goods and services they need, workers have diversified their livelihoods, and some also have additional sources of income besides the income from tea gardens, as shown in Table 4.20a. Therefore, household income includes both cash and in-kind (goods and services) receipts earned by the household or by individual members of the household on an annual or more frequent basis.

Table 4.20a: Different Sources of Household Income

Tea Gardens	Income from Tea Gardens	Diversified Sources of Income	Income from Other Sources	Total
Average Annual Household Income				
Sivitar	59681	85213	48363	193257
Soureni	48640	96966	57184	202790
Tukvar	51071	73484	163340	287895
All Gardens	53131	85221	89629	227981
Percentage Share of the Income				
Sivitar	30.9	44.1	25.0	100
Soureni	24.0	47.8	28.2	100
Tukvar	17.7	25.5	56.7	100
All Gardens	23.3	37.4	39.3	100

Source: Field Data, 2018.

Household income consists of income from three different sources: income from employment in tea gardens, diversified sources (agriculture, horticulture, livestock, wage labour, petty trade, migration) other sources (salary from private or government institutions, MGNREGS, transfer payment, gifts/donations). Table 4.20a shows that income from tea gardens accounts for 23.3% of the total household income while the rest of the income comes from diversified sources 37.4% and 39.3% from other sources. In Sivitar and Soureni TEs, diversified sources of income contributes more to the total Hh income, i.e. 44.1% and 47.8% respectively compared to Tukvar TE where diversification income contributes 25.5% to the total Hh income. However, in the case of Tukvar TE, since there were many Hhs with salaried individuals and pensioners of the Indian Army. Therefore, the share of income from other sources contributes 56.7% to the total Hh income compared to Sivitar and Soureni TEs (25% and 28.2% respectively) thereby raising the overall average of the income generated from other sources. In Tukvar TE, income from the tea garden stood at 17.7% which is the least compared to Sivitar and Soureni TEs.

Table 4.20b: Distribution of Households based on Per-Capita Income

Per Capita Income	Sivitar	Soureni	Tukvar	All Gardens
< 1500	5 (7.1)	12 (17.1)	7 (9.5)	24 (11.2)
1500-3000	32 (45.7)	26 (37.1)	23 (31.1)	81 (37.9)
3000-4500	15 (21.4)	16(22.9)	18 (24.3)	49 (22.9)
4500-6000	5 (7.1)	7 (10)	12 (16.2)	24 (11.2)
>6000	13 (18.6)	9 (12.9)	14 (18.9)	36 (16.8)
Total	70 (100)	70 (100)	74 (100)	214 (100)

Source: Field Data, 2018.

Per capita income of the tea worker households has been calculated and categorised into five intervals as shown in Table 4.20b. The average per-person income, the standard of living and quality of life are assessed using per capita income. Only 16.8% of the households had a per capita income of Rs 6000 and above while 83.2% of the households were distributed in per capita income below Rs 6000. 37.9% of the households had per capita income ranging between Rs 1500-3000 and 22.9% of the households fell in the range of Rs 4500-6000 and the rest is distributed between

other per capita income groups. This Table shows that almost half (i.e. 49.1%) of the tea workers are having a per capita income of less than Rs.3000.

4.15. Consumption Expenditure

Household spending is the amount of final consumption expenditure the workers' households spend on meeting their daily needs and their spending was broadly divided into eight categories which are shown in Table 4.21. Expenditure reflects the socio-economic status of the households. Given their income from TGs let us now look at the expenditure incurred by the workers' households in various categories. Food, clothing and shelter are the three basic human needs, and it can be seen that 34% was spent on food (Rs 9147), 22.6% of the expenditure (Rs 6088) on repairs or maintenance of the house since the majority of the workers (63.6%) dwell in kutcha houses (refer to Table 4.11a) and these expenses were carried out of their pocket since the managements have put an end to construction and repairs of labour houses. Despite all their struggles workers have invested 13.3% of their meagre wages or income on educating their children which comes to a minimum of Rs. 1079 per month. They believed that education is a tool to alleviate poverty and it can prevent the transmission of poverty between their generations.

Table 4.21: Average Monthly Expenditure of the Workers' Households

Items	Sivitar	Soureni	Tukvar	All Gardens
Food	3073 (34.4)	2882 (37.9)	3192 (30.8)	9147 (34)
Education	1242 (13.9)	1079 (14.2)	1255 (12.1)	3576 (13.3)
Health	898 (10)	744 (9.8)	754 (7.3)	2396 (8.9)
Clothing	633 (7.1)	503 (6.6)	586 (5.7)	1722 (6.4)
Festivals	728 (8.1)	666 (8.8)	622 (6)	2016 (7.5)
House repair/ maintainance	1726 (19.3)	1344 (17.7)	3018 (29.2)	6088 (22.6)
Cigarettes, intoxicants,etc	166 (1.9)	222 (2.9)	171 (1.7)	559 (2.1)
Others	475 (5.3)	168 (2.2)	749 (7.2)	1392 (5.2)
Total	8941 (100)	7608 (100)	10347 (100)	26896 (100)

Source: Field Data, 2018.
Note: Figure in parentheses indicates percentages.

Households should be protected from the burden of spending on health care as it would adversely impact their economic well-being and reduce labour productivity. Households have to spend at least Rs 744 per month on healthcare costs. Health expenditure has impoverishing effects on Hhs economic status, particularly among the poorer socio-economic strata. The medical bills were not reimbursed even though the bills had been submitted to the garden office. The average monthly expenditure of the workers' households is the highest in Tukvar Tea Estate (Rs 10347) and lowest in Soureni Tea Estate (Rs 7608). The average monthly expenditure of the workers' households is almost double their average monthly income (refer to Table 4.19). Therefore, the income from TG which is the primary source of livelihood alone cannot suffice the expenses of their day to day life. The workers are not satisfied with the prevailing wage rates given the inflationary trend. Moreover, the workers have been gradually witnessing the withdrawal of non-wage benefits in recent times under the pretext of low productivity and low prices of tea. In this scenario, the workers have to seek alternative ways to generate income to supplement their meagre income. The work in tea plantations is unrewarding, tedious, time-consuming and laborious. Since 56.5% of the Households were nuclear (small) families (Table 4.6) it can be inferred that to augment their incomes the workers diversify by undertaking more than one activity at a time. For this purpose, both the male and female tea workers often have mixed portfolios. This is especially true of households that rely on multiple income sources, working not just on the tea plantations, some members doing non tea garden work (agriculture and allied, livestock, petty trade, wage labour, remittances) and some others migrating to cities for jobs, yet others working as government servants or private company's employees (non-tea garden work) which is discussed in detail in the next chapter.

4.16. Conclusion

Although the tea plantations play an important role in the lives of the rural people of Darjeeling hills by providing employment however the tea industry has prevented the establishment of any other viable livelihoods and made people reliant upon tea for their social and economic well-being. Since the tea plantations are

located in backward or remote areas, the workers are cut off from the mainstream. Our findings are also similar to the plethora of literature on tea plantations all over the world have which revealed that the tea workers are poorly educated, receive inadequate health care, lack expertise and training, are underpaid, marginalised, and vulnerable. There is not a single tea plantation where the Plantation Labour Act, 1951 is fully functional. The workers are unaware of the benefits admissible to them. Their meagre incomes cannot even meet their basic needs. So to augment their income the workers have to engage in other activities such as rearing livestock, cash crop plantation, petty trade, wage labour and migration. They have to trade off leisure which makes them time-poor even after a hard day's work. This problem could prove to be detrimental to those low-wage workers who work long hours to earn more money. However, many households accept time poverty as a necessary condition to generate extra income. The vulnerability of a household to poverty, as well as its livelihood capacity and diversity, cannot be captured solely by looking at labour force participation.

The study's main finding is that tea plantations are unable to provide sustainable livelihoods to rural populations, who have faced numerous challenges in recent decades due to tea industry crises and stagnation. The absence of local representatives, NGOs, and government agencies in the tea plantations and the lack of combined efforts by trade unions and state government have failed to address the problems of the plantation community which has rendered serious impacts on the livelihood sustainability of the local communities. To increase their adoption of strategies for survival and better livelihood, education, communication and access to different credit opportunities (micro-credit, bank loan etc.) should be made available. The policymakers must understand the characteristics and circumstances of these low-income tea workers households to formulate effective measures to improve the livelihoods of the plantation workers and their family thereby uplifting the socio-economic conditions of the people.

CHAPTER 5

NATURE AND IMPLICATIONS OF LIVELIHOOD DIVERSIFICATION - AN ANALYSIS

5.1. Introduction

The socio-economic conditions of the tea plantation workers discussed in Chapter 4 are a manifestation that tea workers are in a disadvantaged position, highly vulnerable and lowly paid category of workers. Since the majority of the rural population of hills are employed in the tea gardens, lack of livelihood, either as supplementary or alternative income sources has been a common problem among the worker households and is considered to be one of the major causes of poverty. Furthermore, poor access to public facilities and infrastructure, unsanitary environment, illiteracy and ignorance, poor health, unemployment, voicelessness, and social isolation, as well as low household income and food insecurity, are all manifestations of poverty. These characteristics, which are part of the tea garden workers' social reality, appear to reinforce each other and trap them in a vicious circle of poverty.

Meagre wages have an important bearing on the standard of living and well-being of the workforce. Therefore, tea plantations as a mainstay alone are not sufficient to meet the bare subsistence needs. Given their poverty situations and uncertainties associated with the large dependence on tea gardens for livelihood, the need for rural household livelihood diversification is centered on the need for household food security, generation of additional income, meeting exigencies, reduction of poverty and vulnerability. Rural livelihood diversification has been defined as "the process by which rural households construct an increasingly diverse portfolio of activities and assets to survive and improve their standard of living" Ellis (2000). The tea garden (TG) related activities barely make ends meet. As a result, tea worker households (Hhs) are supplementing their meagre income by participating in various other income-generating activities.

This chapter focuses on how tea plantation worker households participate in additional livelihood activities to supplement income and reduce their reliance on the tea gardens. To understand how worker households make livelihood decisions, it is important to look at how they organise to obtain and retain access to resources, the challenges they face, and the actions and decisions they take to address those challenges. The vulnerability of the workers and how they cope with it through their resources must be understood within the wider framework. Thus in the study diversification is proposed as a way of minimizing their dependence on tea gardens. By examining the livelihood patterns, the study presented various sources of income and their contribution to the overall household income.

5.2. Nature of Livelihood Diversification

In the study, 214 tea worker households were surveyed in Tukvar (Puttabong) Tea Estate from Darjeeling Sadar, Sivitar Tea Estate from Kurseong sub-division and Soureni Tea Estate from Mirik sub-division of Darjeeling hills. The sample population of all the three TGs primarily derives their livelihoods from TGs by working as labourers, staff or sub-staffs. The household survey indicated the number of households involved in livelihood diversification. Table 5.1 shows that in the sample, about 92% of the total households have diversified their livelihood and the remaining 8% of the households were not diversified.

Table 5.1: Livelihood Diversification Among the Tea Worker Households

Sl. No	Particulars	No. of Household	Percent
1	**Livelihood Diversification**		
	Not Diversified	17	7.9
	Diversified	197	92.1
	Total	214	100
2	**Number of Diversified Activities**		
	Average per Household	2.86	
	Std. Deviation	1.56	

Source: Field Survey, 2018.

Out of the 92% of the diversified households, each household undertook at least two activities on average. Respondents were asked to list the household's major livelihood activities and thus for the analytical discourse, the study disaggregated the diversified income sources into six broad categories: (i) Agriculture (ii) Horticulture (iii) Livestock (iv) Wage labour (v) Petty trade and (vi) Remittances from migration. The respondents were questioned on the amount of income they made from each livelihood activity over the past year. This gave us additional means to understand livelihood strategy at the household level.

Figure 5.1 shows the percentage share of each diversified livelihood activity carried out by the worker' households. 33% of the households diversified their livelihood by planting horticultural crops, 31.6% of the households raised livestock, 14.3% diversified by undertaking petty trade, 11% of the households diversified through migration, 9.2% households diversified by working as daily wage labour and a negligible percentage of households that is 0.9% households diversified by undertaking agricultural activities. Nonetheless, it must be noted that a household may undertake more than one diversified livelihood activity.

Figure 5.1: Broad Classification of Livelihood Diversification Activities (% of Household)

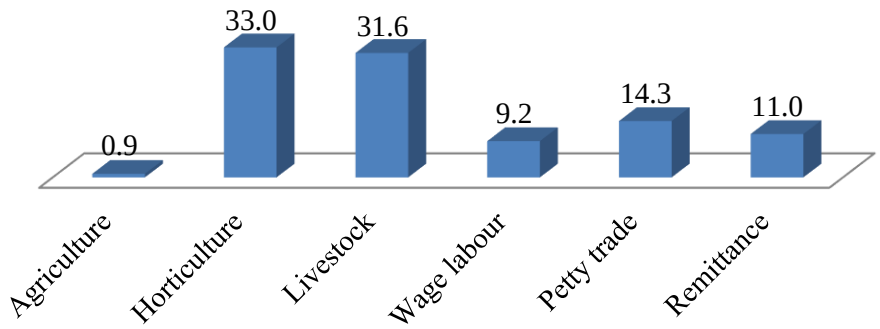
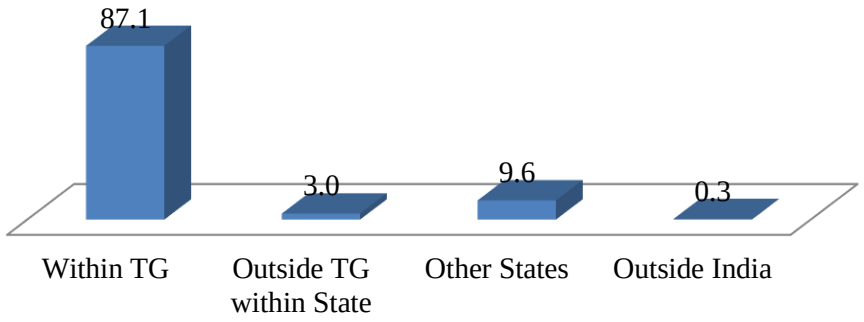


Figure 5.2: Location in which diversification activities are carried out (% of Household)



Similarly, Figure 5.2 shows the location in which these diversification activities were carried out by the worker' households. Around 87% of the diversification activities were carried out within the tea garden which includes agriculture, horticulture, livestock and petty trade. 9.6% of the diversification activities took place in other states which includes migration. 3% of the diversification activities were performed outside the tea garden which comprises wage work and 0.3% of the diversification activities were carried out abroad or outside India which also includes migration.

5.3. Patterns of Livelihood Diversification

There are many risks associated with tea garden employment such as lock-out, strikes, untimely wage payment, low wages and thus many households are unable to meet their basic needs. So in this section, we will discuss the livelihood activities adopted by the tea worker households in addition to the tea garden employment that they have been involved in. We must note that choices of different diversified activities undertaken by the workers are made at an individual household level depending upon their capabilities, available opportunities and constraints. Therefore, a wide variety of activities that the worker households in the study area were engaged in are illustrated in Table 5.2.

From Table 5.2 it is evident that a negligible number of households diversified their livelihood by practicing agriculture 0.9% of the households cultivated maize and 0.5% of the household cultivated paddy and pulses. Amongst the horticultural crops, 25.2% of the households had planted oranges, 10.3% of the households had cultivated ginger and 34.1% of the households planted broom which served as an important cash crop to supplement the household income from diversification. Besides these three crops, only a few households had planted or cultivated other horticultural crops. Livestock played a critical role in generating additional income. 43% of the households raised goats, 21.5% of the households raised chicken, 10.3% of the households raised cows, 5.2% of the households practiced bee-keeping and 2.8% of the households raised pigs. The households in which wage labour served as a means of diversification, 16.4 % of the households' members worked as unskilled labour, 6.1% of the households' members worked as skilled labour and 2.3% of the households' members were semi-skilled labour. In the petty trade category, brewing liquor served as the main source of income in which 17.3% of the households were engaged, 11.7% of the households ran small shops, 8.4% of the households were self-employed and 1.4% of the households were engaged in the sale of handicrafts such as weaving baskets and cradles. Sixty-six households that are 30.8% of the households resorted to migration as a means of livelihood diversification.

Table 5.2 Sub-categories of each of the Diversified Livelihood Activities

Diversified Livelihood Activities	Sub-categories of Activities	Number of Households	Percentage (out of 214 Households)
Agriculture	Paddy	1	0.5
	Maize	2	0.9
	Pulses	1	0.5
Horticulture	Tomato	1	0.5
	Ginger	22	10.3
	Mustard leaf	9	4.2
	Carrot	1	0.5
	Radish	2	0.9
	Green peas	3	1.4
	Bitter gourd	1	0.5
	Pumpkin	4	1.9
	Round chillies	4	1.9
	Beans	6	2.8
	Squash	1	0.5
	Broom	73	34.1
	Orange	54	25.2
	Banana	1	0.5
	Guava	2	0.9
	Drumstick	1	0.5
	Mushroom	1	0.5
	Fermented soya	1	0.5
Livestock	Cows	22	10.3
	Goat	92	43
	Pig	6	2.8
	Chicken	46	21.5
	Ducks	1	0.5
	Bee keeping	12	5.6
	Others	1	0.5
Wage labour	Unskilled	35	16.4
	Semi-skilled	5	2.3
	Skilled	13	6.1
Petty trade	Running small shops	25	11.7
	Brewing liquor	37	17.3
	Sale of handicrafts	3	1.4
	Self-employed	18	8.4
Migration	Remittances	66	30.8

Source: Field Survey, 2018.
Note: One household can adopt more than one activity.

5.4. Man-days Spent in Different Livelihood Activities

The number of man-days spent on different livelihood diversification activities by each household is given in Table 5.3a. Here it is worth noting that male members of the households had spent more man-days on different diversification activities compared to the female members. This could be attributed to the household chores and care economy the women folks have to perform at home. Migration and livestock rearing as a source of diversification requires more average man-days as opposed to the other diversification activities. The only activity where women have used more man-days than men is in the petty trade category which accounts for 53% of the total man-days. The least number of man-days devoted by women is in the wage-labour category where men contribute 96.9% of their man-days while women contribute 3.1% of their man-days.

Table 5.3a: Category-Wise Average Number of Man-days Spent in Different Livelihood Diversification Activities by Tea Workers' Household in a Year

Broad Classification of Activities	No. of Cases	Man-days			Percentage		
		Male	Female	Total	Male	Female	Total
Agriculture	4	14	10	24	58.3	41.7	100
Horticulture	189	37	18	54	69.0	31.0	100
Livestock	181	193	145	338	57.3	43.1	100
Wage labour	53	113	4	117	96.9	3.1	100
Petty trade	82	81	91	171	47.0	53.0	100
Migration	66	337	138	475	70.9	29.1	100
Average		**134**	**81**	**215**	**62.3**	**37.7**	**100**

Source: Field Survey, 2018.

Table 5.3b gives us detailed information on the average number of man-days spent in each of the livelihood diversification activities sub-categories wise. In the agriculture category, men and women have devoted an equal number of man-days in the cultivation of pulses. In the paddy and maize cultivation, men have devoted at least 60% of their man-days. In the horticulture category, carrot, squash, guava and

Table 5.3 b: Sub-Category Wise Average Number of Man-days used per Household for different Livelihood Activities by Tea Workers' Household in a Year

Broad Classification of Activities	No. of Cases	Man-days			Percentage		
		Male	Female	Total	Male	Female	Total
Paddy	1	30	20	50	60.0	40.0	100
Maize	2	10	5	15	66.7	33.3	100
Pulses	1	20	20	40	50.0	50.0	100
Tomato	1	30	30	60	50.0	50.0	100
Ginger	22	20	20	40	49.7	50.3	100
Mustard leaf	9	26	21	47	54.8	45.2	100
Carrot	1	10	0	10	100.0	0.0	100
Radish	2	10	5	15	66.7	33.3	100
Green peas	3	15	5	20	75.0	25.0	100
Bitter gourd	1	40	30	70	57.1	42.9	100
Pumpkin	4	8	5	13	60.0	40.0	100
Round chillies	4	13	4	17	75.8	24.2	100
Beans	6	13	8	22	61.5	38.5	100
Squash	1	20	0	20	100	0.0	100
Broom	73	20	19	39	51.5	48.5	100
Orange	54	81	9	90	90.1	9.9	100
Guava	2	10	0	10	100.0	0.0	100
Mushroom	1	144	0	144	100.0	0.0	100
Fermented spinach	1	0	10	10	0.0	100	100
Cows	22	249	116	365	68.2	31.8	100
Goat	92	222	143	365	60.9	39.1	100
Pig	6	183	183	365	50.0	50.0	100
Chicken	45	154	214	365	42.2	58.7	100
Ducks	1	365	0	365	100.0	0.0	100
Bee keeping	12	10	2	12	82.8	17.2	100
Others	1	365	0	365	100.0	0.0	100
Unskilled	35	75	6	80	93.1	6.9	100
Semi-skilled	5	210	0	210	100.0	0.0	100
Skilled	13	180	0	180	100.0	0.0	100
Running small shops	25	94	139	233	40.4	59.6	100
Brewing liquor	37	0	100	100	0.0	100	100
Sale of handicrafts	3	27	0	27	100.0	0.0	100
Self employed	18	232	20	252	92.0	8.0	100
Migration	66	337	138	475	70.9	29.1	100
Average		**134**	**81**	**215**	**62.3**	**37.7**	**100**

Source: Field Survey, 2018.

mushroom cultivation has been solely carried out by men while women have devoted their 100% to fermenting the spinach. The other crops and vegetables have both men and women devote their man-days, although the average man-days of men are greater than that of women. In the rearing of live stocks, men spend greater man-days

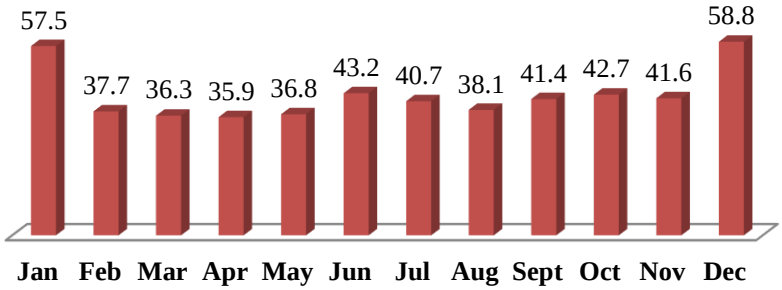
on cows, goats, duck, bee-keeping and others while women spent greater man-days on chicken. It can be inferred that women spend more man-days in rearing chicken and pigs because they can carry out the household's chores simultaneously compared to other livestock which requires grazingIt is heartbreaking to note that there is not a single woman in the semi-skilled and skilled category of wage labour. This category is mainly male-dominated work where a male member spends at least 93% of their man-days. In carrying out petty trade/business, brewing liquor is exclusively done by the women folks and running small shops are also mostly carried out by women which accounts for 100% and 59.6% of the man-days respectively. On the other hand, men spend 100% of their man-days on the sale of handicrafts and 92% of their man-days in self-employment. The last category of diversification that is migration also has men spending 70.9% while women spent 29.1% man-days. However, it must be noted that there were 81 male migrants and 38 female migrants therefore the average number of female man-days is lower than that of male migrants.

5.5. Seasonal Intensity of Livelihood Diversification Activities

The means by which tea worker households in rural communities meet their basic needs and earn income are often met by multiple livelihood activities. Although the income from tea estates is steady it is low, so we found that majority of the sample households received seasonal income from different diversified activities thereby increasing revenue. Seasonal income is income that comes during a specific time of the year with the seasonality of the associated activities undertaken by the workers. It serves as an emergency fund however the income varies depending on the activities the workers choose to diversify. Figure 5.3 shows the seasonal income earned by the households by engaging in different livelihood diversification livelihood activities. Since the sample households can report more than one activity at a time in different seasons, the interpretation is therefore made in terms of percentage. It is evident from the figure that compared to the other months of the year, the percentage of households getting income from diversified activities are highest during December and January, i.e. 58.8% and 57.5% respectively. This is particularly due to the sale of broom and oranges in addition to

petty trading and remittance. After that from September to November, the percentage of households getting income from diversified activities is 41.4%, 42.7 %, 41.6% respectively. This is due to the sale of livestock in festivals besides petty trade and remittance. Petty trade and remittance income from migration are the only two diversified activities that generate income throughout the year while the other diversified activities generate seasonal income only.

Figure 5.3: Percentage of Households Earning Income from Different Livelihood Diversification Activities (Monthly)



5.6. Income from Diversified Activities

In our study, the seasonal income has been annualized and is illustrated in Tables 5.4a and 5.4b gives detailed information on the amount of income generated from each of the sub-categories of activities. It can be seen that most of the households have diversified into horticulture as it fetches good prices because of its nature of seasonality. Seasonal income is particularly notable under horticultural crops. The estimated annual income per household is Rs 6,653 which makes up 24.9% of the total diversified earning. Livestock plays a crucial economic role in rural households; it creates cash and in-kind incomes. 181 households reared livestock whose average annual earnings amounts to Rs 6,352 and it contributes 10.9% to total earning. It can provide fuel as well as inputs for crop production (manure), combat food insecurity and malnutrition. The average income earned from wage labour is Rs. 41,176 and the per capita household income is Rs. 11,175. The

per capita annual income from remittance is Rs. 16557 and the annual income is Rs.78056. Thus remittance plays an increasing role in household income.

Table 5.4a: Category-Wise Percentage Share of Diversified Livelihood to Household Annual Income

Broad Activity Category	No. of Hh	Average Earnings per Hh (in Rs.)	Per Capita Hh Income from the source (in Rs.)	Earning as % of total diversified earning
Agriculture	4	4000.0	690.0	21.5
Horticulture	189	6652.7	1630.6	24.9
Livestock	181	6351.9	1480.1	10.9
Wage labour	53	41175.5	11174.9	69.0
Petty trade	82	40447.0	8293.7	46.2
Remittance	66	78055.6	16557.2	79.3
Average		22414.5	5052.3	34.0

Source: Field Survey, 2018.

Although a majority of the households had mostly diversified by undertaking horticulture and livestock rearing activities as is evident in Table 5.4a but the earnings generated from these two activities are significantly lower than those households who have diversified by undertaking wage labour, petty trade and migration. Wage labour makes up 69 % of the total earnings from diversified activities. Petty trade plays a great role in households' income poverty reduction and contributes 46.2% of the total income. Rs 40,447 was the annual income generated from petty trade and the per capita household income was Rs 8,294. The majority of respondents have reported improvements in their well-being, ability to meet household expenses and also to provide education to their children.

Migration has long been a source of income for rural households. It is a way of mitigating hardship and is considered a risk diversification strategy. Here the term household migration refers to the physical migration of one or more capable household members, as opposed to whole-family migration. Households diversify their economic activities outside the tea gardens by sending out members to work in

Table 5.4b: Sub-Category wise Annual Income Earned from Diversified Livelihood Activities

Sub- Categories of diversified activities	No. of Hh	Average Earnings per Hh (Rs.)	Per Capita Hh Income from the source (Rs.)	Earning as % of total diversified earning
Paddy	1	6000.0	1000.0	33.3
Maize	2	1000.0	225.0	3.7
Pulses	1	2000.0	333.3	11.1
Tomato	1	1200.0	400.0	5.2
Ginger	22	2759.1	634.4	17.1
Mustard leaf	9	1411.1	334.9	8.6
Carrot	1	360.0	120.0	0.8
Radish	2	220.0	62.7	12.1
Green peas	3	786.7	170.7	2.5
Bitter gourd	1	4920.0	984.0	13.1
Pumpkin	4	4712.5	1095.8	35.4
Round chillies	4	3955.0	1276.7	16.0
Beans	6	636.7	135.3	3.9
Squash	1	4000.0	666.7	3.6
Broom	73	3715.8	914.1	25.9
Orange	54	14200.0	3442.8	35.3
Banana	1	350.0	87.5	0.3
Guava	2	2100.0	380.0	3.5
Drumstick	1	140.0	35.0	0.1
Mushroom	1	28800.0	14400.0	100.0
Fermented soya	1	400.0	133.3	0.9
Cows	22	23506.8	5939.9	32.7
Goat	92	4506.5	985.3	11.2
Pig	6	4000.0	928.6	3.2
Chicken	46	81.5	19.8	0.2
Bee keeping	12	1850.0	570.8	4.6
Unskilled	35	23637.1	6443.6	64.5
Semi-skilled	5	73800.0	20171.4	65.9
Skilled	13	75846.2	20452.6	82.3
Running small shops	25	38904.0	7852.3	43.5
Brewing liquor	37	37508.4	8386.5	46.8
Sale of handicrafts	3	2026.7	328.3	34.7
Self employed	18	55800.0	10029.3	49.9
Remittances	66	78055.6	16557.2	79.3

Source: Field Survey, 2018.

urban areas. Remittance forms the lion's share of contribution (79.3%) to total income earned from diversification.

5.7. Analytical Framework

5.7.1. Measuring Livelihood Diversification

The extent of households' livelihood diversification in the literature is commonly quantified by using different diversity indexes. There are various indicators and indices to measure diversification namely the Simpson index (Saha and Bahal, 2010; Khatun and Roy, 2012; Idowu et al, 2014) Herfindahl index, Ogive index, Entropy index, Modified Entropy index, Composite Entropy index (Shiyani and Pandya, 1998). In this study we used the Inverse Herfindahl-Hirschman Diversity Index (HHI) as suggested by Anderson and Deshingkar (2005) because it enables us to use the degree of diversification as a measure of the size of each livelihood activity to a household's total income which is calculated as follows:

$$HHI_i = 1/\sum_{j=1}^{n} S_j^2$$

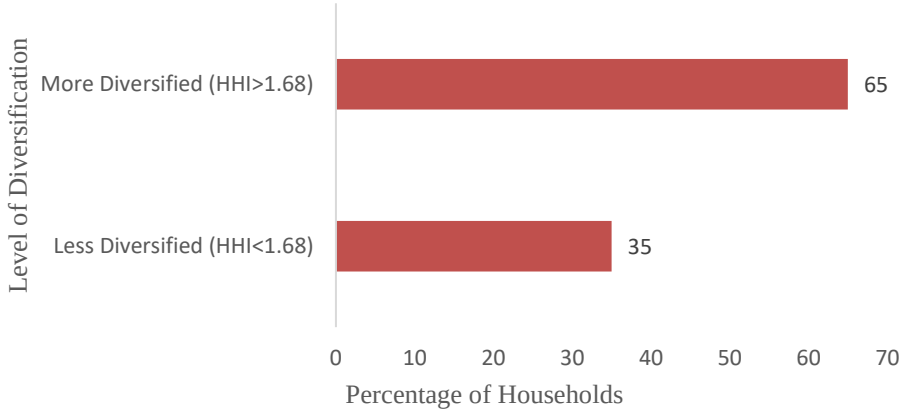
where HHI_i = Herfindahl-Hirschman Diversification Index

n = Total number of diversified income sources

S_j = the proportional contribution of each livelihood activity j to the household i's overall income.

The maximum possible value of the index is the total number of different income sources that are attained if total income is distributed equally between each source. The minimum possible value is 1, which is attained if there is just one source of income (that is income from the tea garden in our case). We have classified the worker households into two groups based on the degree of diversification. Those who are at the bottom 35 percent with HHI<= 1.68 are categorized as a less diversified group whereas those with HHI greater than 1.68 is categorized as a more diversified group. Around 65% of the sample households were more diversified and

Figure 5.4: Distribution of Households according to Diversification Index (HHI)



the rest 35% of the households were less diversified which is illustrated in Figure 5.4.The livelihood strategies adopted by the tea worker households of the three tea gardens as a whole were analyzed by the descriptive summary of the selective variables. The two groups of households were compared based on different indicators which were categorical and continuous variables. To examine if there was a significant difference between the two groups, the chi-square test and t-test were carried out for categorical and continuous variables respectively for less diversified groups and more diversified groups.

5.7.2. Logistic Regression Model

The variables which were found significant in the descriptive analysis were further tested employing the logistic regression model to examine their respective effect on the household status in respect of diversifications. A logistic model allows us to establish a relationship between a binary outcome variable and a group of predictor variables. The description of the explanatory variables used in the analysisis given in Table 5.5. Some categorical variables were further reclassified into dichotomous variables to ensure consistency and avoid loss of degrees of freedom.

Table 5.5 Description of independent variables used in the analysis

Variable	Scale	Description
Gender	Binomial, 1 if male	Gender of the household head
Education	Metric, in years of schooling	Education of the household head
Diversified	Binomial, 1 if more diversified	Level of diversification
Household size	Metric, in person	Number of individuals in the household
Age	Metric, in years	Age of the household head
Migrant members	Binomial, 1 if migrated	Household members staying outside the home (both domestic and international migration)
Asset value	Metric, in rupees	The estimated monetary value of all physical assets owned by a household except land and livestock
Dependency ratio	In percentage	The ratio of number of dependent population (<15 years and >64 years) to the working-age population (15-64 years)
Bank Account	Binomial, 1 if yes	Households having bank accounts
Insurance	Binomial, 1 if yes	Households having any form of insurance
Primary Occupation	Binomial, 1 if permanent TG worker	Permanent Tea Garden Employees
Surplus manpower availability	Binomial, 1 if yes	Number of individuals available in the household besides tea garden workers
Food consumption	Metric, in rupees	Household expenditure incurred on food items out of the total household expenditure
Income from Tea Garden	Metric, in rupees	Total income earned from tea garden (Includes salaries and wages of staffs/ sub-staffs, permanent workers and casual workers)
Diversified Income	Metric, in rupees	Income generated from agriculture, horticulture, livestock, wage labour, petty trade and migration
Total household income	Metric, in rupees	Income from Tea gardens, diversified sources and other sources

Source: Field Survey, 2018.

The logistic regression of dichotomous dependent variable (y_i) on the set of explanatory variables ($x_1, x_2, \ldots, x_k$) such that i=1,2,…,n and j= 1,2,…,k takes the form:

$$p_i = P(Y=y_i / X=x_i)$$

$$= \frac{e^{\beta_0+\beta_1 x_1+\cdots+\beta_k x_k}}{1+e^{\beta_0+\beta_1 x_1+\cdots+\beta_k x_k}} = \frac{1}{1+e^{-(\beta_0+\beta_1 x_1+\cdots+\beta_k x_k)}}$$

The logits or natural log of the odds of the unknown binary probabilities are calculated as a linear function of the X_i and is given by:

$$\text{logit}(p_i) = \ln\left(\frac{p_i}{1-p_i}\right) = \beta_0+\beta_1 x_1+\ldots+\beta_k x_k+\boldsymbol{\varepsilon}$$

The unknown parameter values for $\beta_0, \beta_1, \ldots, \beta_k$ coefficients are estimated via the maximum likelihood method. The expression $\frac{p_i}{1-p_i}$ is known as the odds which is the ratio of the probability that an event will occur to the probability that it will not occur and $\boldsymbol{\varepsilon}$ is the error term. The above equation shows the effect of the j^{th} explanatory on the log of odds for a unit change in the explanatory variable while e^{β} is the estimate of the odds of having the outcome.

5.7.3. Multidimensional Poverty Index

To examine the incidence of poverty in a multidimensional context in the study areas we have specifically constructed and adapted MPI to suit the available information obtained from the sample survey and an attempt is also made to examine the impact of livelihood diversification. Three major indices with 16 sub-indicators are constructed based on the sample information. These indicators with descriptions of their weight are given in Table 5.6. It must be noted that the MPI analysis undertaken in this study may not be comparable with other studies because this specially designed MPI is used to examine the extent and nature of deprivation prevailing among the TG workers in the study areas.

Table 5.6: Selected Indicators of the Multidimensional Poverty

1. Standard of Living {weights: 8}	**2. Assets {weights: 6}**
Structure of dwelling house {0 -kutcha, 0.5-semi pucca, 1-pucca}	The family have Television {0- no, 1-yes}
No. of room (s) in the dwelling house {0- upto 2 & 1- 2< rooms}	Have motorized vehicle {0- no, 1-yes}
Toilet status {0- don't have, 1- have}	Owned Two-Wheeler vehicle {0- no, 1-yes}
Whether the toilet is attached in the house {0-no, 1-yes}	Mobile phone (value >Rs.3000) {0- no, 1-yes}
Main lighting source {0- other, 1-electricity}	Have furniture (value >Rs.2000) {0- no, 1-yes}
Cooking Fuel {0-other, 1-LPG}	Have other assets (value >Rs.2000) {0-no, 1-yes}
Drinking water {0- other, 1- domestic tap}	**3. Food {weights: 2}**
Any family member having up to high school education (completed 9 yrs. of schooling) {0-no, 1-yes}	Have two square meals in a day {0- no, 1-yes}
	Whether food received from TG sufficient {0- no, 1-yes}

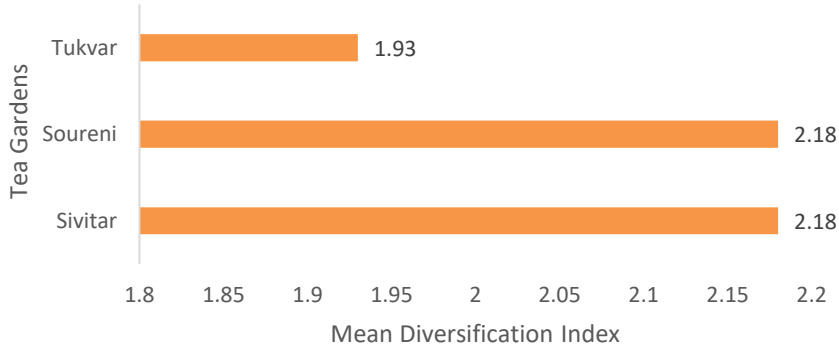
The three deprivation indices are simply aggregated to find out the overall deprivation index, called the Multidimensional Poverty Index (MPI), for the study area. Given the nature and implication of all indicators considered for each deprivation index, there would be no difficulty for normal households, which have already enjoyed a decent standard of living, to attain a 100% score. Despite this, some reservation has to be made to accommodate a situation where some families fall short in some indicators but have been doing very well in others. Accordingly, it is assumed that the poor households should attain at least 50% of the total score (i.e. 8 points) in all the indicators to ensure attainment of decent living, and any score below it would be considered as deprivation. Thus, the sample households were accordingly classified into two groups of deprivation viz. severely deprived (<=50%, i.e. up to 8 scores) and less deprived (>50%, more than 8 scores) according to their score as a percentage of the maximum MPI. As such, the former shall be considered as poor, while the latter as non-poor in a multidimensional context.

5.8. Results and Discussion

5.8.1. Livelihood Diversification Index (HHI) of the Sample Tea Gardens

The inverse Herfindahl-Hirschman diversity index was used to measure livelihood diversity. Fig 5.5 shows us the extent of diversification among different tea gardens' worker households. It is clear from the figure that all the three tea gardens have diversified their livelihoods as the HHI is greater than 1 but in comparison, Sivitar Tea Estate and Soureni Tea Estate were more diversified than Tukvar Tea Estate. In Tukvar Tea Estate, the mean HHI was 1.93 because 56.7% of the total household income came from other sources of income (salaried employees both private, government, transfer payment, etc). The mean HHI of Sivitar Tea Estate and Soureni Tea Estate was 2.18 because the diversified sources of income contributed 44.1% and 47.8% to the total household income respectively (refer to Table 4.20a).

Figure 5.5 Tea Garden-wise Livelihood Diversification Index



Note: Average Diversification Index of the sample tea gardens = 2.09

Figure 5.6 shows the average diversification index of the sample tea gardens according to the monthly household per-capita income. Households with monthly per capita income less than Rs 3000 had a low HHI score of 1.36 while those having monthly per capita income of greater than Rs 3000 were more diversified as their

diversification score is greater than 1.68 (1.36 < 1.68)[2] is shown in Fig 5.4. Irrespective of the diversification score, all the households falling under different income groups had diversified their livelihoods as HHI > 1.

Figure 5.6: Income Distribution and Average Diversification Index (HHI)

5.8.2. Household Characteristics

5.8.2.1. Migration Status of Household Members

As a livelihood strategy, migration plays a significant role and is increasingly coming into the forefront of academic and policy discussions as shown in Table 5.7. Migration can take place in several ways. This study considered three forms of migration. They were (1) migration within the state; (2) migration to other states and (3) migration to foreign countries or abroad. About 32 percent of the workers' households had migrated of which 81 were males and 38 were females

[2] HHI=1, no diversification; HHI= 1.01-1.68, less diversification; HHI=>1.68, more diversification

which come to 12.7 percent of the total population from all selected TG households. Of the total migrant households 72.5 percent had migrated to other states and 17.4%

Table 5.7: Characteristics of Households with Migration

Sl. No	Indicator	No. of Households	% of Households
1	**Households with migrant members**		
	Yes	69	32.2
	No	145	67.8
	Total	214	100
2	**Gender of migrants**		
	Male	81	68.1
	Female	38	31.9
	Total	119	100
3	**Place of migration**		
	Within the State	12	17.4
	Other States	50	72.5
	Abroad	7	10.1
4	**Modality of migration**		
	a. *Movement*		
	Individual	48	69.6
	Group	21	30.4
	b. *Facilitator*		
	TG migrants	33	47.8
	Agents	5	7.2
	Self	31	44.9
5	**Employment Sector**		
	Formal sector	20	29
	Informal sector	47	68.1
	Others	2	2.9
6	**Dependence on remittance**		
	Heavily	50	72.4
	Partially	11	15.9
	Marginally	2	2.9
	Others	6	8.6

Source: Field Survey, 2018.

had migrated outside the TG but within the state and 10.1% had migrated abroad. Irrespective of the place of migration, the most important reasons behind migration were seeking better employment opportunities and better wages or salaries. 29% of

the total migrant Hh members were engaged in the formal sector, 68.1% in the informal sector employment and 2.9% of the members were not engaged in any sector, they were accompanying the migrants. The analysis found that 72.4% of the migrant HHs were heavily dependent on remittances, 15.9% of the migrant HHs were partially dependent on, 2.9% of the migrant HHs marginally dependent on remittances.

5.8.3. Descriptive Statistics: Categorical variables

The summary statistics and statistical significance tests on equality of proportions for binary variables for less diversified and more diversified households are presented in Tables 5.8a and 5.8b. It has been observed that the diversified income of the more diversified households was 34.5% while that of less diversified households was 7.4%. Likewise, the proportion of male-headed households (68.1%) is higher for more diversified households. The significance has been confirmed by the chi-square statistic at 10%. It has been observed that various indicators of the household such as gender of the household head, education, bank account, insurance, permanent tea garden workers and casual tea workers in the household of those who adopted more diversified livelihood strategies were significantly different than that of those who were less diversified. The proportion of households having surplus man-power and migrant members is higher among the more diversified households, 71.1% and 85.5% respectively compared to less diversified households whose percentage stood at 28.9 and 14.5. This indicates that having additional manpower and migrant family member has some implications for the livelihood diversification of the tea worker households. The chi-square statistic of both these variables was significant at a 1% level of significance. Furthermore, since having additional manpower in the household was positively associated with livelihood diversification, Table 5.8b shows how active the adult family members were in diversifying the livelihood. Around 79% of the household members are involved in diversification while the remaining 21% are not involved in diversification at all. Family members

who had education above the primary level were more involved in livelihood diversification as the percentage was 82.3%.

Table 5.8a: Descriptive Summary of Selected Indicators-Categorical Variables

Variables	Less Diversified	More Diversified	Chi-Square	p-value
Diversified Income	7.44	34.46		
Gender of the Family Head				
Female headed	44.4	55.6	2.8*	0.094
Male-headed	31.9	68.1		
Education				
No formal education	37.8	62.2	0.44	0.5
Primary & above	33.3	66.7		
Have Bank Account				
Yes	35.3	64.7	0.13	0.72
No	28.6	71.4		
Insurance				
Yes	35.3	64.7	0.01	0.97
No	35	65		
Have Family Migrant Member				
Yes	14.5	85.5	18.9***	0
No	44.8	55.2		
Surplus Manpower in the Family				
Not Available	56.2	43.8	12.22***	0
Available	28.9	71.1		
Whether Permanent Tea Worker				
Yes	34.3	65.7	1.55	0.21
No	57.1	42.9		
Engaged family members as casual workers				
Yes	43.8	56.2	1.25	0.26
No	33.5	66.5		

Source: Analyzed from Field Survey Data, 2018.

Note: *** denotes significance at 1% level, ** significance at 5% and * significance at 10% level.

Although both the male and female members of the households were engaged in livelihood diversification the proportion of the male members involved in diversification was higher than the female members, 86.3% and 71.5% respectively. This is substantiated by the chi-square statistic which was significant at a 1% level of significance. These results are consistent with other studies related to livelihood

diversification that argues for a positive relationship between the level of education, gender, household size and the diversification of livelihood.

Table 5.8b: Involvement of Adult Family Members of TG Households in Livelihood Diversification

Variables	Not Involved in Diversification	Involved in Diversification	Chi-Square	p-value
Family members	21.2	78.8		
Sex of the Member				
Female	28.5	71.5	22.9***	0.00
Male	13.7	86.3		
Marital Status				
Ever Married	22.4	77.6	2.46	0.12
Not Married	16.4	83.6		
Broad Educational Status				
No formal education	30.5	69.5	13.35***	0.00
Primary School & above	17.7	82.3		

Source: Analysed from Field Survey Data, 2018.

Note: *** denotes significance at 1% level, ** significance at 5% and * significance at 10% level.

5.8.4. Descriptive Statistics: Continuous variables

The summary statistics and statistical significance tests on equality of means for continuous variables for less diversified and more diversified households are presented in Table 5.9. The average household size of the more diversified household (4.6 persons) was greater than that of the less diversified households (3.9 persons). The average asset base for both types of households was negative and insignificant. The average annual food consumption of less diversified households was 47% which was higher than that of the more diversified households (42.6%). The share of food expenditure to the total household expenditure is a measure of household food security because the poorer and more insecure a household is, the higher the percentage of household income spent on food. The total annual household income from all sources for less diversified households was Rs. 86,083 and Rs. 1,26,635 for more diversified households which were significant at a 1%

Table 5.9: Descriptive Summary of Selected Indicators - Continuous Variable

average value per household

Variables	Less Diversified	More Diversified	t-value	p-value
Diversified Income (%)	7.44%	34.46%		
Family Size	3.9	4.6	3.1***	0.002
Diversification Index	1.2	2.6	15.65***	0.002
Age of Family Head	56.2	56.8	0.269	0.788
Total No. of TG Workers in the Family	2.7	3	2.04***	0.003
No. of Dependents	1.3	1.5	-1.479	0.141
Surplus Workers (over TG worker)	1.2	1.7	3.11***	0.002
Permanent Workers in TG	1.3	1.3	0.854	0.394
Casual Workers in TG	0.3	0.1	1.75*	0.082
HH Asset Value	12213.3	15273	-1.064	0.289
Food Consumption (% of Total Exp.)	47	42.6	1.68*	0.095
Income from TG	53856.4	52350	0.395	0.694
Total Income from all sources	86082.7	126635	2.98***	0.003
Annual Income from Diversification	31595.4	75006	3.24***	0.001

Source: Analyzed from Field Survey Data, 2018.

Note: *** denotes significance at 1% level, ** significance at 5% and * significance at 10% level.

level of significance. The dependency ratio was negatively associated with the degree of diversification. It is interesting to note that less diversified households have a higher engagement of casual (bigha) tea garden workers and therefore their income from tea gardens (Rs.53856.4) are also higher compared to more diversified households (Rs. 52350) as they do not have Provident Fund (PF) deductions. Similarly, the annual income from diversification sources of more diversified households is more than double the annual income of the less diversified households. The significance has been confirmed by the t statistic at a 1% level of significance.

5.8.5. Logistic Regression Analysis

The study used the logit model to investigate the level of diversification among tea worker households. The livelihood diversification index is the outcome variable which has been taken as a dichotomous variable. Explanatory variables such as sex of the household head, surplus man-power and migration are also modified

into dichotomous variables. The family size as well as other contributing factors influences livelihood diversification. In the study, odds are defined as the ratio of the probability of being more diversified over the probability of being less diversified. The odds ratio (OR) represents the constant effect of a predictor variable (X_j) on the likelihood that one outcome will occur. There is a direct relationship between the co-efficient produced by the logit and the odds ratio produced by the logistic.

Table 5.10 shows that since the gender of household head is a dichotomous variable (male-1, female-0) the value of the coefficient is 0.457 which implies that male-headed households are more likely to be more diversified. The value of the odds is 1.6 which means that for every unit change in gender, the probability of falling into the more diversified group is increasing however the difference is not statistically significant. The value of the odds is 0.757 for the number of tea garden workers in the household and the coefficient is -0.278. Controlling for other variables in the model there is no significant relationship between numbers of workers in the household to livelihood. This implies that having more tea garden workers doesn't ensure greater livelihood diversification rather it depends upon how remunerative activities the members are engaged in. The p-value of the sex of the household head and the number of workers in the family are fairly high than any other significance level that we are using to infer a relationship between these two variables and the response variable. Household size bears a positive relationship to household diversification as the value of the odds is 1.307, for every unit increase in the household size the model estimates that the log odds of falling into the more diversified group increases by 0.268 which is statistically significant at 10%. Surplus manpower and migration are closely associated with more diversification as the value of the odds are greater than 1 (3.715 and 2.451, respectively). Migration is propelled by poverty reflecting the lack of alternative employment in tea gardens.

Household size is positively correlated to livelihood diversification but in particular availability of additional manpower is more important and is statistically significant at 1%. A household with more number of economically active adults, while controlling for other variables will be more likely to be more diversified which

means that households with surplus manpower availability are 3.7 times as likely to diversify more than the less diversified households. In other words, surplus manpower availability increases the logit of the estimated log odds of diversification by 1.3 units. Migration is of paramount importance because of its highest contribution among other diversified activities to livelihood diversification and is statistically significant at 5%.

Table 5.10: Estimated Logistic Regression for Livelihood Diversification

Dependent Variable = Index of Livelihood Diversification (0-less diversified, 1-more diversified)				
Explanatory Variables	**Coefficient**	**S.E.**	**p-value**	**Odd Ratio**
Sex of the Household Head	0.457	0.356	0.199	1.58
Household Size	0.268*	0.140	0.056	1.307
No. of TG workers in the household	-0.278	0.199	0.163	0.757
Surplus manpower availability	1.3120***	0.413	0.001	3.715
Migration	0. .896**	0.433	0.038	2.451
Constant	-1.077**	0.532	0.043	0.341

Source: Analysed from Field Survey Data, 2018.
Note: *** denote significance at 1% level, ** denote significance at 5% and * denotes significance at 10% level.

Table 5.11: Estimated Logistic Regression for Involvement of TG Workers Family Member in Livelihood Diversification Activities

Dependent variable = involvement in diversification activities (0-not involved, 1-involved)				
Explanatory Variables	**Coefficient**	**S.E.**	**p-value**	**Odd Ratio**
Sex of the Family Member	0.789***	0.205	0.000	2.2
Marital Status	0.196	0.253	0.440	1.22
Broad Educational Status	0.446***	0.209	0.003	1.56
Constant	0.632***	0.166	0.000	1.88

Source: Analysed from Field Survey Data, 2018.

Note: *** denote significance at 1% level, ** denote significance at 5% and * denotes significance at 10% level.

Table 5.11 shows that the sex of the household member and involvement in diversification activities are also positively associated. Since the sex of the household member is a dichotomous variable (male-1, female-0) and the value of the coefficient is 0.789, it implies that male members are more likely to be involved in diversification. The value of the odds is 2.2 which means that for every unit change in the sex of the household member, the probability of involvement in diversification increases and the difference is statistically significant at 1%. We can infer that as the size of the household increases there are more chances of a household being diversified. The level of education and involvement in diversification is also positively associated and significant at 1%. The odds ratio of primary education is 1.56 which suggests that the probability of involvement in diversification is higher if the household members have a higher level of education. One reason is that a higher level of education and a surplus of manpower in the household ease the adoption of migration as a livelihood strategy.

5.8.6. Poverty/ Deprivation Analysis and its Implications

To examine the nature of deprivation of the households from necessities of life and its implication on their levels of livelihood diversification a multidimensional poverty index (MPI) was constructed which analyzes its relationship with the scores of the respondent households on HHDI. The distribution of sample households on the two categories of poverty or deprivation: severely deprived and less deprived, according to their score in multidimensional poverty index (MPI) is presented in Table 5.12. The table also presented the estimated logistic regression model to examine the impact of poverty on livelihood diversification. Summarily, it is observed that 32.7% of the tea worker households may be considered severely deprived or multidimensional poor. As much as 44% of the less diversified households are found to be severely deprived (multidimensional poor), and as against this, only 26.6% of the more diversified households are poor (severely deprived). The significance of the Chi-square statistics at 1% implies a significant relationship between livelihood diversification and the poverty status of the tea worker Hhs.

Table 5.12: Impact of Livelihood Diversification on Deprivation (or Poverty) of Households

Diversification Status	No. of Households			% of Households			Chi-Square Stat.
	Severely Deprived	Less Deprived	Total	Severely Deprived	Less Deprived	Total	
Less Diversified	33	42	75	44.0	56.0	100	
More Diversified	37	102	139	26.6	73.4	100	6.69***
Total	70	144	214	32.7	67.3	100	

Estimated Logistic Regression
Dependent Variable: MPI Poverty Status {0-severe deprived & 1-less deprived}

Explanatory Variables	Coefficient	S.E.	p-value	Odd Ratio
Household Score in HHI	0.641***	0.191	0.001	1.899
Constant	-0.559	0.392	0.154	0.572

Source: Computed from Field Data, 2018.
Note: *** significant at 1% level of significance

The logistic regression of the HHI score on the household poverty status indicates a significant causal relationship between livelihood diversification and the poverty status of the tea workers in the study areas. It may be noted that the levels of MPI score and severity of poverty are inversely related, i.e. the higher the MPI score, the lower will be the chance of the households to fall in the category of severely deprived (or MPI poor). The estimated coefficient of 0.641 is found to be significant at 1% level. The OR value of 1.899 indicates that a unit increase in diversification score (HHI) will result in a 1.899 time increase in MPI score, and thus decrease the chance that the household to fall into poverty. In other words, the families having more diversification activities have an 89.9% probability of moving out of poverty. It may be concluded that involvements in livelihood diversification have a significant impact on poverty reduction among the tea workers.

5.9. Conclusion

Livelihoods in Darjeeling hills are highly dependent on the tea industry which is the backbone of the rural economy. Livelihood diversification at the household level takes place by the participation of each member in more than one economic

activity. The livelihood diversification is mainly distress driven, as it is the last resort of vulnerable households for survival. From the study, it is evident that the majority of the households irrespective of the level of diversification diversified their livelihood by pursuing a mix of activities to generate additional income and reduce poverty. Horticulture and livestock rearing were the two most sought after diversified activities of the tea worker's households. However, the income generated from these two diversified activities was significantly lower than the other three diversified activities such as wage labour petty trade and remittance income. Amongst the six categories of diversified livelihood activities, petty trading and remittance income were the two activities that generated income throughout the year. The income derived from agriculture, horticulture, livestock and wage labour were seasonal. The study shows that diversification of livelihood rather than relying only on tea gardens enables households to have better incomes, enhances food security and also cope with shocks and stresses.

Gender played a very critical role in household diversification. Between women and participation in livelihood diversification, the family remains an arena of intense ideological mediation. Women's employment in the tea workforce and other income-generating activities has made them pivotal players in livelihood diversification, reducing their reliance on their spouses and improving their conjugal lives. Women's participation in income-generating activities is encouraged in worker households because it does not pose a threat to patriarchal society. Women who migrate outside the state or abroad for work do not bear the burden of negative social sanctions in a Gorkha Community. Women have their voice and they actively participate in household decision-making. Nevertheless, there were significant differences in the diversification activities of men and women which affected the level of income earned in male and female-headed households. Across all categories of households, women's income-generating activities were highly concentrated in petty trading especially in running small shops and brewing liquor because petty trading is a small scale economic activity so it requires a small amount of an individual's income to operate. This supports the claim that due to lack of assets and weak economic conditions, female-headed households have limited access to

productive capital. The households with the most diversity were typically led by a man.

Household size was an important factor for livelihood diversification. Households with more family members, in particular having additional manpower and/or migrant family members and higher education have a positive effect on livelihood diversification. It is established that remittance income is the main source of diversified income for rural households who are unable to support themselves through tea garden employment. Educational attainment is the other important indicator of socio-economic development that is associated with migration.

The study observed that the surplus manpower (i.e. additional manpower in addition to the members working in TG) is a significant factor of livelihood diversification. The educational attainment of the family members (number of years in school) has also been found to be another significant factor determining household performance in livelihood diversification. At the same time, the analysis also showed that livelihood diversification is a significant means of reducing human deprivation and reduction of poverty incidence among tea workers. This circular interrelationship needs appropriate policy attention as opening more avenues for livelihood diversification can have an unequivocal impact on improving the standard of living of the tea plantation workers in the area. Having established the significance of the availability of surplus manpower and education on households adaptation to diversification activities, it may be worthwhile to suggest enhancement of educational attainment and skill development among the members of the tea workers' households to enable more income generation through sustainable diversification activities in and outside the tea garden.

Chapter 6

SUMMARY OF FINDINGS AND CONCLUSIONS

6.1. Introduction

Livelihood has become a very popular concept in development discourse. Since the last three decades, rural areas of developing countries have increasingly adopted diversification as a rural livelihood strategy to spread risk, reduce poverty and achieve other household goals. Households and individuals can diversify livelihoods in different ways by engaging in a multitude of activities such as on-farm, off-farm and non-farm activities and migration. A comprehensive study of the various aspects of tea workers' households has enabled us to ascertain that the tea plantations alone cannot be relied upon as the core activity for rural households as a means of improving lives and reducing poverty. Rural livelihoods diversification has generally occurred as a result of growing casualization of the workforce, poverty and struggle for decent wages. Diversification has brought significant changes in terms of income earned from different activities however the process and extent of rural livelihood diversification may differ across households.

With this backdrop, it is obvious that livelihood diversification is imperative for the survival of the workers' households to make ends meet, improve their well-being and cope with uncertainties. The central objective of this study is to develop a comprehensive understanding of the interrelationship between socio-economic conditions and livelihood diversification among the tea workers' households in West Bengal taking Darjeeling Hills as the study area. All the analyses undertaken in this study are based on primary data collected by the researcher in the study area and secondary data obtained from sources like Labour Bureau, Tea Statistics, Baseline Survey, Tea Board of India, Annual Report: Labour in West Bengal, Population Census 2011, journals, newspapers, books and other published and unpublished records.

6.2. Major Findings

1. The highly labour intensive tea industry has failed to generate employment for the increasing labour force in recent years. It is even more chronic in the case of West Bengal where growth in terms of labour employment is -1.68%, while the overall India figure is -0.57% which is presented in Table 3.2. Statistics point to the fact that employment has shifted to more casual workers and outside workers. Overall, the annual compound growth rate of the total resident labour force is 0.47% and the total outside labour force is 2.67% as shown in Table 3.6. The annual compound growth rate of outside temporary workers is 3.29%, which is higher than that of outside permanent workers that are 1.38%. Although outside workers have been increasingly used in the tea plantations all over India the calculations show even more widespread casualization of the workforce in West Bengal's tea plantations which stood at 2.72% as shown in Table 3.7. This phenomenon enables the tea estates to carry a smaller amount of labour force permanently. Employers now use the existence of casual labour to depress the general wage levels.

2. The incentive wage system presented in Table 3.8 shows the different quantities of leaves to be plucked (thika) to earn their daily wage (hazira) in the different tea growing regions of West Bengal. The 'thika' is the first task fixed for the morning and doubli is the second task set out for the afternoon. The doubli is smaller than thika but the rates are the same for both. In the Darjeeling hills, the entire work is paid on thika basis as the workers are engaged in fine plucking, two leaves and a bud. The workers are entitled to earn 'extra leaf price' (ELP) for every kilogram plucked above the minimum quota (thika). It must be noted that the thika, doubli and extra leaf price also varies across the tea growing regions as shown in Table 3.8. The extra leaf price varies with different quantities of leaves plucked and with different plucking cycles as well. This implies the employees have to sweat for longer hours during the lean season to earn the extra wage. Moreover, this incentive scheme contributes to the management's advantage as the employees put in

more than a day's effort without being properly compensated for the extra time spent completing the task.

3. The minimum wages of the unskilled workers in the tea plantations of India have been observed to differ markedly. Over the years, the daily wages of tea plantation workers is highest in the South Indian states: Rs. 310 in Kerala, Rs.263 in Karnataka and Rs.241 in Tamil Nadu. It is important to mention that while West Bengal is the second largest tea-producing state of the country, the minimum wages of the tea plantation workers in other minor tea growing states such as Himachal Pradesh is Rs.225 higher than that of West Bengal's (Rs.176) daily wage. Moreover, the wages of the tea plantation workers revised and fixed through bipartite and tripartite negotiations are lower than the minimum wages prescribed for other scheduled employment by the Minimum Wages Advisory Committee of West Bengal. The Occupational Wage Survey presented in Table 3.10 also shows that the increase in wages of the plantation workers is not commensurate to that of the industrial workers. The data also reveals that the wages of the tea plantation workers are the lowest compared to the coffee plantation and rubber plantation workers. In addition, there is not a single tea plantation in West Bengal where the Plantation Labour Act, 1951 is fully implemented.

4. It is surprising to see that although the majority of the tea workers have trade union membership the workers felt that joining the organization has not resulted in any significant improvement in their socio-economic conditions. At the heart of discontentment is the appallingly low wages. The workers said that their concerns were ignored and have been forced to embrace a hard way of life. Lower wages and the non-enforcement of the labour laws reflect the growing powerlessness of the trade unions and laxity on the part of the government which has led to profound mistrust.

5. The study of the sociological characteristics of the tea workers in the study areas taken as a whole shows that the modal age of the respondents is 41-50 years of age and the majority of the respondents (61.2%) were married. 43%

of the households are Schedule Tribes, 38.3% households are of Other Backward Classes and the rest are General and Schedule Caste households. Most of the households, 60.3% had small household sizes. 3.7% of households were casual worker households while the rest of the households had at least one permanent worker. 56.5% of households were nuclear and a majority of these nuclear households had joint earners. The literacy rate among the tea worker households is 79.8% but the educational attainment level is fairly low where 43.8% had middle school and below education, 19% had secondary education, 9.5% higher secondary level education, 1.4% had diploma degree while only 5.7% had a graduate degree and above. The low educational level of the worker households is considered to have serious implications on their future employability in different kinds of jobs.

6. As for the ownership of assets are concerned, 70.1% of households have a television set, 4.2% of households had vehicles, 5.1% of households have two-wheelers bikes/scooters, 91.6% of households possess mobile phones as a means of communication while the mobile phone is still a luxury for 8.4% of households, 49.1% of households have basic housing furniture, 66.4% of households possessed other assets such as (agricultural tools, electronics, etc).

7. In the case of basic amenities, 63.6% of households live in *kutcha* houses and 44.4% of the households have two rooms. With regard to sanitation, only 3.7% of rural households did not have latrines facilities. 65.9% of households exclusively used firewood and 29.9% used firewood and LPG although LPG was used only in times of emergency. Only 4.4% of rural households use LPG as the main source of cooking. 96.3% of the households were electrified but in Tukvar Tea estate the power was cut off from 5:30 am to 5:30 pm. About 70% of the households fetched water from the community taps while the remaining 29.95% of the households have water connection at home.. 61.2% of households preferred to take medical treatment from the nearest sub-divisional hospital as the tea garden dispensaries were lacking. The

banking coverage is impressive as 80.6% of the sample population have bank accounts that were operated personally out of which 76.8% of the bank accounts are a result of The Pradhan Mantri Jan Dhan Yojana. 2.5% of households have availed loans from money lenders or SHGs as none of the commercial banks made loans available to them.

8. The analysis of the socio-economic conditions of the study areas shows that the average monthly income of the tea workers (including casual workers and staff/ sub-staffs) was Rs.4224. The percentage contribution of income from tea gardens was 23.3% while the rest was divided between diversified income (37.4%) and other sources (39.3%). The modal per capita income of the households ranged between Rs.1500-3000 which reflects their poor economic and social conditions. Of the total monthly expenditure, 34% was spent on food and 22.6% was spent on repair and maintenance of house which indicates the poor living conditions of the tea workers.

9. In analysing the perceptions of worker households relating to livelihood diversification majority of the households agree that diversification is imperative to cope with the uncertainties associated with tea garden employment. The tea worker households diversified their livelihoods by undertaking activities such as agriculture, horticulture, livestock, wage labour, petty trade and migration. The average number of diversified activities per household is 2.86. The majority of the households practice horticulture and livestock rearing as their diversified activities. 87.1% of the diversification activities are carried out within the tea garden itself.

10. The male members of the households spent more man-days on different diversification activities compared to the female members. While the only activity where women have used more man-days than the man is in the petty trade category which accounts for 53% of the total man-days. These income-generating informal economic activities make women an essential part of the rural development process. In the tea gardens, the earnings of most of the men are insufficient to run their families on their own and thus they rely on

their women for household sustenance. Women's engagement in the paid workforce and diversified activities has improved their marital lives and increased their involvement in household decision making which is a prerequisite for achieving gender equality in the economic domain.

11. Petty trade and remittance income from migration are the only two diversified activities that generate income throughout the year while the other diversified activities generate seasonal income only. The percentages of households getting income from diversified activities are highest during December and January, i.e. 58.8% and 57.5% respectively. This is particularly due to the sale of broom and oranges. The next is in September to November, where the percentages of households getting income from diversified activities are 41.4%, 42.7 %, 41.6% respectively. This is due to the sale of livestock in festivals. Although a majority of the households have mostly diversified by undertaking horticulture and livestock rearing activities but the earnings generated from these two activities are significantly lower than those households who have diversified by undertaking wage labour, petty trade and migration.

12. The annual average diversified income per household is Rs.22415. To those adopting each of these activities as diversified sources, the annual average income per household is Rs.4000 from agriculture, Rs.6653 from horticulture, Rs.6,352 from livestock rearing, Rs.40447 from petty trade, Rs.41176 from wage labour, and remittance income is Rs.78056. 72.4% of the households with migrants heavily rely on remittance income. Remittance plays an increasing role in household income and thus the potential for migration to enhance livelihoods is enormous.

13. The degree of diversification calculated using the inverse Herfindahl-Hirschman Diversity Index (HHI) revealed that while the score of HHI<=1.68 (bottom 35th percentile) constitutes 35% of the households and are categorized as a less diversified group whereas the score of HHI>1.68 constitutes 65% of the sample households and are categorized as a more

diversified group. A cross-tabulation of the extent of households' livelihood diversification revealed that the calculated Chi-square statistic for some of the selected indicators of categorical variables (migrants, surplus manpower, sex and educational level) for the test on equality of proportions between less diversified and more diversified households are significant at 1%. Similarly, the calculated t-statistics of some for the selected indicators of continuous variables (family size, diversification index, number of workers in the family, surplus workers, total income and diversified income) for the difference of means between less diversified and more diversified households are statistically significant at 1%. The diversified income of the more diversified households is Rs.75006 (34.46%) while that of less diversified households is Rs.31595 (7.44%). As a consequence, families involved more in diversification activities are having a significantly higher income than those who have lesser involvement in it. Thus, more diversified households earned higher incomes which support Hypothesis number 1 of the study.

14. Two different sets of logistic regression models were fitted to assess the effects of socio-economic characteristics (which were found to be significant in the descriptive analysis) on the likelihood of households being diversified. In the first model, for which regression was run the outcome variable of the index of livelihood diversification is coded in a binary form, that is, 1- more diversified and 0- less diversified. It is observed that household size, surplus manpower availability and migration are the significant factors of livelihood diversification in the study areas. Further, the estimated logistic regression coefficient for the availability of surplus manpower in the family is highly significant, while the odd ratio is found to be as much as 3.715. 'Surplus manpower' here is taken as the number of workers in the family who does/does not have regular engagement in the tea garden. This observation is in clear justification of Hypothesis number 2 of the study. It may, thus, be concluded that household adoption of livelihood diversification significantly depends on the availability of a surplus workforce in the family.

15. In addition, some socio-economic characteristics of the household members considered in the study such as gender composition, marital status and educational status showing significant relationship with the involvement of the families on livelihood diversification based on the Chi-Square test (Table 5.8b) are further examined using the logistic regression (Table 5.11). It is observed and confirmed that the gender and educational status of the family members have been the significant factors that determine the adoption of different livelihood diversification activities by the families which supports Hypothesis number 3 of the study.

16. The relationship between livelihood diversification and poverty (or level of deprivation) among the tea workers is also examined using a specially constructed multidimensional poverty index (MPI). This index encompasses 16 indicators which were broadly classified into three components as the standard of living, access to assets and food & nutrition. Lower MPI indicates severe deprivation and vice versa. Similarly, the increasing tendency of the family to have a higher MPI score invariably implicate movement out of poverty and vice versa. The significant relationship between the MPI scores and livelihood diversification index (HHI) is shown by significant Chi-square statistic (Table 5.12). Further, the estimated logistic regression of MPI (classified into severe deprived-0 and less deprived-1) on HHI score showed a positive and highly significant coefficient with odd-ratio 1.899. Thus, a unit increase in HHI score will be associated with a more than proportionate increase in the probability of the household being less-deprived (or out of poverty). Thus, Hypothesis number 4 of the study, livelihood diversification has a significant impact on the alleviation of poverty and human deprivation among tea workers, is considered justified and accepted.

6.3. Conclusions

The study shows that the tea workers are facing precarity, casualization and wage stagnation. The majority of the tea workers have low levels of education, training and skill suggesting that they will remain at the bottom level, low-wage workers. Lack of alternative livelihoods and fewer job opportunities have compelled the workers and their families to resort to this unrewarding and low paying job. Darjeeling hills' economy is dominated by the tea industry which means low-wage jobs make up the highest share of the workforce. The workers' low wages together with rising living costs, has resulted in their poor socio-economic conditions. There is an emerging trend in the tea workers' household to pursue rural livelihood diversification in the study areas. The worker households, irrespective of the level of diversification, diversified their livelihood by pursuing a mix of activities, however, the workers and their families have to work more to the point of exhaustion to earn additional income. The positive impact of livelihood diversification is reflected by the increase in total household income which indicates by undertaking different livelihood activities; diversifying households are more likely to enjoy greater resilience capacity than those rural households reliant on tea gardens.

Gender is an inseparable and indispensable part of the livelihood diversification process. Women's employment in the tea workforce and other income-generating activities has made them pivotal players in livelihood diversification, reducing their reliance on their spouse, improved conjugal lives and increased bargaining power within the household. Across all categories of households, women's income-generating activities were highly concentrated in petty trading especially in running small shops and brewing liquor. Women's participation in economic activities is only viable if it involves a little investment of household assets and does not pose a major challenge to the existing gender division of labour. The relative access to resources or assets is strongly influenced by social structure and culture. As a result, men and women participate in diversification activities at different degrees, affecting the level of income earned in male and female-headed households, as well as the benefits of diversification activities being distributed

unequally, as evidenced by the fact that the majority of diverse households are typically male-headed households.

Households with surplus manpower, in addition to the members working in tea gardens, are an important factor for livelihood diversification. The other important factor influencing household performance in terms of livelihood diversification is educational attainment. Lastly, the study revealed that livelihood diversification is an important way of minimising human deprivation and the occurrence of poverty among tea workers. Thus it is apparent that livelihood diversification can have an unequivocal impact on the standard of living of the tea plantation workers in the study area. To ensure the sustainability of their livelihoods, policymakers and relevant institutions must safeguard the worker's assets and capabilities. Though being confined to Tea Garden as tea workers, insufficient and meager earnings from the employer have necessitated livelihood diversification among the plantation workers to attain a decent living standard, financial security, and to cope with ever-increasing needs for human development.

6.4. Suggestions & Recommendations

It is also desired to propose some suggestions and recommendations based on the findings and observations of this study.

- The tea plantation owners must acknowledge the poor working and living conditions of their workers and invest in providing a healthy and secure working environment, as well as better accommodation, water, and sanitation facilities. Several national and international organisations have reported the plight of tea workers and non-compliance with the Plantation Labour Act, 1951 in West Bengal and Assam, but no remedial steps have been taken so far. Therefore, the trade unions and government must actively enforce the provisions listed in PLA, 1951 and take strict punitive measures against those planters who do not comply.

- Since the tea workers are in the lowest rung of the plantation hierarchy, health care and medicine are not within easy reach physically or financially, hence, the government must take responsibility for providing health services by transforming existing tea garden dispensaries or hospitals into health and wellness centres under the Ayushman Bharat: Comprehensive Primary Health Care scheme.
- The timely revision of wages ensuring decent pay and casualization of the workforce needs active institutional monitoring and intervention in an organised way to enrol them in the permanent workforce. The main stakeholder in this should be the Trade Union which must rise above political interference in its struggle to safeguard the interest of the workers and to ensure strict adherence to the existing regulations and other statutory provisions.
- The lack of alternative livelihoods appears to be at the core of their continued dependency on tea plantations. Therefore, various government departments such as Education, West Bengal Rural Livelihood Mission and West Bengal Skill Development Mission must work in tandem to initiate vocational training of young and old family members of plantation workers and offer higher education scholarships for worker's children. Such a move would ensure opportunities for this community to have social mobility beyond plantation estates and also may help widen the economic scope of work and reduce plantation estate dependency. This could also improve and widen the economic base of tea plantation areas and foster growth.
- Lastly, the study observed that the livelihood diversification of tea worker households has not gained much prominence in the rural development literature so it has to be well documented. Since the literature on the livelihood diversification of tea plantation workers is scant to bridge the gap more empirical studies at the household or community level would be necessary in this regard for the policymakers to assess their living conditions and compare the livelihood security of different rural communities in the country.

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APPENDIX-I

DEPARTMENT OF ECONOMICS
MIZORAM UNIVERSITY

QUESTIONNAIRE ON LIVELIHOOD DIVERSIFICATION AMONG TEA PLANTATION WORKERS IN WEST BENGAL:ACASE STUDY OF DARJEELING HILLS

1. GENERAL INFORMATION:

1. Survey Site:	5. Appx. no. of HHs per labour line:
2.Distance from the nearest town	6.Gram Panchayat:
3.Total population:	7. Mouza
4. No. of labour line:	8. Name of the HH head:

2. HOUSEHOLD CHARACTERISTICS

1. HH Status: *[ ] APL, [ ] BPL, [ ] AAY*
2. Household type: *[ ] Permanent worker HH [ ],Temporary Worker HH*
3. Caste: *[ ] ST, [ ] SC, [ ] Gen, [ ] OBC, [ ]other*
4. Religion: *[ ] christian, [ ] hindu, [ ] muslim, [ ] other*
5. Dwelling house: *[ ] owned, [ ] rented, [ ] others*
6. Family Status: Nucleus / Joint
7. Earning Status of Householder: Sole / Joint

3. HOUSING STATUS & AMENITIES

1. House Type: Pucca [1] , Semi-pucca [2] , Kuchha [3]
2. Appx. Plinth area:
3. No. of Rooms excluding Kitchen: _____ Toilet: *[ ] in the house, [ ] separate [ ] no toilet*
4. HH's primary source of energy for lighting: *[ ] kerosene, [ ] electricity, [ ] candle, [ ] solar, [ ] other* If electrified, availability per day [ ] <2 hr, [ ] 2-5hrs, [ ] 5-10 hrs, [ ] > 10 hrs
5. Main source of drinking water: spring water *[ ] , Community tap [ ], Domestic tap [ ] , Rain water harvesting [ ], others [ ]*
6. Primary source of cooking: *Kerosene [ ], Wood and bamboo [ ], Cow-dung [ ], Leaf Litter [ ], Coal [ ], Charcoal [ ], LPG [ ], Others [ ]*

7. Fuelwood Supply: *TG supplied [1] , Purchased [2] , Self-collected [3] , Combo of [1+2] is [4], Combo of [1+3] is [5], Combo of [2+3] is [6], Combo of all [7]*
8. HH Telecommunication: *Landline/ Mobiles/Both*
9. Major household utensils: *Mostly steel/ Aluminium/ Brass/ Plastic/ Pewter/ Breakable*
10 Assets: Radio/ Tape-recorder/ DVD [ ] Value _____ TV set [ ] Value_____ Motorised vehicles [ ] Value _____ Bikes [ ] Value _____ Mobiles [ ] Value _____ Furnitures [ ] Value_____ Others_____

4. HOUSEHOLD DEMOGRAPHIC DETAILS

Sl. no.	Name of the Household members (sl. No. 1 should be the household head)	Sex *(Male-1, female-2)*	Marital status **(code)**	Age (years)	General Educational Level	Main Livelihood Activities	Whether involved in diversification	Bank account (1-yes & 2-no)	Have Availed loan (1-yes & 2-no)	Insurance Policy (1-yes & 2-no)	Have land in his/her name (1-yes & 2-no)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)

CODES FOR BLOCK 3

Col. (4): ***marital status:*** *1-married, 2-single, 3-widow/widower, 4-divorced/separated*

Col. (6): ***general education code*** *: 1-illiterate, 2-literate without formal schooling, 3-primary, 4-middle, 5-secondary, 6-higher secondary, 7-diploma/certificate course, 8-graduate, 9- postgraduate and above, 10-others*

Col.(7): ***Main Livelihood Activities****: 1-plantation worker (regular), 2- plantation as staff/ sub-staff, 3-plantation workers (casual), 4-plantation workers (bigha), 5-daily wage workers, 6- domestic work, 7- children/students, 8- unemployed, 9- aged, 10-salaried outside tea garden, 11-others*

Summary of Demographic Details

1. Family Size - _____
2. No. of Persons who are in the workforce engaged in Tea - _____
2. No. Unemployed Members - _____
3. No. Child Dependants - _____
4. Aged Dependants - _____
5. No. Minors working (below 18 years) - _____

5. EMPLOYMENT IN THE TEA GARDEN

Sl. No	Work Categories	No. of Members	Nature Recruitment (Code)	No days of engagement	Total Income Earned (Rs)
1	Permanent Worker				
2	Casual/Temporary workers				
3	Bigha workers only				
4	Others				
Nature of Recruitment: 1-Fresh appointment, 2- against family retirement (badly), 3 –Auction of badly					

6. PATTERN OF HOUSEHOLD CONSUMPTION

Sl. No	Particulars	Estimated Amount per month (Rs)
1	Food (monthly)	
2	Education (yearly)	
3	Health (monthly)	
4	Clothing (Yearly)	
5	Festivals (Yearly)	
6	Housing, furniture, maintenance, etc (yearly)	
7.	Pan, tobacco, intoxicants, etc	
8.	Other	
	Total	

7. INCOME BY SOURCES

Sl. No	Particulars	Estimated Annual Income (Rs)
1	**Tea plantation related activities (Annual)**	
Diversified Sources		
1	Cultivation of Agricultural Crops	
2	Livestock (including bee)	
3	Wage labour	
4	Petty business & trade activities	
5	Remittance	
Other Sources		
1	Salaried from public/private (in/outside)	
2	Wages under MGNREGA works	
3	Transfer payment (pension/scholarship/donation, etc)	
4	Other	
	Grand Total	

8. PROFILES OF DIVERSIFIED LIVELIHOOD ACTIVITIES

a) General Details

Sl. No	Activity names	Code-1	Code-2	Total No. of Mandays		Total Earnings (Rs)
				Male	Female	
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						

12						
13						
14						
	Total:					

Code-1*: 1-Agriculture, 2-Horticulture Crops, 3-Animal/livestock, 4-Wage Work, 5-Petty Trade/Retail/Business/Services.* ***Code-2****: Location of Works: 1-Within the Tea Garden, 2-Outside Tea Garden within the State, 3-Outside the State, 4-Abroad*

b) Seasonal Calendar of Diversified Livelihoods

Sl. No	Activities	January	February	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Total
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
	Total:													

CODES FOR DIFFERENT INCOME SOURCES

1. Plantation Code:

101- Permanent worker

102- Staff/Sub-staff

103- Bigha worker

2. Agricultural Crops Code:

201- Paddy
202-Maize
203-Other cereals
204- Pulses
205-Potato
206-Tomato
207- Onion
207-Ginger
208- Garlic
209-Turmeric
210-Mustard leaf
211- Fenugreek leaf
212- Other spinach
213-Carrot
214-Radish
215- Cabbage
216- Cauliflower
217-Brinjal
218- Green peas
219- Lady finger
220-Cucumber
221- Coriander
222-Bitter gourd
223-Bottle gourd
224-Passion fruit
225- Pumpkin
226- Pumpkin leaf
227- Green Chillies
228- Red Chillies
229- Beans
230- Squash
231- Squash root
232- Squash leaves
233- Soyabean
234- Bamboo shoots
235- Broom
236- Orange
237- Mango
238- Lemon
239- Other citric fruits
240- Avocado
241- Plum
242- Peach
243- Banana
244- Guava
245- Papaya
246- Jackfruit
247- Betelnut
248- Pear
249- Sugarcane
250- Other plantation crop
251-others

3. Livestock Code:

301- Cows

302- Buffalo

303- Sheep

304- Goat

305- Pig

306- Poultry

307- Ducks

308- Bee- keeping

309- Fishery/Aquaculture

4. Salaried Service Code:

401- Government service or Public sector units

402- Private service

403- Multinational Companies

5. Wage Labour:

501- Unskilled work

502- Semi-skilled work

503- Skilled work

6. Petty Business and Trade Code:

601- Running small shops

602- Sale of home brewed liquor

603- Middlemen for produces

604- Sale of handicrafts

9. FOOD SECURITY STATUS

1. Family Status: APL (1), BPL (2), AAY (3)

2. How much ration does your family get from the Tea garden? _____Kg

3. Other than TG ration supply, is your family a beneficiary of public distribution system (PDS)? Yes (1), No (2) _____

4. Whether your ration through TG supply is sufficient: Yes (1), No(2)*;* and **if no**, shortfall of _____% and from where you get? _____ (1-market, 2-relative, 3-own produce)

5. Quantity of your monthly quota _____kgs and price Rs._____ per kg

6. Food security status: [ ] yellow (priority group), [ ] green (normal FS family), [ ] white (APL)

7. Availability of two square meals a day? Yes (1), No (2)

10. LAND OWNERSHIP

1. Do you own any land? [ ] Yes [ ] No

1.2. If yes, for what purpose? [ ] for house [ ] for cultivation [ ] for both [ ] NA

1.3. The area _____

1.4. Land Tenure: [ ] Patta [ ] Owned by TG [ ] Encroached Land [ ] No title [ ] NA

11. HOUSEHOLDS' ACCESS TO INSTITUTIONS

1. Have you taken loan during the last three years? [ ] yes, [ ] no

1.1. if yes, amount Rs._____

1.2. if yes, source [ ] govt. bank, [ ] private bank, [ ] cooperatives, [ ] SHG, [ ] money lender, [ ] relative/friend, [ ] NGO/MFI, [ ] multiple of these, [ ] others

1.3. if yes, purpose [ ] Marriage, [ ] Death, [ ] Medical Treatment, [ ]Festivals, [ ] Others, [ ] multiple of these.

1.4 any problem in repayment? [ ] no problem, [ ] yes, low return, [ ] yes, crop failure/loss, [ ] yes, other problems

2. (if no in No.1) why? [ ] no knowledge about the loan and how it is to be applied, [ ] no collateral, [ ] procedures are difficult, [ ] staff are not friendly, [ ] yes, interest and repayment schedule, [ ] others

3. Is your family a member of Trade Union? [ ] yes [ ] no
3.1. If yes, Name of Trade Union
_____
3.2. Level of Participation in TU: [ ] Normal Members, [ ] Executive Level

4. Are you or your family members a member of Panchayat? [ ] Yes [ ] No
4.1. If yes, level: [ ] Active members [ ] Employed in Panchayat [ ] Not active
4.2. Any assistance from the Panchayat:

a) Training	Yes/No	c) Wage works	Yes/No
b) Minor Loans	Yes/No	d) Educational Support	Yes/No

12. ACCESS TO BASIC SERVICES

1. Whether School is available within the TG: [ ] Yes [ ] No
1.1. If yes, Level [ ] Primary [ ] Middle [ ] High School
1.2. If No, distance from TG: _____ Km

2. How many times you visited TG Dispensaries last year? _____
a) Main for which Dispensary was visited (i) _____
(ii)_____
b) How many times Doctor Available when you visit _____
c) Any referral cases to Hospital: [ ] Yes [ ] No

13. MIGRATION ISSUES

Sl. no.	If any HH member has migrated?	How does it take place?	Who leads it?	Place of Migration	Nature of work	No. of migrant		Freq. Of Remittances		Freq. Of home visits		Dependence on remittances
						M	F	M	F	M	F	
(1)	(2)	(3)	(4)	(5)	(6)	(7)		(8)		(9)		(10)

Col 2: 1-Yes, 2-No
Col 3: 1- As individuals, 2- In groups
Col 4:1- Tea garden migrants, Outside agents, 3- Others
Col 5: 1- Within the state, 2- Outside the state, 3- Abroad
Col 6: 1- Formal Sector, 2 – Informal sector
Col 8: 1- Monthly, 2- Periodic, 3- Annually, 4- None
Col 9:1-Monthly 2- Ouarterly, 3-Half yearly, 4- yearly, 5- Others
Col 10: 1-Solely dependent, 2- Heavily dependent,3- Partially dependent, 4-Marginally dependent , 5-Not dependent.

14. GENERAL PERCEPTION OF HOUSEHOLD ON LIVELIHOOD DIVERSIFICATION

1. Is livelihood distress driven? [ ] Yes [ ] No [ ] No Opinion

2. Diversification is necessary at least to some extent for meeting family requirements of vegetables, fruits, and other family needs, especially in plantation areas' [ ] agreed, [ ] not agreed

3. If HHs have diversified their livelihood then, how has it helped in supplementing the family income? [ ] to great extent, [ ] to some extent, [ ] to little extent, [ ] not helpful, [ ] NA

4. What is their degree of success in diversification? highly successful, moderately successful, low success or failure?

5. Why have some HHs not diversified?

15. ADDITIONAL INFORMATION (IF ANY)

_____

_____

_____

_____

_____

_____

_____

Respondent's Signature

Brief Bio-Data of the Candidate

Name	:	Mamta Gurung
Date of Birth	:	24 February, 1987
Father's Name	:	Late. Mahesh Gurung
Mother's Name	:	Late Gracy Bhutia Gurung
Address	:	C/O Mohan Rai, Lizziepur Tea Estate Kothidara , Kurseong-734203, District- Darjeeling, West Bengal
Contact No.	:	7005449121
Email	:	mamta.gurung62262@gmail.com

Educational Qualifications:

North Bengal University

- Master of Philosophy with 70.25%
- Master of Arts (Economics) First Class with Distinction (77.4%)

Siliguri College

- Bachelor of Arts (Economics) with 57.13%

Publications:

- Published Article- Gurung, M., & Thanga, J. L. T. (2018). Employment Structure in the Tea Plantations of West Bengal. *Senhri Journal of Multidisciplinary Studies*, 03(1), 42-55.
- Published Article- Gurung, M., & Thanga, J. L. T. (2021). Trade Unions and Worker's Struggle for Decent Wages in the Tea Industry of West Bengal. *Management Convergence*, 12(2), 72-79.

Papers presented:

- 'Plight of the Tea Plantation Workers in India' in Three Days International Seminar on "Culture, Tourism, Indigenous People And Sustainable

Development", jointly organised by Centre for Entrepreneurship and Skill Development, Manipur university, Research Forum (REFORM) and Planning Department, Government of Manipur on 15th-17th February, 2019.

- 'Labour and Legislations in the Tea Plantations of West Bengal' in Two Days International Conference on " Enabling Economic Development of North East India Through Linkages With South And South East Asia", organised by ICFAI University, Mizoram in collaboration with NEC on 25th-26th October, 2017.

Seminar/Workshop Attended:

- Two days "International Seminar On Writing History On Highlanders of North East India", organised by the Department of History & Ethnography, Mizoram University held between 5-6 March, 2019.
- Three days National Workshop-cum-Training program on "Research Ethics, Plagiarism and Reference Management", jointly organised by Department of Library and Information Science, Mizoram University and INFLIBNET Centre, Gandhinagar, Gujarat held at ", jointly organised by from 11th -13th April, 2018.
- One day State Level Workshop on "Research methodology & Monitoring of Research Projects" organised by Project Committee, Pachhunga University College, Aizawl, Mizoram on 11th August, 2017.
- "4th Workshop on Official Statistics in North Eastern States" jointly organised by the Indian Statistical Institute, Kolkata & Department of Statistics Pachhunga University College, Aizawl, Mizoram from 7th-13th November, 2017.
- "Advanced Econometric methods and Their Applications", jointly organised by the Economic Research Unit, Indian Statistical Institute, Kolkata and the Department of Economics, Mizoram University, Aizawl from 29th February to 5th March, 2016.

(Mamta Gurung)

PARTICULARS OF THE CANDIDATE

Name of the Candidate	:	MAMTA GURUNG
Degree	:	DOCTOR OF PHILOSOPHY (Ph.D)
Department	:	ECONOMICS
Title of Thesis	:	LIVELIHOOD DIVERSIFICATION AMONG THE TEA PLANTATIONWORKERS IN WEST BENGAL: A CASE STUDY OF DARJEELING HILLS
Date of Admission	:	August 10, 2015
Approval of Research Proposal		
1. Board of Studies (BoS)	:	12.04.2016
2. School Board	:	22.04.2016
3. MZU Registration No.	:	1506803
3. Registration No. & Date	:	MZU/PhD/850 of 22.04.2016
4. Extension	:	Vide No AC:40:4(3)-I dated 29.06.2021 & No. 17-I/MZU(Acad)/20/14 dated 1st April 2021

Head

Department of Economics

SURVEY PICTURES

ABSTRACT

LIVELIHOOD DIVERSIFICATION AMONG THE TEA PLANTATION WORKERS IN WEST BENGAL: A CASE STUDY OF DARJEELING HILLS

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

MAMTA GURUNG

MZU REGN NO : 1506803 of 2016

Ph. D REGN NO : MZU/Ph.D/850 of 22.04.2016

DEPARTMENT OF ECONOMICS

SCHOOL OF ECONOMICS, MANAGEMENT AND INFORMATION SCIENCES

DECEMBER, 2021

LIVELIHOOD DIVERSIFICATION AMONG THE TEA PLANTATION WORKERS IN WEST BENGAL: A CASE STUDY OF DARJEELING HILLS

BY

MAMTA GURUNG

DEPARTMENT OF ECONOMICS

NAME OF SUPERVISOR

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SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN ECONOMICS OF MIZORAM UNIVERSITY, AIZAWL

1. Introduction

The first definitions of sustainable livelihood are found in the Brundtland Report (Our Common Future) of 1987 (Scoones, 1998). The literature provides a variety of definitions given by many academicians and development practitioners for example Chambers and Conway (1992), defined livelihood as, “a livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the long and short term ”. Ellis (1999) defines livelihood as “the activities, the assets, and the access that jointly determine the living gained by an individual or household”. To Scoones (2009), the term "livelihoods" is a versatile and adaptable term that can be combined with a variety of other words to form entire fields of development research and practise. These include things like locations (rural or urban livelihoods), occupations (farming, pastoral, or fishing livelihoods), social differences (gender and age-defined livelihoods), directions (livelihood pathways, trajectories), dynamic patterns (sustainable or resilient livelihoods), and many more. The various definitions of livelihoods bring to our attention that (i) livelihood deals with the ways and means to secure necessities of life (ii) livelihoods are concerned with the availability of resources and their use. Livelihood encompasses both material and non-material aspects of well-being. Thus, the concept of livelihood should be viewed as dynamic and holistic (De Haan and Zoomers, 2005).

2. Conceptual Framework

With the introduction of livelihood frameworks, diversification in rural regions has gained significance in literature and research in the developing world since the 1990s (Israr et al., 2014). Sustainable livelihood provides a more rational and combined approach to alleviating poverty and has gained prominence in

Department for International Development (DFID) since 1998 (Carney, 2002). Other organizations namely United Nations Development Programme (UNDP), Oxford Committee for Famine Relief (OXFAM) and Cooperative for Assistance and Relief Everywhere (CARE) have embraced the sustainable livelihood approaches that have much in common, but their emphasis varies and differs from one another (Carney et al. 1999).

2.1. The DFID Framework

One of the livelihood frameworks most commonly used in development discourse is the Sustainable Livelihood Framework (SLF) of the Department of International Development (DFID). The core principles of the sustainable livelihood (SL) approach are: dynamism, people-centred, holistic, participatory in nature, building on strengths, operating at various levels and having a sustainability vision (Carney et al., 1999). The SLF identifies and distinguishes five types of assets upon which livelihoods are built, namely human capital, social capital, natural capital, physical capital and financial capital and how these assets can be combined in a variety of ways to create positive livelihood outcomes and eliminate poverty. It also highlights structures (or organisations) and procedures (societal standards, incentives, policies, and legislation) that affect asset access, control, and use and how it can limit or allow people's livelihood choices and decide on the sustainability of such choices. Vulnerability environments such as shocks, trends and seasonality can affect people's livelihoods and their access and control of resources. The next significant factor in the DFID model is livelihood strategies. In the context of structures, procedures and vulnerability context, people choose their livelihood strategies based on their asset ownership. According to DFID, a livelihood outcome leads to concentrating on accomplishments, indicators and advancement that are the results of strategies taken (DFID, 1999).

2.2. The CARE Framework

The Cooperative for Assistance and Relief Everywhere (CARE) is an international non-governmental organization focusing on household livelihood security related to primary needs. CARE reflects three basic attributes to livelihood: (i) human capital possession (e.g. education, health, skills, psychological orientation); (ii) Access to other tangible and intangible assets (social, natural, and economic capital); and (iii) the presence of economic activities. The interaction among these attributes decides for which livelihood strategy a household will choose (Carney et al., 1999). The framework helps to identify the most vulnerable households and places individuals' priorities and aspirations at the centre of the analytic and planning process. The CARE framework distinguishes between assets, capabilities and activities but does not explicitly focus on structures and processes and places less emphasis on macro-micro links within the framework, although these are important in many aspects of its work. It identifies three categories of livelihood activity that are non-exclusive: promotion of livelihood, protecting livelihood and provision of livelihood. CARE's three focus areas of activity: empowering individuals, empowering society and delivering services to the poor (ibid.).

2.3. The UNDP Framework

The agenda for sustainable livelihoods is part of the UNDP's overall mandate for sustainable human development (SHD) adopted in 1995. It recognizes livelihoods as the means, activities, rights and resources that individuals make a living through. Assets are characterised as (i) natural capital (ii) social capital (iii) political (iv) human capital (v) physical capital and (vi) financial capital. Sustainable livelihoods are characterised as (i) capable of dealing with and recovering from shocks and stresses (ii) economically efficient; (iii) environmentally sound, ensuring that livelihood activities do not irreversibly degrade natural resources within a specified ecosystem; and (iv) socially equitable, which indicates that promoting one group's

livelihood possibilities should not preclude other groups ' choices, either now or in the future. Like DFID, UNDP focuses primarily on the strengths of people rather than needs, the significance of creating micro-macro connections and sustainability should be evaluated and endorsed on an ongoing basis (Carney et al. 1999).

2.4. The OXFAM Framework

Oxfam, a decentralized organization, adopted a sustainable livelihoods approach in the early 1990s. Oxfam uses a semi-official livelihoods framework which has much in common with the DFID framework. It emphasizes that defined rules do not exist and Oxfam also draws on Chambers and Conway's definition of sustainable livelihoods and points out that sustainability has different dimensions: (i) financial (for example, the functioning of market functioning and loan supply); (ii) social (networks of reciprocity, gender equity); (iii) institutional (capacity building, access to services and technology, political freedom) and (iv) ecological (quality and availability of environmental resources). Oxfam addresses the issue of environmental change as the main aim to eliminate poverty as well as concerns about globalizing markets, deteriorating economic rights, gender and wider social inequality and the need to reinforce the participation of deprived people in the SL approach to development (Carney et al., 1999).

2.5. Diversification

Diversification is the process of starting to include more different types of activities in order to spread risk and mitigate losses. Ellis (2000) defines rural livelihood diversification as ‘the process by which rural households construct an increasingly diverse portfolio of activities and assets in order to survive and improve their standard of living’. Livelihood diversification is an important strategy by which individuals and households seek to increase incomes and decrease environmental risk, with varying degrees of freedom of choice (to diversify or not) and reversibility of the outcome. Chambers (1997) argues that to exist in a risky and unpredictable environment, impoverished people, in particular, must diversify their sources of

income. Several studies from various disciplines in Africa and Asia have found that rather than becoming passive victims, the majority of rural people have diversified their economic activity and adopted various strategies to reduce poverty and sustain their livelihoods (De Haan and Zoomers, 2005).

Diversification of rural livelihoods might suggest a shift from agriculture to non-agricultural activities. It encompasses both non-farm and off-farm activities that are carried out to supplement earnings earned by the household's primary agricultural activities. In Sub-Saharan Africa, non-agricultural income makes up a large part of diversification (Elmqvist and Olsson, 2007). In a similar vein, Bryceson (1996) offers evidence that Sub-Saharan Africa, is growing less agricultural over time. In rural India, there has been some evidence of non-agricultural employment diversification (Unni,1996). As a result, pursuing non-agricultural work is a risk-mitigation approach for meeting basic household subsistence requirements (Dercon and Krishnan 1996). Thus, non-farm income is becoming increasingly important in developing countries (Arnold, 1994; Bernstein et al., 1992).

Rural farming households participated in the low-skilled non-farm activities such as artisanship, casual wage workers, petty trading, hunting, fishing and some in skilled non-farm activities such as civil service, private sector employment and other paid employment, sport, sales, carpentry, photography, mechanic/electricians, clergy, blacksmith and sewing (Awotide et al., 2010; Sealza, 1984; Adi, 2007). However, it is important to note that many livelihood diversification strategies are often gendered. Gender is an integral and inseparable part of rural livelihood. Although the evidence indicates that women may engage in a comparable variety of diversification activities as males, men can often take advantage of diversification possibilities that are not available to women owing to cultural limitations in many cases. For example, Smith's (2014) study in Northern Tanzania shows that women who travel long distances to work face unfavourable societal consequences. According to Haggblade et al. (1989), women participate in non-farm work at a rate of 16 percent in rural Mali, compared to 84 percent for males. This suggests that men have more opportunities than women. Women's diversification activities are those that require less skill and investment such as petty trading, crop processing farming and reselling

of farm produce (Adesoji et al., 2014) which generates low income. Haan (1989) refers to these diversified activities as survival actions.

3. Review of Literature

Livelihood has become a very popular concept in development discourse. Since the last three decades, rural areas of developing countries have increasingly adopted diversification as a rural livelihood strategy to spread risk, reduce poverty and achieve other household goals. Ellis (2000) defines rural livelihood diversification as *'*the process by which rural households construct an increasingly diverse portfolio of activities and assets to survive and improve their standard of living*'*. Diversification is the process of starting to include more different types of activities to spread risk and mitigate losses. Households and individuals can diversify livelihoods in different ways by engaging in a multitude of activities such as on-farm, off-farm and non-farm activities and migration. Diversification has brought significant changes in terms of income earned from different activities however the process and extent of rural livelihood diversification may differ across households. Diversification of livelihood is affected by socio-economic and demographic variables such as land ownership, education livestock, ethnicity, dependents, remittances (Parker et al., 2015), institutions and infrastructure, assets (Khatun and Roy, 2012; Tashikalma et al., 2015) and gender dimensions that shape household's livelihood strategies.

Diversification of rural livelihoods might suggest a shift from agriculture to non-agricultural activities. It encompasses both non-farm and off-farm activities that are carried out to supplement earnings earned by the household's primary agricultural activities. Households that depended mainly on agriculture were more likely to diversify for their livelihood. Chambers (1997) argues that to exist in a risky and unpredictable environment, impoverished people, in particular, must diversify their sources of income. In rural India, there has been some evidence of non-agricultural employment diversification (Unni, 1996). In Sub-Saharan Africa, non-agricultural income makes up a large part of diversification (Elmqvist and Olsson, 2007).

Households with access to assets, market access and institutions are more likely to participate in non-farm diversification and enjoy better welfare (Asmah, 2011). In a similar vein, Bryceson (1996) offers evidence that Sub-Saharan Africa, is growing less agricultural over time. As a result, pursuing non-agricultural work is a risk-mitigation approach for meeting basic household subsistence requirements (Dercon and Krishnan 1996). Thus, non-farm income is becoming increasingly important in developing countries (Arnold, 1994; Bernstein, 1992).

Rural farming households participated in the low-skilled non-farm activities such as artisanship, casual wage workers, petty trading, hunting, fishing and some in skilled non-farm activities such as civil service, private sector employment and other paid employment, sport, sales, carpentry, photography, mechanic/electricians, clergy, blacksmith and sewing (Awotide et al., 2010; Sealza, 1984; Adi, 2007). However, it is important to note that many livelihood diversification strategies are often gendered. Gender is an integral and inseparable part of rural livelihood. Although the evidence indicates that women may engage in a comparable variety of diversification activities as males, men can often take advantage of diversification possibilities that are not available to women owing to cultural bias, heavy workloads, household and community economy, and low literacy rate (Cahn and Liu, 2008). Smith's (2014) study in Northern Tanzania shows that women who travel long distances to work face unfavourable societal consequences. Similarly, Chattopadhyay and Seddon's (2002) study in West Bengal's village shows that despite women being a significant economic contributor to the household, various cultural and socio-psychological factors play a significant part in determining the autonomy of women which pose serious impediments to improving her status and position within the household. According to Haggblade et al. (1989), women participate in non-farm work at a rate of 16 % in rural Mali, compared to 84 % for males. This suggests that men have more opportunities than women. Women's diversification activities are those that require less skill and investment such as petty trading, crop processing farming and reselling of farm produce which is in line with the claim that female-headed households diversify into casual and informal activities. (Adesoji et al., 2014). Haan (1989) refers to these diversified activities as survival actions.

4. Significance of the Study

Literature on rural livelihoods in West Bengal is few and those studies have examined determinants and extent of livelihood diversification in West Bengal (Khatun and Roy, 2012; Saha and Bahal, 2010). Studies on livelihood diversification of tea garden workers in West Bengal and the factors affecting livelihood diversification is also very few. A comprehensive study of the various aspects of tea workers' households has enabled us to ascertain that the tea plantations alone cannot be relied upon as the core activity for rural households as a means of improving lives and reducing poverty. This study provides empirical evidence, based on the primary data, on how the tea workers are diversifying their livelihoods in different tea producing regions of Darjeeling Hills, West Bengal. It also identified the factors that determine the diversification of livelihoods. By examining the livelihood patterns, the study presented various sources of income and their contribution to the overall household income. Households are diversifying their livelihoods by adopting a multitude of activities. These activities are affecting the lives and livelihoods of the tea workers to a great extent. It is therefore important to know the current patterns of income and occupational diversification occurring at the household level. Such information is required to enhance the understanding of the policymakers on the existing scenario and problems so that they can devise effective public policy interventions addressing the socio-economic problems of tea workers as well as sustainable livelihoods in the study area. Further, though there is a plethora of literature, that enlightens us on the economy of tea plantations, but literature on livelihood diversification of tea gardens in the existing set of the empirical literature is very few. Thus, this study is also expected to fill this literature gap adequately.

5. Statement of the Problem

The tea industry is the major means of rural livelihoods but with the low wage paid by the tea estates and lack of proper housing, education and health facilities, the tea plantation workers are facing serious problems in their socio-economic development. The limited income earned by a worker is not sufficient to

meet even the bare family consumption needs. Rural livelihood diversification has generally occurred as a result of growing casualization of the workforce, poverty and struggle for decent wages. The need for rural household livelihood diversification is centred on the need for household food security, generation of additional income, meeting exigencies, reduction of poverty and vulnerability. Moreover, the tea workers do not possess adequate skills to seek gainful employment in other sectors, and thus, the surplus working force in the families are lying idle and unemployed for most of the season.

In addition, the government employment and anti-poverty schemes are not implemented effectively to benefit the poor tea workers in the area. Despite the limited opportunities available to them, the families have to seek additional livelihoods in whatever way they can to save themselves from hunger and extreme poverty. Under such a situation, the tea workers are compelled to diversify livelihoods through various means in agriculture and allied activities, livestock, wage labour, petty trade, migration, services, etc. They have to trade off leisure which makes them time-poor even after a hard day's work. This problem could prove to be detrimental to those low-wage workers who work long hours to earn more money. Diversification is imperative for the livelihoods and survival of tea worker households. As this is the case, it is critical to undertake a systematic study on the livelihood diversification among the tea workers to find out reliable academic inputs on the existing scenario encompassing its pattern, problems, limitations and opportunities.

6. Objectives of the Study

The study is intended mainly to examine the existing livelihood opportunities and diversification *vis-a-vis* the socio-economic condition of the tea workers in Darjeeling hill of West Bengal with the following specific objectives in mind:

- To study the institutional framework of employment opportunities in tea plantations and their socio-economic impact on the workers.

- To examine the existing socio-economic conditions of tea plantation workers and their dynamics in the face of available livelihood options.
- To study the factors which cause or compel the workers to diversify livelihoods.
- To identify the various livelihood diversification activities adopted by the tea worker households.
- To examine the patterns, distribution of family man-days, seasonal behaviour and the contribution of diversified activities to household income.
- To measure the level of livelihood diversification and determine the factors affecting rural livelihood diversification.
- To examine the nature and extent of deprivation prevailing among the tea workers.
- To study the key issues inhibiting the opening of more livelihood opportunities.

7. Hypotheses

To generate a concrete and meaningful conclusion, it is proposed to test the following hypotheses

1. Households that diversify livelihoods enjoy higher income than those who do not diversify.
2. Household adoption of livelihood diversification significantly depends on the availability of a surplus workforce in the family.
3. Gender and educational level determine the household's adoption of livelihood diversification activities
4. Livelihood diversification has a significant impact on the alleviation of poverty and human deprivation among tea workers.

8. Methodology

8.1. Data Base

The study used a combination of both primary and secondary data. Firstly, the secondary data for the analysis were collected from Labour Bureau, Tea Statistics, Baseline Survey, Tea Board of India, Annual Report: Labour in West Bengal, Population Census 2011, journals, newspapers, books and other published and unpublished records.

Secondly, primary data were obtained from the sample worker households by using a structured questionnaire through in-person interviews conducted from January 2018 to April 2018. To select sample households for the study, a two-stage sampling design was adopted: first, selection of sample tea estate and second, selection of tea workers following simple random sampling method. Firstly, three (3) tea estates were selected randomly from the list of existing tea estates in Darjeeling Hills of West Bengal. Secondly, from each of the selected tea estates required numbers of sample tea workers were selected by following a simple random method. The list of tea worker households, obtained at the time of preliminary visit was the adopted frame of the sample survey. A total of 300 samples were selected initially. However, as many as 86 samples had to be rejected after the post-survey validation exercise due to a lack of sufficient information and data inconsistency. The distribution of the sample over the three selected tea gardens is presented in Table 1.

Table 1: Basic Information of the Sample Tea Estates

Tea Gardens	Sample Hhs	Total Worker Hhs	% Share	Sample Pop.	Total Pop.	% Share	Total Hh Size	Sample Hh Size
Sivitar	70	285	24.6	304	1745	17.4	6.1	4.3
Soureni	70	226	31	319	1081	29.5	4.8	4.6
Tukvar	74	506	14.6	313	2347	13.3	4.6	4.2
Total	214	1017	21	936	5173	18.1	5.1	4.4

Source: Field Data, 2018
Note: Hhs-Households, Pop.- Population

In addition, to gain a better understanding of socioeconomic conditions in these areas, participatory rural appraisal (PRA) and focus group discussions (FGD) were conducted as a part of an initial exploratory study to gather information about tea worker households and understand their livelihood context. These exercises helped to understand the collective dynamics of socio-economic conditions, identifying various sources of household income available opportunities in the TGs and challenges associated with it.

8.2. Analytical Tools

Firstly, to examine the general patterns and trends of various parameters of interest, descriptive statistics like percentage, mean, standard deviation were used. Secondly, to measure the degree of individual household's adoption of livelihood diversification, inverse Herfindahl-Hirschman Index (HHI) was constructed, while multidimensional poverty index (MPI) was constructed to examine the interrelatedness of livelihoods and poverty and deprivation. Thirdly, to test the study hypotheses and to chalk out clear conclusions based on the analysis, test statistics like chi-square and t-test were adopted. Further, to examine the impact and relationship between livelihood diversification and several socio-economic factors, a logistic regression model was estimated and the significance and magnitude of the odd-ratios were taken as the basis of the interpretation and conclusion.

8.2.1. Measure of Livelihood Diversification

The extent of households' livelihood diversification in the literature is commonly quantified by using different diversity indexes. There are various indicators and indices to measure diversification namely the Simpson's index (Saha and Bahal, 2010; Khatun and Roy, 2012; Idowu et al, 2014) Herfindahl index, Ogive index, Entropy index, Modified Entropy index, Composite Entropy index (Shiyani and Pandya, 1998). In this study we used the Inverse Herfindahl-Hirschman Diversity Index (HHI) as suggested by Anderson and Deshingkar (2005) because it

enables us to use the degree of diversification as a measure of the size of each livelihood activity to a household's total income which is calculated as follows:

$$HHI_i = 1/\sum_{j=1}^{n} S_j^2$$

where HHI_i = Herfindahl-Hirschman Diversification Index

n = Total number of diversified income sources

Sj = the proportional contribution of each livelihood activity j to the household i's overall income.

The maximum possible value of the index is the total number of different income sources that are attained if total income is distributed equally between each source. The minimum possible value is 1, which is attained if there is just one source of income (that is income from the tea garden in our case). We have classified the worker households into two groups based on the degree of diversification. Those who are at the bottom 35 % with HHI<= 1.68 are categorized as a less diversified group whereas those with HHI > 1.68 are categorized as a more diversified group.

8.2.2. Logistic Regression Model

The variables which were found significant in the descriptive analysis were further tested employing the logistic regression model to examine their respective effect on the household status in respect of diversifications. A logistic model allows us to establish a relationship between a binary outcome variable and a group of predictor variables. The logistic regression of dichotomous dependent variable (y_i) on the set of explanatory variables (x_1 ,x_2,…, x_k) such that i=1,2,…,n and j= 1,2,…,k takes the form:

$$p_i = P\,(Y=y_i\ /X=x_i)$$

$$= \frac{e^{\beta_0+\beta_1 x_1+\cdots+\beta_k x_k}}{1+e^{\beta_0+\beta_1 x_1+\cdots+\beta_k x_k}} = \frac{1}{1+e^{-(\beta_0+\beta_1 x_1+\cdots+\beta_k x_k)}}$$

The logits or natural log of the odds of the unknown binary probabilities are calculated as a linear function of the X_i and is given by:

$$\text{logit}(p_i) = \ln\left(\frac{p_i}{1-p_i}\right) = \beta_0+\beta_1 x_1+\ldots+\beta_k x_k+\boldsymbol{\varepsilon}$$

The unknown parameter values for β_0, $\beta_1,\ldots,\beta_k$ coefficients are estimated via the maximum likelihood method. The expression $\frac{p_i}{1-p_i}$ is known as the odds which is the ratio of the probability that an event will occur to the probability that it will not occur. The above equation shows the effect of the j^{th} explanatory on the log of odds for a unit change in the explanatory variable while e^{β} is the estimate of the odds of having the outcome.

8.2.3. Multidimensional Poverty Index

To examine the incidence of poverty in a multidimensional context in the study areas we have specifically constructed and adapted MPI to suit the available information obtained from the sample survey and an attempt is also made to examine the impact of livelihood diversification. Three major indices with 16 sub-indicators are constructed based on the sample information. It must be noted that the MPI analysis undertaken in this study may not be comparable with other studies because this specially designed MPI is used to examine the extent and nature of deprivation prevailing among the TG workers in the study areas. The three deprivation indices are simply aggregated to find out the overall deprivation index, called the Multidimensional Poverty Index (MPI), for the study area. Given the nature and implication of all indicators considered for each deprivation index, there would be no difficulty for normal households, which have already enjoyed a decent standard of living, to attain a 100% score. Despite this, some reservation has to be made to accommodate a situation where some families fall short in some indicators but have been doing very well in others. Accordingly, it is assumed that the poor households should attain at least 50% of the total score (i.e. 8 points) in all the indicators to ensure attainment of decent living, and any score below it would be considered as deprivation. Thus, the sample households were accordingly classified into two groups of deprivation as follows:

Level of deprivation	Score in the Index
Severely deprived	< 50%(upto 8 score)
Less deprived	>50 (more than 8 score)

9. Scheme of Chapterisation

Chapter 1- Introduction.

Chapter 2 - Review of Literature.

Chapter 3 – Status and Conditions of Employment Under the Tea Industry in West Bengal.

Chapter 4 - Socio-Economic Conditions of Tea Plantation Workers in Darjeeling Hills.

Chapter 5- Nature and implications of Livelihood Diversification – An Analysis.

Chapter 6 - Summary of Findings & Conclusion.

Bibliography

10. Major Findings

1. The highly labour intensive tea industry has failed to generate employment for the increasing labour force in recent years. It is even more chronic in the case of West Bengal where growth in terms of labour employment is -1.68%, while the overall India figure is -0.57% which is presented in Table 3.2. Statistics point to the fact that employment has shifted to more casual workers and outside workers. Overall, the annual compound growth rate of the total resident labour force is 0.47% and the total outside labour force is 2.67% as shown in Table 3.6. The annual compound growth rate of outside temporary workers is 3.29%, which is higher than that of outside permanent workers that are 1.38%. Although outside workers have been increasingly used in the tea plantations all over India the calculations show even more

widespread casualization of the workforce in West Bengal's tea plantations which stood at 2.72% as shown in Table 3.7. This phenomenon enables the tea estates to carry a smaller amount of labour force permanently. Employers now use the existence of casual labour to depress the general wage levels.

2. The incentive wage system presented in Table 3.8 shows the different quantities of leaves to be plucked (thika) to earn their daily wage (hazira) in the different tea growing regions of West Bengal. The 'thika' is the first task fixed for the morning and doubli is the second task set out for the afternoon. The doubli is smaller than thika but the rates are the same for both. In the Darjeeling hills, the entire work is paid on thika basis as the workers are engaged in fine plucking, two leaves and a bud. The workers are entitled to earn 'extra leaf price' (ELP) for every kilogram plucked above the minimum quota (thika). It must be noted that the extra leaf price also varies across the tea growing regions as shown in Table 3.8. The extra leaf price varies with different quantities of leaves plucked and with different plucking cycles as well. This implies the employees have to sweat for longer hours during the lean season to earn the extra wage. Moreover, this incentive scheme contributes to the management's advantage as the employees put in more than a day's effort without being properly compensated for the extra time spent completing the task.

3. The minimum wages of the unskilled workers in the tea plantations of India have been observed to differ markedly. Over the years, the daily wages of tea plantation workers is highest in the South Indian states: Rs. 310 in Kerala, Rs.263 in Karnataka and Rs.241 in Tamil Nadu. It is important to mention that while West Bengal is the second largest tea-producing state of the country, the minimum wages of the tea plantation workers in other minor tea growing states such as Himachal Pradesh is Rs.225 higher than that of West Bengal's (Rs.176) daily wage. Moreover, the wages of the tea plantation workers revised and fixed through bipartite and tripartite negotiations are lower than the minimum wages prescribed for other scheduled employment

by the Minimum Wages Advisory Committee of West Bengal. The Occupational Wage Survey presented in Table 3.10 also shows that the increase in wages of the plantation workers is not commensurate to that of the industrial workers. The data also reveals that the wages of the tea plantation workers are the lowest compared to the coffee plantation and rubber plantation workers. In addition, there is not a single tea plantation in West Bengal where the Plantation Labour Act, 1951 is fully implemented.

4. It is surprising to see that although the majority of the tea workers have trade union membership the workers felt that joining the organization has not resulted in any significant improvement in their socio-economic conditions. At the heart of discontentment is the appallingly low wages. The workers said that their concerns were ignored and have been forced to embrace a hard way of life. Lower wages and the non-enforcement of the labour laws reflect the growing powerlessness of the trade unions and laxity on the part of the government which has led to profound mistrust.

5. The study of the sociological characteristics of the tea workers in the study areas taken as a whole shows that the modal age of the respondents is 41-50 years of age and the majority of the respondents (61.2%) were married. 43% of the households are Schedule Tribes, 38.3% households are of Other Backward Classes and the rest are General and Schedule Caste households. Most of the households, 60.3% had small household sizes. 3.7% of households were casual worker households while the rest of the households had at least one permanent worker. 56.5% of households were nuclear and a majority of these nuclear households had joint earners. The literacy rate among the tea worker households is 79.8% but the educational attainment level is fairly low where 43.8% had middle school and below education, 19% had secondary education, 9.5% higher secondary level education, 1.4% had diploma degree while only 5.7% had a graduate degree and above. The low educational level of the worker households is considered to have serious implications on their future employability in different kinds of jobs.

6. As for the ownership of assets are concerned, 70.1% of households have a television set, 4.2% of households had vehicles, 5.1% of households have two-wheelers bikes/scooters, 91.6% of households possess mobile phones as a means of communication while the mobile phone is still a luxury for 8.4% of the households, 49.1% households have basic housing furniture, 66.4% households possessed other assets such as (agricultural tools, electronics, etc).

7. In the case of basic amenities, 63.6% of households live in kutcha houses and 44.4% of the households have two rooms. With regard to sanitation, only 3.7% of rural households did not have latrines facilities. 65.9% of households exclusively used firewood and 29.9% used firewood and LPG although LPG was used only in times of emergency. Only 4.4% of rural households use LPG as the main source of cooking. 96.3% of the households were electrified but in Tukvar Tea estate the power was cut off from 5:30 am to 5:30 pm. About 70% of the households fetched water from the community taps while the remaining 29.95% of the households have water connection at home. 61.2% of households preferred to take medical treatment from the nearest sub-divisional hospital as the tea garden dispensaries were lacking. The banking coverage is impressive as 80.6% of the sample population have bank accounts that were operated personally out of which 76.8% of the bank accounts are a result of The Pradhan Mantri Jan Dhan Yojana. 2.5% of households have availed loans from money lenders or SHGs as none of the commercial banks made loans available to them.

8. The analysis of the socio-economic conditions of the study areas shows that the average monthly income of the tea workers (including casual workers and staff/ sub-staffs) was Rs.4224. The %age contribution of income from tea gardens was 23.3% while the rest was divided between diversified income (37.4%) and other sources (39.3%). The modal per capita income of the households ranged between Rs.1500-3000 which reflects their poor economic and social conditions. Of the total monthly expenditure, 34% was spent on

food and 22.6% was spent on repair and maintenance of house which indicates the poor living conditions of the tea workers.

9. In analysing the perceptions of worker households relating to livelihood diversification majority of the households agree that diversification is imperative to cope with the uncertainties associated with tea garden employment. The tea worker households diversified their livelihoods by undertaking activities such as agriculture, horticulture, livestock, wage labour, petty trade and migration. The average number of diversified activities per household is 2.86. The majority of the households practice horticulture and livestock rearing as their diversified activities. 87.1% of the diversification activities are carried out within the tea garden itself.

10. The male members of the households spent more man-days on different diversification activities compared to the female members. While the only activity where women have used more man-days than the man is in the petty trade category which accounts for 53% of the total man-days. These income-generating informal economic activities make women an essential part of the rural development process. In the tea gardens, the earnings of most of the men are insufficient to run their families on their own and thus they rely on their women for household sustenance. Women's engagement in the paid workforce and diversified activities has improved their marital lives and increased their involvement in household decision making which is a prerequisite for achieving gender equality in the economic domain.

11. Petty trade and remittance income from migration are the only two diversified activities that generate income throughout the year while the other diversified activities generate seasonal income only. The percentages of households getting income from diversified activities are highest during December and January i.e. 58.8% and 57.5% respectively. This is particularly due to the sale of broom and oranges. The next is in September to November, where the percentages of households getting income from diversified activities are 41.4%, 42.7 %, 41.6% respectively. This is due to the sale of livestock in

festivals. Although the majority of the households have mostly diversified by undertaking horticulture and livestock rearing activities but the earnings generated from these two activities are significantly lower than those households who have diversified by undertaking wage labour, petty trade and migration.

12. The annual average diversified income per household is Rs.22415. To those adopting each of these activities as diversified sources, the annual average income per household is Rs.4000 from agriculture, Rs.6653 from horticulture, Rs.6,352 from livestock rearing, Rs.40447 from petty trade, Rs.41176 from wage labour, and migration, remittance income is Rs.78056. 72.4% of the households with migrants heavily rely on remittance income. Remittance plays an increasing role in household income and thus the potential for migration to enhance livelihoods is enormous.

13. The degree of diversification calculated using the inverse Herfindahl-Hirschman Diversity Index (HHI) revealed that while the score of HHI<=1.68 (bottom 35^{th} %ile) constitutes 35% of the households and are categorized as a less diversified group whereas the score of HHI>1.68 constitutes 65% of the sample households and are categorized as a more diversified group. A cross-tabulation of the extent of households' livelihood diversification revealed that the calculated Chi-square statistic for some of the selected indicators of categorical variables (migrants, surplus manpower, sex and educational level) for the test on equality of proportions between less diversified and more diversified households are significant at 1%. Similarly, the calculated t-statistics of some for the selected indicators of continuous variables (family size, diversification index, number of workers in the family, surplus workers, total income and diversified income) for the difference of means between less diversified and more diversified households are statistically significant at 1%. The diversified income of the more diversified households is Rs.75006 (34.46%) while that of less diversified households is Rs.31595 (7.44%). As a consequence, families involved more in

diversification activities are having a significantly higher income than those who have lesser involvement in it. Thus, more diversified households earned higher incomes which support Hypothesis number 1 of the study.

14. Two different sets of logistic regression models were fitted to assess the effects of socio-economic characteristics (which were found to be significant in the descriptive analysis) on the likelihood of households being diversified. In the first model, for which regression was run the outcome variable of the index of livelihood diversification is coded in a binary form, that is, 1- more diversified and 0- less diversified. It is observed that household size, surplus manpower availability and migration are the significant factors of livelihood diversification in the study areas. Further, the estimated logistic regression coefficient for the availability of surplus manpower in the family is highly significant, while the odd ratio is found to be as much as 3.715. 'Surplus manpower' here is taken as the number of workers in the family who does/does not have regular engagement in the tea garden. This observation is in clear justification of Hypothesis number 2 of the study. It may, thus, be concluded that household adoption of livelihood diversification significantly depends on the availability of a surplus workforce in the family.

15. In addition, some socio-economic characteristics of the household members considered in the study such as gender composition, marital status and educational status showing significant relationship with the involvement of the families on livelihood diversification based on the Chi-Square test (Table 5.8b) are further examined using the logistic regression (Table 5.11). It is observed and confirmed that the gender and educational status of the family members have been the significant factors that determine the adoption of different livelihood diversification activities by the families which supports Hypothesis number 3 of the study.

16. The relationship between livelihood diversification and poverty (or level of deprivation) among the tea workers is also examined using a specially constructed multidimensional poverty index (MPI). This index encompasses

16 indicators which were broadly classified into three components as a standard of living, access to assets and food & nutrition. Lower MPI indicates severe deprivation and vice versa. Similarly, the increasing tendency of the family to have a higher MPI score invariably implicate movement out of poverty and vice versa. The significant relationship between the MPI scores and livelihood diversification index (HHI) is shown by significant Chi-square statistic (Table 5.12). Further, the estimated logistic regression of MPI (classified into severely deprived-0 and less deprived-1) on HHI score showed a positive and highly significant coefficient with odd-ratio 1.899. Thus, a unit increase in HHI score will be associated with a more than proportionate increase in the probability of the household being less-deprived (or out of poverty). Thus, Hypothesis number 4 of the study, livelihood diversification has a significant impact on the alleviation of poverty and human deprivation among tea workers, is considered justified and accepted.

11. Conclusion

The study shows that the tea workers are facing precarity, casualization and wage stagnation. The majority of the tea workers have low levels of education, training and skill suggesting that they will remain at the bottom level, low-wage workers. These factors influence household performance in terms of livelihood diversification. Lack of alternative livelihoods and fewer job opportunities have compelled the workers and their families to resort to this unrewarding and low paying job. The workers' low wages together with rising living costs, has resulted in their poor socio-economic conditions. There is an emerging trend in the tea workers' household to pursue rural livelihood diversification in the study areas. The worker households, irrespective of the level of diversification, diversified their livelihood by pursuing a mix of activities, however, the workers and their families have to work more to the point of exhaustion to earn additional income. The study revealed that livelihood diversification is an important way of minimizing human deprivation and the occurrence of poverty among tea workers. The positive impact of livelihood

diversification is reflected by the increase in total household income which indicates by undertaking different livelihood activities, diversifying households are more likely to enjoy greater resilience capacity than those rural households reliant on tea gardens. Thus it is apparent that livelihood diversification can have an unequivocal impact on the standard of living of the tea plantation workers in the study area. To ensure the sustainability of their livelihoods, policymakers and relevant institutions must safeguard the worker's assets and capabilities.

12. Suggestions & Recommendations

It is also desired to propose some suggestions and recommendations based on the findings and observations of this study.

- The tea plantation owners must acknowledge the poor working and living conditions of their workers and invest in providing a healthy and secure working environment, as well as better accommodation, water, and sanitation facilities. Several national and international organisations have reported the plight of tea workers and non-compliance with the Plantation Labour Act, 1951 in West Bengal and Assam, but no remedial steps have been taken so far. Therefore, the trade unions and government must actively enforce the provisions listed in PLA, 1951 and take strict punitive measures against those planters who do not comply.
- Since the tea workers are in the lowest rung of the plantation hierarchy, health care and medicine are not within easy reach physically or financially, hence, the government must take responsibility for providing health services by transforming existing tea garden dispensaries or hospitals into health and wellness centres under the Ayushman Bharat: Comprehensive Primary Health Care scheme.
- The timely revision of wages ensuring decent pay and casualization of the workforce needs active institutional monitoring and intervention in an organised way to enrol them in the permanent workforce. The main stakeholder in this should be the Trade Union which must rise above political

interference in its struggle to safeguard the interest of the workers and to ensure strict adherence to the existing regulations and other statutory provisions.

- The lack of alternative livelihoods appears to be at the core of their continued dependency on tea plantations. Therefore, various government departments such as Education, West Bengal Rural Livelihood Mission and West Bengal Skill Development Mission must work in tandem to initiate vocational training of young and old family members of plantation workers and offer higher education scholarships for worker's children. Such a move would ensure opportunities for this community to have social mobility beyond plantation estates and also may help widen the economic scope of work and reduce plantation estate dependency. This could also improve and widen the economic base of tea plantation areas and foster growth.
- Lastly, the study observed that the livelihood diversification of tea worker households has not gained much prominence in the rural development literature so it has to be well documented. Since the literature on the livelihood diversification of tea plantation workers is few to bridge the gap more empirical studies at the household or community level would be necessary in this regard for the policymakers to assess their living conditions and compare the livelihood security of different rural communities in the country.

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