CHAPTER I

Conceptualising A Theoretical Framework: From The Classical Epidemiology To Present Times
During the late 19th century, the predominant understanding of disease causation was miasma, which attributed disease to noxious air and vapours. Several empirical studies established the relationship between poor environmental conditions, ill health and mortality. Communicable diseases like plague, typhoid, cholera and tuberculosis were the major causes of mortality and were referred to as the 'disease of the poor'. Various sociological and epidemiological inquiries establish a strong linkage between poverty and ill health. They also provide descriptive and empirical insights into the poor conditions of the working class. This chapter provides a review of relevant literature for the conceptualisation of our study. It also covers the methodology taken to undertake this study.

The Period of Classical Epidemiology

There is a genre of studies on the conditions of the working class during the period of industrialisation in England. Factors like wages, work and living conditions were some of the important dimensions addressed. One of the pioneering works in this field is Engels's, (1845) *Conditions of The Working Class in England*. His study illustrates the squalor-like living conditions, meagre wages, inhuman working conditions, poor food or at times no food, which resulted in pestilence and even death among the working class. These conditions inevitably led to the widespread prevalence of stealing and prostitution among them. Apart from ill health, problems of overcrowding, destitution, crime, alcoholism became rampant in such areas. As Engels observes on the conditions of the working class:

"...If the population of great cities is too dense in general, it is they in particular who are packed into the least space. As though the vitiated atmosphere of the streets were not enough, they are penned in dozens into single rooms so that the air which they breathe at night is enough in itself to stifle them. They are given damp dwellings, cellar dens that are not waterproof from below, or garrets that leak from above. Their houses are so built that the clammy air cannot escape. They are supplied tattered or rotten clothing, adulterated and indigestible food..." (Engels 1845: 136-137).
The *Report of the Sanitary Conditions of the Labouring Population in Great Britain* by Chadwick (1842) showed that mortality rates were far higher than the national average among the poorer sections of the population. The rates fell as one moved up the social hierarchy, with the population’s richest sections experiencing mortality rates, which were much lower than that of the national average.

Other studies like Snow (in Buck et. al. 1998) on the cholera outbreak in London from 1848 to 1854, explicates the outbreak to impurities in the pumped water caused by the proximity to sewers, drains, and cesspools. Faar’s (ibid) study shows higher number of deaths among the miners of Cornwall districts for five years between 1848-1853 (inclusive) and for 1860-62 (for a triennial period) across different age categories as compared to the non-miners. He classified the causes of deaths as a) due to all causes and b) due to pulmonary diseases, which include phthisis, laryngitis, bronchitis, pleurisy, pneumonia, asthma and all cases returned as ‘diseases of the lungs’. His evidence show deaths due to pulmonary diseases as the main cause of excessive mortality among the miners and were attributed to the conditions incident to the miners’ labour.

These set of studies show that multiple factors like working and living conditions are associated with disease causation and have enormous implications on the health of a population. By the late 19th century, Pasteur’s discovery of germ and Koch’s postulate resulted in a shift from miasmatic to germ theory. This meant that the environmental factors as being important in causation became secondary. The germ theory got further strengthened; however, a few scholars pursued the classical epidemiological approach during the 20th century.

Mckeown’s (1976) study was based on the death rates in England and Wales from 1841 for each infectious disease till the time when effective modern medical prevention and treatment techniques were available. He observed that death rates declined well before medical interventions (like antibiotics, immunisation, intravenous rehydration, and vitamin supplements). He attributed the decline of mortality due to diseases like diarrhoea, dysentery, and typhoid fever to the general resistance to infectious disease through ‘improvements in nutrition’, clean water supply
and sewerage system. He concluded that the 'improvement in the nutrition'
was linked to the 'transformation in health'.

Zurbrigg (1992, a) argues that nutrition means food i.e. carbohydrates, fats and proteins, which overlooks the 'whole question of hunger'. She critically argues by making a sharp distinction between acute and chronic hunger. Acute hunger is 'starvation or little or nothing to eat which leads to famine', while chronic hunger is 'under nourishment or not enough to eat i.e. inadequate food to eat' (Zurbrigg a 1992).

She underlines the importance of hunger both acute and chronic and its implications for health. Through her study (1992 b) of malaria mortality in Punjab (1868-1908) she shows association between acute hunger and mortality giving centrality to the importance of food for health. Her study demonstrates that malaria mortality appeared to have declined mainly due to a decline in acute hunger (starvation); especially in 1908 there is a sudden drop in malaria mortality. According to her there is little evidence of change in a) levels of malaria transmission (reflected in spleen and parasite rates) b) no significant change in rainfall and no substantial change in incidence of floods. But one factor that changed was the incidence of famine. She argues that link between famine and epidemic mortality may be related primarily to increased exposure to disease through famine migration and lack of hygiene rather than reduced immunity and resistance to disease.

She draws the link to the question of hunger from Banerji's (1981) study which showed that over 36% of families of landless agricultural workers in the nineteen Indian villages studied did not get 'two square meals a day'¹ to satisfy their hunger for at least three to six months. More than 80% of the families spend their income on food and more than half of them failed to meet the basic calorie needs. Banerji classified food intake as zero, one and two squares meals per day. Sometimes the one square meal could even drop to zero square meal. He argues that acute hunger is endemic in South Asia. Food therefore has an important relationship to life expectancy and economic conditions are an important factor for the analysis of health. Thus access to food is also an important determinant for health.

¹ 'Square' defined as purely in caloric terms as enough staple food (usually a coarse millet or rice) to satisfy hunger.
The Relationship between Inequality and Health

Class inequalities in health exist and are important dimensions of various studies of health status of a population. In fact differences even within class are prevalent, as Hobsbwan (1954) examined stratification within the working class during the period of 1870-1914 in Great Britain. He categorised the labour aristocracy with regular wages at the top, comprising some fifteen percent of the class. Next were the ordinary skilled men, the better-paid labourers, and the growing body of semi-skilled workers. These together comprised some 45 percent of the class. The bottom 40% were unskilled, mostly living below the 'hardest poverty line', and two-thirds of them mainly in old age, became paupers. In his study, wages were used as the basis of stratification, which affected the living conditions even within the working class.

The Black Report (1992) shows the marked inequalities in health between the social classes in Britain. It defines the concept of a social class as “a segment of the population sharing broadly similar types and levels of resources, with broadly similar styles of living and (for some sociologists) some shared perceptions of their collective condition” (Townsend & Nick Davidson 1992: 39). Distribution of health or ill health among and between populations is expressed through ‘inequality’. According to this report, there are various other factors in determining class viz. income, wealth, type of housing tenure, education, style of consumption, mode of behaviour, social origins, family and local connections.

This Report shows the relationship between occupational class and mortality by using the Registrar General’s categories for classification viz. I-Professional, II- Intermediate, III N- Skilled Non- Manual, III M- Skilled Manual, IV- Partly Skilled, V-Unskilled (ibid: 41). It states “a class gradient can be observed for most causes of death and is particularly steep for both sexes in the case of diseases of the respiratory system and infective and parasitic diseases” (ibid:55).

Doyal (1979) maintains that the distribution of ill health in capitalist societies broadly follows the distribution of income. She considers income as a major determinant of the standard and location of housing, ability to remain warm and well clothed and the ‘quality of life’ influenced by the access to goods and services. Another class difference according to Doyal is
the difference in health risks of specific occupations with regard to the physical proximity to the production process, for example workers residing near the factories or industries.

Turshen (1989) restated the understanding of the 'social production of health and illness'. This understanding claims that, "mortality is non-specific, that overall community health is not affected by the elimination of any one cause of death" (Turshen 1989: 19). Health status is understood not simply as 'absence of illness' but comprises access to socio economic opportunities, mobility in terms of promotion in their work place, better wages etc.

Apart from the criterion of income, there are studies specific to occupational health. Hazards vary in relation to work, for example in factories, mines, plantations etc. Work hazards are also responsible for certain specific occupational diseases example silicosis in mines, pneumoconiosis in coalmines, byssinosis among textile workers asbestosis among asbestos workers, lead poisoning among workers handling batteries, jute dermatitis among jute mill workers and so on. Pesticide poisoning among the workers resulting in deformity of limbs, dysfunction of joints, amputations and visual disabilities due to indiscriminate use of lethal pesticides are some of the work hazards (Qadeer and Roy 1989: 41). An important social indicator for health is the social origins of the workforce. Certain specific studies show the predominance of certain castes/tribes in the work hierarchy.

**Work, Social Hierarchy and Health**

An important study on social stratification and health in the context of Indian Society is Qadeer and Roy (1989), who did a pioneering work on the various industries of India. This study draws the relationship between social roots of the working population in different industries and their health status. They argue that social hierarchy reflects the hierarchy of work, which determines access to basic amenities. They observe:

"The overall social stratification penetrates deep into the labour force. Links with land, patterns of migration, education and skill determine which level of labour one enters, and where in that level one is placed. The implications of stratification for health are that, given the scarcity of
facilities, those who are privileged and control resources, also control the facilities. The classes at the bottom, who have no control and no access, are deprived of even the basic minimum facilities of life" (ibid: 61).

Morris (1965) in his study of Bombay cotton mills (1854-1947) pointed out that group of landless labourers and 'submarginal' peasants constituted a large part of the proletarian labour force. His study demonstrates that absenteeism, supply of labour were linked to other factors like employers' policies of labour utilisation, viz. the existence of an informal 'shift system' and not necessarily the 'agricultural calendar'. Seasonal variation in absenteeism was also associated with the seasonal variation of the incidence of disease. Epidemic diseases like smallpox, cholera, malaria and after 1896 plague were common in these areas.

In the Bengal jute mills too an informal shift system operated as in the Bombay cotton mills. By the mid 1890's workloads increased with the introduction of electric light. In May 1895, mills functioned till around 9 p.m. with electric light. Ghosh (1994) argues that the employers systematically ignored the working conditions with regard to hours of work and minimum age during 1880-1930. This was made possible with the help of the colonial state.

Certain unidisciplinary studies on social stratification provide a framework for understanding the relationship between social stratification and work hierarchy especially in the Indian context. Lambert (1965) in his study of factory workers in Pune has used caste designations to understand whether the hierarchical ranking of a workers' caste or ethnic affiliation predicts his career and position within a factory, whether vertically or horizontally. He classified the factories into three types: Type A includes gang organised, i.e. the paper, chocolate, biscuit and rubber factories; Type B consists of individual operators that require skill although with minimal experience for example the cotton textile factory and lastly, Type C where workers feed and individually direct the machines, for example the oil engine factory.

His study shows the dominance of the upper and middle castes at the skilled and the supervisory levels in certain factories. The Brahmins comprising 56% in biscuit factory 36.7% in oil-engine, 30.1% rubber products factory- while it was 10.8% in paper and 4.2% in textile
respectively. Such proportion of Brahmins in the three newer factories (i.e. biscuit, oil-engine and rubber) according to him was a function of the demand for higher educational levels in the workforce rather than any specific caste selection.

He observed that at the extremes of the hierarchy caste is associated with occupational class, viz. Brahmans among the clerks in the combined factory workshop is 64.1%, on the other hand there are no clerks from the Backward Classes except in the paper factory of 7.4% and less than 3% of the Backward Classes are supervisors. Between these two extremes no stable relationship appears from his data. His study highlights a linkage between educational attainment and the possibility of economic betterment, thus mobility vis-à-vis the 'achieved status'.

Holmstrom's (1986) study has shown that even among the Scheduled Castes where the Bombay based Harijans opted for factory jobs; the migrant harijans (largely from the south) joined the strata of casual labour, especially construction labour. Holmstrom's argument that work hierarchy replicates social hierarchy has been emphasized in the above studies. An important indicator for health therefore is the social origins of the workforce as clearly illustrated by Qadeer and Roy (1989).

The above literature available on different industries both in India and Great Britain show a relationship between social and work hierarchy as well as health status. Also, studies have shown the association between occupation and health. Such historical and empirical studies of virtual labour force in India indicate a pertinent relationship between work, social hierarchy and health status. Plantations provide an extremely important site for examining the above issues. Firstly, because plantations are perhaps the largest in the organisation of labour force in India with the oldest plantation complex set up in Assam in 1834. And secondly, till the middle of the 20th century plantations in north-east and south were the largest employers of labour in India.

**The Plantation System**

Plantations in colonial conditions are viewed as "a particular type of 'capitalist' enterprise with the following basic features: an agro industrial enterprise raising one or several crops on a large scale under tropical or
semi-tropical climatic conditions; an international market orientation; the launching and subsequent maintenance of plantations under the ownership and control of foreign capital with the backing of the colonial state; the employment of a large number of producers and labourers (not necessarily wage workers) doing hard manual work under conditions of a primitive labour process; the use of a migrant and/or immigrant labour system; and the mobilisation and control of direct producers through economic and extra-economic coercive methods with the direct and indirect support of the colonial state. The class structure thus created through the use of coercion, open or concealed, was sharply divided between white or sahib owners, managers and supervisors on one hand and non-white labour on the other" (Das Gupta 1992: 173).

Two more features of colonial capitalism were "the maintenance of links between the pre-capitalist/ non-capitalist subsistence economy and the plantation sector, and the externalisation of at least part of the cost of reproduction of labour power. These features of plantation society originated in, and were maintained as a part of the wider colonial economy" (ibid: 174).

The International Encyclopaedia of Social Sciences (1968) defines a plantation as "an economic unit producing agricultural commodities (field crops or horticultural products, but not livestock) for sale and employing a relatively large number of unskilled labourers whose activities are closely supervised. Plantations usually employ a year round labour crew of some size, and they usually specialize in the production of only one or two marketable products. They differ from other kinds of farms in which the factors of production, primarily management and labour are combined" (International Encyclopaedia of Social Sciences 1968: 154).

There are various forms of plantations:

i) Private, for example small companies, large joint stock companies, sterling companies and ii) public i.e. companies run by the government.

Beckford (1972) considers plantation as the means by which "economically underdeveloped areas of the world were brought into the

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2 Das Gupta argues that by providing land as a source of income, the low wages in plantations were justified by the planters, thus externalising part of the cost of reproduction of the labour power.
modern world economy" (Beckford 1972: xxiii). According to him the term plantation system refers to the institutional set-up required for the production and marketing of plantation crops. It has two dimensions: a social system and an economic system. First, the plantation as a social system in the territory in which it is located i.e. the internal dimension and the economic system both in the territory of its location and in the wider community as an external dimension (ibid: 10). The latter characterised by export orientation and foreign ownership.

Bhowmik (1980) argues that in the context of Indian plantations the role of the state has created a change in the system after Independence. The plantation system has to be understood not just in terms of the economic consideration but also the social relations that have shaped the plantation structure. He argues that the social process should not be dismissed while defining a plantation viz. the way in which people of certain social origins were transferred to a totally different production process. The larger social system is important in shaping or restructuring the plantation system. There is a change from the classical plantation system characterised by low wages, poor working conditions, isolation etc. due to a change in the social system brought about by the state. For example, political pressure led to welfare inputs, improvement in communication led to organisation of the working class and so on. There is a continuous process of social change, Bhowmik maintains.

Das Gupta (1999) argues that the Darjeeling and Duars plantations of West Bengal cannot be called ‘enclave economy’ i.e. complete isolation from the mainland. According to him, an important aspect of an enclave theory is that ‘growth of tea (or coffee) plantation results in pauperisation of agriculture’. But in the case of the Darjeeling and Duars Terai regions of North Bengal, tea plantations led to the growth of agriculture, rural settlements and other small-scale ancillary industries. The population grew with large migration. This resulted in a certain demographic transition, which created a new type of ‘assimilation and socio-economic transformation’ (Das Gupta 1999: 42). Labour was essentially a

3 Das Gupta cites the study of Dawood that the growth of plantation economy in Sri Lanka resulted in the "pauperisation" of agriculture. Dawood mentions that the plantation labour was ethnically and culturally different from the agriculturists and that it was an ‘enclave economy’ (Das Gupta 1999).
'transplanted labour', with a homogenous ethnic composition. He maintains that plantation industry and agriculture was 'supplementary and complementary to each other'. Agriculture did not decline due to rapid growth of plantations; instead, agriculture got a boost due to the plantation economy.

While Subba (1984) contends, in Assam and other parts of North Bengal, where colonial plantation systems co-existed with a neo-feudal agrarian system in its neighbourhood, in Darjeeling hills, the neighbours were, the plantation workers themselves. Therefore relations were different and there was economic interdependence between the two. It was only in Kalimpong the third sub division of Darjeeling hills (other two being Darjeeling and Kurseong) that agriculture was its major occupation.

Keeping the conceptualisation of plantation system in mind, the following sections present a review of various studies undertaken on plantations, both historical and contemporary in overseas and Indian plantations. Studies more specifically on health and conditions of labour are reviewed, which will enable us to arrive at a conceptualisation for the ongoing study.

**Conditions in Indian and Overseas Plantations: A Historical Review**

Historically since the 1650's labour migration was an important factor for the expansion of the world capitalist economy. Plantations worldwide were an advent of capitalism where cash crops like coffee, tea, rubber, sugar, banana and others started flourishing extensively. With the abolition of slavery in 1834, labour migration heightened from India to Africa, Mauritius, S.E. Asia, the Pacific and West Indies. Lal states that a million Indians were transported across seas (Africa, Mauritius, S.E. Asia, the Pacific and West Indies) from North Western Provinces, Oudh, Bihar, Central Provinces, Punjab, Rajasthan and other places in India (Lal 1984: 126).

His accounts exposed the harsh conditions of labour in the sugar plantations of Fiji Islands. Life of the *girmitiyas* was *narak*⁵. The main problem faced by the workers was 'overtasking'. Incompletion of the task⁶ led

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⁴ Girmit is the Fiji Indian variant of Agreement under which the indentured labourers emigrated from India and Girmitiyas were those under the girmıt.
⁵ Hell.
⁶ The amount of work allotted for a day.
to high rate of conviction. Suicides were higher among males, because their work was heavier and more demanding and failure to perform the allotted tasks involved a loss of self-respect. But murders, suicides, accidents contributed a small part to mortality (ibid: 149). Diseases like diarrhoea and dysentery were the main causes of mortality, which was very high in 1880's. "In 1884 it was 5%, 5.12% in 1886 with an average of 3%. Though adult mortality declined infant mortality remained high especially in 1890's with 20% in 1896, in 1897-21% and in 1898-17%. Causes for infant mortality were bronchitis, broncho-pneumonia and malnutrition" (ibid). But officials attributed it to the deliberate neglect of children by workers in order to obtain time off work. Some argued that pressure of work on the mother was unrelated to infant mortality but the cause was due to insufficient supply of milk.

Breman's (1970) pioneering study exposes the harsh conditions of the labourers in the tobacco plantations of Sumatra islands under the Dutch colonial rule. He shows that the workers were subjected to regimented life both at workplace and their living quarters. He provides a detailed account of the setting up of estates, labour hierarchy, conditions and the disciplining of coolies and their means of escaping punishments and so on. Labour was mobilised for work in the tobacco plantations from China mostly through middlemen and a recruiting agency was even established for this purpose. Slowly, the immigrant labour included Javanese, Indians, and Thai workers. He strongly stated the negligence of the reports on the conditions in plantations by the Dutch bureaucrats and politicians around the 20th century.

Like the Fiji Plantations, in the entire East Coast of Sumatra, in 1901 the mortality rate among the Chinese coolies was 5% and among the Javanese coolies 3.3%. Also more than 7 and 11% of the contracted coolies

7 Jan Breman gives the colonial definition of the term coolie that was applied to a particular race for work in plantations. (Breman, Jan and Valentine Daniel, E.: 1992: 269-295) To quote: 'Coolie identity is as much the product of self-perception as it is the construction of a category by those who did not belong to it.' According to Jan Breman, the English word coolie has two different sources: one Tamil, the other Gujarati. In Tamil kuli was, and still is the term for a type of payment for menial work, being a menial alone did not qualify a person to be called a coolie s/ he had to be a menial who did not have any customary rights (ibid: 269). While its ancestry on the Gujarati side can be traced to the name Kuli, which refers to a person, to one who belongs to the Kuli tribe. Its members were described as 'thieves, robbers and plunderers as degenerate and inferior' in short as a villainous race. The English word coolie combines the personhood of a Kuli with many of its connotations, and the payment of kuli with all of its connotations, to create an essentially new entity: a coolie (ibid).
died on two transports from China around the turn of the century, either during the journey or shortly after arrival. (Breman 1970: 118) The coolies were transported like atap\(^8\), piled on top of one another. In 1896, instead of 40 people, 102 were boarded on a ship of which 51 had died due to cholera and overcrowding. Dysentery, malaria and tropical ulcers were some of the causes of high mortality in the plantations. Also, many coolies were physically and mentally unable to cope with the harsh life on plantations. Even the dead bodies received no ceremonies or rituals. The coolies also continued to work because of the poor conditions in the plantations infirmary. An increase in the hospital attendance from 39% of all workers in 1897 to over 76% in 1906 did not signify an increase in the rate of illness but an improvement in medical care (ibid: 119).

A study on mortality and Indian labour in Malaya in 1877-1933 (Shlomowitz and Brennan 1992) provided the first systematic quantification of mortality suffered by indentured and 'free' (i.e. non-indentured) immigrant workers of southern India in the Straits Settlements and The Federated Malay States. It identified malaria as the new disease to which Indian indentured workers became susceptible. Recruitment was an important factor in determining mortality especially in the inland and the overseas plantations. For the case of the overseas plantations like Fiji and Surinam death rates were less as compared to Assam and Malaya because of the 'more exacting recruitment standards' used for emigration.

Shlomowitz (1997) study on fertility of the Fiji Indian migrants showed that fertility rates were lower due to abortions and still-births. Calculations based on birth rates show that abortions and still-births were higher among Act workers than non-Act workers.\(^9\) There was also a decline in the infant mortality rate with a decline in the birth rate. The proportions of married couples, the sex ratio, and the extent of privacy in the plantations' housing arrangements, promiscuity, and spread of venereal diseases were important indicators for the assessment of fertility rates.

Like the overseas areas, in India too a chronology of events took place in the evolution of plantations and its labour history. Diseases, deaths and arduous working conditions were part of life in plantations. Apart from land,

\(^8\) Dried leaves.

\(^9\) Refer chapter II for the difference between act and non-act workers.
A large and cheap labour force was required to work in the plantations. Earlier, in the Assam plantations Chinese labour was employed. As Chinese labour became very costly and with the refusal of the local inhabitants to work (due to low wages and arduous conditions in plantations and their own occupation in rice cultivators etc), labour had to be sought from far-flung areas of India like the United and Central Provinces, Chota Nagpur Region etc (Refer Maps in Chapter III).

Such areas were called the labour-catchment areas (LCAs) and were characterised by abject poverty, seasonal unemployment, indebtedness and recurrent famines. Thus a large number of people from these places became victims and came to work in plantations, mines, mills and so on. Advance payment and the promise of better conditions, forced the helpless populace to get into contracts or agreements. This led to the so-called 'indentured system', which was followed by other types of recruitment into plantations.

Das Gupta’s (1986) study on the structure of the labour market in colonial India in Assam tea industry states that indentured recruitment started from 1859 and continued till 1926. The planters later preferred the sardari system where the labourers were not under contract and were less expensive. This was the type of recruitment that existed mostly in North Bengal. A Tea Districts Labour Supply Association (TDLSA) was formed by most of the leading tea companies in Calcutta in 1877 and from 1917 it was called Tea Districts Labour Association (TDLA). While the sardar acted as the direct recruiter these larger bodies functioned as the principal recruiting organisation. The chowkidars strict vigilance, and the “agreement among the employers not to entice each other’s labourer or to employ a labourer coming from other garden effectively restrained the freedom of movement” (Das Gupta 1986: 1787).

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10 See Chatterjee Suranjan and Das Gupta Ratan: EPW Vol 16, pp 1861-1868 on recruitment policies and conditions in the Assam plantations between 1840-1880. The local population i.e. the Assamese peasantry was largely absorbed in rice cultivation. Fertile soil, low density of population, absence of wage-labourers was some factors, which dissuaded them from joining as plantation labour. While necessity forced the tribal population i.e. the Cacharis and the Mkirs to work in tea plantation labour. Their tribal economy was eroded due to the interests of the colonial state in promoting tea cultivation. These were not wastelands but were in many instances covered with valuable timber; land suitable for ordinary village cultivation. The Cacharis were suitable for doing hard work of wood-cutting, jungle-clearing which was required for tea cultivation. In 1901 of the 307,000 tea plantation workers only 20,000 i.e. 6.5% were local labourers (Chatterjee S. and Das Gupta R.: 1862).
Mahapatra (1985), Chowdhury (1992) and Dasgupta, (1986) have dealt with historical studies on migration in the Indian context. These studies can be categorized in the area of labour history. They have broadly located the labour-catchment areas and the factors and conditions that caused movements of labour from such areas. For instance Mahapatra’s study draws out the push and pull factors for large-scale immigration from the Chotanagpur region between 1880-1920 to the tea plantations of Assam and to the Jharia coalfields of Manbhum. He questions “the coincidence of the short-term conjunction of famines’ between 1896 and 1899 with high immigration. Roughly 10,00,000 people had left Chotanagpur during this period” (Mahapatra 1985: 298).

Other labour-catchment areas according to Chowdhury (1992) were the eastern parts of United Provinces from where the labourers were taken to parts of Bengal, Assam, Bombay, Burma and even to the sugar plantations of West Indies. His study gives the causes of large-scale labour migration from these areas. The author attributes the emigration to institutional factors like decline of handicrafts and commerce, lack of investment by colonial state and the exhaustion of extensive margin in agriculture. Eastern Uttar Pradesh during 1750 to 1850 was a prosperous area and it was because of these specific factors during the later period that a considerable number of people came to be ‘precariously placed on a bare minimum level of existence’. They constituted the bulk of migrants who went in search of employment and subsistence (Chowdhury 1992: 41). He states that as a colonial recruit had to undergo a very strict medical test to determine his ‘ability to perform hard agricultural labour for a number of years’, it was clearly against the interest of the recruiter to recruit a coolie who was in poor health. Thus, “the poorest of the rural poor, comprising the semi-starved, penniless and unworthy of credit, could only have been rare among the emigrants to the colonies and the inland destinations” (ibid: 27).

Allotment of land had remained an important tool for retaining the labour force. Das Gupta (1986) examines the semi-proletarianised nature of the plantation workers in Assam during the colonial period in between 1850-1940. Small plots of garden land were given to the labourers to settle and work in the plantations. Moreover, the time expired workers were settled in the government land and were even employed during labour shortage.
As mentioned by DasGupta\textsuperscript{11} these were the features of colonial capitalism viz. workers twin-dependency on the capitalist and pre-capitalist economy and the externalisation of the costs of the reproduction of labour power. The familial wages were so low that it was not sufficient for a steady reproduction of labour power (Das Gupta 1986: PE-4-PE-5). Planters rationalised low wages on the basis that if the workers got higher wages then they would do less work. And wages were at an appallingly low level so that the whole family had to work. Labour was essentially semi-proletarianised and development of class-consciousness was negligible.

In Assam the wasteland rules were very favourable as land was to be held almost free of revenue by the planters for the first twenty years and assessments were to be made only after the lapse of that period. Requirement of large capital investment prohibited investments by the local inhabitants. The colonial policies were therefore in favour of the planters. Hegemony prevailed in most tea plantations of Assam, which resulted in a hierarchy of the plantations, the colonial and the metropolitan states.

The legislative measures of the government worked to the advantage of the planters, for example by increasing the land revenues the peasants were thrown out of their own lands. But in 1901, of the total tea plantation labour of 307,000 in Assam proper, only 20,000 (6.6 per cent) were local labourers (Chatterjee and Das Gupta 1981:1862). Chatterjee and Das Gupta (1981) examined the methods adopted by the planters to secure labour in the tea plantations of Assam. They argued that it was not just the objective conditions (breakdown of tribal economy, increase in labour dues, rents, usurpation of productive lands, indebtedness, lack of access to even two ‘square meals’ a day and so on) that forced them to migrate, but it was the system of recruitment, which was forced and not free. There were various layers of intermediaries like arkatis, licensed and unlicensed garden sardars and labour recruiting companies functioning within the broader framework of the recruiting business led by the Companies (ibid: 1863).

Unsatisfactory working and living conditions in the tea gardens of Assam during the early period of the industry were the main reasons for workers leaving the industry as is evident from Phukan’s (1984) study on the ex-tea garden labour of Assam. Other reasons given were family recruitment

\textsuperscript{11} See page 13
procedure, love for freedom and other similar sociological factors. He argues that people sought comparatively independent life in rural areas and expected that they would improve their social position by such reversion. The well-knit prosperous social existence of the neighbouring Assamese villages might have been another cause of attraction for settlement in village life (Phukan 1984: 123). His study shows that the socio-economic conditions of the ex-tea garden labour population were not satisfactory. Their social status was lower as compared with the indigenous population. They could not earn much from their farm operations and had to do wage work too.

Likewise in South India too, the colonial state worked in favour of the planters. For example Ramachandran and Maya (1997) examine the setting up of plantations, both tea and coffee in the Annamalai Hills in the Madras presidency during the late 19th century. The coercive measures used by the planters with the help of the colonial state were astounding. The Criminal Tribes Act introduced in the Madras Presidency during 1911 was used by the colonial state to suppress the marginalized groups. The government could identify any tribe or group, as 'criminals' irrespective of whether individual members were criminal or not. This Act came to the rescue of the planters who were facing labour shortage and was implemented on tribes like Dongas, Dasaris. Life for these tribals was hard in the plantations. The climate was cold and wet, backbreaking job of either plucking, clearing etc. they were not well fed, clothed and their wages were not paid on time. All these led to desertions and there was a strike in 1916. Thus there was a huge exodus of these coolies. The strikers reported the inhuman conditions of the life of a worker in the plantation. The Government replied that the coolie had left the estates because they were affected by home-sickness and exceptional inclemency of weather.

The Assam planters preferred the aboriginal race from Bengal and Chota Nagpur divisions because they 'could adjust with the work conditions and labour-process' in the tea estates while the colonies recruited skilled labour from Bihar, North Western Provinces and Oudh. In 1890 for instance almost 97% of the colonial recruits came from Bihar, North Western Provinces and Oudh, of which 81% came from the last two regions. The

12 A tribe of gypsies who frequented the districts of Kurnool, Guntur, Nellore, Krishna, Godavari and Hyderabad.
emigrants from Chota Nagpur were mainly Dhangars, Moocheee, Kurmi, Baori, Bhumij, Sonthal, Munda and Gwallas (ibid: 1865).

With regard to the conditions in Assam plantations during the colonial period, Chatterjee and Das Gupta (1981) cite from an official document:

"...The Protector's reports abound with instances in which coolies' lives have been in a most unsatisfactory conditions; the roofs leaky, the sides falling to pieces, the floors low and damp, and the raised bamboo framework or machan, on which the coolies should invariably sleep, altogether wanting...." The low swampy ground, impure water and want of proper drainage were fertile breeding grounds of diseases. The high rate of mortality was due to cholera and intestinal complaints. Medical facilities were neglected and doctors rarely visited the gardens..." (ibid: 1867).

Behal (1985) highlights the various forms of labour protests between 1900-1930 in the Assam Valley tea plantations. Desertions were frequent and were taken as a 'primitive form of protest' (ibid). The workers expressed it through desertions, forms of resistance like 'assaults', 'riots', and 'intimidation'. There was a 'hierarchy of exploiters', apart from the European planters other Indian staff like the garden babus or clerks; zamindars, chowkidaars, kaya or the Marwari shopkeepers subjected the labour force to varying degrees of physical coercion and economic exploitation. The workers however struggled with the constraining factors within the plantation set-up. There were restrictions on mobility, enforced isolation and social and physical control. Also the Assamese middle class nationalist leadership in Assam valley showed a lack of concern for the labouring populations (ibid: 24).

At the beginning, plantations were started as a so-called 'enclave' economy; i.e. complete isolation from the mainland. This helped the colonisers and the planters in maintaining the labour force and suppressing any form of organisation of labour. Work was mostly 'gang organised' in small groups with the sardars/recruiters working as supervisors of their respective caste/tribe labourers, there was strict vigilance by the chowkidaars (guards) on the labourers. This became one of the important reasons for the non-penetration of national freedom movement in these areas. Such studies reflect a uniform picture of cheap migratory family
labour through various legal and extra legal coercive measures, low wages, arduous working conditions, all characterising an ‘enclave’ economy.

**Work and Social Hierarchy in Plantations**

One of the salient features of the plantation system of production is the levels of hierarchy which is as follows:

a) The agents or the absentee capitalists on the top, with the management consisting of a resident ‘white’ planter and his assistants.

b) The supervisory staff having the same affinity as

c) The labouring class who represent the bottom of the hierarchy.

Here the important distinction lies in terms of caste, which was mainly used as a powerful tool to control the labour. Das Gupta says, “Different labour markets exhibited particularistic features and orientation. One aspect of this was clustering of particular social groups-castes/sub-castes, linguistic-cultural groups, community etc in particular industries. Another aspect was the formation and persistence of links between particular social groups and certain jobs and occupations” (Das Gupta 1986: 1783).

Levels of hierarchy in a plantation set-up led to various forms of exploitation especially of the lowest rung of workers. Keeping this hierarchical ranking within plantations in mind, certain sociological studies are reviewed, which although unidisciplinary, have probed into the stratified nature of the working class. This provides a framework for understanding variations in the nature of work and wages within an industrial setting. It also shows the relationship between work hierarchy and social hierarchy, as witnessed through studies in other industries.

Jain’s (1970) empirical study on the rubber plantation labour of Malaya focuses on the Tamil migrant plantation workers and the system of social organisation. He distinguishes the plantation as a total institution where the industrial sub-system influences the ‘community sub-system’. He uses the concept ‘community sub-system’ to designate the social relationship of the Indian workforce and the industrial sub-system as the on-work social relationship within the plantations’ formal economic
organisation. An important observation from his study is the absence of Brahmins in plantations, which did not lead to the rigidity of the notion of 'purity and pollution', in the plantations. He maintains that the occupational stratification on the estates provided a framework for the social classes.

His study shows that there is no vertical mobility within the estate from the position of a labourer to that of a staff member, kirani\textsuperscript{13}. It is not possible to explain this fully in terms of the labourer’s non-attainment of the requisite educational qualifications. The staff members' children or other relatives usually fill the staff positions. The author 'implies and not asserts' that in appointing members of estate staff the management has considered not only the achieved qualifications of the candidate but also their ascribed ones.

Jayaraman's (1975) study examines factors related to the pattern of emigration to the plantations of Ceylon that contributed to the persistence of caste restrictions and other practices. According to him, caste is seen as 'an organising principle of plantation life'. It was linked to the survival of family and kinship ties and Hinduism among the plantation, which got perpetuated due to the kangani\textsuperscript{14} system of recruitment in the plantations of Ceylon. Kar's (1981) study on the estates of Mancotta shows the process of assimilation and influence of the tea industry on the life of the tribals. His study is yet another contribution to the social-anthropological studies on plantations.

Bhowmik's (1981) study probes into the different aspects of class formation among the adivasi\textsuperscript{15} tea garden workers of Jalpaiguri district in North Bengal. The author probes into the larger social system, which creates a heterogeneous social life affecting the 'class formation'. Differences along caste, tribe, and class have led to complexities in class formation. He states that for class formation to take place there is a need for unity not only on the economic front but also in the social context especially with workers having different ethnic background. The study shows the social processes that are involved in bringing about such changes and he therefore argues that change within the plantations system has to be seen in the wider social system.

\textsuperscript{13} An Asian member of the estate staff.
\textsuperscript{14} Kangani are recruiters in the South India.
\textsuperscript{15} Tribal.
Within the plantation structure women are placed in a more marginalized position as some studies in the subsequent section show. An important aspect drawn from the earlier study (1998) is that gender and caste relations have an important bearing on women's position in society.

**Gender and Work in Plantations**

Durkheim's (1969) understanding of social solidarity through a sexual division of labour is reflected in the planters' policy of family-employment. Durkheim recognizes the role of specialisation and division of labour as bringing in social cohesion. Planters' argument for family employment and lower wages was thus justified. By having female workers it was possible to maintain the male population along with a steady 'reproduction of cheap labour' that otherwise involved high costs for recruitment. Moreover, women were found to be dexterous and patient in plucking the 'two leaves and a bud'. Such an ideology turned out to be favourable in the production system of the plantation economy where whole families including children were employed. This became an important element of a plantation system.

The following sections review studies highlighting the conditions for women workers in the plantations. Their economic role has resulted in some advantages affecting gender relations in the family as a whole. But they undoubtedly are the worst sufferers of triple burden of paid-work, household work and child rearing.

Curjel's (1923) study on the women workers in the industries of Bengal in 1923, for the section on tea plantations says that women's labour was more sought after because of the 'scarcity of male labour' and women were 'handier than men in certain processes' (Curjel 1923: 24). His study shows that conditions were better in the tea plantations as compared to the mills and the coal mining areas. In tea plantations, although a woman earns less than a male worker, a skilled woman could increase her earnings by working overtime and plucking more. In the section on health among the tea plantation labour in Bengal, Curjel observes:

"The average woman worker looked healthy, but these women had real homes, and probably would not come out to work if unwell. Infants on the tea gardens were generally more healthy than in the mill-areas, though a number had sore eyes (conjunctivitis). Difficulty is experienced on a tea
garden in effectively treating an epidemic such as cholera; since the doctor in medical charge of the garden has no control over workers who live in neighbouring bastis. The doctors employed on tea estates rarely possess a registerable (sic) qualification, the salary offered being too low to attract better trained men" (ibid: 27).

The health of the child depended on the economic/financial condition of the family. In tea plantations infant deaths were reasoned out to puerperal septicaemia. She argued that maternity benefits given in the form of money should be substituted with food and medical facilities as the woman usually hands over the money to the men with whom she is living.

Engels (1996) through her study locates the position of women in the concept of family-unit in the coal-mines, jute mills and the tea plantations of Bengal in the early 20th century. According to the author, most women left their home villages, like men because of poverty. Men often migrated as a strategy of familial survival while women usually left, as there was no further hope of subsistence at home (Engels 1996: 205). Single women were made to settle as a ‘family-unit’ with single men to encourage procreation. The planters provided maternity benefits when labour was scarce.

Although the present conditions are better than that of the colonial period, women’s role and their earnings are always seen as a contribution to the family budget and not as the income of a single person. Jain and Reddock (1998) have compiled studies of women workers in plantations internationally. It consists of eight case studies on women’s socio-economic conditions in plantations of sugarcane in Fiji Islands, tea in India, Sri Lanka, and Cameroon to rubber and other crops in Sumatra, Indonesia. Women’s position and their struggle for existence are some of the important elements in these studies.

Studies on South Asian plantations like, Kurian’s (1982) work on the women workers of Sri Lankan plantations of rubber, tea, coffee provides a comprehensive analysis of the conditions of Sinhalese and Tamil women.

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16 Septicaemia - the persistence and multiplication of living bacteria in the blood stream, sepsis: the state of being infected with pus-producing organisms and puerperal means immediately after childbirth. Puerperal sepsis: infection of the genital tract occurring within 21 days of abortion or childbirth. (Nancy Roper: Pocket Medical Dictionary, Longman Group Ltd., Great Britain, 1974)

17 Earlier in Assam plantations, ‘single men’ and ‘single women’ were made to settle as ‘family units’ (Engels 1986).

25
plantation workers. Tracing their social background Kurian draws out similarities in kinship pattern and differences through women's economic position i.e. their economic independence, utilisation of services etc. Lack of access to their own wages reflects their marginalized position and low bargaining power. They suffer from sexual violence especially on the domestic front.

Apart from housing, education, health facilities, food intake etc. she has integrated factors like income, expenditure and indebtedness, which have tremendous effect on the women. They not only suffer from lower nutritional levels, but loss of jewellery and dowry to pay off the accumulated debts of their husbands and also suffer the violence when the husband objects to any form of protests. Due to the process of sanskritisation the male members exerted greater control over the women, as they were free from the upper caste dominance. This brought about a shift in the status as workers and members of the community at large. Kurian observes, “Welfare services are concerned with 'needs' as perceived by the management rather than the real 'wants' of the workers (Kurian 1982: 100).

Konings (1998) in her study of women workers in Cameroon plantations has shown that the 'illiterate' and 'unmarried' workers have succeeded in leading a relatively independent life. Jain (1988) shows from her study of a tea estate in Assam, that in the tea garden labouring community, equal wages helped the women workers to cope with and adjust to plantation authoritarianism. The significance of female labour and marginality of male labour in terms of task allocations on a tea garden reflect the relative loss of male domination in the family. She shows from her study that women workers enjoyed certain inheritance rights to land, being in a tribal society and coupled with equal wages accorded them certain authority in the plantation.

Against this, Chatterjee (1995) argues, that the study negates the fact that women remain marginalized within the plantation's sexual division of labour. Her doctoral thesis with the help of narratives of female workers of a North Bengal plantation shows their struggle and how this struggle remains relegated to the margins of political discourse within the plantation. They may get equal wages but are unable to articulate and thus not participate in the trade unions. She has traced the neo-colonial present and linkages to its
colonial past through the perpetuation of the _maai-baap_\(^{18}\) tradition in a plantation of North Bengal.

Another study in North Bengal of Bhadra (1992) explores women workers’ commitment and attitude to work, their attitude towards the Company as an employer, attitude towards pay and other facilities, attitude towards management and lastly attitude towards their immediate supervisors through a case study of Chandmoni Tea Estate. She has taken absenteeism as an important indicator of commitment. Male workers are mainly absent due to their addiction to liquor, social functions and festivals and illness. In case of women workers, such absenteeism is mainly due to their engagement in household work and looking after the children. Her study shows that women have taken up employment out of economic considerations and not to fulfil their individual needs and are more committed to work. She has classified plantation work according to sex.\(^{19}\) Women workers are found employed more in the garden than in factory operations except sorting.

She has touched upon the issues of wages, housing, crèche facilities, health, sanitation and educational facilities in her study. For instance she shows that the women workers did not prefer to leave their children in the crèche as the atmosphere was bad and the management did not supply milk, food and water properly. With regard to the health services, scarcity of medicines was common in the garden dispensary.

A study that throws some light on the health of the female plantation workers is the Report of the Task Force on Health on self-employed women (1988). It provides a list of occupational related problems like inhalation of dust, exhaustion due to heavy work-loads and high environmental temperatures and humidity; lack of health and medical services, and working barefoot leads to problems of lung infections, bronchial problems,

\(^{18}\) Maai- baap literally refers to both parents. “Managers obviously claimed that they were in loco parentis to the workers. The worker was a ‘child’ and was thought incapable of ‘rational’, ‘adult’ behaviour. He could easily be led astray; strikes, for instance, were always seen as the handiwork of ‘ringleaders’ or ‘outsiders’. He was unreasoning and unpredictable; managers often expressed surprise at the suddenness of working class protest. The worker was therefore childlike. A typically parental statement, which Sir Alexander Murray introduced into the body of the report of the Committee on Industrial Unrest (1921), ran as follows. Note the key words: ‘Labour, in its ignorance, is certain to make unreasonable demands which could not be granted without destroying industry, but firmness in refusing such demands needs to be mingled with much patience and consideration’” (Chakraborty, 1989: 163).

\(^{19}\) For the table, sex-wise classification of plantation work, see Bhadra, M. 1992: 90.
physical stress, malnutrition, helminthic infestations, dysenteries, contact dermatitis, and other contact diseases. Heat strokes, high incidence of maternal and child mortality are some of the other outcomes.

For the tea pickers working with unsafe chemicals, unsafe work terrain results in problems like insect and snake bites, allergies, occupational asthma, irritation of bronchi, pesticide hazards, accidents and falls due to steep slopes, pain in back due to carrying heavy loads etc. Recommendations for its eradication were also made in this report like regulation of hours of work, provision of personal protective equipments, health and medical facilities, warning and training about the use of chemicals etc. Occupational health is an important aspect that requires further probing and primary importance should be given for the implementation of such recommendations.

There have been no specific studies on occupational health of tea plantation workers, but some generic and recent studies highlight on the workers socio-economic and health conditions. In India, with the implementation of the Plantation Labour Act, 1951 and other legislations, the post independence period witnessed certain changes or improvements in the conditions of labour but field realities present a different picture.

**Empirical studies on tea plantations in India**

Sarkar (1986) articulates that although income has increased, the standard of living too has simultaneously gone up, making the workers unable to save. Bhowmik et al. (1996) study shows a marked contrast between the tea plantations of South India and that of the North East India (West Bengal and Assam) based on the parameters of wages, housing and other welfare amenities. This study has been undertaken keeping the Plantation Labour Act in mind. Such difference according to Bhowmik is because of the attitude of the management with regard to better provisioning to the workers in the tea plantations of South India. The health services were inadequate and workers were mostly dependent on the part-time

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20 The condition resulting from infestation with worms.
21 Inflammation on the skin.
22 Sarkar's paper on 'Some Sociological Theories of Poverty: A case of Plantation Labour in Hill Areas, in [R. L. Sarkar and M.P. Lama (Ed.): The Eastern Himalayas: Environment and Economy, Atma Ram and Sons, Delhi, 1986] on the basis of empirical evidence concludes that although there is a rise in income of the workers the cost of living has simultaneously increased and low or no savings on the part of the workers.
23 Discussion with Dr. Bhowmik, Delhi.
doctors. These provisions were not in compliance with the rules of the Plantation Labour Act.

A path-breaking report is of the Fact-Finding Team of Centre for Education and Communication (CEC, 1999) on the conditions of tea plantation labour. This report exposes the deplorable conditions under which the tea plantation workers of Assam and Bengal are living. Based on few tea gardens, it illustrates how various welfare provisioning has been neglected by the management. The manner in wage fixation, lack of proper housing and sanitation, collapse of the company's health system, prevalence of diseases-malaria, hookworm, gastro-enteritis, and even cholera. Apart from such conditions, increasing canalisation of labour, thus reducing permanent workforce, increasing fragmentation of unions along ethnic lines. This report cites the need for a larger study on the socio-economic conditions of the plantation workers. It enumerates a list of recommendations for the further betterment of the tea industry.\textsuperscript{24} In its study of Singtam Tea Estate in Darjeeling the report states 'shabby conditions of the dispensary', 'the toilets provided by the management, which were covered with weeds, lose soil and few pieces of bricks and rotten wood littered here and there' (CEC 1999: 22).

With a case study of a tea estate in Darjeeling, Rai (1995) compares the existing field realities with the facilities provided under the Plantation Labour Act. His study, based on calculations of costs of benefits provided by the management show that a worker enjoys some benefits over and above the daily wage. For example a plucker got Rupees 7.75/Rupees 7.8 as benefits more than the wages per day. But when it came to family benefits none of the benefits were provided except housing facility, which covers 67% of the total requirements. Likewise since medical benefits, subsidised food, firewood and tea are not provided a family instead loses a benefit of Rupees 11.84 per day (Rai 1995: 15).

Das and Banerjee's (1982) study based on four tea gardens of West Bengal shows that 65% of tribals earn their major livelihood by working in the tea gardens and 20% by working in the factory as unskilled labourers. Their study points out that, though educational facilities are provided for the workers' children by the management, the workers do not care to purchase

\textsuperscript{24} For details see CEC (1999), pp 61-63.
books, slates, pencils, etc. for their children. Also the younger generation shows eagerness to work in plantations because of cash wages etc. This can be attributed to lack of alternative employment in the tea plantations. The authors also cite that there is a lack of social mobility among the tribals through education. Such similarity is seen in Jain's (1970) study on the Malaya rubber plantations.

An important sociological aspect from Das and Banerjee's study is the breakdown of the traditional joint family into a nuclear family, along with the break down of traditional interpersonal relationships among close relatives. Divorces and remarriages are a common occurrence. On the question of prevalence of specific diseases like gastro-intestinal troubles, venereal diseases, tuberculosis etc prevalent in the plantation, the authors blame "moral laxity and heavy addiction to intoxicants" as reasons (Das and Banerjee 1982: 81). There is a need to look into the larger context for the prevalence of such diseases in plantations instead of simply attributing to such reasons. Studies specific to health aspects have been undertaken by some scholars, on the tea estates of West Bengal and Assam.

Workers' Health and Health Services in Plantations

A study by the International Labour Organisation (1987) provides detailed description of the situation in plantations worldwide with regard to the legal provisions stipulated for the plantation labour. An important aspect, which this study reveals, is the 'relationship between housing and the health status of the workers' (ILO 1987: 162). The cause of high incidence of respiratory diseases was with regard to working and living conditions. Plantations located at high altitude, with damp dwellings and poor ventilation provide an environment conducive for diseases such as bronchitis, respiratory infections, asthma and pneumonia. The study associates to several factors like number of rooms, size, number of occupants, type of cooking facilities, and water-heating and space systems. With firewood or other biomass as the main form of household fuel, and if its use is mainly in open fires in badly ventilated rooms, the emissions contained in the smoke can contribute to a high incidence of respiratory diseases.

Sivaram (1996) in his study of a Sri Lankan plantation has observed that two categories of illness viz. respiratory and water borne account for 60-
70% of the diseases prevalent among tea workers in the sub-continent. He observes that these diseases are also major contributors to absenteeism, sickness benefit costs and expenditure on drugs in estates. From his study, anaemia showed a reported incidence among plantation workers of between 30-50% (taking 11 grams per cent for women and 12 for men as the standard haemoglobin count) (Sivaram 1996: 25). His study identified anaemia as the major factor of ill health, maternal death and poor productivity. He cites a study of Indonesian rubber tappers, which showed that ‘the productivity of non-anaemic workers was 20% higher than their anaemic counterparts’ (ibid).

A Report on the Conditions of Tea Plantation Labour (1999) in Assam and North Bengal reiterates that the governments of West Bengal and Assam have not determined and fixed the minimum wages for the tea plantation workers (Sarma et al. 1999: 58). Regarding housing, one of the broad findings was that the managements in both the states had stopped construction of houses. There is also a high level of casualisation of workers creating a steady labour surplus. Regarding health, tuberculosis in endemic proportions was reported. Sanitation, basic water supply was lacking. These factors resulted in an increase in water-borne diseases. This study has highlighted the deplorable conditions in the tea plantations.

An important aspect pointed out by Sarkar (1986: 82-91) on 'The Criteria of Wage Fixation for Tea Garden Workers’ with regard to health is that none of the wage-setting institutions, for example the Tea Board or the Planters’ Association has taken any initiative to calculate the net intake of calories as recommended by Aykroyd25 for an average adult worker in tea gardens. Sarkar says that non-vegetarian diet is generally more expensive than vegetarian diet of the same calorific value. Tea growing workers in the hill areas are generally in the habit of taking non-vegetarian diet. Considering the cold climate of the Himalayan regions, the consumption of eggs, fish, meat, milk, tea and sugar is an important dietary need. Fixation of minimum wage must be reevaluated considering their dietary needs, he says.

25 Dr. Aykroyd has given an adequate diet for the coal mine workers at the 15th Indian Labour Conference, for details. See Lama and Sarkar (1986) p 89.
Health services are an important component of the welfare amenities provided by the management. Recent sociological studies on the health status of the plantations workers in India provide a gloomy picture. Though studies on health per se are extremely limited, empirical studies of Bhadra et al. (1997) and Sharma (1997) gives an overview of the disease and the health service utilization patterns especially by the tea garden workers of West Bengal and Assam.

Two systems of medical treatments exist in the plantations, the traditional and the modern health care. Sharma (1997) in his study of cinchona plantation workers show that despite the availability of modern health services the people tend to visit traditional healers.26 His study on the cinchona plantation workers in Darjeeling gives the utilisation pattern of health services according to the caste composition of the workers. His study shows that the Bahuns27 first option was to refer a doctor while the rest of the castes visited their respective traditional healers. While certain groups like the Chhetri, Newars, Mangars, Lepchas visited the doctor as a second option after the respective (caste) traditional healers. Economic aspect or the availability and accessibility of the health services for the workers could be the reasons for such utilisation.

Bhadra and Chakraborty's (in Bhadra and Bhadra 1997) study on the health culture and the change in the medical behaviour of the tribal plantation workers of the Terai region of West Bengal shows that 70% of the tribal population consult modern medical practitioner. They attribute it to the introduction of western medicine by the British planters. Their study highlights the poor living conditions in the plantations where rooms were not enough to accommodate a family of four members. Domesticated animals are also kept under a separate shed near the living room or on the verandah28 for fear of cattle lifting. This according to them poses threat of contagious diseases. Also sanitary latrines are non-existent and the workers defecate in the fields. Wearing shoes was common among adults but not so common among children. Effective drainage system was also non-existent.

26 In a Nepali society, the traditional healers are called dhami, jhakri. Details are dealt in the later chapters.
27 Brahmins. For a detailed background of the Nepali caste system refer to Chapter II, p 12
28 An open space in front-within the house
The nullahs, which surround the houses, are mostly choked during the rains. Water accumulated in these nullas serves as breeding ground for mosquitoes and germs and to a host of diseases. The authors argue that if the modern medical services were efficient then the workers would not resort to their traditional healing practices.

Likewise Kar's (ibid) study based on a decade of fieldwork in some tea plantations of Assam highlights the link in disease pattern and poor sanitation. He shows the relation between poor sanitation and the type of diseases. Absence of proper drainage arrangements has converted many labour lines into pigsty with accumulation of filth and muck resulting in a number of diseases. During monsoons the situation worsens and the kuccha quarters with thatched roof are in a dilapidated condition. Due to water logging in the labour lines houses become damp leading to a number of ailments. Gastro-enteritis, respiratory trouble, rheumatism, skin diseases, anaemia, diarrhoea, dysentery and gastric ulcers etc were some of the common complaints of the workers. He gives reason to “the unsanitary conditions and habits; frequent use of cheaper variety of synthetic garments is also a major cause of skin disease among them” (ibid: 294). His study shows that despite Family Planning Programme, hospitalisation was the last resort by the workers to go for delivery. The reasons were the reluctance to go to hospitals for delivery and that they were bound by traditional beliefs and practices.

Chakraborty (ibid) although observes a positive attitude among the tea plantation workers in respect to adoption of modern concepts and methods of family welfare. His study examines the Knowledge Attitude and Practice among the eligible (married women of 15-45 years of age) tea garden workers in respect of family welfare. His study shows that literacy influences the adaptation of the type of family planning methods. A rise in literacy levels shows a corresponding rise in acceptance of spacing or temporary methods where 79.6% of the respondents preferred a spacing of birth for three years.

Roy's (1991) study on the health status of the labourers belonging to the Oraon tribe in north-west Bengal was based on the parameters of subjective well being, reported ailment symptoms and objective measures.

29 Drains usually temporary in nature running alongside the coolie lines.
through Infant Mortality Rate. He draws out two important points; “firstly, though the individual feels ill (sometimes they do not feel ill despite having the illness), the society does not permit them to become sick. This may be due to economic hardship and overburden of children. Secondly, the endurance or the tolerance limit of these people is so high that these afflictions do not bother them” (Roy 1991: 373). He observed that poor child-rearing practices, unhygienic habits and the mother’s health had a great influence on the infant mortality.

Raman’s (1994) study on child labour in tea plantation of northeast India is important as it shows the preponderance of child labour (91.7%) especially during the peak season as casual labour. This was a clinical study. 450 working and non-working children were tested for haemoglobin and parasites and other signs of ill health in their stood. Their height, weight, arm circumference and in some gardens only head circumference were measured. Her study shows that 73.3% of children were anaemic, 5.8% were suffering from life threatening anaemia, and 40% were malnourished on the basis of index of malnourishment. Their haemoglobin levels were also low. They were carriers of ascaris (roundworm), hookworm, threadworm, whipworm and amoebic infections. Tapeworm was common. Her study shows the relationship between low wages and lack of alternative employment making the children’s income as a supplement. She adds a note of caution that the non-working children fared consistently worse than the working children.

Krishnamurty’s (1995) on the Health and Medical Care in Plantation Sector states that there is no recent data on the pattern of mortality in the tea growing districts of West Bengal and Assam. According to the report, health and educational services are lacking in these regions. He cites a report which states that poor educational levels among the workforce, increasing problems of drug abuse and alcoholism, unhygienic living and working conditions has lead to a high incidence of communicable diseases, parasitic infections and malnutrition in these regions (Krishnamurty 1995: 22). While in South India, health services in plantations of members of United Planters Association of South India (UPASI) show standards, which are above the legal requirement in terms of hospital beds, medical officers and paramedical staff. Also, “...infant mortality rate in plantations applying
the Comprehensive Labour Welfare Schemes (1971) is less than half of All India level of 96 per 1000” (ibid). He further warns that in the case of smaller plantations in south, which are not members of well-organized Planters Association, there is a yawning gap between the statutory provisions and field realities.

From the literature reviewed in the context of plantations it is evident that there are different set of studies. a) Focussing on the conditions i.e. the recruitment processes, working conditions, mortality among the immigrant labour both in India and overseas, b) empirical studies on aspects on the present conditions of the workers in respect to the provisions under the Plantation Labour Act (PLA), c) sociological and gender-dimension studies on aspects of social composition, women’s position in plantation work, their conditions of vulnerability and gender-relations within the family and so on, d) studies on the health status of the workers in plantations, the morbidity patterns, utilisation of health services both formal and informal. Most of these studies have discussed indirectly the interlinkages between the socio-economic, working and living conditions and health.

These above studies prove that there is a paucity of data particularly on the health status of the plantation workers of Darjeeling hills. Studies concentrate mostly on the economic aspect of the tea industry. Although this is of primary importance as the health of the workers is also dependent on the health of the tea industry. Economic boom of Darjeeling tea industry in 1986 (Sharma 2000) did not reflect on the welfare of its workers.

Selective studies of tea gardens have mainly highlighted the type of diseases and the health service utilisation pattern among the workers. These studies have shown associations between housing and health, sanitation and health and work and health. Such conditions are reproduced in the type of ailments like respiratory problems, asthma, bronchitis, diarrhoea, dysentery, anaemia and so on. Empirical studies in plantations of Assam and West Bengal have shown that despite welfare measures, the workers live in houses which have not undergone repairing for a long period, poor

30 Sharma argues that even during the economic boom in 1988 the workers were unaware of the increase in profits else their demand increases. See Sharma, 2000. according to an official of the Labour Department, Siliguri, (Interview, February, 2001) the tea production in 1998, was solely due to the climatic factor. There was even distribution of rainfall unlike the years 1994-96 which experienced dry season.
sanitation etc. Inadequate health services results in the workers' dependence on the traditional healers. These are strongly associated with the conditions in which they work and live.

Thus each set of studies seeks to reveal a specific dimension of the conditions of the working class, which are directly linked to the understanding of health vis-à-vis wages, working, living conditions and other factors. Another important aspect of this inequality is social hierarchy, which further increases the vulnerability of a population in terms of access to basic amenities etc. Studies reviewed in the Indian context of plantations and other industries show that labour was mostly migrant belonging to the artisan, service caste (scheduled caste) and tribal population. Occupational mobility was restricted for plantation labour.

**Conceptualisation and Methodology of the Study**

The ongoing study attempts to understand health from a holistic perspective as a socially produced phenomenon in a plantation set-up. The “focus of disease shifts from the host or the individual to social classes defined in relation to production and to the way production is organised. To say illness is socially produced is to say that the social relations of production and the forces of production determine disease patterns and health services” (Turshen 1989: 17). Every kind of production system entails a definite set of social relationships existing between individuals involved in the productive process. Health is contextualised within the power relations of race, caste, gender and class” (ibid: 19). Turshen reiterates, “.... the vulnerability of a particular group of people is a socially determined historical phenomenon” (ibid). The economic and the social relations of production are important for our conceptual understanding of a plantation structure. The emphasis is therefore on recognising the relevance of the entirety of social and economic life in determining patterns of health and illness.

A plantation society is characterised by a hierarchy comprising the office staff, supervisory and technical and the largest bulk of the daily-rated

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31 To quote Marx, “In production men not only act on nature but also on one another. They produce only by cooperating in a certain way and mutually exchanging their activities. In order to produce, they enter into definite connections and relations with one another and only within these social connections and relations does their action on nature, does production, take place” (Quoted in Giddens Anthony: Op. cit: 35).
male and female workers at the base. In this study we attempt at delineating the differences across different levels of hierarchy keeping the factors like wages, occupation, caste, education, household income, living conditions like housing, sanitation, water supply, diseases complaints, utilisation of health services etc. Income (as an independent variable) is one of the determining factors for health, as mediated by access to food security, housing, access to welfare services, social opportunities etc. Wages along with the total household income determine the living standards of the workers.

Historically, occupation has been the principal indicator for statistical measurement and analysis. Occupation refers not only to the designation attached but also to the type of work. Different occupations entail different health hazards. Each activity has a set of hazards associated with it. A factory worker for example can develop respiratory problems due to dust, lack of proper ventilation etc. “Health problems can be both occupational and non-occupational and their interrelationships have to be recognised” (Sivaram 1996: 11). The nature of work at different levels of the hierarchy and its implications for the health of the workers are examined.

**Location of the Study**

North Bengal geographically is divided into the Terai and the Hill regions. There is a climatic difference between these two regions, which is reflected in the epidemiological patterns. The former is physically characterised by plains, where malarial fevers are common, while respiratory problems are more common in the hills. It is important to mention the geographical difference between these two regions as they differ in altitude, climate and therefore the epidemiology and health hazards are completely different. Studies on health of plantation workers are mostly limited to the Terai region of North Bengal although a study has specifically looked into the prevalence of tuberculosis in Darjeeling hills.32 Therefore it is not the malarious tract of the Terai region, which is the focus of this study, but a region with a different set of illnesses like tuberculosis, respiratory problems, rheumatism and other associated illnesses.

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Rationale of the Study

The present study builds on the earlier study that had explored the association between socio-economic conditions of the women workers and their health in a tea gardens of Darjeeling hills. An important aspect of this study is the social composition of the workforce. A conscious effort was made to choose a garden that had a 100% Nepali population. Therefore workers residing in the tea garden were Nepali-speaking, unlike the mixed population of tribal and other ethnic groups including Nepalis in the plantations of Terai and Dooars\(^{33}\) region in North Bengal. Phuguri Tea Estate is one of the oldest tea gardens established in circa 1870s. This helped in strengthening the historical essence of the study. Accessibility, location etc were some of the important factors considered in choosing the area. Therefore keeping the plantation work and social hierarchy in mind, this study through a historical perspective seeks to understand health of tea garden workers in Darjeeling hills.

Objective of the Study

To examine the inter linkages between working, living and health conditions of tea plantation workers.

The Specific Objectives are as follows:

1. To examine historically the socio-economic and political factors that reinforced the plantation labour in Darjeeling.

2. To examine historically the working, living and health conditions of the tea plantation labour in Darjeeling.

3. To examine the welfare interventions after independence for the plantation workers specifically in Darjeeling.

4. To explore through a case study the present conditions of work, living and health among the tea plantation labour force.

5. To gain insights into the workers coping mechanisms during crisis and the role of the trade unions.

6. To explore the workers' perceptions of health in relation to work, wages, food security and the utilisation of health services both formal and informal.

\(^{33}\) The researcher has used the spelling Doars. Differences in spelling in the later chapters is because it is used as spelt in the respective reports or studies wherever referred.
Research Design

In this study the objective is to highlight the conditions of the workers in a tea garden. It shows the processes involved in the formation of tea plantation in Darjeeling vis-à-vis socio-political history, push-pull factors, labour recruitment methods, socio-demographic profile etc. Due to differences in the geo-political and social histories from that of Bengal (plains) and Assam, the area-Darjeeling is introduced using primary and secondary sources. Parallels are drawn from Assam, the Doars and Terai areas of Bengal, to differentiate working, living, health and welfare conditions of the plantation workers during the colonial period.

Keeping this historical background in mind, Phuguri Tea Estate in Darjeeling is used as a case study to investigate the interlinkages between the above-mentioned factors. Such a study will act as a window to understand various factors that interplay in understanding health among the tea plantation workers.

Further, an intensive study on the implications of work on the health of the workers who are directly involved in tea production viz. the female pluckers and the factory workers, the daily-rated male workers, which include the sprayers, and factory workers is carried out through an exploration of workers' perceptions, regarding:

i. Relationship between nature of work, wages and health

ii. Relationship between food intake, illness-complaints with their working conditions.

The workers perceptions of their lives and their aspirations living in a tea estate are captured through interviews, group discussions and observation during fieldwork further dealt in the methods used for data collection. Oral narratives have captured the perceptions of the earlier generation on the conditions of labour, health, access to food, nutrition, and health services.

In order to get some idea of the causes of death we have used available data of a period of two decades from the local dispensary. This data was then used to corroborate the self-reported illnesses and causes of death as given by the workers. The causes of death are itself indicative of the socio-economic conditions. Income, nature of work, food security etc are some of the important indicators that were explored to explain the differences in
morbidity across the levels of hierarchy. This relies primarily on lay or subjective reporting of both mortality and morbidity. We have not undertaken any clinical assessment to verify the subjective reporting.

**Time Frame for the Study**

To conduct the study, keeping the above objectives in mind the time period was divided into two phases; two months of pilot study and six months of fieldwork. In the former, gaining familiarity of the area, rapport-building, pre-testing of the interview schedule was conducted after selecting the universe of the study. In the second phase, the main fieldwork was conducted with the workers using the interview schedule. In the interview schedule some of the aspects covered were income, education, family size and caste, and, basic amenities like housing, sanitation, health conditions, health services and social support systems. Group-discussions were conducted with different categories of workers for example the factory male and female workers, the pluckers, the sprayers and so on. Interview with key informants was conducted to gain further insights in to the study. The interview with the management was accomplished after the completion of the entire fieldwork to avoid any limitation to this study.

**Area of Study**

This study is conducted in Phuguri Tea Estate of Darjeeling district of West Bengal. This area is divided into two divisions-Paschim and Poorva Phuguri. The area of study falls in Paschim Phuguri, which comes under the Mirik Block and Kurseong as its sub-division. The following tables give the population break-up of Phuguri and Mirik. In Mirik the demographic profile is divided into the Block and the Municipality area.

<table>
<thead>
<tr>
<th>Table No: 1.1</th>
<th>Population of Mirik</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Male</td>
</tr>
<tr>
<td>Block</td>
<td>21,095</td>
</tr>
<tr>
<td>Municipality</td>
<td>4,582</td>
</tr>
<tr>
<td>Total</td>
<td>25,677</td>
</tr>
</tbody>
</table>

*Source: Calculated from the Census, Mirik Block Office, Mirik, 2002*

34 See appendix no. V.
## Table No: 1.2
Population of Different Areas in Mirik

<table>
<thead>
<tr>
<th>Place</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Okayti T.E.</td>
<td>1481</td>
<td>1535</td>
<td>3016</td>
</tr>
<tr>
<td>Bukim T.E.</td>
<td>2213</td>
<td>2119</td>
<td>4332</td>
</tr>
<tr>
<td>Phuguri Forest</td>
<td>30</td>
<td>39</td>
<td>69</td>
</tr>
<tr>
<td>Phuguri Forest (Thurbo)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paschim Phuguri</td>
<td>1085</td>
<td>1136</td>
<td>2221</td>
</tr>
<tr>
<td>Soureni Basti</td>
<td>2035</td>
<td>1967</td>
<td>4062</td>
</tr>
<tr>
<td>Mirik Khas mahal</td>
<td>2013</td>
<td>1929</td>
<td>3942</td>
</tr>
<tr>
<td>Murmah T.E.</td>
<td>1402</td>
<td>1412</td>
<td>2814</td>
</tr>
<tr>
<td>Phuguri Forest (Singblli)</td>
<td>76</td>
<td>65</td>
<td>141</td>
</tr>
<tr>
<td>Porva Phuguri</td>
<td>519</td>
<td>528</td>
<td>1047</td>
</tr>
<tr>
<td>Tingling T. E.</td>
<td>753</td>
<td>742</td>
<td>1495</td>
</tr>
<tr>
<td>New Follodi T.E. (Gayabaree)</td>
<td>2072</td>
<td>2115</td>
<td>4187</td>
</tr>
<tr>
<td>Pootong Tea Estate</td>
<td>1070</td>
<td>1068</td>
<td>2138</td>
</tr>
<tr>
<td>Panighatta (Barakothi)</td>
<td>99</td>
<td>98</td>
<td>197</td>
</tr>
<tr>
<td>Manja Forest</td>
<td>13</td>
<td>16</td>
<td>29</td>
</tr>
<tr>
<td>Lohagar T.E.</td>
<td>951</td>
<td>969</td>
<td>1920</td>
</tr>
<tr>
<td>Lohagar Forest</td>
<td>12</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Rangamohan</td>
<td>252</td>
<td>264</td>
<td>516</td>
</tr>
<tr>
<td>Bara Chenga</td>
<td>785</td>
<td>776</td>
<td>1561</td>
</tr>
<tr>
<td>Panighatta</td>
<td>2264</td>
<td>2365</td>
<td>4629</td>
</tr>
<tr>
<td>Panthabari</td>
<td>407</td>
<td>426</td>
<td>833</td>
</tr>
<tr>
<td>Singbulli T.E.</td>
<td>1563</td>
<td>1564</td>
<td>3127</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>42230</td>
</tr>
</tbody>
</table>

**Source:** Census of Mirik Block-2001

The map of Mirik (1929) overleaf shows the different areas including the tea estates.
Table No: 1.3

Population of Phuguri, 1991 and 2001

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total (male and female for each year)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Paschim</em></td>
<td>903</td>
<td>1085</td>
<td>913</td>
</tr>
<tr>
<td><em>Phuguri</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Poorva</em></td>
<td>467</td>
<td>519</td>
<td>507</td>
</tr>
<tr>
<td><em>Phuguri</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Population</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Phuguri Tea Estate comprises of 427.41 hectares, including the Mechi division. The area under plantation in Phuguri is 71.83 hectares and in Mechi division it is 155.85 hectares. During the course of fieldwork, the land man ratio in Phuguri was 1:3.5 i.e. three and half persons for one hectare of land. The actual labour strength in terms of land man ratio should be 228 in Phuguri division but total strength is more, as some workers came in from Chandura.

Phuguri Tea Estate was established in and around 1870's. It is quite evident that the bushes are old. Only 15% of the tea bushes have been replanted. As such the quality is deteriorating and total production is declining. Tea produced here is of orthodox Chinese variety. The bulk of the tea produced in Phuguri goes directly to Calcutta for auction where the prices are determined by the buyers' taste.

Universe of the Study

The permanent workforce of Phuguri Tea Estate comprises of the office, field and factory supervisory staff, other monthly-rated employees (O.M.R.E.) and the main bulk of daily-rated workers. This is the main

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35A larger division of Phuguri Tea Estate (which has not been covered for the study)
36 Adjoining area of Phuguri. Bimal Pradhan, an office staff of Phuguri T.E, gave this information.
37 As informed by the Garden babu, Phuguri T.E., 2000.
38 See table in appendix no.1 on production and rainfall in Phuguri T.E. Data gathered from Phuguri office, per kind favour of Khagendra Khati, factory babu.
universe of this study. As the entire workforce has been selected for our case study, no sampling method is employed. This encompasses all levels within the plantation hierarchy in order to achieve the objectives mentioned earlier. The unit of the study is the worker both male and female. The following table depicts the distribution of workers.

Table No:1. 4

<table>
<thead>
<tr>
<th>Total Workforce of Phuguri Tea Estate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male workers</td>
</tr>
<tr>
<td>Female workers</td>
</tr>
<tr>
<td>Staff and sub-staff</td>
</tr>
<tr>
<td>Permanent Tea Workers(^{39})</td>
</tr>
<tr>
<td>Total Workforce</td>
</tr>
</tbody>
</table>

**Source:** Phuguri Tea Estate Office, 2000

**Types of Data**

For achieving the objective of this study both quantitative and qualitative approach are used. Data that could be quantified like wages, household income, education, caste composition, living conditions like housing, sanitation, water supply etc. are used to provide an overall background of the study. Qualitative data were gathered mainly from secondary literature and field work dealt in detail in the following sections.

**Sources of Data**

**Primary Sources**

Primary statistics were gathered from Census Books, District Census Handbooks, Gazetteers, annual reports of tea estates and other relevant government documents/ reports. Archival records and other relevant documents were referred to learn about recruitment system, social background, mortality, health services, welfare amenities etc. It was conducted in National Archives and Teen Murti Library in Delhi and at the Calcutta National Library. As archival reports were more specific to the plantations of Assam and less on Darjeeling, a lot of reliance is given to the

\(^{39}\) These workers work only within the factory all the year round.
oral narratives of the older generation at Phuguri Tea Estate. The Secretary of the Darjeeling Planters’ Association cited the reason of non-existence of documents of Darjeeling hills to a landslide that occurred a few decades back, which washed the entire office of the Darjeeling Planters’ Association at Darjeeling Planters Club.

**Secondary Sources**

The secondary sources include a) reviewing relevant literature, both for the theoretical and conceptual understanding of the study. b) Various publications of the central, state governments with regard to the plantation industry, c) publications of international bodies like that of the International Labour Organisation d) reports and publications of various associations connected to the tea industry, like the Tea Board, Darjeeling Planters Association (DPA) and so on e) reports prepared by research scholars, universities etc.

**Methods and Techniques Used**

For the primary sources regarding official and other documents, the methods used were the analysis of the historical records, documents, reports of the Assam and the Darjeeling tea plantations by using the technique of content analysis of such documents. Reports highlighting on the workers wages, housing, health were referred to show the conditions existing during the colonial period. Accounts by official bureaucrats, planters are also used in this study.

For the primary data collection, the field work was done at two levels. First, a brief pilot study in Phuguri Tea Estate was conducted. This helped in assessing the nature and problem of the study. This stage involved at first seeking permission from the management, selecting the units for the study by drawing out the list or categories of the population (universe of the study) to be interviewed. Brief interviews were conducted in order to capture insights on issues of health etc with the resident-Auxiliary Nurse cum Midwife (ANM)/Multi Purpose Worker (MPW), traditional healers and the dispensary staff. For current organisational and workers’ issues, interviews with the trade union leaders, management, village elders and so on were conducted. Rapport building with the workers and developing familiarity with the area was also a part of this initial survey.
The main fieldwork comprised of conducting a survey using an interview schedule covering various indices like wages, living conditions, occupation, household income, education, caste, specific occupational complaints, utilisation of health services and so on across the entire category of workers in the plantation hierarchy. In a plantation as mentioned earlier, there is a hierarchical work structure. Keeping this hierarchy in mind and the conceptualisation that work and social hierarchy reflect access to basic amenities and health status this study was carried out. Survey method helped in drawing a link between sociological and epidemiological methods. An important dimension was the question of availability and accessibility of health services offered in the plantation. Available means, when the worker knows the kind of services that are there but it is accessible to only when the worker can actually obtain (accessible) definite services from it when required. Thus interviews of the 231 workers with the help of an interview schedule were conducted for the quantitative dimension.40

For the qualitative dimension, in-depth interviews were conducted of the workers who were directly linked to tea production. The concerned issues are already discussed in the research design. Case study method was used to understand the interrelationships between such processes of work and health. Interview with key informants was undertaken at various levels. At the managerial level the manager, the assistant manager of the factory too were interviewed. During the course of fieldwork, there was no field manager (who supervises field work) employed. Trade union leaders both of the Himalayan Plantation Workers' Union and the Communist Party of India (Marxist), i.e. the CPI (M) were interviewed during fieldwork. As tea gardens were recently incorporated into the Panchayati Raj the ward members too were not left behind.

Few senior residents of Phuguri were combated to grasp the local politics in the tea garden. Apart from such interviews in Phuguri selective interviews were taken of the state and the district level of the government functionaries' viz. officials of the Labour Department and Mirik Block Primary Health Centre and Sub-Centre.

40 See appendix for the interview schedule.
Indepth interviews with the older generation of workers in the form of narratives threw insights into the history of the region, work conditions, family structure, food access, epidemics, amenities etc. This helped in substantiating the archival research.

**Group Discussion** was an important method used to capture the perceptions and experiences of workers, which provided further qualitative insights. Workers were divided into small groups, for example, factory women workers engaged in sorting, the daily-rated male workers involved in spraying, the tea makers working in the factory, pluckers etc. This helped in understanding the occupation related hazards and the workers' perception regarding these and their coping mechanisms. Sets of group discussion also provided valuable insights into their income and expenditure patterns, the issues on work conditions as the workers viewed on health, causes of ill-health, their understanding of the linkages of these factors. Questions of access to health and welfare services and their perceptions regarding these were evocatively captured. This method helped in observing the interactions between the respondents. This qualitative information provided depth to the quantitative survey as well as acted as a cross check.

**Non-participant direct observation** was another method used for strengthening the qualitative data. The technique of observing unstructured, and making field notes, helped in gaining insights into the process of work for example the operations at the factory, field which involved plucking, pruning, spraying, hoeing and so on. Also the areas like the dispensary, crèche, sub-centre, the Integrated Child Development Services (ICDS) centre, and the faith healers were some interesting observations made during the course of fieldwork. During house visits certain behavioural and social-relationships were observed.

**Data Analysis**

Keeping the conceptualisation and the research question in mind, the data collected with the help of an interview schedule was separated into quantitative and qualitative data. Certain qualitative data that could be quantified are also taken as variables for the analysis. Occupation was used as a base to draw out trends with regard to occupational related-complaints, health service utilisation patterns, living conditions etc. The quantitative data was coded and tabulated to draw out certain statistical inferences and
to establish correlations between variables such as income, occupation, housing and health status.

Qualitative data was collected based on the perceptions of workers. This was possible through the interviews along with the continuous interaction with the workers during work. Interviews with the key informants like the compounder, the midwife, the traditional healer (jhânkri) and others are incorporated to provide a background of the health conditions of the workers. Interviews with the shopkeepers and local inhabitants reflected the relationship between the income and the expenditure of the workers.

An important indicator of the population, regarding the health status is the mortality and morbidity data, which is described in the subsequent chapters. Data on mortality and self-reported morbidity of the respondents was used to draw out the epidemiological profile of the area. Certain trends are illustrated from the mortality data gathered from the death record book of the dispensary at Phuguri Tea Estate. Reported infant and child deaths collected from the respondents, reflect the cause of such deaths. Thus the historical data and the present field data are used to corroborate and provide insights into the epidemiological differences within the tea-growing areas.

Limitations of the Study

The study is an indepth study of a tea garden; therefore generalisations about the tea industry as a whole have been avoided. This case is a microcosm and cannot be generalised for the whole tea industry of Darjeeling hills. Time, seasonal limitations and climatic conditions did pose limitations to the study. As access to data was limited reliance had to be made on whatever sporadic data was available. Problems arose during the course of the study especially while extracting the historical information. People were not willing to part with their empirical experiences. Despite all odds, this thesis attempts to put across to the concerned scholars, activists, and people in general, the problems faced by the workers who produce the famous Darjeeling tea, which is now in a period of severe crisis within the industry.