

Chapter-2
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The previous chapter has offered the blueprint of the entire study in both theoretical and analytical aspects. It has covered the conceptual framework, identified the statement of the research problem, background of the study, objectives of study, hypothesis framed, methodology and analytical techniques, study period considered etc. Conceived with the framework of the study, the present chapter is an attempt to review the existing literature on various aspects of tea production. A good number of academicians, researchers, policy makers have worked on the subject. A brief survey of these works is accommodated in this chapter.

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2.1 Introduction:

The tea production and industry in Assam started under the British colonial rule during the early part of nineteenth century. It has already marched a long way to acquire its present status. A good number of studies have been undertaken by scientists and research scholars at individual as well as government levels with a view to optimize the cultivation and production of tea and also to understand the various factors contributing directly and indirectly towards its growth and development of tea production and tea industry. Some of the studies are related to general in nature, related to historical and geographical point of view, while others are of experimental in nature conducted with respect to the growth, production and productivity of tea. The main objective of the present chapter is to highlight the literature review which consists of a mixture of investigation and polemics. The aim of such a review is to have a bird's eye view of the concurrent and corresponding issues and problems related to the present study. Hence, a comprehensive survey of this literature has been in order to pinpoint the importance of the present study.

The literature review has been designed in the following structure of related areas:

- i) Studies Related to General in Nature on Tea Industry
- ii) Socio Economic Studies on Tea Industry
- iii) Studies Related to Marketing and Export of Tea
- iv) Studies Related to Human Resource Management on Tea Industry
- v) Studies Related to Factors Affecting Tea Production
- vi) Studies Relating to Productivity of Tea

2.2. Studies Related to General in Nature on Tea Industry:

Griffit (1967) highlighted various concepts related to historical development, production, labour problems, scientific research, marketing and taxation of tea through his multi-dimensional work on tea industries.

Sarkar (1970) organised a group discussion on some of the important issues relating to the prospects of tea plantation industry in India. Tea plantation industry is a labour intensive one particularly in plucking of leaves. The suggestions emerged from the group discussion were different, some argued for mechanisation while some others expressed concern over huge amount of displacement due to mechanisation. Another important problem of Indian tea plantation industry is low productivity. One of the reasons for this is existence of uneconomic old bushes. The only solution to this is replanting and there is no disagreement on this. But the issue is who would finance this. The group suggested that capital investments could be shared by Government, Agricultural Refinance Corporation, The State Finance Corporation and the Nationalised Commercial Banks. The group also discussed the need for rationalisation of tax structure and improving efficiency of management.

Sarkar (1972) has given an overall picture of the world tea economy focusing on the size distribution of plantations, trade agreements, consumption pattern of tea, demand and supply of tea and supply response. His study found that although the size of tea plantation in China is much larger than Japan and Taiwan but per capita consumption has not been considerable increase according to size increase. As tea plantation industry is an export oriented industry and hence the producing countries are consuming only a small share of their production. Also he observed that and whatever tea consumed in such countries is of inferior quality which does not have any export value. The supply demand analysis shows that the supply of tea is inelastic. The estimated price elasticity and income elasticity are found to be very low. It is seen in historical analysis that international regulations on tea agreements are not able to stabilize the tea marketing. Sarkar also suggested some long term measures for rationalization of the tea industry by means of improving the output by curtailing the input cost, improving technology and by utilizing optimum factors of production.

Manoharan (1974) analyses the problems of Indian tea industry and carefully observed that, after the evolution of tea industry, there had been considerable increase in exports of Indian tea during 1950's and India stood first in world tea export market. But during 1960's India lost the first position to Sri Lanka. He also found in his study that profit of tea industry adversely affected due to declining price and increasing cost of production. As a result the share value of tea companies had dumped considerably. He suggested that productivity can be increased by replantation along with introduction of modern technology in cultivation. The small planters may form cooperatives so that they would be able to enjoy the returns like large tea estates.

Awasthi (1975) has given a detail idea regarding of the history, growth and development of tea plantation and processing of tea with reference to Assam. He identified various additional facilities and other benefits like free housing, free medical facilities, recreation centers, free liquid tea while on duty, sickness allowance, leave with wages, etc provided by the management of tea estates towards the workers. He has considered most of the relevant aspects based on secondary data, but has not employed any statistical tool and test to bring out the special significance of tea with respect to its production variables

Jain (1977) identified some major factors as being responsible for India's poor performance of tea industry are high input costs, the old age of the bushes, unskilled labor, and lack of infrastructure, poor price realization, legal problems, outdated machinery, high fixed and labor cost, inefficient Tea Board, inability to compete with other tea producing nations in terms of price, quality, packaging, etc.; slow increase in world demand for tea as compared to the subsequent increase in its supply, losing traditional international buyers and more inclination towards domestic market in comparison to the international market.

Goradia (1979) studied regarding strength, weakness, opportunities and threat (SWOT) analysis of Indian tea industry. According to him the strengths of tea lies in its caffeine content which makes it a inspiring drink, economic and it is a self reliant agro industry and also India is the largest tea consuming country in the world. The weaknesses are dependence on weather which are fluctuating and uncertain, high cost

of production, fluctuations in quality, labour intensiveness and long cultivation period. Opportunities are the home market which provides an excellent base for product superiority such as instant, cold and fruit mixed teas, tea and coffee are interchangeable. The threats are prolonged changes in prices and undue rise in cost of production. The study also deals with other aspects of tea such as tea tasting, auction, tea research and marketing. He has also shown that plantation technology is a synthesis of industry and agriculture.

George (1982) pointed out that die domestic consumption has been rising at an average annual growth of 5 per cent while the production has been increasing at a rate of 3.5 per cent per annum. Due to lack of development activities in tea plantations most of them became unproductive. Some of die reasons for deterioration in the conditions of the South Indian tea plantation industry may be traced to the changes in die ownership pattern. The ownership pattern of tea industry became changed from proprietorship to partnership firms, and then to public limited companies. Before independence, complete control of Indian tea plantations was with the British Managing Agencies. But after independence, India Government abolished the managing agency system in 1970. Then some British companies migrated to East Africa and some collaborated to Indian capital.

George (1984) have analysed the problems of tea plantation in South India, particularly the crisis of tea industry in the 1970's. They have identified the problem as both developmental and financial. These studies focused on the reasons for the rise in cost of production, price and profitability of tea industry, factors governing the level of investment and long term finance and development strategy. They have also taken care of the special features in agro-climatic aspects, manufacturing and export aspects.

Misra (1986) conducted an econometric study of Indian tea industry at the national as well as regional level. He looked into the trends in area, production and productivity. It was found that during the period in 1956 to 1982 there was an increase in 10 per cent production. He has also studied the supply response of tea in three regions of West Bengal viz Terai, Dooars and Darjeeling during 1961 to 1982. He found a positive

price response of yield for all the region positive response with substantial variation in elasticity estimates.

Reddy (1991) found that global production has been on the increase at a rate of 3.7 per cent per annum, while the domestic consumption of the producing countries has been increasing by 4.9 per cent per annum. The tea producing countries were consuming 65 percent of total production in 1988. Thus the global demand for tea exceeds global supply. In India, the export of tea has been increasing on rate of 4.3 per cent per annum.

A critical review of the Tea Board by **Bhowmik (1991)** showed that the promotional activities are only towards large estates. The benefits of the scheme of the Board are really going to large plantations, leaving most of the small growers unsupported. The Board believes that, according to Bhowmik, only large plantations can increase production. The small growers are flourished in the periphery of large plantations. The small ones can make tie-up arrangements with large estates for technical know-how and for selling green leaves. So the Board's conclusion is that supporting large estates will also be helpful to the small ones. The Tea Research Association and United Planters Association of India (UPASI) are focusing on the development of large estates. Tea Board's implementation of schemes through these institutions will support only large estates. Bhowmik argues that a way out lies in the formation of cooperative tea factories by small growers. At the same time, the Board may extend some direct support to the small growers also.

Baak (1992) studied the historical evolution of plantations in Travancore. In Travancore, plantations were developed later in 1860s compared to Ceylon, Assam and Bengal where the process started in 1820s, 1830s and 1840s respectively. Baak points out that plantations are developed with political influence from the Colonial Government, and the pressure came to Travancore was from the British through Madras Government during 1860s. Initially, the main investment was for construction of roads. The British owned the plantations and the labour came from the backward communities. With the ownership rested with the British, profit during the colonial period went out of the

country. The positive aspects of development of plantations are development of infrastructure such as roads, transport and communication facilities, increase in economic activity and increase in employment opportunity.

Chiranjeevi (1994) has studied on supply-demand analysis of Indian tea industry. He found that in there exists an imbalance in supply and demand for tea. As per his estimate, the domestic demand is growing at an average rate of 4.3 percentages per annum while the increase in production growing only at 2.5 per cent per annum.

Mohan (1995) and Sukarchakia (1999) studied the problems of Daijeeling tea. The most important problem related to absence of quality control in Indian tea. Substandard teas are mixed with Daijeeling tea and market it as Daijeeling tea; as a result people are suspicious of buying it with a high price. The cost of production of Daijeeling tea is high and people are ready to buy it at a high price. But it is a fact that average annual production in Daijeeling is around 10 to 11 million kg. only. But about 40 million kg. of tea is marketed as Daijeeling tea in the world market Other problems of tea in Daijeeling are over age of plants and declining productivity.

Dwibedi (1999) conducted a study on tea plantation industry in West Bengal. Growth trends in tea production, area and yield and influence of climatic factors like rainfall, temperature and humidity are also taken into account. The study revealed that area under tea in West Bengal has been increasing more or less at a constant percentage rate between 1961 and 1993. Production of tea has been increased with a declining rate of growth and yield rate increased with a declining trend. The analysis revealed that rainfall and temperature effects are dominant in crop production in West Bengal, particularly Dooars. His examination of the size of plantation and type of ownership and its impact on productivity showed that there exists a positive relationship between size and yield; and the propriety ownership is found to be less efficient The analysis on average and yield response to price suggests that planter's decision in expanding average under tea in any year is influenced by the magnitude of the difference between the price realised and die price which the planter expects to realise.

He concluded that decision to bring more area under tea is dependent on the last two year's price level.

Asopa (2007) pointed out that the extremist in Assam is one of the major concerns for the declination of the growth of the tea industry. The executives and managers are threat and killed by the extremist. Most of the tea garden management comes to the negotiation with these extremist groups for reasonable price which badly effect in the profit margin of these industries.

Due to higher price, tea producers are facing huge competitions from Sri Lanka, Keniya, Vietnam, Cuba etc., and therefore exports order are gradually falling (**Das, 2008**). Non Scientific variation of prices causes reducing demand of Indian tea in general and Assam tea in particular.

Das (2009) found in his study that tea industry is being effected due to absence of accurate estimates of the formulation of long term industry wise action plans. Management of this industry has concentrated more on building up its large estates and has given less attention to processing and improving the quality of their products. Also the actual producer of tea has no direct link with the ultimate consumer. Tea producers sell their products to the bulk purchaser through direct sale or through auction to big buyers' results loss of earning by the tea producers as they does not know the actual market demand.

Hazarika (2011) found that Indian tea industry facing several challenges. Nearly 50 percent of tea bushes in the plantations are more than 50 years old. This factor leads to decline in productivity. Besides the ever increasing cost of production, there is stiff competition from other beverages, especially from soft drinks and energy drinks to which the younger generation is more attracted.

Roy (2011) suggested to modernize of tea industry of Assam with a change in technique of plantation, improvement of encouragement to the electronic tea auction and managerial excellence. Some important steps in recent times have been taken by the government, for development and modernization of the sector. "Special Purpose

Tea Fund" with corpus of Rs 1000 crore that proposed by the Government of India for new plantation of tea may help to revive the tea sector.

Majumder et al. (2011) observed that strategies must be adopted to meet up the challenges in global demand for tea industry in India. They suggested promoting tea as health benefit beverage to the nonconventional areas of tea in the world for an expansion in the consumption. Different types of tea products need to be developed for balancing the supply demand chain for the end user.

Arya (2013) found that the Assam Tea had lost its competitive edge in the market due to price rise. Over the last few years the tea industry is facing problems as the land for tea plantations has not grown much while the work force had multiplied enormously which indicates vast surplus of labour in tea gardens. The industry needs transformation through low prices, incorporation of small estates and cooperative management.

2.3. Socio Economic Studies on Tea Industry:

Raman (1986) examined socio-economic conditions of the South Indian tea plantation workers. Historically, colonization paved the way for the formation of plantation system in India. During die early period, standard of living of workers in plantations was very poor. They were ill-fed, ill-housed and ill-treated, the researcher observes. Since independence, die constant protest of these labourers resulted in the introduction of Plantation Labour Act 1951. Raman also analysed die labour market in Kerala and Tamil Nadu there are two types of workers, permanent and temporary. But in Karnataka, in addition to these permanent and temporary workers, casual/contract workers are also engaged. An important factor noted by the investigator is that productivity of women workers is high. Living conditions of workers are poor with inadequate drinking water, poor housing facility, and insufficient medical care.

Sarkar (1984) made a socio-economic study of tea plantation industry with special emphasis on the aspect of labour. He discerns the fact that during the initial period labourer's life in estates are comparatively good. Houses are provided by the industry. Medical services are given free of cost The management also takes care of free milk

service for mother and child, creche service, and primary schooling . However, when the industry expands, there seems to be a tendency to form an attitude detrimental to the interests of the labourers. In this regard, there exists differences of opinion regarding the behavioural pattern from the management side. Some expressed good opinion about the attitude of the management while others opined that the behaviour need not be favourable to the labourers. For example, there were incidents of forcing labourers to work when they are not well. The major problem among the estate workers are absenteeism and alcoholism. Sarkar has also made some observations on improving the tea industry. He is of the opinion that for the best marketing, tea made from 'two- leaves and a bud' and its processing are very important. He suggests for mechanical harvesting for countries having shortage of labour.

Sarkar and Bhowmik (1988) made a study on West Bengal tea plantation industry concentrating on the role of women workers in trade unions. Tea plantation industry is a labour intensive one and majority of workers are women. They found that participation of women in trade union activity is low, and the major reasons, according to them, are inequality, low literacy rate, low political consciousness and burden of the household duties.

Nair (1989) examined the socio-economic conditions of labourers in the Ponmudi tea estate, a unit which is closed since 1973. He made a case study of this unit to highlight the fate of workers in a sinking factory. The employees are continuing in the factory because of the single reason that they have no other option. They are virtually suffering from poverty as a result of unemployment.

Reddy and Bhowmik (1989) studied socio-economic aspects of small growers of tea in Nilgiri's district. In India the largest concentration of small growers are in The Nilgiris district In order to reap the economies of scale the farmers have formed co-operatives, and membership to the co-operatives has been increasing. One of the important limitations of small growers is that they cannot establish tea processing unit in their farm since factory requires a huge amount of investment. Furthermore, small farmers are too small to produce leaves for a factory. So traditionally they have been

selling their leaves to large factories at a very low price. The prices are set by the factories who enjoys the status of monopoly or monopolistic competition. In order to come out of the clutches of these large factories, small farmers in The Nilgiris district formed co-operative factories. These co-operative factories give remunerative prices to small growers. The study was conducted at two levels, one at the aggregate level analysing trends in growth of tea in Nilgiri district, and the other at a co-operative level case study. The macro analysis show that tea production in Nilgiri has been increasing at an annual rate of three per cent Co-operatives played an important role by providing remunerative price to their products. The researchers suggest that just as die Tea Board has linkage with large estates through UPASI, the Board may create a link to small growers through these co- operatives.

In India, most of the tea is grown in large estates, and small growers have only a very limited role. While more than 96 per cent of Indian tea is grown in large tea estates owned by joint stock companies, only less than 4 per cent is produced by small growers. But there is an emerging trend of developing small growers by forming co-operatives. They also made a study on co-operative tea factories in The Nilgiris. The largest concentration of small tea growers in India is in The Nilgiris. Here small growers emerged with the support of large growers due to Government restriction on further area expansion and export quota system. Forming co-operatives small growers established tea factories with a view to provide remunerative price to small growers for their leaves and to prevent middlemen from exploiting them. The apex body of industrial co-operative tea factories in The Nilgiris is known as The Nilgiris Small Growers Service Industrial Co-operative (Incoserve). The study came to the conclusion that the co-operative tea factories in The Nilgiris have had a positive effect in helping small tea growers. As a result of this, die share in production of tea of small growers has been increasedconsiderably.

Kurian (1990) made a study on socio-economic condition and consumption pattern of women workers in tea plantation industries in Munnar, Idukki district of Kerala. The tea industry is labour intensive and majority of workers are women. The study emphasized on the personal and family background of women workers, their

economic and living conditions, income and expenditure pattern, standard of living, social status, working environment, welfare facilities and security. Information on households of the workers reflected that women are major earners of their family. The workers get housing facility, electricity, day care facility, and social security benefits such as gratuity, family pension, and maternity benefits etc. but their educational status is very low and also their socioeconomic status is found very poor. Though they spend major share of their income on food items but their consumption of nutrients is found very low. In general poor quality medical care provided by companies. Although housing facility provided but women workers are facing many problems as they have to travel by foot to distant places of work. Work place does not have proper amenity facility and also do not have any recreation facility. The workers are not satisfied with the existing leave facilities. Leaf pluckers have no promotion and job security.

Kurian (1999) made an evaluative study on the socio-economic background, working and living conditions, consumption pattern and physical quality of life of women workers in the plantation sector of Kerala. The terms and conditions of work of women workers in plantations are governed by the Plantation Labour Act, 1951, Kerala Plantations Labour Rules 1959 and other statutory benefits. The study stresses that provisions of these Acts are not implemented fully and the physical quality of life of these women workers are far from satisfactory.

The study reveals that facilities provided to them are not sufficient. Most of the women workers in tea, coffee and cardamom get the housing facility provided by the management. But it is very limited in the case of rubber. Considering the case of consumption pattern major spending is on food, but the consumption of nutrients is very limited. Most of the women workers do not get proper toilet facility in plantations and they have to walk long distance from their house to the work place. Medical and child care facilities provided are also not fully satisfactory. Women in the plantations are educationally backward and social interaction and general awareness etc. are also poor. The study suggests to the authorities to give little more attention to

these problems and find proper solutions. Literacy programme for women workers in plantations also must be strengthened.

Saikia (2008) in his study regarding the problems facing by the tea garden worker for their identity and rights. He pointed that tea community in Assam has never received any attention for boosting their development. In this twenty first century these workers are still to get their identify in Assamese society. He found that a section of the youth among the tea garden population those who acquire higher education and leave behind the centuries-old practice of indentured labour, has, to some extent, managed to create an identity for the tea garden community. He also concluded that granting ST status of this community will not ensure the requisite socio-economic facilities for them until the Plantation Labour Act is amended. Granting ST status will only intensify the pursuit of identity politics in Assam and enable the community to obtain a few more seats in the election process. only a few among them will be able to get jobs and education as most of them are totally illiterate people. The granting of ST status will help an elite section within the community, who would benefit in the long run, while the rest of the community members would continue to remain poor and under-developed. Thus, there is no rationale for granting ST status to the tea garden labour community without ensuring the provision of basic amenities in the tea garden and the socio-economic development of the community.

Sharma et al. (2013) studies on the livelihood options of the tea garden habitants. The livelihood index for tea garden community is not up to the mark also effecting the development of the tea industry. They suggested that agricultural based enterprise along with employment generic schemes and training in the tea garden area will help to uplift the livelihood of the tea worker.

2.4. Studies related to Marketing and Export of Tea:

Harler (1964) stated in his book “Culture and Marketing if Tea” as to how the tea cultivation and manufacturing process in Assam frequently been modified and improved since inception of tea cultivation in Assam. In his another book “Tea

Growing” (1966), he pointed out that the Brahmaputra valley is the best tea growing areas of the world due its geographical conditions.

Sarkar (1972) has shown an overall picture of the world tea economy focusing on size of distribution of plantations, consumption pattern of tea, demand and supply of tea, supply response and trade agreements. He observed that in tea plantations in China are very large in size compared to the plantations in Japan and Taiwan. He found that per capita consumption has not been increased with respect to increase in size of plantation area. Tea producing countries are consuming only a small share of their production. Whatever tea consumes in these countries is of inferior in quality which do not have any export value. The historical analysis of international regulations on tea came to the conclusion that such regulations are not able to stabilize the tea marketing. He suggested some long term measures for rationalisation of the tea industry by improving the output, curtailing cost of production by using technological improvement and optimum utilisation of factors of production. It has been found that the worker cost is very high and substitution of worker with updated machinery is one way of reducing cost. In order to connect the economies of scale he suggested for amalgamation of uneconomic units with larger units. He also suggested that duties and taxes on machineries for tea industry have to be rationalized and social overheads have to be developed for the development of tea plantation industry.

Manoharan (1974) analysed the problems of Indian tea industry based on production, consumption, export and share market. He studied the evolution of tea industry and observed that there had been considerable increase in exports of Indian tea during 1950's which put India first in International tea export. During 1960's India lost this position and Sri Lanka became largest tea exporter in the world. He found tea industry adversely affected due to declining price and increasing cost of production. He suggested some changes in policy like increasing production, reducing costs and rationalisation of tax structure to promote the tea industry in India. He suggested that Productivity can be increased by replantation together with introduction of modern technology in cultivation.

George (1980) studied on the evolution of the marketing system of tea in India . He found that tea is an export-oriented industry where India and Sri Lanka are the two main exporters. India is the largest tea consuming country in the world. According to him, there are two principal stages in tea marketing viz primary and retail. The primary marketing channels are: i) direct export or forward contract 2) ex-garden sales and 3) the auction system. Out of these three channels, the auction system has some advantages such as possibility of distribution of huge quantities, high competition, and improved grading. British play an important role in determination of price since they are major consumers of Indian tea He observes that after independence of India and Sri Lanka, the British shifted their interest to African countries especially to Kenya and as a result of this the auction price in India slumped.

Misra (1985) highlighted fluctuations in the prices of Indian tea in world markets and complaints about quality deterioration associated with slowness of investment in the tea plantations of Darjeeling and other quality tea producing. He explained that instead of changing Government regulations, the policy prescriptions focused on co-operative industry behavior.

Misra (1986) conducted an econometric study of Indian tea industry at the national as well as at the regional level where he analysed the trends in growth by employing a decomposition model. His study looked into the trends in area, production and productivity. The output growth was divided into area effect, yield effect and the combined effect. It was found that in the period 1956 to 1982 there was an increase of 252 million kg. of tea Production, and the increase in productivity accounted for 12 percent, growth in area 18 per cent and combined effect 10 percent. He has also made an attempt to study the supply response of tea in Terai, Dooars and Darjeeling region of West Bengal during 1961 to 1982. He found a positive price response of yield in the short term response behavior. All the regions and size classes under consideration indicated positive response of yield to increased price. Misra also attempted to figure out distribution and concentration of area under tea in India. He illustrated the

structural pattern of tea industry in Northern and Southern regions of India with the help of Lorenz Curve.

Nair (1989) examined the socio-economic conditions of workers in the Ponmudi tea estate, a unit which is closed since 1973. He made a case study of this unit to find the destiny of workers of this factory. The employees are continuing in the factory because of the reason that they have no other option of employment. They are suffering from poverty as a result of unemployment.

Bhowmik (1990) studied the trends in export of tea from India. He observed that export of Indian tea adversely affected due to increase in domestic demand. The consumption of tea in India has been increasing consistently while export of Indian tea stagnated at around 200 million kg. per annum. The increase in domestic demand is seen in the auction price. The price of ordinary tea became doubled from Rs. 30/- to Rs. 60 during the year 1989 -. Due to aging of existing bushes the production has almost reached saturation level. He found that one-third of the total existing bushes are uneconomic. Replanting and rejuvenation are necessary for increasing production , but it requires huge investments. The growers are taking short-term measures such as spraying and increasing use of fertilisers for boosting production.

Reddy (1991) analysed the trends of tea in the global market and he found that global production has been increasing at a compound rate of 3.7 per cent per annum, while the domestic consumption of the tea producing countries has been increasing by 4.9 per cent per annum. The share of tea producing countries in consumption was 65 percent in 1988. As a result the global demand for tea exceeds the global supply. Indian tea export also has been increasing on annual rate of growth of 4.3 per cent per annum. Marketing of tea in India are made in two stages, primary and retail. Primary disposal channels are public auctions, direct exports or forward contracts and ex-garden sales. Of these auction is the most important one. South Indian tea is mainly export-oriented. Price escalation and reliability are more in domestic auctions. The field survey reveals strong preference for domestic auctions. There exists wide disparity

between the auction prices and the retail prices. The auction prices of India and Sri Lanka have been falling because British people prefer Kenyan tea which was under their control. The South Indian tea prices have been worst hit and the price fluctuations have become non seasonal. The analysis showed that cost of production and price declined is high in Kerala compared to other South Indian states.

The suggestions for improvement include replanting of uneconomic bushes. Producers demand more Government assistance and subsidies for tea industry. They argue that tea cultivation is highly expensive. Rejuvenation, infillings, use of fertilizers, weedicides and pesticides, transportation cost, wage cost, taxes etc. are high and costly. Increase in labour cost is claimed to be the most important cost pushing factor. The assistance extended by Tea Board and National Bank for Agriculture and Rural Development (NABARD) is found to be inadequate.

Raman (1991) studied the marketing channels of tea by evaluating the marketing system of AVT Premium Tea. In India distribution and marketing of tea is a difficult task because tea plantation industrial units are located in remote areas. Tea is available in markets in the form of loose tea and packet tea. Loose tea gives flexibility to consumer and it is cheaper than packet tea, so the business of loose tea is going up. But the advantage of packet tea is that it provides uniform taste through blending. The marketing channels may be identified at three levels. At the first level the product comes for auctions wherein the wholesalers come for bidding. In the second level, the wholesalers packet (or in loose form) tea and distribute among sub-dealers/retailers. The retailers distribute tea to the consumers, at the third level. Many tea plantation companies packet their products directly and market under their brand name.

Venugopal (1992) done market survey on packet teas of Harrisons Malayalam Limited is done by in the Calicut city. The details relating to the buying behaviour and effectiveness of advertisement are collected from retailers and consumers in the city. The study reveals that the middle income group is the largest consumers of tea and middle and high income groups have preference for packet tea among the branded tea, Kanan Devan stood first in marketing.

Asha (1993) studied potential exportability of Indian tea . His study was focused on the potential exportability of agricultural exports, taking tea as a case, considering the case of expansion of domestic market due to growing population pressure. Indian tea export faces threat of competition from the growing domestic market as well as the competing countries. As a result of which the domestic price of tea is increasing.

Krishna (1995) examined the export market of Indian tea. He observed that production of Indian tea has been increased 1.5 per cent per annum, but the total volume of export declined. Reasons for this decline in exports were due to lower imports by CIS countries, Iran, Egypt and Saudi Arabia. Sri Lanka became emerging in the world tea market due to increasing productivity and price competitiveness.

The export market of tea is also studied by **Sundaram (1995)**. He observed that tea industry in India faced a crisis in 1992 when production lowered, export fell down and the price slumped. India's share in export market has been declining. Since the extensive cultivation is limited in scope, the productivity of die existing plantations has to be increased for increasing production. Most of the tea bushes in India have become uneconomic. Scientific management of small gardens, replanting the existing area, etc. are some of the measures that may be taken for improving productivity. For effective marketing, both in domestic and in international market, branded products have to be introduced with strict quality control.

Dudeja (1996) urged strongly that strict quality control is required for improving export of Indian tea. Demand for Indian tea in the International market seems to be declining due to absence of quality control. Basically Indian tea is of good quality. But the traders are importing cheap tea from other countries and they re-export it. And this has created problem of ensuring quality of Indian tea.

Krishnan (1996) observed that the change in consumption pattern, increase in production cost and high price made tea less competitive in the export market. Importing tea for re-exporting and blending of imported tea with Indian tea, etc are some of the options for promoting exports from India.

Krishna (1996) disagrees with the Tea Board's idea of importing cheap quality tea for domestic consumers and export high quality Indian tea. For increasing the production of tea, Tea Board has been implementing various schemes. Short term measures include optimisation of inputs and improved agricultural practices. Medium term measures are irrigation and drainage, rejuvenation, pruning (trimming a tree, shrub or bush by cutting away dead or overgrown branches or stems) and infilling. And long term measures are replanting and extension of planting.

As against the general observations of under production, **Chakraborty (1997)** warns against the possibility of oversupply of tea in the world market and a depression in international price. The disintegration of the USSR and United Nation's economic blockade on Iraq affected Indian exports adversely. In export, India's position slipped to fourth position, but in value terms India fetches maximum price due to superior quality. In order to overcome the threat of oversupply internal consumption may be increased further. Ninety five per cent of Indians consume tea. Consumption of tea is inelastic to income.

Chakraborty and Acharya (1998) examined the international trade of Indian tea. They observed that average annual export of Indian tea is about 200 million kg. and it reaches about 80 countries in the world. During 1980s Indian teas were not in much demand due to the alleged complaint that the pesticide residue was beyond the permissible level. But later, this allegation was proved to be a wrong one. Chakraborty and Acharya observed a declining share in India tea export. The important reasons for the constraints of export are: (1) Indian tea is in competitively compared to the teas of other countries (2) high domestic demand and (3) discrimination under Income Tax Act towards producer exports. Inadequate shipment credit facilities and high import duty on package materials are other important problems.

Kumar (2000) analysed the domestic and export market for Indian tea, the Russian and CIS market for Indian tea and the future prospects of Indian tea in Russian market. According to Kumar, the product of tea may be classified generally into two classes namely CTC (crush, tear and curl) tea and Orthodox tea. Out of these two, the CTC tea has high domestic demand whereas orthodox tea has high demand in export market.

CIS countries, Britain, Germany, Holland, Poland and Australia are major countries where Indian tea export. India tea export has adversely effected due to Liberalisation of imports and crisis in Russian economy. Due to economic crises the countries like Russia and CIS countries have been switching gradually from the high priced high quality tea to the low priced low quality tea. As a result, low priced Sri Lankan tea is imported into India and that was exported to these countries and for which tea industry of India has adversely affected.

Asopa (2007) found that the Indian exports of tea have been sharply declining in most of the key markets. While many individual firms are doing well having created good markets for their products. Although number of other firm is not increasing and not declining also. He observed that some corporate involved in plantations have done well because of a strong relationship with their principals sitting in London and unflinching respect for quality. The firm level competitiveness reduces as the market changes and purchasing power of consumers increases with better demand and different options. The Indian industries, with small investments for value addition, can do well only in commodity markets. Whatever new investments in value additions are not comparable with Sri Lanka that had already invested heavily during the last decade thereby cornering a large share in the world market. Sri Lanka is an exporter of orthodox tea and does not directly compete with India.

Hazarika (2012) studied on the market scenario of Indian tea . She found that in tea industry, producers are not actual marketers and they do not want to be. Minimum price of the tea for auction is mostly decided by the higher authority. Garden management only follows their direction in tea disposal. Tea sells by auction system where only registered seller, buyer, broker and warehouse can participate in a particular auction. In the auction system producers does not take part in the selling process. The auction system is one sided operation where price determination is mainly controlled by the broker The broker fixes price with buyer that inform to the seller accordingly. As a result, seller may not get the actual price that giving by buyer in auction system which effect in the profit margin in the tea industry.

Mahanta (2012) observed that tea growers in Assam did not give much attention on the marketing aspect as they always enjoy a readymade market for their product. But due to oversupply of tea against demand, the market strategy has shifted from the seller market to the buyer market. He suggested to improve e-auction system, online pricing system, creation of additional research infrastructure on tea, adoption of new technology by the tea growers, proper initiative to be taken by Tea Board and State Government for awareness of tea cultivation by way of seminar.

2.5. Studies related to Human Resource Management on Tea Industry:

Mukherjee (1967) stated various aspects of tea plantation labourers which has failed to enlighten about the level of implementation of various provisions relating to the health and education of plantation labourers as mentioned in The Plantation Labour Act, 1951.

Sarkar (1970) highlighted some of the important issues relating to the prospects of tea plantation industry in India. This industry is a labour intensive where most of the workforce use for plucking of green leaves. He arranged a group discussion where some argued for mechanisation while some others expressed concern over huge amount of displacement due to mechanisation. Another important problem of Indian tea plantation industry is low productivity and one of the reasons of low productivity is existence of old bushes.

Venkatakrishnan and Baruah (1981) tried to explain the relation between labour management and productivity. They emphasised on the labour management in cultivation of tea. Human relations in the tea industry are not merely a sentimental requirement. Workers are pre-requisites to higher productivity and with better understanding and teamwork, optimum production can be achieved at minimum worker cost. Their study based on North-East India and had shown its importance in the cultivation of tea, but was unable to make any generalization on regional basis. Production of any agricultural crop varies according to the size of the farm, and in this regard tea is not an exception.

Bhowmih (1988) highlighted the importance of the institution of co-operatives in Indian tea industry by making a study on Allied Plantation Worker's Co-operative

Limited in West Bengal and Tachai Workers Co-operative in Tripura. He observed that worker co-operatives are based on democratic principles and it encourages and make provision for worker's participation in decision making. This helps to prevent concentration of power in bureaucracy. Apart from sharing of benefits among members, co-operatives are working with the larger objective of welfare of the society as a whole, the researcher observes.

Hudson (1997) made a studied on problem human resource and development. He highlighted importance of training for motivation, annual performance evaluation and rewards to workers and supervisors are suggested measures in the production. Frost injury is a problem in high ranges. Frost causes damage of cells when temperature falls below 0° centigrade. The water between the cells freezes rapidly and forms ice crystals. Soon water from the cell diffuses out and adds to ice formation, resulting in the dehydration of the protoplasm and subsequently the death of the cell. Spraying of certain chemicals, heating of air by log fire and using wind propellers are some of the scientific options for this problem. But all these measures are found to be uneconomical. The possible method is to acquire maximum yield during the frost free period. Hudson also gives details of shear harvesting and its advantages. According to him shear harvesting will increase plucking average and reduce labour requirement.

Gowalla (2012) studied on Labour Relations Practices in Tea Industry of Assam. He pointed that the tea industry in Assam have long been neglecting the human aspect of the organization. He found that the industry in Assam have long been neglecting the human aspect of the organization. Although these tea estates has large number of worker but most of the estates do not even have a personnel manager. Tea industry of Assam should realize that in order to produce extra ordinary result, organization will have to depend a great deal on human aspect as this will help in bringing about the much needed competitive edge. 'Labour Relation' is more significant and meaningful with respect to tea industry. He suggested that the industry should understand that technology is no longer monopoly nor is the availability of money, but what may be monopoly would be the people associated with the business organization. The

competitor of the industry can duplicate the business strategies, but cannot duplicate the people associated this business organisation.

2.6. Studies Related to Factors Affecting Tea Production:

Mann (1907) and Harison (1965) observed that, for the growth of tea plant, the climatic conditions as to air, moisture and temperature within the soil climate, are very essential. Apart from ideal climate, the proper drainage, very deep cultivation, deep trenching, green cropping and mulching etc. are important at the beginning of a tea plant which allow the roots to develop in a healthy and vigorous manner for raising of crop productivity.

Economic life of tea bushes receiving reasonable care may be about sixty years. **Plantation Enquiry Commission Report (1956)**, tea plants in some tea estates are aged over 80 years old and some are 100 years. However, they are still giving fairly good yield. The general impression among experienced planters is that the upper limit of economic age of the tea bush is 50 years. According to them, yield of tea leaves from any bush will decline despite reasonable care if the said bush crosses the age of fifty years.

Basu and Sharma (1969) observed the low average yield in the plains of West Bengal, north bank, south bank and Cachar district and found that, despite considerable improvements in agro-chemical techniques, the average yield is not going to increase at significant rate. Thus, it declines during the last two decades. With a view to finding out the possible reasons for low yields as well as its downward tendency, once the tea plant attains the age of 25 years it stabilizes its yield. They come to the conclusion that the plant age and kind of tea plant uprooting and replanting soil and soil management, infilling and management, shade and drainage are the main factors for increasing the yield rate.

Borbora (1971), used statistical methods in design and improvement, tried to explain that proper scientific drainage in tea is an important factor for sustained production.

Ghose (1971), while elaborating Borbora' s point in drainage in Cachar concluded

that efficient drainage benefits the health and protection of tea as was evident in Cachar. He suggested the need for drainage and studies the nature of drainage problems in 'The Control of Soil Water'

Biswas (1971) pointed out that proper rainfall distribution as also the soil type and depth of soil should be examined as it affects the annual yield of tea and stresses the need of irrigation to optimise the yield.

Grice (1971) made an experiment between the shade and the cultivation of tea and showed how per hectare yield under different degree of shade is affected by nitrogen, soil type and age of tree. The physical factors of tea gardens are equally important which vary yield pattern. In this connection, there are numerous studies.

Hadfield (1971) tried to relate the age of tea plant and production and came to conclusion that the North-East Indian tea is above the age for optimum production.

Baruah and Mitra (1971) further added that 25 percent of the tea areas had passed their economic life due to old age and need early replacement. Jain (1977) observed and emphasized the need on increasing productivity of mature tea on regional basis. Analysing the field trends, he concluded that the young tea was most instrumental in emphasizing the trend of productivity level.

Chakravartee (1971) tried to show how the pattern of crop distribution obtains from unpruned tea and pruned tea affect the yield of tea. They tried to relate the seasonal change in the direction of movement of photosynthates from the maintenance leaves of unpruned bushes and suggested that pruning is important operations, which decides the productivity of tea bushes. The following inferences can be drawn from their studies: (a) the October is the earliest possible month to commence resting of tea bushes prior to pruning. (b) the resting earlier than october does not help in building up starch reserve in the roots as the photosynthates from the maintenance leaf canopy are still moving upward. (c) Considering all these factors, December and January are to be ideal months for pruning tea bushes in North-East India.

Biswas (1977) is in the opinion that the field management factors play the important role which directly or indirectly affects the yield rate of tea. He tried to isolate the field management and environmental factors from long term effects on yield of tea to

estimate their individual relative contribution to serve as guidelines to formulate the future advice and course of research and for increasing the yield of tea and ultimately to build up models for different environmental conditions for optimizing the yield of tea crop in Darjeeling.

Borbora et al.(1981) tried to elucidate on experimental basis the same and concluded that with improvement in the cultural practices and management, the young tea could be brought into bearing earlier than before and more crop could be harvested during the formative years. Tea bushes have long but limited span of life. Apart from heredity and environment, proper care is another factor that has an impact on the span of life on tea bushes. The tea bushes take three years from the time of it's planting to yield tea leaves for manufacturing tea. At present, a good number of estates own tea bushes aged around hundred years.

Biswas (1981) tried to study all these factors on experimental basis, which are based on 16 to 18 years of data of monthly yield, rainfall and related data, which were collected from the tea estates of N.E. India.

Borbora et al. (1992) concluded by using statistical method, that there is a high degree positive correlation ($r = 0.93$) between monthly temperature and crop production.

Carr and Stephen (1992) given the opinion that climate is the main determining factor for the growth and the potential yield. According to them climate determines where a crop is grown and the potential yield and the actual yield obtained depend on the prevailing weather conditions.

Carr and Stephen (1992) found that that climate is the main determining factor for the growth and the potential yield of tea. According to them climate determines where a crop is grown and the actual yield obtained depend on the weather conditions.

Bora (1993) tried to explain how the ecological factors control the production and productivity of tea in Sonitpur district.

Biswas and Chakravarti (1992) observed that balanced fertilizer use for tea is an important measure for increasing productivity. They found that annual application of balanced dose of NPK is needed to maximize the productivity level. For sustaining a

yield of about 23 q/ha in different regions, generally a dose of nitrogen in the range of 100-140 kg/ha, phosphate between 20-50 kg/ha and potash between 80-140 kg/ha would be required.

Sinha (1992) found that application of elemental sulphur 20-40 kg/ha increased significantly during three years of experimentation in tea estates in N. E. India. They suggested that sulphur should be introduced as a routine fertilizer input particularly in cases where SOA (ammonium sulphate) is not applied.

Borbora et al. (1994) emphasized on mechanical plucking to maintain the plucking round during peak cropping season, which coincides with higher absenteeism of pluckers, to check the plucking cost and to provide an mechanical aid for increasing plucker's productivity, to harvest the increased production economically and, thereby, maintain the profitability of tea industry in long run. Maximum gain in quality of tea can be observed with an increasing proportion of "two-and-a-bud" shoots in harvest during fast growing period and fast fermenting clone. However, equal proportions of both 'three-and-a-bud' and 'two-and-a-bud shoots' yield

during the early and mid seasons and in the medium or low fermenting clones. During the late season, maximum gain in yield with minimum reduction in quality can be obtained in increasing the proportion of "three-and-a-bud" shoots in harvest.

Chakravartee et al. (1994) observed the adverse effect of unscientific pruning was observed when they attempted to evaluate the effects of pruning cycle of different lengths, both in plains and hills. They came to conclusion that for sustaining both crop and quality of tea, repeated adoption of pruning cycles of 3-4 years length may not sustain high productivity without due care to age, vigour and bush frame and 3 years cycle help sustaining productivity better than 4 years cycle. Plucking standard has a direct bearing on yield and quality of tea.

Barman (1994) tried to explain how density of shade influences and physiology in the metabolic processes for higher yield in the studies entitled 'Influence of Shade on Physical Parameters in Tea'. They come to the conclusion that shade reduces the leaf temperature from full sun – 30 percent – 50 percent – 70 percent shade by 1 °C in each case and the higher reduction of leaf temperature was found with 70 percent shade.

They also observe that shade influences the plants to retain more water for higher turbidity of cells and the water potential is higher in shaded than unshaded conditions. However, these studies do not cover all the aspects of ecological factors, which are more responsible for the higher productivity and yield. As it is seen, climate has been changing and most of the areas taken for the present study area suffer from flood during rainy season. In the present section of review, it may be said that most of the studies are area specific and based on some particular parameters of physical factors of land, which may not be applicable to all the areas, which results in negligence of integrated approach. After reviewing the concerned literature on ecological and physiographical factors of tea cultivation in Assam, it may be concluded that the underground water, terrain conditions and climatic factors especially rainfall and temperature are major factors which influence the production and productivity of tea. The proper drainage and tree shades are the common activities in the tea-farms to stabilize the effects of such physical factors and to regulate the growth of tea plants.

Dwibedi (1999) in his study emphasized on growth trends in tea production, area and yield and influence of climatic factors like rainfall, temperature and humidity. The study revealed that area under tea in West Bengal has been increasing at a constant rate between 1961 and 1993. Production of tea and yield rate has been increased with a declining rate of growth. He found that rainfall and temperature effects are dominant in crop production. His examination of the size of plantation area and type of ownership of tea estates and its impact on productivity showed that there is a positive relationship between size and yield; and the ownership is found to be less relevant factor.

2.7. Studies related to Productivity of Tea:

Harlar (1956) has been elaborated through his writing regarding price and production. He described price realization and production of finished tea.

Goswami (1963) tried to analyse the relation between the selling price and the costs of production of manufactured tea. It is important for the tea manufacturer to understand their cost of production. He emphasized on the need for the systematic organization of

the underdeveloped sectors of economy and for building up leadership in the various industrial sectors of economy.

Basu and Sharma (1969) found low average yield in the plains of West Bengal and Assam and also found that, despite considerable improvements in agro-chemical techniques, the average yield is not going to increase at significant rate. They came to the conclusion that the plant age, tea plant uprooting, replanting soil, soil management, shade and drainage are the main factors for increasing the yield rate.

Biswas (1971) pointed out that proper rainfall distribution as well as the soil type and depth of soil should be examined as it affects the annual yield of tea and stresses the need of irrigation to optimise the yield.

Borbora (1971) tried to explain that proper scientific drainage in tea is an important factor for sustained production. **Satyanarayana (1971)** also suggested as the water is not well distributed throughout the year and hence drainage can play important role by lowering the water level to prevent the injection.

Grice (1971) revealed through his experiment between shade and cultivation of tea, how yield per hectare under of different degree of shade is effected by nitrogen, soil type and age of the tea. However in his study, he could not recognize the composite effect of several production factors and productivity of tea.

Chakravartee (1971) showed how the pattern of crop distribution obtains from unpruned tea and pruned tea affect the yield of tea. Author tried to relate the seasonal change in the direction of movement of photosynthates from the maintenance leaves of unpruned bushes. He suggested that pruning is important operations, which decides the productivity of tea. His study revealed that December and January are to be ideal months for pruning tea bushes in North-East India.

Biswas (1977) found that the field management factors play the important role to the yield rate of tea. He tried to find the field management and environmental factors from long term effects on yield of tea.

Ashby (1977) given a detailed description about the drying and processing of beans and leaves and about the by-products that can be developed in the process. An introduction on tea, the history of tea and the main tea growing countries are explained

by him. The details of planting, fostering, manufacturing, and pest control measures in tea cultivation are also explained in his book.

Borbora et al. (1981) found that with improvement in the cultural practices and management, the young tea could be brought into bearing earlier than before and more crop could be harvested.

George (1982) pointed out that the domestic consumption has been increasing at an average annual growth of 5 percent while the production has been increasing at a rate of 3.5 percent per annum. Due to lack of development activities in tea plantations most of them became unproductive.

Radhakrishnan(1997) observed that there is scope for developing tea plantations in Wayanadu District of Kerala. The average yield of Wayanadu in 1997 was 2300 kg./hectare. Recurring draught is one of the major factors affecting productivity here. Radhakrishnan suggested that replantation, rejuvenation, pruning, infilling and shading with trees are options before planters for improving productivity. The organic content of soil may be enriched by burial of prunings. By introducing these aspects, the author argues that, the yield level of tea in die district can be increased by 25 per cent to 30 per cent.

Muraleedharan (1998) given a description about the innovations in this aspect by UPASI. They have developed two types of staffing (pruning) machines and two models of plucking machines. But die machines have some drawbacks such as high weight, over heating, noise and problems related to technical services and spare parts.

Hudson (1998) studied on harvesting which is an important aspect in tea plantation industry. He found that plucking of leaves accounts for about 60 percent of the field cost and 20 percent of the production cost. Plucking interval is a determining factor in yield. During peak season shear harvesting can be adopted. Alternate row lane plucking in mature fields will increase plucking average. Pruned bush height of 40 inch is suitable in tea culture.

Mitra (1987) showed the variation in productivity of tea in different size of the gardens. But he has not mentioned his clear view regarding the variation from large size to small size of garden.

Daimari (2003) studied on productivity of tea gardens in Upper Brahmaputra Valley. He studied land and labour productivity where he found that labour productivity is a negative function of labour intensity. High levels of labour productivity in the areas of low labour intensity. He found that the amount of tea production is not uniformly distributed in the various productivity categories of gardens in the different agro-ecological zones. About 64 percent of the total volume of production comes from very low land productivity (0-2500 kg/ha) categories of almost all the agro ecological zones. The very high category of land productivity (above 10,000 kg/ha) contributes only 7.6 percent of the total volume of production.

He observed that the distributional patterns of land productivity and labour productivity of the tea gardens are not only the function of physical factors of land alone, but also concentration of population density and unlimited supply of labour. The small size gardens employ more number of labour including child labour. High concentrations of population with low literacy and medical facilities have negative impact on labour productivity

Anil (2013) observed that India occupies the last position among the major tea producing countries regarding yield per hectare apart from exceptional geo-agro-climate situation has created unique conditions that are very suitable for growing a super fine quality of tea. The average tea yield among the major tea producing countries is 2235 Kg/ha, where as it is 1693 Kg/ha in India. Future prospect of the tea plantations may jeopardize due to various constraints and weakness if due attention and appropriate measures are not taken in time.

Nath and Dutta (2015) studied on various factors affecting cost of black tea production. They observed that labor and material productivity has the major influence on total productivity. Energy and welfare also take major role among the factors of tea production. The cost of labor and material can be reduced or controlled to some extent. They suggested that welfare cost can be considered as social cost.

2.8. Research Gap:

In India tea flourishing areas are South India and North East India Tea plantations from those areas were developed during the British period. After independence, interest of the British shifted to African countries like Kenya, and consequently the Indian plantations began to suffer. Export to England declined, demand for Indian tea slumped and export market began to suffer. However, India is still the largest tea consuming country in the world. But India has slipped from first position to the 2nd position in terms of tea production and now occupied fourth position in terms of export of tea in the world.

World market has been subjected to fluctuations and there has always been a mismatch between supply and demand. The same is the trend observed in Indian market Supply response of tea to its price is found to be very low. In general, developing countries are producing tea and they export all the good quality tea, and consume the low quality tea. Due to globalisation and liberalisation of trade, tea exporting countries are found to be importing and re- exporting it they blend domestic tea with imported tea for exporting. Though theoretically it is worthwhile, in practice it will have serious implications for quality control. A classic example is the case of Darjeeling tea. Tea produced in Darjeeling is of high demand in the export market. Total tea branded and marketed as Darjeeling tea are four times the actual production of tea in the Darjeeling area. Thus one of the most important problems created for Indian tea industry is marketing without adequate quality control. Quality of tea depends on a variety of factors including place of growth, variety of plant, process of production, etc. Generally product of tea may be classified into two categories: CTC and Orthodox. The CTC tea has high domestic demand whereas the Orthodox tea has high demand in export market.

Tea plantation industry is subjected to large economies of scale. It is a synthesis of agriculture (plantation) and industry. Most of the small planters cannot afford a factory in their estates. The raw leaves produced by them may not be sufficient for economic running of a factory. As a result, historically, tea industry is relatively a big business and the size distribution is skewed towards large firms. Recently, small planters formed their co-

operative factories and started processing of tea leaves in them. Another characteristic feature of tea industry is that it is labour intensive. Approximately 65 per cent of the total cost of production is accounted by labour. Attempts are being made on technological advancements for substituting labour with machines. Another problem of Indian tea plantation is over aging. Much of the area are having plants with more than 50 years of age. This has to be viewed against the fact that productivity of tea plant declines substantially after 30 years of age. Thus replanting is required for rejuvenating productivity. But it requires huge capital investments and the industry is not in a position to bear such investment. They are looking for support from Government. The socio-economic conditions of employees in tea plantations are not satisfactory. Even though provision for basic facilities such as housing, drinking water, sanitation, recreation and traveling are mandatory, in some of the tea plantations its implementation is not properly executed.

From the literature survey, it is observed that few studies have been done in context to the tea industry of Assam. Studies are related to general in nature, marketing, socio economic relation, human resource, labour relation, ecological and non ecological factor related to production. Some researcher studied production and productivity in small scale basis or taking a part of Assam. There is no analytical study conducted on production and productivity by taking all the tea producing region of Assam. Thus the study is trying to find out new challenges in the industry which may help in addressing it properly to the various policy makers.

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