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EMPLOYMENT STATUS AND HUMAN DEVELOPMENT OF TEA PLANTATION WORKERS IN WEST BENGAL

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ABSTRACT

The tea plantation sector has been considered to be a major source of livelihood and employment for the population of the regional economies. Structural changes in this sector have led to the emergence of labour categories such as permanent estate workers, casual estate workers and self employed small tea growers. Several studies have attempted to understand the human development status of the plantation workers, without much regard to these existent categories. The paper has tried to understand the human development status, in terms of education, health and basic amenities, of the plantation workers classified as permanent, casual and self employed workers. The study uses a combination of secondary evidence on the employment pattern of the workers engaged in the estates, complemented by micro level data collected from the tea plantations of the Darjeeling district of West Bengal. The findings suggest that the casual workers who had lower employment status had lower asset ownership position and hence lower standard of living indicating their lower human development. However, contrary to the notion of permanent workers in an organised industry being better off in terms of employment status, asset position and hence better standard of living; it was observed that despite their employment status being relatively better than the casual workers and small growers, their asset ownership position and hence living standard was relatively poorer than the small growers. Thus, the wage workers in the estate irrespective of their permanent or casual work status were found to be worst off in comparison to the small growers.

1.1 Introduction

The plantation sector has been considered to be a major source of livelihood and employment for the population of the regional economies (Joseph and George, 2010). It is located in the backward and rural regions of a few states in the country; is a highly labour intensive sector with a high concentration of women workers (54 percent in tea and coffee; and 42 percent in rubber) (Occupational Wage Survey, 2006); comprises of labourers who have remained less developed, isolated, marginalised and vulnerable (Choudhary and Tayal, 2010); and is a source of livelihood for small holders whose numbers are rising over the years. Among the plantation crops, tea is a highly labour intensive sector. The tea workers are considered to be among the poorest and most deprived section of organised labour in India; and further a large section of them is said to belong to the scheduled tribe communities (Bhowmik, 1994; Sankrityayana, 2006).

The tea plantations having a considerably long history of over 150 years as compared to that of other plantation crops, several historical studies focus on the condition of labour as existed during the pre-independence era. These studies bring out the exploitation faced by the labour in the hands of the colonial masters and their resultant exclusion from the main stream economy (Behal and Mohapatra, 1992; Gupta,

1992; Raman, 2010). There are also studies which have attempted to understand the human development status of the plantation workers in the post-independence period (Sarkar and Bhowmik, 1988; Ramachandran and Shanmugam, 1995; Chaudhury and Tayal, 2010). The main focus of these earlier studies was solely the labour employed in the estate sector, as the emergence of the small grower sector is a recent phenomenon. As such labour employed in plantations were taken as a homogenous group of workers. However, studies have shown that there has been a change in the structure of the sector in terms of production and employment pattern (Viswanathan et al. 2003; Sarkar, 2008; Hayami and Damodaran, 2004). It has been pointed out that in order to achieve flexibility in the deployment of labour, the mode of production is shifting from the estate sector to the emerging smallholder-BLF[1] sector. Such reorganisation of the production process has led to changes in the nature of the labour market prevailing in the tea plantations. The labour market has re-oriented itself from permanent to casual; and organised labour has been replaced by the informal labour market (Sarkar, 2008). Thus at present, the plantation work category can be said to consist of permanent estate workers, casual estate workers and the self employed small growers. In this context, the paper will try to understand the employment status of the plantation workers engaged not only in the estate sector but also the small grower sector; and examine its bearing on their living standards in terms of education, health and basic amenities so as to highlight their human development. Basically two questions will be explored in this regard: If a plantation worker happens to belong to any of these three employment status then what would their asset position be like? Given their asset position, how was their living standard in terms of education, health and other basic amenities.

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1. Bought Leaf Factories (BLF) are engaged in the processing of the green tea leaves purchased from the small tea growers engaged in the cultivation of tea.

The paper has been organised as follows. The analytical framework is explained in the second section. The third section gives the data sources. The fourth section discusses the employment pattern of the tea plantation sector based on secondary data. The fifth section looks into their economic status by examining the asset ownership position of the plantation households. Then the pattern in the living standard of the households with respect to education, health and basic amenities has been discussed in the sixth section. The seventh section assesses the effect of the varying asset position of these categories of households on their living standard. The last section gives the summary and conclusion.

1.2 Analytical Framework

At present, the plantations can be said to consist of the estate sector and the small grower sector. Earlier, estates (large growers) were synonymous with the tea sector, but in recent years the increasing advent of small tea growers has made both estates and small growers important components of this sector. The traditional estate model was established during the colonial period. It was characterised by large holdings, corporate ownership, high capital base, monoculture, a hierarchical labour management system and a large workforce employed as hired wage labour (Herath and Weersink, 2009). This system of production gradually gave way to small grower sector. The small grower sector comprises of farms growing plantation crops together with other crops and is mainly reliant on family labour (Halayya, 1969; Hayami and Damodaran, 2004). As such the plantation workers engaged in this sector are not a homogenous group. They can be broadly divided into three categories namely permanent, casual and self employed. The permanent and causal workers are the ones who are engaged in the estate sector. While the small growers belong to the self employed category. The permanent workers can be considered to be engaged in formal employment while casual and self employed work status corresponds to engagement in the informal employment. Each of these employment

statuses are characterised by different levels of vulnerabilities owing to the risks/insecurities related to jobs such as job security, income security and vulnerabilities related to conditions of work. For instance, the casual worker does not have job security or income security, while the permanent worker is assured of both. Given these different employment statuses of the workers, their consumption and savings behaviour would be closely related to their employment statuses. For instance, the permanent worker who has job security and income security would have lower risk perception of future and hence may be inclined to have higher levels of expenditure, while the casual workers on the other hand, suffer from acute insecurities of job and income, which would mean their risks perception of future would be higher, hence their expenditure may be lower, even for basic consumption goods. This in turn would mean that over a period of time their standard of living or economic status would differ. The economic status of the workers can be examined in terms of their asset ownership position as assets provide "a better picture of long term living standards than an income snapshot because they have been accumulated overtime and last longer" (Moser and Felton, 2007: 2). To mitigate risks and uncertainties associated with these different employment statuses, the households will accordingly hold various types of assets. Further their varying asset position can be expected to be accordingly translated into their varying living standard in terms of education, health and basic amenities. As possession of assets, mainly production assets, help in further income generation which can help in strengthening their livelihood[2] (Ellis and Freeman, 2005). This further enables them to attain a better standard of living (Barret and Swallow, 2005). Thus their varied employment status can be expected to have varying effect on their living standard.

2. "The term livelihood captures not just what people do in order to make a living, but the resources that provides them with the capability to build a satisfactory living, the risk factors that they must consider in managing their resources and the institutional and policy context that either helps or hinder them in their pursuit of a viable or improving living" (Ellis and Freeman, 2005: 4).

1.3 Data Sources

The study uses a combination of secondary evidence on the employment pattern of the workers engaged in the estates, complemented by micro level data collected from field research in the tea plantations of the Darjeeling district of West Bengal. Various issues of tea statistics and tea digest (1950-2007) [3] published by the Tea Board of India have been used. Since these secondary sources did not provide any data on the employment pattern of the small tea growers and also on the human development of the plantation workers, a primary survey was undertaken in the Darjeeling district of West Bengal to gather data on these aspects. It was found that among all the major tea growing regions, West Bengal's growth performance in terms of area, production and productivity was relatively better throughout the period of analysis (1950-2007) but the wages of the workers were the lowest of all. This raises an important issue of the distributional aspect of the growth in the sector. Hence West Bengal has been selected for the study[4]. In the state of West Bengal, there are three major tea growing regions namely, the Darjeeling Hills, the Terai and the Jalpaiguri Dooars. These three regions are located in North Bengal region. For our study, the Darjeeling Hills have been selected. This selection is based on the researcher's convenience of the access to the data.

The tea industry that is synonymous with the name of Darjeeling was established in the mid-19th century as a colonial enterprise, based

3. The time period considered for the study is from the post independence period to recent years i.e. 1950 to 2007. However, for certain variables there does not exist data corresponding to the said time period. Hence, the available time period has been considered to make it as representative as possible of the above said time period. Having said this, it needs to be mentioned that despite this constraint, the trends witnessed from the available data used are more or less consistent with the story that emerges from the analysis.

4. For further details, refer to my MPhil thesis (2009-11), "Growth, Structure and Labour Market Outcomes: A Study of India's Tea Plantation Sector", Centre for Development Studies.

on the plantation labour system which employed the cheap labour of the entire plantation family. The tea industry is the mainstay of the people of Darjeeling and also a backbone of the hill economy (Sarkar and Lama, 1986). Apart from tourism, tea is the biggest industrial activity in Darjeeling, providing the largest employment in the hills. The turnover of the Darjeeling tea industry has been estimated to be nearly USD 7.5 million which is acknowledged to be more than the money generated by tourism. At present, there are 87 tea estates in Darjeeling covering an area of over 17 thousand hectares producing around 10.01 million kg of tea annually. It accounts for 15.48 percent of tea area and 4.23 percent of tea production in West Bengal. The Darjeeling tea industry employs over 53,000 people on a permanent basis while further 15,000 people are engaged during the plucking season. More than 60 percent of the workforce is women (Tea Board of India, 2007). Despite being among the oldest tea-growing regions in the country, however, the presence of small tea growers is relatively new in the northern districts of West Bengal. The transfer of farmland for small tea growing operations in West Bengal occurred intermittently throughout the 1990s. Initially, the increase in small grower operations was linked to the factories at the nodal tea estates. The enumeration study conducted for the Tea Board identified 877 new tea plantations in the tea growing districts in West Bengal, 97 percent of which were unregistered and their average size was 4.88 hectares (Sankrityayana, 2006).

For the purpose of the study, a sample size of 200 households was randomly selected- 110 households from the estate and 90 households from the small tea growers. Data was collected from these households using a structured questionnaire. Keeping in view the need to capture the permanent and casual workers engaged in the estate sector, out of the 110 households in the estate, 80 households of permanent workers and 30 households of the casual workers was considered. This sample size was selected in accordance to the proportion to these categories of tea plantation workers to the total labour force in tea plantations. Detailed

information was sought about all members of each of the 200 households; as such information about 957 individuals spread across these 200 households was able to be gathered (for details on sample selection see appendix 1).

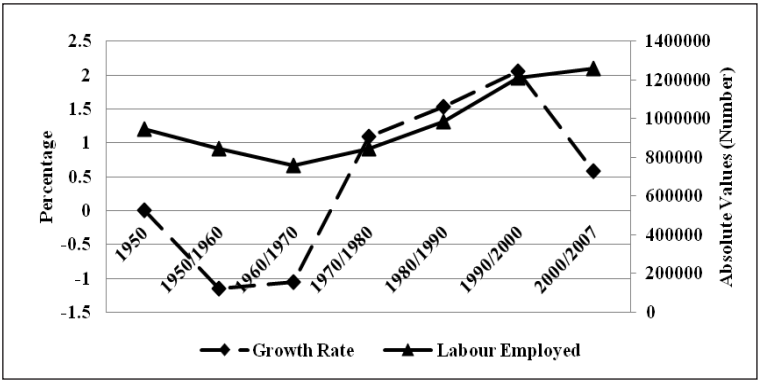
1.4 Employment Pattern of the Tea Plantations

In this section, in order to get a broad understanding of the employment pattern of the tea plantations, the trends in average number of labour employed; and the composition of work force for the period 1950 to 2007 has been discussed. The analysis is based on data from various issues of Tea Statistics published by the Tea Board of India.

1.4.1 Trends in Labour Employed in Tea Plantations

At an all India level, there was a decline in the growth rate of labour employed during 1950s and 1960s. However from 1970s, the growth rate increased and reached its peak in 1990s. But from 2000 to 2007, there is seen a sharp fall in the growth rate of labour (see Figure 1.1).

Figure 1.1: Number and Compound Annual Growth Rate of Labour Employed in Tea Plantations (1950-2007)



Source: Computed from the data given in the various issues of Tea Digest.

Table 1.1: Compound Annual Growth Rates of Labour Employed in Tea Plantations in West Bengal (1950-2006[5])

Tea Growing Regions	1950	1950-1960	1960-1970	1970-1980	1980-1990	1990-2000	2000-2006	Growth rate (1950-2006)
West Bengal	329034	197165 (-4.99)	200280 (0.16)	228705 (1.34)	248174 (0.82)	253459 (0.21)	262039 (0.56)	-0.41
All India	948598	845166 (-1.15)	759646 (-1.06)	846659 (1.09)	986781 (1.54)	1210055 (2.06)	1259950 (0.58)	0.50

Source: Computed from the data given in the various issues of Tea Digest
Note: Figures in the bracket indicates the annual average compound growth rates.

5. Year 2006 is considered instead of 2007 as region wise data on employment was available till 2006 only. The compound annual growth rate for labour employed at all India level is from 1950 to 2007.

Table 1.1 shows the trends in the average number of labour employed in the state of West Bengal. Tea plantations are mainly situated in the remote hilly areas of North-Eastern and Southern states of India. The main tea growing regions are located in the states of Assam and West Bengal in the north; and Tamil Nadu and Kerala in the south. Besides these regions, tea is cultivated to a small extent in Tripura, Karnataka, Himachal Pradesh, Uttaranchal, Mizoram, Manipur, Nagaland, Orissa, Arunachal Pradesh, Meghalaya, Sikkim, and Bihar. After Assam, West Bengal occupies second position in terms of employment. It employed around 2 lakh workers in 2006. The annual compound growth rate of employment from 1950 to 2007 has been negative and lower than the all India figure. These trends indicate that the tea industry which is highly labour intensive sector has not been able to generate employment for the increasing workforce in recent years.

1.4.2 Composition of the Workforce

When it comes to the composition of labour force, there were four categories of workers: male, female, adolescents and children[6]. However, now the employment of children below the age of 14 years has been prohibited in the industry under the Child Labour (Abolition & Regulation) Act of 1986, so there exists now only three categories of workers. Till 1990, the figures in Table 1.2 show the prevalence of child labour. Indeed, children workers are seen to outnumber the adolescent workers. Female work participation in the plantation sector has traditionally been high as is also shown by the higher share of female workers in the average number of labour employed compared to the share of male workers. In 2007, proportion of female workers in the total workforce in the tea plantations was 50 percent. In a country where the work participation of women is notably low, this proportion is comparatively much higher than the participation of women in other

6. Male and female workers are those above 18 years of age. Adolescents are workers between the age of 16 and 18 years. Children are workers between the age of 12 and 16 years. (Tea Board of India, 2004).

activities in the economy. Hence, it indicates the presence of feminized labour in the tea plantations. Employers are also believed to prefer women workers as they can be easily controlled and supervised at the work place (Navamukundan, 2002). Their increasing presence can also be indicative of their substitution for male and non-adult workers. The annual compound growth rate of female workers from 1961 to 2007 is 1.19 which is higher than that of the male workers (0.89 percent).

Table 1.2: Trends in Average Number of Labour Employed in Tea Plantations, 1950-2007

Year	Category of Workers				
	Male	Female	Adolescent	Children	Average No. of Labour Employed
1950*	-	-	-	-	948598
1961	399907 (49)	368464 (45)	25677 (3)	22012 (3)	822834 (100)
1970	342871 (45)	337364 (44)	23098 (3)	36313 (5)	759646 (100)
1980	372285 (44)	384641 (45)	31351 (4)	58382 (7)	846659 (100)
1990	453001 (46)	458519 (46)	24148 (2)	51113 (5)	986781 (100)
2000	570267 (47)	593571 (49)	46217 (4)		1210055 (100)
2007	600549 (48)	634214 (50)	25187 (2)		1259950 (100)
CAGR (1950-2007) (%)	0.89	1.19	-0.04		0.75

Source: Various issues of Tea Statistics, Tea Board of India

Note: Figures in the brackets indicate the share of the different category of workers in the average number of labour employed in the tea plantations.

* For 1950, data on labour employed was not available by the given categories. The CAGR for male, female and adolescent workers is from 1961 to 2007.

A general feature of estate sector is to provide workers with stable employment usually all year and sometimes for life (Sajhau and Muralt, 1987). During the colonial period, the estate sector was set up as self-sufficient enclave structure with very little integration into the national economy (Gupta, 1992; Behal and Mohapatra, 1992). Labour was confined within this structure thus creating "residential labour" which was totally dependent on management for all aspects of their life[7]. As such in tea plantations, there exist resident permanent workers who are compelled by tradition and circumstance to reside in the labour lines located within the plantations and they are available for work engagement around the year. Nevertheless the practice of employing temporary workers, particularly during the peak season is also common. There are temporary workers also who are drawn for seasonal engagement during periods of peak labour demand such as the plucking seasons from surplus population in the plantations. Besides the resident permanent workers and these temporary workers, the new work category of 'outside' workers, drawn from surrounding rural areas has gradually come into existence. Though seasonality is inbuilt in plantations, estates attempt to maintain more casual than registered labour (Sajhau and Muralt, 1987).

This trend is evident from Table 1.3 where the share of resident workers has been decreasing over the years while the share of outside workers shows an increasing trend. The annual compound growth rate of outside workers (2.80 percent) is higher than that of the resident workers (0.68 percent). Within the outside worker category, the proportion of temporary workers in the total workforce has been increasing over the years. It increased from 9 percent in 1972 to 24 percent in 2000 but fell to 18 percent in 2004. The annual compound growth rate of outside temporary workers (3.17) is higher than that of

7. Moving out of poverty in the Estate Sector in Sri Lanka: Understanding Growth and Freedom from the bottom up. Centre for Poverty Analysis, December 2005.

the outside permanent worker (2.02 percent). This phenomenon which enables the estates to carry smaller labour force on their permanent payroll is seen to have accelerated (Sajhau and Muralt, 1987). Thus an important trend visible in the structure of the tea plantations workforce is the increasing casualisation of the workforce.

Table 1.3: Trends in the Category of Resident and Outside Workers (1964 to 2004)

Year	Category of Workers[8]			
		Outside Workers		
	Resident Workers	Permanent Worker	Temporary Worker	Total
1964	698749 (85)	NA	NA	120034 (15)
1972	744497 (86)	44165 (5)	77621 (9)	121786 (14)
1980	762147 (85)	44200 (5)	106175 (12)	150375 (16)
1992	832512 (82)	67907 (6)	145228 (14)	213135 (20)
2000	836227 (69)	85837 (7)	287659 (24)	373496 (31)
2004	943750 (75)	86492 (7)	227368 (18)	313860 (25)
CAGR (1968-2004) (%)	0.68	2.02	3.17	2.80

Source: Various issues of Tea Statistics, Tea Board of India.

Note: Figure in bracket shows the share of resident workers and outside workers in the total workforce. NA-not available.

8. It needs to be pointed out that though this categorization of workers is given by the Tea Board of India, the definition of these categories is not provided by the Board. Hence these categories have been defined here on the basis of the literature.

From the analysis of the different categories of workers, it was understood that beside the resident workers, there has been the emergence of new category of workers- outside workers- in the plantation work force. These outside workers can be expected to be the result of the enactment of the Plantation labour Act, 1951 which sought to secure statutory welfare provisions for the resident worker and his family. Among the legislations affecting plantation workers, the most important is the Plantation Labour Act, 1951 (henceforth PLA) which provides for the welfare of plantation labour and regulates the conditions of work in plantations. It has been enacted by the central government but administered by the state governments through rules framed by them based on a model provided by the union government (Sivaram, 2002). It is unique in the fact that while the Indian labour legislation in general restricts itself to wages and working conditions at the place of work, the PLA is the only Act that seeks to raise the living standards of plantation workers (Bhowmik, 2002; Bharali, 2004). The act contains several provisions related to housing conditions, health and hygiene, education and social welfare which the employers are required to provide to the workers and it also imposed restrictions on working hours. It provides for compulsory housing, sanitary facilities and water supply in the labour residences, medical facilities; crèches for infants and primary school for children. It is important to note that this Act is applicable only to the organised estate sector[9], while the small tea growers sector being an unorganised sector is not governed by it.

While the permanent resident workers and their bonafide dependents are entitled to the welfare benefits under PLA, the outside workers are entitled only to engagement at the prevailing money wage and not to any of the provisions. As such the latter category of worker is available as low-cost labour option to the estate. Further within the

9. The estate sector are those with a tea area of above 10.12 ha and are governed by government rules and regulations, hence they are a part of the organised sector in India unlike the small growers.

outside workers, there are permanent and temporary workers. The engagement of the temporary outside workers was the lowest cost option to the estate as they performed the same tasks as the resident workers but without any non-wage benefits. This significantly reduced the wage costs to the tea estates and also since they were not entitled to regular work engagement, they became a floating labour reserve that can be engaged and laid off at will. Thus there was the creation of labour categories of different descriptions among plantation workers which encouraged the development of a highly segmented labour market (Sankrityayana, 2006) and led to casualisation of labour and greater labour flexibility.

It has been pointed out from the analysis of the secondary data that in the estate sector, there exist mainly two categories of workers: resident workers who have permanent work status and outside workers who have casual work status[10] (henceforth the terms casual and temporary outside worker will be used interchangeably). In the small tea grower sector, the small tea farmers have 'self employed' employment status and they themselves as well as their family members are engaged in tea growing (Halayya, 1969; Hayami and Damodaran, 2004). The survey tried to capture the employment status and living standard of these different categories of plantation workers. As already mentioned, there exist no data on these aspects of workers; this issue has been explored on the basis of evidences from the field data. In the following sections, the analysis is based on the survey results of the plantation workers in the Darjeeling district of West Bengal.

10. Though from the secondary data analysis on the categories of workers in the estate sector (Table 1.3) it was found that there exist resident workers, permanent outside workers and temporary workers. But from the pilot survey in the field it was understood that there are resident workers who are permanent and also their family members are drawn for casual work at times; and outside workers who had casual employment status. The difference between the casual worker residing within the estate and the outside casual worker was that the latter was entitled to only wages and no other provisions while the former being a member of the permanent worker households enjoyed certain other provisions besides wages.

1.5 Economic Status of the Plantation Households: Assets Ownership Position

The economic status of the three different plantation households has been attempted to be captured by examining the asset ownership position of these households.

Here ownership of nine items have been considered under assets, namely, television, mobile phones, two wheeler, vehicle, land, and livestock such as pigs, goats, cows and poultry. The distribution of these assets across the three categories of households are examined in the Table 1.4

Table 1.4 shows that overall 74 percent of the plantation households possessed mobile phones, followed by possession of T.V (66 percent) and possession of land (52 percent). Livestock such as pigs, cows, goats and poultry is seen to constitute a major asset for all the categories of plantation households. 4.5 percent of the households possessed two wheelers and 2.5 percent of the households possessed other vehicles. It is important to note here that while the small tea growers had higher access to land ownership (100 percent), the permanent workers did not have any ownership of land. The reason for this is that the permanent workers being residents within the estate, which is the property of the management, are not entitled to any land ownership.

These nine assets have been further categorised into production assets and consumption assets. This differentiation has been made with respect to the possible returns that the holder of these assets are expected to derive. Production assets consists of pigs, goats, cows, poultry, land and vehicle[11] which would enable the household to generate further income directly while consumption assets consists of television, mobile

11. It needs to be mentioned here that in the field survey it was known that households who possessed vehicles used it for plying goods and people from one place to another in return for fares; as such it has been considered as production asset.

Table 1.4: Distribution of Households by Different Categories and Assets Possession

Assets	Categories of Households of Plantation Workers			
	PWH	CWH	SGH	Total
T.V	61 (76.3)	12 (40)	59 (65.6)	132 (66)
Mobile phone	55 (68.8)	16 (53.3)	76 (84.4)	147 (73.5)
Two wheeler	5 (6.3)	1 (3.3)	3 (3.3)	9 (4.5)
Pigs	17 (21.3)	8 (26.7)	27 (30)	52 (26)
Cows	7 (8.8)	12 (40)	77 (85.6)	96 (48)
Goats	33 (41.3)	14 (46.7)	42 (46.7)	89 (44.5)
Poultry	54 (67.5)	4 (13.3)	68 (75.6)	126 (63)
Land	0 (0)	13 (43.3)	90 (100)	103 (51.5)
Other Vehicle	2 (2.5)	1 (3.3)	2 (2.2)	5 (2.5)

Source: Field Survey, 2011.

Note: The figures in parentheses indicate the percentages of households possessing these assets.PWH- Permanent Worker Household, CWH- Casual Worker Household, SGH- Small Grower Household.

phones and two wheeler which does not directly lead to income generation. The premise on which this categorisation is made is that households will hold more of production assets as compared to consumption assets if their income earnings are uncertain. So in order to stabilise their income flows and hence consumption, that household will keep more of production assets than consumption assets.

To understand the economic status of the different plantation households in terms of a single representative indicator, an asset index was constructed (details about the construction of the index given in appendix 2) and the ownership position of the three categories of households has been analysed.

Table 1.5: Asset Ownership Index by Household Category

Asset Index	PWH	CWH	SGH
Consumption Asset Index	0.42	0.27	0.41
Production Asset Index	0.12	0.28	0.51
Overall Asset Index	0.26	0.27	0.46

Source: Same as for Table 1.4

The asset ownership index varies from value 0 to 1. The values shown in Table 1.5 are average values of the asset index for each household category. Considering the overall asset index, it can be seen that the small tea grower households yield the value of 0.46 which is higher than that of the permanent worker households (0.26) and temporary outside worker households (0.27). This indicates that as far as the asset ownership by the category of households is concerned, small growers have greater asset ownership than the other two categories of households. This could be reflective of the higher ownership of land by the small growers compared to the permanent workers and casual workers which can act as an enabling factor and thus have an important bearing on the ownership of other assets as well. When the category of assets as consumption and production asset is considered, it can be seen that small tea growers seem to possess more of production asset in relation to consumption asset unlike the permanent worker households who possessed more of consumption asset as against production asset. This can possibly reflect the fact that the permanent worker in the estate being engaged in wage employment are ensured of a continuous flow of income as against the small growers who being self employed are exposed to more of risk and uncertainties regarding their income. Hence, to overcome these risks and uncertainties they can be expected to keep more of productive assets so as to stabilise their income flow. Regarding the casual workers households, there is seen to be not much difference between possession of production and consumption asset, though the possession of production assets is higher for these households than the permanent worker households.

1.6 Living Standard: Education, Health and Basic Amenities

The living standard of the households has been explored in terms of the education of their children, health status of the members of the households, and basic amenities. Here basic amenities have been considered in terms of housing condition and sanitation facilities. Housing condition is seen in terms of type of houses- Kutcha, pucca and semi-pucca; while sanitation facilities in terms of availability of bathroom and toilet facilities.

Provision of education, health and basic amenities enables an enhancement of the human capabilities of an individual. Education is intrinsically essential as it leads to cultural awakening, awareness building, understanding of human rights, adaptability and empowerment, self reliance and self confidence. It also has an instrumental value with respect to employability (Sachs, 2004). Access to education, health and basic amenities is said to facilitate participation of an individual in employment and growth opportunities (Ianchovichina and Lundstrom, 2009). In the following sub-section, patterns in the living standard of the different categories of plantation households are discussed. As is known that the permanent workers residing within the estate are wholly dependent on their employers for these facilities unlike the casual and self employed small growers, hence insights from the field regarding these facilities has been dwelt upon after each discussion on the patterns in the living standard of workers. This is done so as to get a better understanding of the human development of the workers.

1.6.1 Patterns in the Living Standard of Plantation Households

As the effect of the asset position of the workers can be expected to be reflected in the education of their children rather than one's own education, hence education of children is considered here. The minimum age of the children who were studying was three years while their maximum age was 27.

1.6.1.1 Education of the Children

In the sample of plantation households, the total number of children who were currently studying was 255. Of which 44 percent belonged to the self employed households, 43 percent to permanent worker households and 13 percent to casual worker households (see Table 1.6).

Table 1.6: Distribution of Students by Different Household Categories

Category of households	Frequency	Percentage
PWH	109	42.75
CWH	33	12.94
SGH	113	44.31
Total	255	100

Source: Same as for Table 1.4.

Table 1.7 shows that a majority of students (40 percent) in overall plantation households had middle secondary level of education followed by primary level of education (33 percent). The overall percentage of students engaged in higher education such as higher secondary, graduation, post graduation is 18 percent. With an increase in the educational level up to middle secondary, the percentage of students going for higher education is seen to be falling. Similar pattern as noticed in the case of overall plantation households is observed for the three household categories as well. Unlike in case of children belonging to self employed households, the highest level of education found in children belonging to permanent worker households and casual worker households is up to graduation. The mean age of the students belonging to permanent worker households, casual worker households and self employed households was respectively 12.22, 13.52 and 13.42 years. It was understood from the field that the workers valued the importance of educating their children. They viewed education as a way of enabling their children of seek for jobs other than plantation jobs, this kind of

Table 1.7: Distribution of Students by Household Category and Educational Level

Category of Households	Education of Children						Total
	Below Primary	Primary	Middle Secondary	Higher Secondary	Graduation	Post Graduation &Above	
PWH	12(11.0)	36(33.0)	45(41.3)	11(10.1)	5(4.60)	0(0)	109 (100)
CWH	7(21.2)	7(21.2)	12(36.4)	4(12.1)	3(9.1)	0(0)	33 (100)
SGH	5(4.4)	42(37.2)	44(38.9)	11(9.7)	7(6.2)	4(3.5)	113 (100)
Total	24(9.4)	85(33.3)	101(39.6)	26(10.2)	15(5.9)	4(1.6)	255(100)

Source: Same as for Table 1.4.

Note: The figures in parentheses indicates the percentage of children in the plantation households who are presently studying in different educational category.

response was especially found in case of permanent worker and casual worker households.

Table 1.8 shows that the percentage of male students (53 percent) was higher than female students (47 percent) for the overall plantation households. But the percentage of females who were currently studying (51 percent) was found to be marginally higher than the percentage of male students (49 percent) in the permanent workers households. This is in contrast to the findings in other literature (Sarkar and Bhowmik, 1998) where lack of crèche in the estate is seen to indirectly put a burden on the children mainly female of the worker households to take care of the young ones at home when other family members are off to work. It was found in our case that the estate did provide crèche facility for the workers.

Table 1.8: Distribution of Students by Different Household Category and Gender

Category of Households	Gender		
	Female	Male	Total
PWH	56 (51.4)	53 (48.6)	109 (100)
CWH	14 (42.4)	19 (57.6)	33 (100)
SGH	50 (44.2)	63 (55.8)	113 (100)
Total	120 (47.1)	135 (52.9)	255 (100)

Source: Same as for Table 1.4

Note: The figures in parentheses indicates the percentage of children in the plantation households who are presently studying

Despite indicating a brighter picture in terms of female education, Table 1.9 shows that out of total 287 children of the plantation workers, 89 percent were getting education while 11 percent were not studying. Children who were studying were mainly enrolled in government educational institutes. It was mainly higher percentage of children

belonging to permanent worker household (21 percent) who were found to be not studying as compared to the children in casual worker and small grower households.

Table 1.9: Distribution of Number of Children by Household Category and Type of Schooling

Category of Households	Where do your Children Study			
	Government	Private	Not studying	Total
PWH	68 (49.3)	41(29.7)	29 (21.0)	138 (100)
CWH	23 (65.7)	10 (28.6)	2 (5.7)	35 (100)
SGH	82 (71.9)	31(27.2)	1 (0.9)	111 (100)
Total	173 (60.3)	82 (28.6)	32 (11.1)	287(100)

Source: Same as for Table 1.4.

Note: The figures in the parentheses are the percentages of number of children in the households.

Within the permanent worker household, a higher percentage of children belonging to the ST category (72 percent) had dropped out of schooling compared to children belonging to SC category (14 percent) and general category (14 percent) (See Table 1.10). These children who had dropped out mainly belonged to the age group of 12 to 19 years. Majority of these children who had discontinued their studies have had middle secondary level of education. The main reason cited by the respondents for the discontinuance of their children's studies was that they were unable to afford higher education of their children and also their children did not perform well and hence had to discontinue their education.

Children belonging to the small grower household are, thus, seen to have relatively better educational status than the casual and permanent worker households.

Table 1.10: Distribution of the Children Currently Not Studying by Household Category and Social Group

Category of Households	Social Group			Total
	ST	SC	General	
PWH	21 (72.4)	4 (13.8)	4 (13.8)	29 (100)
CWH	0 (0)	2 (100)	0 (0)	2 (100)
SGH	0 (0)	0 (0)	1 (100)	1 (100)
Total	21 (65.6)	6 (18.8)	5 (15.6)	32 (100)

Source: Same as for Table 1.4.

Note: The figures in the parentheses are percentages of total children currently not studying.

After this discussion on the education of the children of the plantation workers, it would be of interest to dwell on the provision of primary education in the estate under the Plantation Labour Act (PLA), 1951. In West Bengal tea plantations, the responsibility of providing primary education, which was previously undertaken by the estate management, has been taken up by the government in recent years. In this estate too except for bearing the expense of giving salary to one of the teachers in the estate primary school, the management were free of all other educational expenses. However, most of the workers in the estate were found to send their children to private school for primary education rather than the estate school; and then switch over to government school for secondary and higher secondary education due to financial constraints. They reported that the main motive to send their children to private school for primary schooling rather than government school in the estate was to enable them to get education in English medium and thus provide them better foundation. This might perhaps reflect the rather poor condition of primary education being delivered to them. Studies have pointed out that providing better education to the plantation population may act as a deterrent to continuous labour supply to the estate, since better foundation in the form of better primary education would enable the members in the

workers' households to go for higher studies which would further enable them to obtain better employment opportunities; and hence move away from plantation work (Abraham, 2010).

1.6.1.2 Health Status of the Household Members

Health is considered to be a good indicator of the socio-economic well being of individuals (Loewenson, 1992). In order to capture the health status of the individuals in the plantation households, information was sought on two aspects of health. One was the question as to how do they perceived the status of their health at present. There were three options given good, moderate and bad[12]. The other was the question on the individual having suffered from any major ailment in the last two years.

Table 1.11 shows that the health rating has been reported to be good for a majority of individuals in all the three category of households. However, compared to other two categories of households, individuals belonging to the permanent worker households seem to have relatively bad health status.

Table 1.11: Distribution of Members of Households by Household Category and Health Rating

Category of Households	Health Rating			Total
	Good	Moderate	Bad	
PWH	374 (92.8)	22 (5.5)	7 (1.7)	403 (100)
CWH	120 (98.4)	2 (1.6)	-	122 (100)
SGH	419 (97.2)	8 (1.9)	4 (0.9)	431 (100)
Total	913 (95.5)	32 (3.3)	11 (1.2)	956[13] (100)

Source: Same as for Table 1.4.

Note: The figures in the parentheses indicate the percentage of total members in the different household category.

12. The definition of good, bad and moderate is solely based on the perception of the respondent.

13. Instead of 957, the total number of member here adds up to 956 as one of the member in a small grower household had out migrated and the respondent was unaware of that particular person's health status.

Most of the individuals in the plantation households reported to have not suffered from any major ailment in the last two years (Table 1.12). Considering the category of households, 9.2 percent of the members of permanent worker household, 1.6 percent of individuals in the casual worker households and 1.2 percent of members in the small tea growers' households reported to have suffered from major ailments. These ailments were found to be related to brain, kidney, stomach, heart, jaundice and tuberculosis.

Table 1.12: Distribution of Members of Households by Household Category and Health Rating

Category of Households	Whether had any major ailment in the last two years		Total
	Yes	No	
PWH	37 (9.2)	366 (90.8)	403 (100)
CWH	2 (1.6)	120 (98.4)	122 (100)
SGH	5 (1.2)	426 (98.6)	431 (100)
Total	44 (4.6)	912 (95.4)	956 (100)

Source: Same as for Table 1.4.

Note: The figures in the parentheses indicate the percentage of total members in the different household category.

From the above two tables on health status of the individuals in plantation households, it can be said that the incidence of major illness was quite less for the plantation households. However, a comparison of the health status of the individuals by category of households shows that unlike the individuals in the casual and self employed households, a greater percentage of individuals in the permanent worker households' had relatively bad health status at present and also had suffered from major ailments in the last two years from the year of survey. This pattern may perhaps be indicative of the poor delivery of health services in the estate.

Estates are also supposed to provide health facilities to the estate workers under PLA. From the field, it was found that there was an estate hospital where health facilities were delivered to the estate workers free

of cost. However, the health facilities provided were meant only for the treatment of minor ailments. In case of major ailments, the patients were referred to government hospitals by the estate hospital. The expenses of treatment in these government hospitals are to be borne by the estate and they are under the obligation to provide free transport to the patient. Instances were found where some workers were vocal about their demand and hence were able to get their medical expenses reimbursed while there were also sections of worker households who were unable to get their expenses reimbursed.

The individuals, who were entitled to the medical facilities in the estate, were the permanent workers and their dependents. Their dependents included their spouse and unmarried children. The married children of the workers and the workers' parents were not entitled to these facilities. They could, however, visit the doctor in the estate hospital but had to bear the medical expenses themselves.

The procedure for admission of a patient to government hospital was first to visit the estate hospital and then to be referred to government hospital through them. If this procedure was not followed then the patient was not reimbursed their medical expenses. Majority of worker households were found to be disillusioned by this practice as in cases of emergencies where the patients had to be rushed to the government hospitals directly without being taken to the estate hospital first, the expenses had to be borne by the workers themselves.

1.6.1.3 Basic Amenities

In this section the type of house that the workers lived in and the availability of bathroom and toilet facilities in their dwellings have been discussed[14].

14. Though information on drinking water and electricity was also sought from the respondents, but since all the houses had drinking water provision and provision of electricity. There was seen no variation between these category of households in terms of these variables, as such this information was not included in the construction of index. The plantation households were found to have these facilities.

The houses were categorised as 'Pucca', 'Semipucca' and 'Kutcha.' 'Pucca' connoted a concrete house with concrete walls and roof, while 'semi-pucca' was taken to represent concrete/brick walls with asbestos roof. 'Kutcha,' houses were those which had mud/thatched walls and tiled/thatched roofs.

Table 1.13 shows that 44 percent of the plantations households had semi-pucca houses, followed by 37 percent kutcha houses and 20 percent pucca houses. Majority of permanent worker houses was semi-pucca (70 percent). The respondents in the permanent worker households in the estates reported that the houses were provided by the management but later its maintenance and extension of rooms has been done on their own expenses. None of the casual worker possessed pucca house. 63 percent of them had kutcha house and 37 percent had semi-pucca houses. Small growers is seen to have relatively better houses compared to that of permanent and casual workers as almost 40 percent of them had pucca houses.

Table 1.13: Distribution of Households by Type of Housing

Category of Households	Type of House			Total
	Kutcha	Semi-Pucca	Pucca	
PWH	21 (26.25)	56 (70)	3 (3.75)	80 (100)
CWH	19 (63.33)	11 (36.67)	0 (0)	30 (100)
SGH	33 (36.66)	21 (23.33)	36 (40.01)	90 (100)
Total	73 (36.5)	88 (44)	39 (19.5)	200 (100)

Source: Same as for Table 1.4.
Note: The figures in the parentheses are the percentages of total household.

Table 1.14 shows around 52 percent of the overall plantation households did not have bathroom. Between the category of households, 55 percent in the permanent worker households, 87 percent of casual worker households and 38 percent of small grower households did not have bathrooms.

Table 1.14: Distribution of Households by Access to Bathroom Facilities

Category of Households	Access to Bathroom Facilities		Total
	No	Yes	
PWH	44 (55)	36 (45)	80 (100)
CWH	26 (86.7)	4 (13.3)	30 (100)
SGH	34 (37.8)	56 (62.2)	90 (100)
Total	104 (52)	96 (48)	200 (100)

Source: Same as for Table 1.4.

Note: The figures in the parentheses are the percentages of total household.

Table 1.15 shows that 69 percent of the plantation household had toilet facilities. With regard to the different category of households, a majority of casual worker households (73 percent) did not possess toilet facilities compared to the permanent and small grower households.

Table 1.15: Distribution of Households by Availability of Toilet Facilities

Category of Households	Availability of Toilet Facilities		Total
	No	Yes	
PWH	21 (26.3)	59 (73.8)	80 (100)
CWH	22 (73.3)	8 (26.7)	30 (100)
SGH	19 (21.1)	71 (78.9)	90 (100)
Total	62 (31)	138 (69)	200 (100)

Source: Same as for Table 1.4.

Note: The figures in the parentheses are the percentages of total household.

From the above analysis, it can be said that in terms of basic amenities, small growers seem to be better off than the casual and permanent workers. Casual worker seem to be the worst off of all.

1.7 Effect of Asset Ownership Position on Standard of Living- An Econometric Analysis

Now, given their asset position, this section seeks to understand the effect of asset ownership position on the living standard of the

households. For the analysis, Ordinary Least Squares Regression has been applied.

In order to capture education, health and basic amenities of the different category of households in a single measure, living standard index (henceforth LSI) was constructed (refer appendix 2 for details). The level of information varied from each other. Where the education status and health status was at individual level, the housing and basic amenities were at household level. So to construct the living standard index, the education status and health status was converted to the household level in the following way. The mean years of schooling of each household was taken as a representative of the educational status of the household; taking only one question related to the present health status of the individuals, an average of the health rating of the members of the household was taken. The living standard index takes value between 0 and 1.

1.7.1 Hypothesis

Higher asset ownership position is expected to have a positive impact on the living standard of the plantation households. As possession of assets, mainly production assets, help in further income generation which can help in strengthening their livelihood (Ellis and Freeman, 2005). This further enables them to attain a better standard of living (Barret and Swallow, 2005).

Further asset ownership position can be expected to be determined by the employment status of the households. This hypothesis is tested by regressing the living standard index on asset index along with category of households, interaction between asset index and category of households, the number of plantation workers in a household as a proportion of total earning members in a household by controlling for social group and other household characteristics such as dependency ratio, household size, and per capita income of the household. The regression model used is as follows:

$$LSI = a + b_1 AI + b_2 D2 + b_3 D3 + b_4 (D2*AI) + b_5 (D3*AI) + b_6 PPW + b_7 SG + b_8 DR + b_9 HHS + b_{10} PCI + e$$

Where LSI is Living Standard Index, AI is asset index, D2 is the dummy variable for the household category =1, if casual worker household; 0 otherwise, D3 is the dummy variable for the household category =1, if small grower household; 0 otherwise. Here permanent worker household is the reference category. Then (D1*AI) and (D2*AI) represents the interaction variables between casual worker household and asset index; and small grower household and asset index respectively. SG is the social group, PPW is the number of plantation workers in a household as a proportion of total earning members in a household, DR is the dependency ratio[15], HHS is the household size and PCI is the per capita income; a, b_1, b_2, b_3, b_4, b_5, b_6, b_7, b_8, b_9 and b_{10} are the coefficients and e is the error term.

1.7.2 Results of the Estimated Model

The estimated results (see Table 1.16) shows that the occupational category of household, mainly casual worker household (represented by the casual worker household dummy), asset position of the household and per capita income of the household is seen to have a significant effect on the living standard of the households. It is seen that living standard of household corresponding to the casual worker household category will be lower than those corresponding to the permanent worker household. So belonging to a casual worker household will have negative effect on the living standard of the household as is depicted by the negatively significant sign of the coefficient. As expected asset position of the household is seen to have a positive impact on the living standard of the household. Per capita income of the household is also seen to have a positive impact on the standard of living of the household.

15. Here the dependency ratio has been adjusted for the number of school going children by changing the definition as the ratio of number of family members who are not working (excluding school going children) to those who are working in the household.

Table 1.16: Determinants of Living Standard Index, OLS Estimation

Explanatory Variables	Coefficient (Standard Error)
Constant	0.193** (0.086)
Casual worker household dummy	-0.132** (0.062)
Small grower household dummy	-0.068 (0.070)
Asset index	0.262** (0.123)
Casual worker household dummy*asset index	0.172 (0.184)
Small grower household dummy*asset index	0.066 (0.167)
Proportion of plantation workers in total working member in a household	0.035 (0.062)
Social group	-0.009 (0.026)
Dependency ratio	0.021 (0.017)
Household Size	0.007 (0.007)
Per capita income of the household	0.000* (0.000)
R-squared	0.3996
Number of observations	200

Note: "*" indicates significant at 1 percent level of significance.
"**" indicates significant at 5 percent level of significance.
"***" indicates significant at 10 percent level of significance.

1.8 Summary and Conclusion

The main focus of the paper was to examine the human development status of the plantation workers corresponding to their

three employment statuses - permanent, casual and self employed status. This issue assumes importance in a context wherein structural changes in the sector has led to the emergence of various labour categories such as permanent workers, causal workers and small growers and that the existing studies have not dwelt upon the human development status with respect to these categories. In this regard, the paper began with an exploration of the emergence of categories of workers in the estate sector and then had tried to explore two questions: what was the asset ownership position of the permanent estate workers, casual estate workers and self employed small growers; and given their asset position, how was their living standard in terms of education, health and other basic amenities.

It was seen from the analysis of the asset ownership position of plantation households that the small growers engaged in self employment status was relatively better than permanent worker household and casual worker household in the estate. This could be attributed mainly to their higher access to land ownership as compared to other categories. Land ownership can possibly act as an enabling factor and thus have an important bearing on the ownership of other assets as well.

Regarding the pattern of living standard of the households, the findings were as follows. A strong association was observed between social identity and the educational attainment of children. The relatively lower educational level of children of the permanent workers and a greater number of school drop outs from the scheduled tribes category as compared to those of casual and small growers indeed reflects the deprivation faced by these plantation children. Unlike the individuals in the casual and self employed households, a greater percentage of individuals in the permanent worker households' had relatively bad health status at present and also had suffered from major ailments in the last two years from the year of survey. This pattern may perhaps be indicative of the poor delivery of health services in the estate. Basic amenities in terms of type of housing and availability of toilet and

bathroom facilities, small growers seem to be better off than the casual and permanent workers. Casual worker seem to be the worst off of all. These findings indeed seriously question the effectiveness of the PLA in promoting the welfare of the workers in the estate sector.

The analysis of the effect of asset ownership position on standard of living showed that the employment status, asset position and per capita income of the household had a significant effect on the living standard of the households. It was observed that belonging to a casual worker household will have negative effect on the living standard of the household. The asset position of the household is seen to have a positive impact on the living standard of the household. Per capita income of the household is also seen to have a positive impact on the standard of living of the household.

Thus, the lower employment status of the casual workers resulted in lower asset ownership position and hence lower standard of living indicating their lower human development. However, contrary to the notion of permanent workers in an organised industry being better off in terms of employment status, asset position and hence better standard of living; it was observed that despite their employment status being relatively better than the casual workers and small growers, their asset ownership position and hence living standard was relatively poorer than the small growers. As such the wage workers in the estate irrespective of their permanent or casual work status were found to be worst off in comparison to the small growers.

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Appendix 1: Sample selection

For the purpose of our study, Longview Tea Estate situated in Kurseong subdivision of Darjeeling district has been selected as the representative of the estate sector in Darjeeling. It is the one of the largest tea estate of Darjeeling both in terms of area and production[16]. It is a public limited company with 506 hectares of area under tea cultivation and produces on an average 7 lakh kg of processed tea annually. The estate employs 1252 permanent workers and 800 casual workers. It claims to be the world's single largest Darjeeling Tea producing estate contributing to nearly 10 percent of the world acclaimed Darjeeling Tea.

The workers in the estate reside in labour lines which are scattered all over the tea garden (Bhowmik, 1981). Longview Tea Estate has 19 such labour lines (see Table A.1.1).

Table A.1.1: Distribution of Resident Workers Households in Longview Tea Estate across 19 Labour Lines

Serial No.	Name of Labour Lines	Number of Households
1	Durpin	16
2	Barbatia	75
3	Ramitey	38
4	Munshidhura	24
5	Godamdhura	23
6	Kerabari	19
7	Velakup	45
8	Central Line	13
9	Kothidara	33
10	Naya Goan	15
11	Thalipakha	27
12	Bimitar	31
13	Pankhabari(New line)	6
14	Chilauneydhura	36
15	5 No. line	28
16	Hospital Line	32
17	Plain Line	59
18	T/34	50
19	Kalikhola	57
	Total	**627**

16. This information was obtained from Darjeeling Tea Association which is the sole producers' forum for Darjeeling tea and is affiliated to the Indian Tea Association.

The total number of households is 627. First a list of the number of households in these labour lines was collected from the estate. Out of the 19 labour lines, 4 were randomly selected. These four labour lines have in total 186 households. Of the 186 households, a random sample of 80 households was proportionately selected from the households in these four lines (see Table A.1.2).

Table A.1.2: Distribution of Sample Households of Resident Workers across the Selected Labour Lines

Name of Labour Lines	No. of Households	Sample Households
Barbatia	75	32
Ramitey	38	16
Velakup	45	20
5 No. Line	28	12
Total	186	80

As far as the outside workers were concerned, the management did not maintain any list of these workers as they were employed only during peak seasons. However, they gave us information about the regions from where usually outside people come to work in the estate. Hence the casual outside workers have been purposively selected irrespective of the region they reside. For the selection of 30 households of outside workers from there, snowball sampling technique was adopted. With the help of a permanent worker who had idea about the location of one of the outside worker, this outside worker was visited first. Thereafter, the households of other outside workers were identified from the information gathered from this outside worker and these households were taken up for survey.

Regarding the selection of small tea growers, the Darjeeling Tea Association provided details on the small growers in the hills. From the discussion it was gathered that the small tea growers in the Darjeeling hills are mainly formed into two co-operative societies. One is the Organic Ekta and the other one is the Sanjukta Vikas Co-operative. The

latter is the older co-operative among the two and it has been selling certified organic, fair trade labelled small farmers tea since 2001 in the international market. The tea is sold internationally as Mineral Spring Small Farmers Tea[17].

For the purpose of getting information on the small tea growers in Darjeeling, Mineral Spring Small Tea Growers was selected. These small growers are located in Lebong, Darjeeling. The small growers have an interesting history of rising up from mere tea wage workers who were in the verge of poverty to successful agricultural entrepreneurs. Initially, this region happened to be a tea estate known as Lebong and Mineral Spring tea estate of approximately 1500 hectares of land with 500 ha rich forest. However, due to reasons such as political turmoil, mismanagement and unionism, there were closures on a regular basis and the estate was completely abandoned by the end of 1960. After the closure, there occurred wide spread unemployment among the workers and lack of educational institutes and health centres, further worsened the situation. In the wake of such a crisis, the workers took to felling of trees for sale and also selling of tea leaves to neighbouring tea estates as a source of earning. Post 1965, workers started grabbing land and began to uproot the tea bushes and started cultivating other crops. As they had limited knowledge of cultivation and the soil was also not very fertile, the production was low. In a bid to look for alternative sources of income, the workers bought cows on loan but at high rate of interest to get additional income from sale of milk. However, there occurred a marked improvement in their economic situation with the intervention of civil society. In 1973, Hayden Hall (an NGO) and National Service Scheme, St Joseph's College started relief and rehabilitation work in the region. With their joint initiative, a dairy union was established which provided a source of livelihood for the workers. In 1996, NGO DLR Prerna also

17. This information has been obtained from an NGO called Darjeeling Ladenla Road (DLR) Prerna who was associated with the Darjeeling Tea Association and Small Farmers' Co-operative.

joined with them for the upliftment of the condition of the workers. Finally in 1997, these external interventions enabled to establish a farmer's society named 'Sanjukta Vikas Sanstha'. The objective of the society was to enable the workers to move out of poverty by making them self reliant and capacitating them on organic farming of agri-products such as tea, vegetables, cardamom, ginger, turmeric etc. Thus community based organisation and civil society has enabled to give the farmers a better life.

At present, the growers are spread over 10 small hamlets with 521 households. A list of the households in each of these hamlets was obtained from the Cooperative society and a random sample of 90 households was proportionately selected from each of these hamlets (see Table A.1.3).

Table A.1.3: Distribution of Small Growers Households in Mineral Spring across 10 hamlets

Serial No.	Name of Hamlets	No. of Households	Sample Households
1	Aapbotey	56	10
2	Dara Goan	18	3
3	Sailadhura	39	7
4	Subhandhura	51	9
5	Kotidhura	31	5
6	Godamdhura	96	16
7	Balbirdhura	32	6
8	Gairi Goan	117	20
9	Yangkhoo	62	11
10	11 No.	19	3
	Total	**521**	**90**

Appendix 2: Construction of Indices

Asset Index

The information on the ownership of the nine assets taken here namely mobile phone, T.V, cow, goats, pigs, poultry, two wheeler, land and vehicle was in terms of whether the households possessed these assets or not. A value of 1 was given for the possession of assets and 0 for non-possession. With this information an asset index for the households was constructed. The correlation between monthly income of the households and the possession of these assets were taken as weights and the formula used to obtain the index is given below:

Asset index = $[(r_1$*mobile phone) + (r_2*TV) + (r_3*cow) + (r_4*goats) + (r5*pigs) + (r6*poultry) + (r7*two wheeler) + (r8*land) + (r9*vehicle)] / 9

Where $r_1, r_2, r_3, r_4, r_5, r_6, r_7, r_8, r_9$ are the value of correlation between monthly income of the households and assets possessed.

Then the value of the asset index obtained was normalized by using the formula

(Observed value-minimum value) / (maximum value – minimum value)

The production and consumption assets were also constructed in similar lines as mentioned above, just the assets taken was cow, goats, pig, poultry, land and vehicle for the production asset index; and mobile phone, TV and two wheeler for the consumption asset index.

Living Standard Index

Living standard index is calculated as a simple average of education and basic amenities.

The education index was worked out as the mean years of schooling of the household then the values were normalised by the following formula

Normalised Education index= (actual value-minimum value) / (maximum value – minimum value)

The health index was constructed as the mean of health rating of the members of the household.

Basic amenities index was calculated by considering type of house namely kutcha, semi-pucca and pucca; and sanitation facilities which were taken to be represented by availability of bathroom and availability of toilet facilities. Basic amenities index was calculated by the following formula

Basic amenities Index= (number of rooms in a household*type of house) + (2*availability of toilet facilities) + (1*availability of bathroom facilities)

where type of house are 1 for kutcha, 2 for semi-pucca and 3 for pucca. For availability of toilet and bathroom facilities value of 1 is given if the household has these facilities and value 0 if they don't have it. Arbitrarily the value of 2 and 1 is given as weights for availability of toilet facilities and availability of bathroom facilities indicating greater importance of toilet facilities over bathroom facilities. The basic amenities index has been normalised using the same formula as mentioned above for the education index.

Then normalised education index and normalised housing index were combined into a simple average to get the living standard index.

Living standard index= (education index + health index + basic amenities index)/3.

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