

## Chapter - 1

# Food Security and Poverty: A Case Study of Tea Gardens in North Bengal

### Introduction

The world is always a remarkable contrast of extremes. On the one hand we have huge opulence, and on the other hand we have deprivation and destitution. This inequality leads every country to reach for the minimum conceivable equality. Development is a keyword to understand how countries progress in this path. The question then arises as to how one measures economic development? Development is measured commonly by the material standards in the society. Can this definition be integrated with equality? A highly affluent society with only a few people getting the benefit is not an equal society. So, economic development ideally should not be restricted to a handful of minority. Development and freedom are synonymous. To quote Amartya Sen, it is the capability or freedom to make choices which should be the harbinger for progress. Freedom to choose depends on the relative position of the person in society (Sen 2000). For example, a poor will not have the capacity to make choices constricted by the opportunities he/she faces in life. Thus removal of abject poverty should be a primary goal of development. Equally true is the fact that, in a modern economy food and nutrition is essential for human development. Poverty and undernutrition are closely related. The hypothesis of calorie intake and its effect on income is central to the efficiency wage hypothesis, proposed by Leibenstein (Leibenstein 1957). The seminal work states that, the efficiency of work depends on wages, which comes from nutrition (Dawson, Tiffin 1998) and thereby nutrition will play a major role for the country. As we are aware, one of the criteria for identifying the poor household is whether their income permits them to access adequate diet. The adequacy of diet is according to the amount of energy content of the food as compared to those that have been recommended by international

organisations such as FAO or WHO. If the energy requirements are falling below those recommended then, that person is termed as malnourished. Lack of food can severely impair a person's ability to live with dignity in a society. It inhibits overall development of the individual. As found in some recent studies, that lack of food can impair learning abilities in individuals (Dufflo and Banerjee 2011). This can further affect the human development of a country. Food security is directly related to poverty. World Bank in 1986 in its report, on Poverty and Hunger introduced the distinction between chronic food insecurity and transitory food insecurity. This distinction helps us to understand whether the problem of food security is related to poverty, or is it the resultant of famine, floods or other natural calamities. By 1990s, food security was being recognised as an important component of various concerns of human development. By then it was no more an individual concern any more, but was rather a global phenomenon. The idea of a healthy life as opposed to an unhealthy one was gaining prominence in the mainstream.

In 1994, the UNDP human development report, recognised food security as an important construct in human security.

According to world food summit 1996, the definition of Food Security that was adopted was:

“Food security, at the individual, household, national, regional and global levels is achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life”.

Again in 2001 the State of Food insecurity was given a new definition which was:

“Food security [is] a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”.

Supply constraint is a major cause for lack of food. The lack of availability of food supply was a concept which is old finding its route through the Malthusian theory of population. But this availability as a constraint for food security was challenged by

Amartya Sen. In his seminal work Amartya Sen showed that, the theory of lack of availability of supply as proposed by economists as old as Malthus can actually be challenged. Sen showed that, during the British regime in India there was actually no dearth of supply which lead to the Bengal Famine, but rather it was an entitlement failure ( Sen 1981). Entitlement failure is the failure to bargain or command over food in the market. (Sen1976). Thus food security cannot be seen just as a supply constraint. Basically there are four pillars of food security and they are:

1. **Availability:** It refers to the supply of food that is available for a country. There are three aspects to availability and they are production, distribution and exchange.
2. **Access:** This refers to the accessibility or affordability in terms of food. Whether the individual or the household are susceptible to food spike or to poverty. Resource availability also determines accessibility.
3. **Utilization:** how the food that has been obtained is being utilized finally goes a long way in determining the health of an individual. This would mean that the food ingested should meet the physiological requirements of an individual.
4. **Stability:** whether food can be obtained over time is the subject of stability. It pertains to the question whether food insecurity is transitory or chronic?

These four pillars shows that it is not only important to make the food available, but it is equally important to see what is the kind of food that is available, and how it is benefiting the individual to live a happy and sustained life. Improving Food Security is of primary importance for any nation. As has been pointed out by Food and Agricultural Organisation (FAO), "Food Security exists when all people at all times, have physical and economic access to sufficient safe nutritious food that meets the dietary needs and food preferences for an active and healthy life." This again signifies three basic areas of food security - Accessibility, Affordability and Availability. All the three aspects apart from the four pillars discussed above, play a major role in providing proper definition of food security for a nation. The aim of any nation is to do welfare for its masses. To this extent it was at the Rome summit that

people met to end endemic hunger and assure food security for all. The problems of food security are manifold and they need to be addressed one at a time. According to FAO there have been some marginal improvements in the undernourishment and hunger situation in the world (FAO 2017). Food security is a multidimensional phenomenon. Around the world rural livelihood has been known to be dependent on natural resources thereby making the livelihood vulnerable to diverse shocks (Bernard Pelletier et al. 2016). Coupled with this they also face lack of proper institutional support and other mechanisms to mitigate risk, thus, making them more susceptible to hunger and malnutrition. As a consequence, certain sections of the population are more susceptible to food insecurity.

Lack of food also causes undernutrition and malnutrition. Undernutrition means, inadequacy in calorie intake; if allowed for a long time this will lead to loss of normal body weight or reduction in physical activity. Malnutrition on the other hand, is the lack of inadequacy of particular essential nutrients (Sukhatme 1961). Malnutrition has been related to low household income and to inadequate entitlement to food at the level of household (Dev S and Sharma 2010). It can be related to both undernutrition and overnutrition problems. The concept of under nutrition basically starts from the concept of energy identity and energy balance. It says, "the energy input to the human body's work is always identically equal to the energy expenditure per unit of time" (Svedberg 2000)

$$E_{it} = I_{it} - dW_{it}$$

Here  $E_{it}$  represents energy expenditure  $I_{it}$  represents current food intake and  $dW_{it}$  is the body weight or energy reserves of the body. It has been found that with higher income people will choose to have (i) a larger body weight or (ii) a higher level of physical activity. The relation between food energy intake and nutritional status is confusing. This is because food energy intake is an inadequate measure of nutritional status. Both malnutrition and under nutrition are major barriers to economic and social development, as it inhibits people to be socially and economically productive. A natural question that arises is, whether there is any relation between higher income and food security, in other words can higher income generate food security.

A good health is never possible without good nutrition. Malnutrition manifests itself in many ways. It is a social barrier as it does not let the person lead a life of content. The many forms of Malnutrition can be explained as under:

Undernutrition – this is caused due to food lacking the basic nutrients necessary for survival.

Stunting in children under five – a form of growth failure which develops over a long period of time in children under five years of age when they are growing with limited access to food and healthcare.

Wasting in children under five – children who are thin for their height because of acute food shortages or disease. Also known as ‘acute malnutrition’, wasting is characterised by a rapid deterioration in nutritional status over a short period of time in children under five years of age.

Micronutrient deficiencies – suboptimal nutritional status caused by a lack of intake, absorption or use of one or more vitamins or minerals.

Moderate and severe thinness or underweight in adults – a body mass index (BMI) less than 18.5 indicates underweight in adult populations while a BMI less than 17.0 indicates moderate and severe thinness. It has been linked to clear-cut increases in illness in adults

Overweight and Obesity in adults – an abnormal or excessive fat accumulation that may impair health.

Undernourishment is one of the burning issues in the developing countries. India is one of those countries which has a very large share of undernourished people in the world. While some researchers have related the study of undernourishment to food security (Swaminathan 2002) others have related it to be purely a study based on medical grounds (ICMR). Again the question arises as to what is the relation between poverty and malnutrition, a study, by Radhakrishna and others (Radhakrishna et al 2004) have found that even if there is a fall in the level of poverty, malnutrition would still persist.

Interestingly, number of studies point towards the fact that there is a strong correlation between food and GDP via human capital. Although the causal link between GDP and malnutrition has been very weak as a number of studies show (Dev and Sharma 2010) for example, India grew at a very fast rate between 1998-99 to 2005-06 but during the same period the number of underweight children declined by only one percentage. There is of course a greater case to believe that GNP and infant mortality donot move in the same direction (Dreaze and Sen1989). Having said so, of course we cannot undermine the importance of income and its relative effect on accessibility to food (Dreaze and Sen 1989). There are examples of countries which inspite of achieving the higher rates of growth have not shown exemplary figures in nutrition or health statistics. A great example of course can be of Oman, which had a GNP per head of USD 6730 in 1985 but the infant mortality rate was as high as 109, whereas Sri Lanka with GNP per head of USD 380 had an infant mortality of 36. It must be mentioned here that, infant mortality is not the only indicator for nutrition but it is one very important indicator. Some other studies have shown not so strong correlation between the two.

Another interesting aspect worth investigating is whether there exist nutrition based poverty trap (Deaton and Subramanian 1996) found that people in the lowest decile consume less than 1400 calories. According to Jeffrey D Sachs, the problem lies in the geographic location and other issues such as low productivity, burden of diseases etc.; all these combines to give rise to poverty traps. Poverty trap is about staying poor and not just transient poverty (Christopher B Barret and Michael R Carter 2013). So is it a fact that due to lack of proper nutrition, the poor cannot find work (Dufflo and Banerjee 2011). Or is it the other way around that because they cannot find work so they are poor.

Food security is also dependent on proper sanitation as proper sanitation can help in proper absorption of the nutrients (Dreaze and Sen 2013) which in turn builds the human resource for the nation and thus brings about an increase in GDP via productivity.

In the recent years there has been an upward trend in the hunger globally which was seeing a decline since many years (Global food policy report 2018). According to the report most of the recent global hunger can be linked to climate change. Stunting still remains a major challenge today. Around 155 million children around the world are still stunted. The major challenges of food security are:

1. Global water crisis – water, which is required for agriculture to provide for food is slowly becoming scarce. There is huge groundwater depletion is taking place in many countries where people are competing to prioritise Industry over agriculture and household in respect of water usage. The countries which are facing severe problems are India, Iran, Pakistan, and China. This water scarcity will ultimately lead countries to cut back on grain harvest and that will lead to food insecurity.
2. Land- Since most of the current food harvest is soil dependent and arable land is finite, so most of the land is degraded. Research has shown that healthy soils produce more food and thus soil quality will play a major role in providing food security.
3. Climate change – Today, the biggest challenge faced for food security system is the issue of climate change. Rising temperatures, floods, droughts all are affecting the global food system. Farmers are forced to change their cropping patterns as they are finding it difficult to cope with the changing temperatures. Researchers are predicting that exposure to extreme climate events will bring about changes in the agricultural production, thus, affecting food security.
4. Food and Fuel- Energy is one of the primary concerns in the 21<sup>st</sup> century. Thus, to substantiate, for the growing energy requirement, biofuels are becoming substitutes for petroleum and other energy sources. This increase in biofuels production is also challenging the existing food production system. Intensive cultivation for biofuel has led to decrease in cultivation of food crops in many regions of the world.

5. Food Sovereignty- It denotes the control of big corporations and multinationals over food production, distribution etc. this forces the so-called original tillers and producers to cultivate only the marginal land. The idea of food sovereignty is also related to the basic human rights to food. The corporatisation of the entire food chain is also posing a big challenge to the food security system.

The major risks facing the food security system are:

1. High and volatile food prices: Any shock in the food price, will result in changing the dietary pattern of the poor and thus affect their consumption level. The poor are the ones to face the threats first as they have very limited budget; so an overall rise in prices will affect their consumption budget.
2. Financial and economic shocks: Economic crisis such as the depression, leads to job losses and as a result, decreases the demand for many commodities including food.
3. Population growth: the increasing world population can also be a major risk for food security, as the world has to prepare itself for the increasing demand around the globe. But the world as discussed earlier, is already facing a tough challenge when it comes to increasing production.
4. Climate Change: Climate change remains a big risk as well as a big challenge for the global food security. The increasing greenhouse gasses are leading to disruptive changes in the weather around the world, leading to catastrophic changes in global food production. Thus climate change can be one of the potential risks for food security.
5. Risks of epidemic outbreaks: any epidemic outbreaks for crops and human beings associated with food production can affect the food security.

India, in spite of its impressive growth figures, is clearly lacking in terms of its nutrition and other social indicators. The media has of course been very vocal when it comes to the growth statistics but, the same media has in fact, not been reporting cases of the failure of health and undernutrition as frequently as required to draw attention from policymakers (Dreze and Sen 2013). India has severe problems of undernutrition on the one hand; overweight and obesity on the other(Khandelwal 2019). The latest reports by IFPRI points out that 48% of rural Indian women are anaemic. India ranks 103 out of 109 countries in the global hunger index according to IFPRI(Global hunger Index 2018), this, in spite of India being a food surplus country. Here one must not forget to mention a wide range of literature focussing on the issues related to distribution rather than the supply of food, the prevalence of famine and endemic hunger is not so much dependent now on the supply or the buffer stock as was the case with India during pre-independence(Sen 1989) and (Dreaze and Sen 1990). So, the importance of availability can never be belittled but, it has to be justified in terms of proper distribution. The range of inequality existing in this country then in this light demands a lot of attention. Let us now concentrate on another very interesting case of nutrition that in the literature is referred to as the calorie consumption puzzle. The time series data points out that the calorie consumption is falling over time, a conundrum difficult to explain in the light of the falling prices over the same period. There are various views on the CCP the foremost being put by Utsa Patnaik, who believes that there is actually no puzzle as such but people are too impoverished to buy any calorie(Patnaik 2004). The other view is put forward by Angus Deaton and Dreaze, who believe that, the out of pocket expenditure for the people has increased over time and also people have less physical work to do now and thereby they will require less food(Deaton and Dreaze 2009). The choice of food also plays a major role as pointed out by Abhijit Banerjee and Esther Dufflo, who are of the opinion that with rising income people would prefer to have better tasting calories than cereals (Banerjee and Dufflo 2011). To achieve food security in India, the government has taken various steps since Independence. The constitution of India provides for the right to life as defined by the Article 21. The right to life encompasses explicitly the right to food. Under the

Directive Principles of State Policy, it is important to raise the standards of living through proper nutritional intervention. Government has from time to time taken various steps to frame policy and regulations to provide due support for providing food security. The targeted Public Distribution System was aimed at providing subsidised food grains, to the households at an affordable rate. About a decade back the Government has enacted the National Food Security Act 2013. The act entitles, 75% of the rural population and 50% of the urban population to receive subsidised grain under the targeted public distribution system. Some of the salient features of the Act are:

Coverage and entitlement under Targeted Public Distribution System (TPDS): Upto 75% of the rural population and 50% of the urban population will be covered under TPDS, with uniform entitlement of 5 kg grain per person per month.

- (i) State-wise coverage: Corresponding to the all India coverage of 75% and 50% in the rural and urban areas respectively, state-wise coverage will be determined by the Central Government.
- (ii) Subsidised prices under TPDS and their revision:
- iii) Food grains under TPDS will be made available at subsidised prices of Rs. 3/2/1 per kg for rice, wheat and coarse grains for a period of three years from the date of commencement of the Act. Thereafter, prices will be suitably linked to Minimum Support Price (MSP).
- (iv) In case, any State's allocation is lower than their current allocation, it will be protected up to the level of average offtake during the last three years under normal TPDS, at prices to be determined by the Central Government
- (v) Identification of Households: Within the coverage under TPDS determined for each State, the work of identification of eligible households is to be done by States/UTs.
- (vi) Nutritional Support to women and children: Pregnant women and lactating mothers and children in the age group of 6 months to 14 years will be entitled to meals as per prescribed nutritional norms under Integrated Child

Development Services (ICDS) and Mid-Day Meal (MDM) schemes. Higher nutritional norms have been prescribed for malnourished children upto 6 years of age.

- (vii) **Maternity Benefit:** Pregnant women and lactating mothers will also be entitled to receive maternity benefit of not less than Rs. 6,000 as per scheme to be formulated by the Central government.
- (viii) **Women Empowerment:** Eldest woman of the household of age 18 years or above will be the head of the household for the purpose of issuing of ration cards.
- (ix) **Grievance Redressal Mechanism:** Grievance redressal mechanism will be provided at the District and State levels.
- (x) **Cost of intra-State transportation & handling of food grains and FPS Dealers' margin:** Central Government will provide assistance to States in meeting the expenditure incurred by them on transportation of food grains within the State, its handling and FPS dealers, margin as per norms to be devised for this purpose.
- (xi) **Transparency and Accountability:** Provisions have been made for disclosure of records relating to PDS, social audits and setting up of Vigilance Committees in order to ensure transparency and accountability.
- (xii) **Food Security Allowance:** Provision for food security allowance to entitled beneficiaries in case of non-supply of entitled food grains or meals.
- (xiii) **Penalty:** Provision for penalty on public servant or authority, to be imposed by the State Food Commission.

This Act will play a very important role as far as the Food Security is concerned, since it provides a comprehensive treatment, to the state of Food Insecurity in the country. Also it provides for the first time a legislative procedure, for the common man to claim his Right to food.

A question that arises is whether food security and food sufficiency is the same thing. It has been pointed out in various literatures that they are not the same thing (Platteau 1993). It is even possible that there can be reported cases of malnutrition inspite of food sufficiency or the other way around that there can be food insufficiency but people have food security. There are two aspects at play one is demand and the other is supply.

The definition of poverty itself is based on the calorific measurement. Thus a person can be defined to be poor or non-poor depending on the amount of calories he/ she consumes. Poverty, though by itself is multidimensional in nature, there are many things which affect poverty but among all of them the most important being is calories. If a person is consuming less calories he will not be as productive as one should be.

### **Statement of the problem:**

Poverty and food security have been found to be closely related (Ray 1998). Poverty lines in most countries rely on the expenditure made to obtain a certain minimum amount of food (Ray 1998). There is evidence to show that people are poor because they have less to eat and sometimes the converse can also be true but, it is also equally possible that even if the income of the people increases it might not translate into higher consumption. Food by itself may not be demanded only for nutritional purposes; they also have social and culinary values. Although, it has been found, that generally the poor people are more susceptible to food insecurity. The poor are said to be caught in a trap. They will have less to eat and therefore they will be less productive and they will earn less as a result. Thus, again repeating the entire circle; they will earn less and therefore will eat less. The problem of food security manifests itself in malnutrition and under nutrition. The severities of inadequate food are many. It inhibits overall development in the future. There is evidence to show, that children receiving inadequate diet may end up having low performance in terms of education (Dufflo and Banerjee 2011). In most cases, deprivation of food, results in problems of malnutrition and under nutrition with each of them having

severe problems of its own. In a classic paper written by Partha Dasgupta and Debraj Ray in 1986, the relation between poverty and calorie requirement was brought out beautifully. It shows that, calorie is important source for energy and energy helps to bargain for labour power in a modern economy. The paper also emphasized the importance of food transfer as an important way to remove the inequality of treatment in labour market (Dasgupta and Ray 1986). Thus, food security is intimately related to poverty. But, concealing ourselves of the larger debate and focussing on what makes people food secure, one obvious answer we get of course is the supply of food<sup>1</sup> and secondly on the distribution of food. In the Indian context, the distribution of food can be attributed to the Public Distribution System that exists for the very poor. The government have, from time to time launched many safety net program to eradicate poverty. Since poverty and hunger are very closely related, these safety net programs are designed to help the poor and the destitute. India's nutrition indicators have significantly improved in the last 65 years (Dreaze and Sen 2013). Recent report from the State of Food Security and Nutrition in the world shows that 31.6% of the population suffered from severe to moderate food insecurity in 2017-19(SOFI). Yet still there still exists appalling nutrition situations in India, infact according to Amartya Sen, worst than anywhere else in the world. For example of all the countries for which data is available, India has a higher proportion of underweight children (Dreaze and Sen 2013). The Indian figure, 43 percent, is close to the South Asian average, but much higher than the estimated averages for sub Saharan Africa (20 percent). Food Corporation of India was setup on 14th January 1961, one of the major aims was distribution of food grains to the masses. The other aim was, also to regulate the market prices and provide food grains to the consumers at an affordable rate. The national food for work mission was launched by the Ministry of Rural Development, with the aim of providing wage employment. Another program launched was, the Integrated Child Development Services (ICDS) which provides food, pre-school education and Primary healthcare to children less than 6 years of age and also to their mothers. The way Government functions in the

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<sup>1</sup> The food supply of course can be measured by daily per capita supply of calories and proteins.

food market are threefold; one, it helps in procurement of food grains, second, it helps in storage of the procured food grains and finally it helps in the distribution of the food grains through a state guided system the Public Distribution System (Madhura Swamanathan 1996). The PDS was started in India in the year 1939 as a war time response by the Britishers and it has been carried forward in Independent India to safeguard the nutrition of the poor people. India, according to some statistics happens to be home for the largest number of malnourished people (Himanshu, 2010) and thus, government intervention is required at every step.

Is poverty related to Food Security is the big question. Poverty robs an individual of the basic necessities of life, food being one of them. The importance of food or minimum calorie requirement is related to poverty as it is used for measuring poverty line. Thus poverty and food security are closely related. Poverty is a direct result of the vicious circle, created as a result of not receiving enough food to eat thus, making him or her unproductive. Food insecurity can be claimed as an extreme form of poverty (Kakwani and Son 2016). Poverty on the other hand also impairs purchasing power thus, denying him or her food security. To improve the food security thus focus should be there to not only provide food, but also provide employment which will generate income (Saxena 2018), since there seems to be a close link between higher poverty ratio and hunger index as measured by IFPRI (Saxena 2018).

In the present study, investigation of the tea gardens in North Bengal from secondary sources reveal that, there have been starvation deaths in closed tea gardens after the PDS was introduced in the tea gardens in 2000. The study seeks to examine the efficacy of the PDS in handling issues of malnutrition, under nutrition, wasting and also the capacity to work since the time the system has been introduced. An additional contribution of this study aims at examining the consumption needs of each family member.

**Study region:** Tea Plantation in Darjeeling District.

Tea, the elixir drink that instantly fills every tea lover with the sense of satisfaction unspeakable, was introduced in India by the Britishers. The Britishers in turn, received it as a dowry from the Portuguese. It is said that when king Charles II got married to princess of Portugal(Ghosh 2016) , they received apart from the Islands of Mumbai a chest of Box which contained the elixir drink. There started the journey of tea in India. The experimental cultivation of tea was undertaken by the British Government in 1834. The establishment of Tea gardens in Darjeeling, dates back to the arduous effort put in by Dr Campbell in 1839. The introduction of tea in Dooars region happened in 1859 onwards. The pioneer of tea Industry in Dooars was Mr.J.R.Haughton. The name Dooars means pass. The Dooars region was annexed from Bhutan in 1864 and Jalpaiguri district came to be formed in 1869 ( Roy Samir 1991).The first tea garden was established in Gajoldoba. By 1874-78, there were around 13 new tea estates which were opened in this region. Another huge jump came so that by 1881, the number of tea plantations increased to 55. In the Teraiplains, that are in the foothills of Darjeeling, the first tea garden to open was Chumta in 1862. After that, there was a huge expansion of tea gardens in these regions. Most of the labourers that were bought in to work in these areas were basically the Adivasis from the Chotanagpur region. Since labourers were not available in this region so labourers were brought from other places. The colonial state played a very important role in the spread of tea gardens in North Bengal specially dooars; right from giving the land rights to labour recruitment.

Two tea gardens in the Dooars region of North Bengal has been selected for this study. Tea gardens in North Bengal are basically inhabited by mostly tribals. For a few years now, the tribals in North Bengal are continuously fighting for the minimum wages which they are being continuously denied. There are also reported cases of vast number of people dying in the gardens which are either closed or are on the verge of closure. These deaths are occurring in spite of the fact that the Tea gardens are continuously getting the supply of rations from the government.

## **Objective of Study:**

The objective of this study is to find out whether food security and poverty are related, and how effective has been the PDS in removing malnutrition or under nutrition, thus, effectively making people food secure with special reference to the tea gardens in North Bengal. In the recent years, there have been numerous deaths in the Tea Gardens mostly in closed tea gardens. These deaths in the Tea gardens, were mostly due to starvation posing the obvious question as to the role of PDS. The Tea gardens have a history of PDS; before 2000, tea gardens didn't have any PDS operated by the government. They were provided with rations from the owners at less than the market price. After 2000, the tea gardens were provided with the PDS by the government. After 2013 the important change that has occurred is that all the tea gardens were provided food grains under the NFSA. Under this scheme the tea garden owners were made ration dealers for their employees (Scroll 2016) the study seeks to examine whether are any leakages in the PDS which results in food insecurity. The study has taken up two tea gardens in North Bengal to assess the situation. The study also seeks to examine the effect of PDS on Food Security at the household level

## **Literature review:**

### **i) Food Security**

Among all forms of deprivation, nutritional deprivation gives rise to other forms of deprivation across age and stage of human life. This has been examined from varied perspectives across disciplines, which could be broadly divided in two group clinical and non-clinical. The yardstick of undernourishment too differs in terms of either being input based or outcome based. The input based yardstick relates to consumption (like calorie, nutrient intake and its balance) where as the outcome based one is in terms of physical attributes (like height, weight, arms circumference as wells as waist-hip ratio etc). This often leads to conflicting assessment of the magnitude of undernourishment as well as its correlates.

It has been found that some communities are more susceptible to food insecurity than others (Deborah Cohen 2005). This happens due to historical reasons, where a particular community has been deprived of basic endowment at the cost of the wealth of other community. The vulnerability can also be due to political social or economic upheaval. The vulnerable population groups have no proper definition, but of course the poor are definitely subjected to more vulnerability and therefore any poor can be categorised as vulnerable to shocks. Food availability being an important part in food security vulnerable groups are more susceptible to any external shock (Lund 2013). Vulnerable groups are those people, who are likely to fall or remain below a certain welfare threshold. Problems of food security are more potent among vulnerable population groups. The tribals in India are more susceptible to vulnerability in India. Any study on vulnerability must encompass them, as they are the ones who suffer the most. It has generally been found that people who are vulnerable are the ones who are engaged in livelihood issues (World Food Program report 2007). The vulnerable population group are those that are affected the most due to any external shock.

There is evidence to suggest that there is a strong link between food intervention and achievement. For example, Sri Lanka data from the period of 1951 to 1982 corroborate with the above result (Kanbur and Anand 1993). The same was found even for an econometric analysis undertaken by both the writers. It has been found in many earlier discussions, that Sri Lanka has clearly been an outlier, when it comes to some basic health indicators. This some feel, is the result of the direct intervention. Thus, intervention does have an effect on achievement.

This has been found that, the number of female deaths is less in neonatal stage than in postnatal stage compared to its male counterpart. This suggests that, there is evidence of bias towards females in the family. A study conducted by Lincoln C. Chen in Bangladesh, found evidence for the same. Their data for Bangladeshi children was found that, 14.4% of female children were classified as severely malnourished in comparison to 5.1% of males (Osmani S.R. 1993). Even Amartya Sen mentions that, female to male ratio is very low in south Asia, in particular mainly due to the neglect

within the household and the public policy. Rohini Pande, in one of her recent studies, points out the importance of sex bias in intrahousehold distribution of hunger (Pande and Jayachandran 2013)

Height is a very important measure when it comes to nutritional standards, but the puzzle exists as how are Africans so tall? Most of the African countries having very low GDP growth rate but their nationals are very tall. Uganda's per-capita GDP in 1960 was \$560, in 1996, real purchasing-power prices and this figure is arguably only a few percentage higher than the lowest sustainable level of GDP per head. Yet women born in Uganda in 1960 had adult heights of 159 cm on average, full 8 cm taller than Indian women born in the same year, in a country, whose per-capita income was 150% of that of Uganda. This is an interesting puzzle as it points to the lack of causal relation between height and income level. One possibility is that, income per capita is not a good indicator of nutrition. Africa is well endowed with land relative to its population, so nutrition might be relatively plentiful, despite low national income. The contrast between Africa and South Asia would then be between, on the one hand, high disease burden but good nutrition and, on the other, low disease burden but poor nutrition. If nutrition is the main determinant of height and disease burden, the main determinant of child mortality, we would have a possible explanation of the height and mortality pattern between Africa and Asia (Deaton 2007).

It has also been claimed that the forms of government also plays an important role in determining the extent of food security, existing in a country. A typical example cited by many scholars in these regards is of course China. Studies have tended to show that in China one of the reasons for the occurrence of famines has been the lack of political will (Ruskin 1993).

It has been long claimed in economic literature that there is a poverty trap. Nutrition based poverty traps are best explained through S shaped curve. An S shaped curve basically shows the relation between income today and income tomorrow. The poor are caught in the trap because they have low income and therefore they are less productive which in turn makes them to earn less income in the future. But, people

who are outside the poverty trap, have a higher income today and therefore, they earn more tomorrow (Dufflo and Banerjee 2010). Ofcourse, there are studies which would completely disagree with the above studies; they are of the opinion that, people may have less income today but they earn higher income over time and thus they do not remain in poverty trap (Duflo and Banerjee 2010). Some poverty trap are ofcourse nutrition based (Ray 1998). A paper in 1986 by ParthaDasgupta and Debraj Ray would point in that direction by providing a causal link between nutrition and unemployment. The intensity of the trap depends upon the labour market, the unemployment and relative employment opportunities available (Ray 1998). The poor generally borrow out of the trap if there is no help from the government. There has been of course lots of doubt regarding the way, aid can help in solving the nutrition based poverty trap. There is evidence in many countries that point to the fact that the poor can obtain the first few calories at a very low price (Banerjee and Dufflo 2010). Except at the time of famines which rob the people of the basic endowment as entitlement to food, takes a hit (Ravillion 1997). An interesting fact also remains, that the poor may not always translate a change in income upwards to consumption of calories. An interesting study by Deaton and Subramanian shows that there is infact,a very little increase in food expenditure for the poor with an increase in income (Subramanian and Deaton 1996).

Evidence shows that people who are short as children have low cognitive ability and also earns less as adults (Jayachandran and Pande 2017). Recent studies by World Bank has also pointed in the same direction the study shows that the percapita income of countries would be reduced in the future due to stunting today. Similarly any income today is a reflection of the childhood stunting in the earlier period, reflecting the fact that countries would have done better if they would have lower stunting among children(Galasso and Wagstaff 2017). Poverty in childhood can result in lower-earning potentials in the later years of life and also it induces cognitive stress leading to worse outcomes in various other ways. Early childhood malnutrition can lead to lower academic achievements and thus results in lower cognitive abilities (Glewwe, Jacoby, and King 2001). It has been estimated that globally 149 million children are short of their age and unfortunately more than half of those live in

Asia(Chakrabarti et al. 2021). Since stunted children may not reach their full potential so it is important that we try to reduce stunting among many programs the mid-day meals scheme finds its importance in reducing hunger and malnutrition among school going children apart from improving learning outcomes(Chakrabarti et al. 2021; 2019). Evidence also show that early investment in child health has consequences for better outcomes such as ICDS etc. (Jain 2015). Food security and poverty are related as shown by some studies whether we measure it through the flow (Consumption expenditure ) or we use a stock concept ( Asset ) (Hjelm, Mathiassen, and Wadhwa 2016). The consumption-based approach is best at measuring the quantity-based food security. India's rank in global hunger index is very poor.

Thus we can say that there is an important relation between food security and poverty. The underlying principle lies in the fact that food insecurity is the resultant of poverty as poor people find it difficult to get enough food. Also because poor people spend a majority of their income on food(Siddiqui et al. 2020) and therefore food security and poverty are intimately related. Poor people tend to spend more money on nutritious food because poverty leads to financial constraints and thus leads to consumption of cheap calorie dense food(Siddiqui et al. 2020).

ii) **Public Distribution System:**

One of the means of solving food security is by safety net programs which are designed to intervene by providing intervention for the poor. Social Safety Nets are important for providing distributive justice and as a direct Intervention to alleviate poverty(Joshi 2017). This is the so called distribution problem in food literature. Out of the various safety net programs one that really stands out is the Public Distribution System (PDS). PDS tries to solve, food problem of our population. It does so by intervening in the market by providing food and consumer goods at a cheap price. This also safeguards the consumers from any rise in prices. The Public Distribution System was started in India by the Britishers as a war time response for rationing the amount of food to be given to the Indians. After independence, with

the massive amount of poverty, the government decided to carry forward the same idea now, to use the old system of distribution of food to the poorest. In 1947 a Second Food Grain Policy Committee was appointed by the government of India. The policy of rationing which was started by the Britishers in 1944 continued till 1952. After 1952 the government slowly relaxed the controls. In 1953-54 wheat and other coarse cereals were decontrolled and the ban on interstate movement of coarse grains was reviewed. One of the major milestones achieved during the 1950's was the Essential Commodities Act, 1955. The main aim of the Act was controlling, production and distribution of certain essential commodities (Importance of Essential Commodities Act).

Four phases can be identified in the evolution of PDS in India 1960, 1960-1978, 1978-1998.<sup>2</sup>

The Food Corporation of India was established in India in 1964-65 with the sole purpose of distribution of food grains in a proper manner and also to create buffer stock for the food grains.<sup>3</sup>

One of the biggest challenges India faced after independence was that of shortage of food. India received imported wheat from USA under the PL-480 Scheme. The PL-480 was a public law in US through which excess agricultural products were distributed to the rest of the world on humanitarian grounds. The Cold War era however created some problems, to the extent that a time had come when India was not sure whether it would be able to feed its population for the next few days. This was primarily for the fact that imported wheat and rice from USA was stopped by the Russian Naval Ships at the height of Cold War.<sup>4</sup> It was a real wake up call for the Indians. Nevertheless, one of the major goals of public distribution system in the early 1960's was to distribute the imported grains around the country. That was the time for the government to get serious about our food security system and also the distribution system.

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<sup>2</sup> Madhura Swaminathan (2008)

<sup>3</sup> Prabir Kumar Das(2016) Evolution of Public Distribution System in India 1939-2013

<sup>4</sup> Bipan Chandra, Mridula mukherjee India after Independence

From the mid 1960s to late 1970s there was a stress upon strengthening the public distribution system of the country by increasing the buffer stocks though internal production of food grains and reducing dependence on food imports. (A study of food security in rural Orissa, thesis submitted to the University of Calcutta for Ph.D.).

From the mid 1960's there were major organisational changes that taking place. In 1964-65 the Food Corporation of India was set up. It was setup by an Act of Parliament. The main objectives the corporation was expected to perform were:

1. To ensure that the price fluctuations are taken care.
2. To maintain buffer stock.
3. To ensure a reasonable support price.

The FCI has been instrumental in providing food to the vulnerable section of the population through its various storage points.

The main aim of setting the Food Corporation of India was to handle procurement, storage and buffer stock maintenance. After 1965, the Bureau of Agriculture Cost and Prices Commission were set up. The BACP was to recommend the prices at which the Food Corporation of India would procure the food grains. A part of the procured food grains were to be kept as buffer stock to meet unforeseen events. This period from 1960-1978 was also saw a large scale effective supply of PDS.<sup>5</sup>There was a major improvement in the delivery of PDS during this period of time. The PDS during these period in time became an institutionalised arrangement. During this period food security system became an integral part of the development strategy of the government. It was also during this phase that Green revolution was initiated and these resulted in massive production of crops in certain areas.<sup>6</sup>Another watershed moment in the evolutions of PDS was with the launch of National Production and Distribution Scheme. The aim of NPCDS was to procure and distribute some essential commodities. Through the NPCDS for the first time a vital link was created between production, procurement and distribution. During these period imports were reduced to a large extent export of foodgrains also increased

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<sup>5</sup> Das(2016) evaluates the effectiveness and history of PDS.

<sup>6</sup> Das (2016)

during these periods . But a major problem during these period was ofcourse the volatility of prices. During these period the government decided to take over the wholesale trade of foodgrains. The main characteristics attained by PDS during these period was :

1. A permanent system of Public Distribution System
2. A comprehensive coverage of vulnerable sections of the population
3. Distribution of minimum percapita as will not erode the consumption standards of the poorest.
4. A price to be charged which the vulnerable section can bear.<sup>7</sup>

So the PDS was started in Independent India with government creating a huge food bills for itself. The main agency providing foodgrains to the PDS is the Food Corporation of India set up in 1961. FCI is entrusted to purchase, store, move, transport, distribute and sale foodgrains and other foodstuffs. Due to the high subsidy provided by the GOI, on the PDS government has to bear a huge fiscal burden. Subsidy on PDS is the difference between issue price and economic cost of the FCI. Driven by the target of reducing the food subsidy the GOI introduced the Targeted Public Distribution System in 1996. In this system, a distinction was made between the below poverty line and above poverty line. Some Scholars are of the opinion that the Universal PDS is a far better system than the Targeted Public Distribution System. One reason given for this is, in terms of errors of exclusion (Swaminathan 2002). There has been a growing body of literature which documents whether the benefits of subsidy do really reach the poor (Bardhan and Mokherjee 1998). But there are again many studies which points out the importance of targeted system since it helps to achieve welfare for the poor with limited resources. PDS has been facing a number of criticisms in the recent years most important among them being i) The burden of food subsidy ii) leakages from PDS etc. Although there exists a vast literature on leakages in PDS system and its proper implementation, but very

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<sup>7</sup> G.Suranarayana(1985) '*Public distribution in India*', Chugh Publication, Allahabad, discusses the evolution of PDS in India in Sivaji,K(2010) Public Distribution System in Tamil Nadu a Case Study,Phd Thesis submitted to Madurai Kamraj University , dept of Political Science accessed at [www.shodhganga.inflibnet.ac.in](http://www.shodhganga.inflibnet.ac.in) at 7:58 pm 1/06/2020.

few studies has actually concentrated on understanding the effect of PDS in removing malnutrition and under nutrition. A study by Himanshu has shown that reduction of leakages can actually reduce the amount poverty(Himanshu 2013). An interesting case in India has been, the existence of mass hunger coupled with huge food grains in FCI. In some instances, it has been found that there are under purchase of PDS grains; this is interesting given the fact that the open market prices for grains are higher (Khera 2011).<sup>8</sup> Corruption has been also another important area when diversion of PDS grains is concerned. According to some estimates, there have been huge differences between offtake and of FCI and household purchase from PDS shops (Khera 2011). Again the same estimates the fact, that certain states are infact doing better than other states in terms of diversion. The purchase to entitlement ratio, which estimates the purchase by the household, to what they have actually been entitled to have, also improved (Dreaze and Khera 2011) among many states. There is also a good deal of debate about the case for cash transfer and PDS. It has been generally found that states where PDS is dysfunctional, there people have a lot of preference for cash and vice versa (Khera 2011). In 2001 the People's Union for Civil Liberties filed a writ petition in the Supreme Court seeking legal enforcement for right to food. Their justification was that inspite of mass starvation and chronic undernourishment (Dreze 2003), the Food Corporation of India maintains huge amount of food stocks. The Right to Food gained prominence and Supreme Court finally gave legal entitlement to the people in terms of Right to Food. NFSA was finally launched in 2013 on 12<sup>th</sup> September by an Act of Parliament. The NFSA was intended to alleviate hunger and malnutrition. The NFSA has been implemented from 2015 onwards. The NFSA 2013 is supposed to provide food subsidy to 75% of the rural population and 50% of the urban population. NFSA has created three categories of households i) excluded household ii) general households iii) priority households,the priority household would get 7Kg/capita at Rs 3/2/1 depending on which cereal they get.<sup>9</sup>

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<sup>8</sup> Various plausible reasons have been given for this namely the demand hypothesis and the supply hypothesis seeKhera 2011.

<sup>9</sup> web.iitd.ac.in › ~reetika › nfsa seminar Food Security

The objective of National Food Security Act(NFSA) was defined as to ensure “ public provisioning of food and related measures, to enable assured economic and social access to adequate food with dignity, for all persons in the country, at all times , in pursuance of their fundamental right to be free from hunger, malnutrition and other deprivations associated with the lack of food and related matters”. There are various reasons which has been put forward for the implementation of NFSA i) since NFSA projects per capita entitlements they are thought to be fairer. ii) more members would be entitled to food with NFSA iii) the per capita entitlements would do away with the precise definition of household, which sometimes can be manipulated. Again there are areas where NFSA has been criticised they are : i) there are huge cost implications for the NFSA a study by Prachi Misra shows that the incremental cost of food subsidy to rise over 760000 crore.(Misra 2013). ii) there are also going to be problems with procurement iii) another big problem with the NFSA is the identification of beneficiaries. Although the act proposes to cover 75 percent of the rural population and 50 percent of the urban population, but it does not mention as to how the criteria would be set to identify the concerned population. The main significance of this Act is that it brings the right to food within the legal framework.

Studies have shown that PDS has not been effective in solving the problems of food security(Jha et al. 2013). The problem with PDS in solving the food insecurity is riddled with corruption and leakages(Khera 2011). NFSA 2013 has also been able to play a key role in removing food insecurity(Sengupta and Mukhopadhyay 2016). The environmental sustainability is not solved by the NFSA. The key is that although PDS has been helpful in counteracting food insecurity but transparency and accountability remains key issues in India(George and McKay 2019). Recent studies have pointed out that PDS and NFSA 2013 has the capacity to reduce poverty in terms of implicit transfer(Himanshu and Sen 2015).

The PDS inspite of its various problems till date remains one of the most important Social Safety measures in India.

### iii) Tea Industry

Tea is a very popular drink around the world. The elixir drink was at a point considered to be the national drink and the most popular drink in Britain. During the 16th century the main supplier of tea was China. Tea was introduced in Britain in the mid seventeenth century<sup>10</sup>. Tea was popularised in Britain by the virtuosi, merchants and maids of honour. The virtuosi were men of commerce and science who were introduced to tea, as a part of the new globalised world order. The second group were the merchants who recognised the importance of its business and trade in Britain. Slowly tea became the most popular drink among the Britishers and during the colonial period the main supplier of tea into Great Britain was of course China. East India Company was given the monopoly of supplying tea in Great Britain from China<sup>11</sup>. The Britishers began to think of an alternate location for cultivation of Tea, as they wanted to challenge the Chinese position in world market for Tea. In 1834 Lord William Bentinck formed a Tea committee<sup>12</sup>. The first job of the Tea committee was to look for an alternate location for cultivation of Tea Garden was made the secretary of Tea committee who happened to be an opium trader. The East India Company through the Tea committee started to activate a series of Botanical gardens, along with the medical and military establishments of the British empire<sup>13</sup>. In accordance with the various circulars sent by the Tea committee around the country a favourable response was received from Assam where reports from the government came that wild tea shrubs were found growing in the Upper Assam. By 1859 Assam valley districts witnessed the opening of a total of 68 tea gardens covering 54859 acres of land by planters<sup>14</sup>. The growth of tea gardens was further accentuated by the British by making wasteland available for the planters. Thus the

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<sup>10</sup> See Jayeeta Sharma(2011) *Empire's Garden Assam and the Making of India* she gives a detailed history of how tea was introduced in Great Britain and India.

<sup>11</sup> Rana P Behal(2014) *100 Years of Servitude The Political economy of Tea in Assam*

<sup>12</sup> Rana P Behal(2014)

<sup>13</sup> *Ibid.*

<sup>14</sup> See Rana P behal(2012) on this and he also elaborates on statistics of tea production in the early years.

Wasteland Rule Act was framed on 6<sup>th</sup> march 1838<sup>15</sup>. The Wasteland Act made the availability of land easy for the planters and open more Tea Plantations. In the Western Doars or North Bengal as we know it today, Tea was introduced from the Darjeeling District. Tea industry in Darjeeling started in 1841 on an experimental basis. Around 1850 Terai was attached to Darjeeling previously it was a part of Bihar<sup>16</sup>. From 1856-57 the tea industry in Darjeeling district started on a commercial basis<sup>17</sup>. Between 1860-64 four gardens were opened. By 1891 there were 177 tea estates. The tea plantations in Terai region of Darjeeling district was started in 1862. The first tea garden that was opened here was at Champpta near Khaprail<sup>18</sup>. Tea industry in the Terai region of Darjeeling district flourished fast as there was growing interest of tea among the British population. Tea Industry was established in Doars after the Britishers captured Doars from the Anglo Bhutan War.

From the very beginning the plantations faced the problems of labour shortage. Labourers were not easily available. In Assam where tea cultivation originated in India; the major problem was that the natives of Assam who lived in those areas were not ready to work for the plantations, mostly because they were lazy and indolent<sup>19</sup>. A Tea Planters Association was formed in 1859. The main purpose of the TPA was lobbying with the government on issues of Labour. The Tea garden was a place which required heavy work from the labourers, this was a job which could not be performed by ordinary individuals. Moreover the wages were very low in the gardens thus it was found that most of the times it was these tribals who were found to be most suited for doing these jobs<sup>20</sup>. After the tea gardens were established in

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<sup>15</sup> Amalendu Guha(2014) *From Planters Raj to Swaraj Freedom Struggle and Electoral politics in Assam 1826-1947*.

<sup>16</sup> Suknya Ghosh Hazra(2000) *Girl Child among Adibasi plantation labourers A Study of their Social Situation* Department of Sociology University of North Bengal PhD Thesis exposes a brief history of Tea.

<sup>17</sup> Hazra(2000) *ibid*.

<sup>18</sup> J.F. Guring(1911) *Eastern Bengal Assam District Gazetteers*, Jalpaiguri.

<sup>19</sup> Rana P Behal(2012).

<sup>20</sup> Sanat Kr Bose(1954) *Capital and Labour in the Indian Tea Industry* AITUC

Dooars, the employment of labour was a major problem as in Assam. Recruitment was not a problem in Darjeeling Tea plantations as a large number of labour force came to Darjeeling from Nepal to work in Tea plantations<sup>21</sup>. Initially Nepali labourers were recruited from Darjeeling in Dooars but they were found to be inefficient<sup>22</sup>. A study conducted by ICMR in 2006 in Assam Tea gardens found that 59.9 percent of children were underweight, 69.9 percent adult were thin. 65.7 of the interviewed suffered from worm infection<sup>23</sup>. Starvation deaths are a regular feature in the Tea gardens. India's score in the Global Hunger Index has fallen from 38.8 to 31.1 in 2018<sup>24</sup>. Another major issue coming up in the recent years has been the fact that although many tea gardens are on the verge of collapse but the total tea production has been increasing this has been possible primarily because of small tea growers. The small tea growers are the self employed tea cultivators and they churn a majority of tea production today. According to estimates specifically in North India the STGs(Small Tea Growers) are producing more tea than the big estates<sup>25</sup>.

### **Labour Conditions in Tea Estates**

After independence the conditions of the labourers in most of the industrial sectors began to improve. Tea gardens were found to be places where gross injustice was done by the colonial masters. After Independence Government passed a number of laws such as the Industrial Dispute Act, Minimum Wages Act for the plantation labourers<sup>26</sup>, trying to amend some of the gross injustice done towards them before Independence. Another major steps taken for the Tea Garden labourer was the PLA.

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<sup>21</sup> Bhoumik(1981) , as Bhoumik points out this happened due to the problems faced by people in Nepal so many people fled from Nepal to Darjeeling.

<sup>22</sup> Bhoumik(1981)

<sup>23</sup> John and Mansingh(2013)

<sup>24</sup> "Why Are We Unable to Mitigate Hunger When We Are Producing More Food than Ever?" 2018)  
*EPW*

<sup>25</sup> Saha et al (2019)

<sup>26</sup> Sharit Bhoumik et al(1996) *Tea Plantation Labour in India* New Delhi.

The biggest challenge however was the implementation of these Acts<sup>27</sup>. In 1957 at the fifteenth Indian labour conference it was proposed for need based minimum wages to be implemented. They further recommended setting up the need based units on consumption of two adults and two children. The ILC recommendation was to have a consumption unit of three for the family<sup>28</sup> for the determination of wages. The government of India was advised to form a tripartite wage committee for each industry. The wage board for tea industry was set up in 1960, but the results for the board came out in 1966. It took almost six years for the Board to come up to a decision. The employers were strongly against the choice of units to 3 for consumption, rather they were of the opinion that since in tea industry employment was family based so 1.5 consumption units should be taken into account for wages rather than 3. Since according to them taking 3 units would substantially push the wages beyond the minimum needs<sup>29</sup>.The employers stuck to their demand and finally the board agree to their demand. The gross injustice that the labourers faced during the time of Colonial Era was once again repeated. According to Virginius Xaxa this was a historic blunder<sup>30</sup>. The overall conditions of the Tea Garden labourers are not good. A study conducted by ICMR in 2006 in Assam Tea gardens found that 59.9 percent of children were underweight, 69.9 percent adult were thin. 65.7 of the interviewed suffered from worm infection<sup>31</sup>.Starvation deaths are a regular feature in the Tea gardens.

The story from the employers are a different one, according to them wages are only a part of the entire benefits given in tea gardens. Housing facilities, water , medical facilities and food are very much part of the benefits and when added up it is much more than the real wage. But activists and researchers question the fact that these benefits are statutory benefits provided under PLA, and they were supposed to be

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<sup>27</sup> Bhoumik et al(1996)

<sup>28</sup> John and Mansingh(2013),Bhoumik(ethnicity and isolation

<sup>29</sup> Bhoumik(2011)

<sup>30</sup> Research Radio(2020) Interview with Virginius Xaxa.

<sup>31</sup> John and Mansingh(2013)

mandatorily provided under the act. Therefore the management saying that it is but a additional benefit doesnot hold ground since it is not an additional benefit but right of the workers. PLA which is the Plantation Labour Act was passed by the parliament in 1951 but came into effect in 1955<sup>32</sup>. The plantations under the Europeans had no rights for the workers, laws were there primarily for the benfit of recruitment<sup>33</sup>. Some of the benefits like drinking water facilities, medical facilities etc were given arbitrarily to the labourers by the management of gardens, with no clear regulations in place<sup>34</sup>. But the PLA changed everything it made many of these arbitrary policies the right of the labourers. PLA mandated that the Gardens must provide for health facilities by providing for drinking water,separate urinals for men and women, medical facilities. Welfare for workers was to be provided by ensuring that gardens have canteens, crèches, recreational facilities, educational facilities. Regulation of work was provided for by mandating the number of working hours, daily intervals of rest was also mandated, no night shifts were allowed for women and children<sup>35</sup>. The PLA made it mandatory for the Tea industry to provide for the statutory benefits but it was found that most of the tea gardens were not following the statutory requirements. Thus not being able to provide for the benefits of PLA most of the times the Tea gardens lacked in some of the basic facilities, health being one of them. Health has always been one of the big issues for Tea garden labourers. Even during the colonial period it was found that the infant mortality rate(IMR) was very high, which is an indicator of detoriating health. Statistics collected during the early years of tea plantations showed that in Assam Tea gardens the average infant mortality rate was 168/1000 as reported by Lloyd Jones compared to an all India IMR of 134/1000 in1946<sup>36</sup>. A recent study conducted by Dr. Bipul Chandra Sarkar<sup>37</sup> found

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<sup>32</sup> Bhoumik(2011)

<sup>33</sup> John and Mansingh(2013)

<sup>34</sup> Behal(2012)

<sup>35</sup> John and Mansingh(2013)

<sup>36</sup> Behal(2014), the figure for all India Infant Mortality Rate was taken from P. Padmanabha(1982) Mortality in India: A Note on Trends and Implications *Economic and Political Weekly Vol. 17, No. 32(Living conditions of tribal people as Tea Garden Workers in Dooars of Jalpaiguri District 2017*

<sup>37</sup> Living conditions of Tribal People as Tea garden Workers in Dooars of Jalpaiguri District (2017)

that in the Mal subdivision the infant mortality rate was 65/1000 compared to an all India Infant Mortality Rate of 47/1000<sup>38</sup> in 2017. Various studies have pointed out the worst child health conditions and also maternal health conditions, this inspite of the statutory benefits being provided in the Tea gardens which includes health<sup>39</sup>.

**Research Hypothesis:**

1. Poverty and food security are related, poverty leads to food insecurity and food insecurity leads to poverty.
2. Tea gardens of North Bengal exhibit marked regional disparities in terms of food security and poverty
3. PDS has helped to address the problems of Food Insecurity in Tea Gardens of North Bengal.
4. Other determinants of Food Security shows that there exists food insecurity in Tea Plantations

**Research Questions:**

The study proposes to see how the food security has evolved over time in tea gardens and the efficacy of PDS in the same.

The basic research questions to be asked are:

1. What is the present socio-economic status of the Tea Plantation workers in the selected gardens?
2. What is the role of public distribution system in India in mitigating food security?
3. How has the PDS evolved over time in the tea gardens?
4. Is Poverty and Food Security related?
5. What are the other determinants of Food Security?

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<sup>38</sup> Census Of India 2011

<sup>39</sup> G.K. Medhi et al(2006) Nutritional Status of Adoloscents among Tea Garden Workers

## **Methodology**

To investigate and analyze the issues of Food Security in these regions, two Tea Gardens were chosen in the Dooars region. Both qualitative and quantitative method has been used for the proposed study. Secondary information based on various reports and articles pertaining to the status of food security in the region will be studied. Data and other information from the Tea Board and other organisations including the Non-Governmental Organisation (NGOs) will also be included in the study to reinforce the study outcomes. A socio-economic survey and Focus Group Discussions (FGDs) has been undertaken to obtain the background information about the workers. Through the investigative survey, the question of food security, hunger and malnutrition has also been addressed. A total of two tea gardens have been chosen for the determination of the impact of PDS in these gardens. One of the two tea gardens to be selected is from the gardens which had at one point of time faced closure and the other garden is selected from the Terai region relatively well of compared to the other tea garden.

Tea gardens are an integral part of the economy of North Bengal. Earlier most of the tea gardens provided rations to the labourers at their own expenses. Later a policy decision by the state government enforced PDS in the Tea Gardens. So, inspite of that why are there reported cases of deaths due to hunger in the tea gardens? The survey has been conducted to find the nutritional status of the household after the introduction of PDS in Tea Gardens. An attempt will be made to calculate the Hunger Index in the lines of the Global Hunger Index. Simple statistical tools have been used for analysis, while based on primary data obtained, suitable econometric analysis has been undertaken to find the relation between food security and Mean per capita expenditure/income.

## **Conclusion**

This chapter introduces the idea of food security and also tries to cover the broad literature associated with it. The paper also states the Research Hypothesis that it would like to test and the Research questions associated with it. The methodology to be followed is also mentioned in the chapter.