Chapter 1

1.1 Introduction

The Indian economy has recently expanded at rapid rates and now becoming one of the fastest expanding economies in the world. Per head real GDP has grew at 5.4 percentover the year 2000 to 2005. Percapita consumption in real terms has also been growing, at 3.9 percenta year 2000 to 2005. It has been widely identified that, the developmental process, grown on inequality in the society gradually rises up to a point and after that declines. Kuznet (1955) recommended that the income inequality might be presumed to follow inverse U shape curve in which inequality first increasing with industrialization then decreasing. Raising inequality is the outcome of some forces such as changes in technology, over which no control, and/or the globalization of world trade, for which people believe despite historical authentication to the country, to be irreversible (Atkinson, 1999). But it is also more realistic true and empirically proved that too much extreme inequality must definitely be avoided as it is unacceptable to most. India has a variety of tribal livelihood which reflects its significant ethnic diversity. The tribes constitute about 8.6 percentage of total population, although they are scattered all over the hill, dense forest and backward regions of the country. Among the tribal groups, it is perhaps necessary to understand each tribe because their living style is different from each other and the general population too and further they live in dense jungles and near to nature.

Consumption pattern is the most important indicator of the livelihood, so we want to analyze the changing contest of livelihood of the study district on the basis of consumptions; it has been found that the scenario has changed a lot in the mean time. The tribal livelihoods were generally dependent on forests for their survivals. They used to gather various forest based products and fuel woods from their nearby forest.

Apart from forest product collection they have used to do some cultivation in the forest land as well as including the land they have received from government in favor. Their economy is truly dependent in nature. In the mean time the forest has degraded slowly but steadily due to lots of reasons. The impact of industrialization, role of privatization, intervention of outsiders and rising population became the major threats for those ethnic groups. The degraded forest resources failed to fulfil the primary needs of the households. As a result, the tribal households are looking for other alternatives. In the initial days it was only primary sector, which gave them a better alternative source for subsistence. But the small size of land holding and the practice of the traditional method of farming have failed to fulfil the rising needs of the tribal households.

Consumer expenditure on different food and non-food items are generally used as the main for measurement of the standard of living of tribes in our study area. In general, tribes consumed the food baskets consists of cereals, pulses, vegetables, fish meat and beverages. The non-food items are education, health, travelling, clothing and beading. Living closely to nature the tribes are primarily dependent on forest products and/or product from their arable land. Being forest dependent (non-marketed) their subsistence predominantly comes from their consumption for themselves and for generating income. That means they have been consuming what they can collect and/or produce. For tribal livelihood the prime aspect between market and non-marketed consumption gives a pattern of shift in consumption in their economic framework. Non-marketed consumption refers the significant environmental role on tribal subsistence. Environmental researcher has done a notable work to study the traditional livelihood of tribal community. Although, the food habituates across tribes have been distracted for the changing pattern of the consumption sources from

non-marketed to marketed pattern. In this way to the changing pattern of consumption from non-marketed and marketed sources has been over looked from the main centre of analyze. Accordingly, as per the Constitution (Scheduled Tribes) order, 1950, as amended up-to-date, 40 Ethnic groups (now it becomes 38) has so far been notified as Scheduled Tribes in West Bengal. Tribal population of West Bengal constitutes about 5.08 percent of total Tribal population of the country. Tribal communities are present in all the districts of the State. Higher concentration of Tribal population is seen in the Northern districts like Darjeeling, Jalpaiguri, Alipurduar, Dakshin Dinajpur, and Southern districts like Puruliya, Paschim Medinipur and Bankura. At present, in most parts of India, tribes consist of one of the economically weakest sections of the society. The development policy of tribal population is being implemented with five-year plans under the supervision of Government of India. So there has been a impact of Social Protection Programs (SPP) and Common Property Resources of tribal livelihood. In the present study we have tried to examine the traditional consumption pattern and the transitional scenario in tribal dominated districts of West Bengal namely Puruliya, Bankura, and Paschim Midnapur.

Is there any difference of food habits for the tribes and the non tribes of the rural areas? Are the tribes converging with non tribes over time? What is the role of Public Distribution System on consumption of the tribes? What are the poverty and food insecurity scenario of tribes and non tribes? Is there any changing scenario of the sources of consumption for tribes has been occurs over time? Why the changes occur for tribes over the years? What are the characteristics of tribal peoples of the study area? Why there is a need to analyze the consumption across tribal communities and what are the patterns of food and non-food consumption across tribal communities?

Are there any changes in consumption pattern across tribes across districts? Is social protection program has an impact on tribal consumption? Is common property resource has an impact on tribal consumption? What are the roles of these programmes on the food security of the tribes in the backward districts of West Bengal?

1.2 Review of the Existing Literature:

In this section, an attempt has been made to review and present the existing literature related to the consumption pattern of the tribes.

1.2.1 Trends and Pattern in Consumption

Sharma and Ram (1991) conducted a study on consumption pattern of households belonging to weaker sections of Saharanpur district. Their study revealed that per capita total expenditure, expenditure on milk and milk products were higher in winter whereas expenditure on food items was higher in rainy season. The expenditure on pure ghee, milk and other milk products showed variation in different seasons. Srivastava (1991) also examined the regional imbalance in production as well as in consumption of vegetables and fruits in India. Analysis of the data on consumption revealed that very few amount was spent on vegetables and fruits. However, in all the regions, the consumption of fruits and vegetables was higher in urban areas than in rural areas.

Jain and Patel (1996) had been studied the consumption pattern of food as well as non-food items in Haryana, India using NSSO data. The expenditure on food was 71 percent and 64 percentin the two above mentioned sections respectively. About

25percentge of the total consumer expenditure was went to milk and milk products for both the sections. Within the dairy products, the major allocation was for liquid milk which followed by ghee, butter and other milk products.

Sekar and Senthilnatham (1994) analyzed the fish consumption pattern in Coimbatore city using 150 households who were classified into three income groups. Their study revealed that both the per capita consumption and expenditure increased with increase in income. The percentage expenditure on fish to total consumption expenditure was 4.33 in low income groups, 3.43 in medium income groups and 3.14 in high-income groups showing a declining trend. This showed that lower income group gave more importance to fish vis-à-vis expenditure on other items.

Rup Kumar et al. (1995) had studied the pattern of family consumption in rural sector of Vidarbha region. His analysis showed that the family consumption expenditure pattern per house per annum in small, marginal and large size groups of farms were Rs. 6946.94, Rs. 8955.16 and Rs. 18877.56 respectively. Among the total expenditure made, major expenditure were made on food items viz., cereals followed by edible oil and lastly on protective foods like fruits and vegetables, meat, milk and milk products. The consumption of cereals was as per recommended level but consumption of fruits and vegetables was closer to recommended level and consumption of pulses, edible oil etc. were very much lower than the recommended level.

Kumar and Mathur (1996) in their paper analyzed the structural changes in income which would bring the major shifts in the consumption of milk, vegetables, fruits and livestock products in case of both the rural and urban areas. They observed that the increase in demand for non-cereals and non crop commodities vis-à-vis cereals would provide incentives to the producers to diversify their production. Datta

and Ganguly (2002) also analysed that the consumedexpenditure pattern of milk and milk products by using NSSO in India. The per-capita monthly expenditure (MPCE) was estimated around Rs. 175 and Rs. 207, with wide sub-regional fluctuations. Musebe and Kumar (2002) studied a similar on the dietary pattern and nutrition status of rural Maharashtra. In their study they used consumer expenditure data of 50^{th} round of the NSSO conducted in 1993-94. Cereals constituted the major source of nutrients.

Namasivayam and Vijayakumar (2003) analysed the consumption pattern of soft drinks in selected urban zone in Tamil Nadu. The study had been carried that out of 360 respondents, where 20.83 percenthad the habit of drinking soft drinks while travelling, 16.66 percentat home and 16.55 percentin the bus stands. Again, 70.6 percent were male and 29.4 percent female among respondents. It had been also found that 37.22 percentof respondents were students of colleges/universities and they consumed more soft drinks than other categories.

Sahu and Panda (2003) made a study to find out the determinants of the Podu practice, particularly the income from it, in a tribal village in Rayagada District of south Orissa. Forest land and human labor are the only two inputs into the Podu production. The entire process of tribal development is yet to introduce so diverse and so stable a source of livelihood.

Bakshoodeh and Farajzadeh (2004) examined Iranian urban consumer's behavior and determined the role of ratched effect in forming the consumption pattern over the period 1980-2000. The survey covered household consumption quantity and total expenditure on foods, including bread, flour and its products, dairy products and eggs, fats, fruits a vegetables, groceries, sugar and tea, etc. In this study it was observed that income and substitution effects were weaker than the ratched effect.

Randhwa and Chahal (2005) studied the milk consumption pattern and the factors which affecting their consumption in Punjab's rural area. The primary data has been collected through personal questionnaire method by adopting multistage sampling technique. The analysis revealed that the elasticity of consumption expenditure were 0.89 and 0.65 for milk and milk products respectively. Whereas, Soe and Singh (2006) estimated the households food consumption pattern in India's North Eastern Zones. The analysis had brought out that North Eastern states consumed much lesser amount of staple food items like pulses, milk products, edible oils and fruits etc as compared to all India levels.

Nasurudeen and Kuruvilla (2006) examined the dynamics of the per capita consumption expenditure of various food groups in India, across income groups and the quantity consumption of cereals and their calorie intake. The share of vegetables, fruits and nuts indicated on increasing pattern up to 1993-94, and then slightly decreased to 7.55 percent in 1999-2000.

Giri (2006) studied the consumption of cereals over the years in India and across the states of India using the data of NSSO reports of consumption pattern and availability of food grains. The cereal consumption of 11.2 kg during 43rd round (1987- 88) declined to 9.8 kg during 58th round (2002) and then again increased to 9.9 kg and 10.0 kg respectively during 59th round (2003) and 60th round (2004). Similar trend was observed for rural areas.

Shrivastava and Saxena (2006) had analysed the consumption pattern of India after independence. Data revealed that over time the production of pulses has been declined by 3.6 percent and the per capita daily availability of pulses also decreased by 36.64 percent. The availability of food items as well as the consumption expenditure on cereals, edible oil, and sugar, milk and milk products and beverages

had been increased over time though in the case of pulses the availability and consumption expenditure gave a negative result.

Misra and Padhan (2011) examined the traditional and cultural indispensable food consumed by the tribal women of Odisha across Koraput and Kalahandi districts. The analysis revealed that in case of Koraput district, maximum number of tribal women consumed the indigenous flowers, cereals, cereals products and pulses as compare to the Kalahandi district of Orissa.

Again Mishra (2012) studied the food related resources among Oraon tribes, who inhabited the forest area of Sundarharh district of Orissa. Oraon, one of the major tribes of Chotanagpur plateau, mainly depended on the forest for their social and economic livelihood, but over the times they were converted into agriculturists. In recent times, people get resources from marketing of forest produce and animal husbandry. The study discusses the changes in the availability and utilization of food resources in the background of deforestation and other changes in the tribal areas.

Zeeshan and Ali (2015) had analysed the impact of changing consumption pattern in relation to the demographic variables with socio and economic characteristics. The lifestyle has been explained with respect to food consumption, fashion trends, amusement, and use of technique. The study showed that the lifestyle of rural households were changing but with gradual pace to have conformity with the social, economic and cultural values.

1.2.2 Demand for Food Consumption

Samad and Hossain (1992) in their study they calculated income and expenditure elasticity's for the major consumption items in Bangladesh for both rural

and urban categories over two periods between 1985-86 and 1988-89. The expenditure elasticities were computed using Engel functions. Their study resulted that the expenditure elasticities were greater than corresponding income elasticities. Meat and sugar were found to be high elastic consumption items. Wheat was highly inelastic food item in Bangladesh (urban area) and its consumption pattern remained same during the periods between 1985-86 and 1988-89.

Radhakrishna (1992) evaluated food trends, food security issues and public distribution system. The trend that had been analyzed of NSSO consumption data recommended that per capita cereals consumption was declining. From 1970-71 to 1991-92, the per capita consumption of cereals had been declined in the rural areas to 0.52 percentper annum and to 0.23 percentin the urban areas of India.

Radhakrishna and Ravi (1992) estimated consumption of food items and nutrients for India during the 1972-88 period using piece-wise linear expenditure system in their study. The outcomes suggested that between 1972-73 and 1987-88, real per capita cereal consumption decreased by 3.91 percentage and 0.21percentage in rural and urban areas, respectively.

Singh et al. (1993) analyzed demand for and supply of milk in Haryana by considering factors like growth in population, growth in per capita income and urbanization. The study revealed that current and future milk production in Haryana would meet the minimum nutritional requirement during the period (1987-88 to 2004-05). There was about 11.63 lakh tonnes surplus milk in the year 1987-88 and there would be about 24.52 lakh tonnes of surplus milk after achieving nutritional requirement of milk by the end of year 2004-05.

Durga and Murthy (1995) attempted to evaluate demand for food in urban and rural areas analysing National Sample Survey Organization (NSSO) data in their study. Demand projections were generate fewer than two alternative income growth scenarios for the years from 1988-89 to 1992-93.Their study resulted that the cereal consumption decreased over the years in urban India, signaling the shift in consumers taste and preference away from cereals.

Kaur and Gupta (1996) conducted a study in Chandigarh city and found that the percentage expenditure on food was 35 percent while that on non-food items was 65 percent. The relative expenditure on food items declined as income increased. Among the food items, the largest expenditure was on milk and milk products. The expenditure on milk calculated for 75 percent and milk commodities computed for 25 percentof the total expenditure on milk and milk commodities.

Pagire and Shinde (1999) made a primary study on the demand for as well as supply of grapes in Maharashtra, India, taking suggestions of 120 grams of fruits per day percapita by Indian Council of Medical Research (ICMR). The demand for grapes in the state was computed for the year 2001 for the projected population of the state (8.68 crores). The computed requirement was 93.72 thousand metric tonnes at the rate of 20 g percapita per day and it was 140.62 thousand Metric tonnes at the rate of 30 g percapita per day for the state.

Poroda et al. (2000) projected household and domestic demand for food products between the years 2000 and 2030 in different south Asian countries. It was found that the consumption of cereals would decline with the increasing share of fruits, vegetables, milk, meat, eggs and fish in the diet. In view of the vast agricultural potential remaining under-realized, the study concluded production enhancing strategies.

Hajarika and Sarma (2001) forest demand for and supply of rice in Assam for 2010-11, using the data various round of NSSO from 1980-81 to 1994-95 with respect to six different aggro-climatic zones. Their study computed that the aggregate demand for rice in 2010-11 for the state as a whole would be 63.84 lakh tones and the production or supply of rice in the state would be 45.17 lakh tones. They observed that the state would face of 18.67 lakh tones of deficit for rice in 2010-11 with a 29.24 percentage demand and supply gap.

Kumar and Mittal (2002) has been analyzed long term exchanges in dietary patterns and food demand in Uttar Pradesh, India for their study. In their study they used the household's level data of NSSO rounds 38, 43, 50 and 55th for the Uttar Pradesh. They observed more than threefold increase in consumption of fruits from a level of 2.3 kg in 1983 to 10.2 kg in 1999 among the rural consumer and from a level of 3.6 kg in 1983 to 14.9 kg in 1999 among urban consumers.

Musebe and Kumar (2006) made a case study on food expenditure pattern of rural livelihood in Andhra Pradesh, India. This study examined the data on quantity and expenditure on food items by expenditure classes, social group, educational level and land ownership. The functions specified were log inverse and log-log inverse. In the food expenditure elasticities cereals had the lowest expenditure elasticity of 0.189 while milk and milk products had the highest expenditure elasticity of 0.97. The households spent at least 46 percent of their total income on food.

Kumar and Mruthyunjaya (2007) and also Chandha (2007) estimated the changing structure of demand for agricultural commodities in the study. The study was based on NSSO data on pattern and level of consumer expenditure in India. The analysis revealed a changing picture on the consumption of food items, separately for rural and urban India during the period between 1972-73 and 2004-05. For urban

India as well except that during the past 5-6 years, per person monthly expenditure on food items fell noticeable from Rs.41.17 in 1999-2000 to Rs.366.37 in 2004-05. For the entire period, the real per capita monthly expenditure on food items, varied between Rs.32.00 and Rs.35.00 in rural areas and between Rs.40.84 and Rs.41.00 in urban areas.

1.2.3 Influencing Factors and Constraints in Food Consumption

Rees (1992) studied that influencing determinants of the consumer's choice of food were texture, appearance, flavor, and advertising, reduction in traditional cooking, fragmentation of family livelihood and change in pattern of demography impact and introduction of microwave ovens. Development in retailing with 80 percent of concentration for food sales in supermarkets was considered to be the major part of food consumption. Consumers were concerned about the way in which food was produced and wanted safe, natural, high quality food at an appropriate price.

Ragavan (1994) and Singh et al. (1995) had been computed the quality, price, regular availability, accuracy in weighing and billing, range of vegetables and accessibility as the elements in the order of importance which had influenced purchase of vegetables by respondents from modern retail outlet.

Wandel (1995) used multivariate analysis to study the influencing factors of consumption of vegetables and fruits among Norwegian consumers. The factors, which determined consumption, were sex, age, income and household structure. It was interesting to note that consumers who were health conscious consumed more fruits and vegetables.

Hugar and Vijaykumar (1996) carried out a study in Dharwad city to identify various factors influencing the consumption of vegetables. A sample of 90 consumers was chosen at random. It was noticed that the personal attributes such as education level and sex had significant influence on the quantity and frequency of purchase. Females purchased more as compared to males, college educated respondents purchased more than primary school educated or illiterate consumers. Income also had significant influence. The higher family income group purchased larger quantity of vegetables.

Sharma (1997) analyzed the factors determining the consumers' acceptance and preference for food in general. Many factors interact together and make buying complex process. Though price was identified as an important factor, it had some limitations on the consumer's choice. Factors like sensory attributes, regional preference, age, sex, interest, motivation, discrimination and income were also found to influence food consumption.

Sundar (1997) analysed that, Cuddalore was enjoying favorable images of consumers in the attributes such as price, equality, location, behavior of sales persons, moving space, correctness of weight, packaging of products, number of sales persons and convenient shopping hours. At the same time frame, the image was weak in the attributes, for example, availability of range of goods, credit facility and variety of products, door delivery and sales promotional measures.

Jain et al. (1998) used almost ideal demand system (AIDS) model to analyze own price, cross price and income elasticities utilizing family budget data. Demand analysis for food items revealed the demographic factors such as regionalism, urbanization, household size, education and food habits which were important factors

in explaining the observed differences food consumption pattern. Further, substitution between the commodities was observed to be quite low. Also all commodity groups were quite responsive to expenditure changes with milk and milk products, meat, fish and egg showing the largest responses.

Rao (2000) estimated the decreased demand for food grains in rural India. He identified the factors influencing the higher percapita of cereals consumption in rural areas. The factors were higher prices of non-food grain and non-food products, higher requirement of energy due to heavy manual labor, wages payment in kind by the large farmers in the form of cooked food and the poor state of healthy and environmental resulting in low efficiency of conversion of food into energy.

Myszczszyn (2000) reported that with the general rise in the average income of Polish households particularly among the non-farming population, since 1994. The demand for food products had been relatively stable although it remained 5 percent lower than in 1988. The structure of demand was changing with increasing preference for processed foods and greater awareness of health and dietary factors among the consumer population. The study also concluded the producers to face new set of challenges to meet stricter food quality standards.

Prell et al. (2002) made a case study to determine the factors that influencing adolescent's consumption of fish in their school. Consumptions of fish had been assessed by observation on four occasions. Attitudes towards the fish, friend's behavior and perceived control were the important predictors of the intention to eat fish. They thought to a greater extent that the fish was healthy and prepared with care. They concluded that, it was important to alter dishes also so that they appealed to children and to pay attention to their total meal.

Agrahar and Pal (2005) analyzed the food consumption pattern of the Khasi tribals in 13 tribal villages of Ri-Bhoi, Meghalaya, India and reported that dietary pattern of consumption had been still traditional. Rice, meat, roots, tubers, fermented foods, green leafy vegetables and fruits consumption were same for every day. Dairy products and pulses did not play a significant part in the everyday diet. Alcohol, fermented food, betel nut and tobacco were widely consumed by both men and women.

Golait and Pradhan (2006) and Pavitrhra B.S. (2008) and also Geetha (2011) analysed the changes of food consumption pattern in rural India: implication on food and nutrition security. They analysed that all the marketed consumption cereal items over the period 1987-88 through 2001-02 in almost all the states of India and in both rural as well as urban areas with the alleviation being particularly sharp in the case of smaller items of cereal, such as barley, maize and cereal items, such as, egg/fish/meat and fruits/vegetables.

The study used the consumer expenditure household survey data of National Sample Survey Organization (NSSO) (1993) rounds to compute the demand parameters needed for decomposition. The factors affecting to the consumption of cereal in both urban and rural regions and across various expenditure groups had been analyzed. The outcomes revealed that the change in cereal consumption was the combined effect of various factors. As cereals were becoming relatively expensive, the positive own price and negative substitution price effect were leading to a change in consumption away from cereals. As income increased, the lower income groups tend to increase the consumption of cereals, whereas the upper income groups moved towards other food items. Tastes and preferences played a very important role for all

the income groups had even the lowest income groups have a tendency to shift away from cereal consumption.

Dawoud and Seham (2014) they viewed the changes in the patters of food expenditure over the period in Egypt with special emphasis on the differences between urban and rural regions. According to the structure of food expenditure, they concluded that the food expenditure patterns had changed over the five survey periods as a result of economic changes. Their study aimed to find out the changes in food expenditure elasticities of households from 1990-1991 to 2009-2010 surveys.

Singh and Lodhiyal (2016) analysed the fodder consumption pattern, availability and energy economies for fuel and fodder. They identified that the average fuel consumption was 3.95 Kg/Day/Family and there was a deficit of 24.7 MT/Year. Pandey P. and Neerubala (2016) focused that nutrition education efforts should aimed to strengthening the positive trends and combating the negative ones can go a long way in improving the dietary intake, nutritional and lifestyles status of the households.

Azam and Acaroglu (2016) focused to find out the behavioural pattern of the resident of Eskisehir, about the relationship between the expenditure that they made by them on across food items by taking income of the household and the family size of the respondent as important explanatory variable by using the econometric method of Ordinary Least Squares (OLS). Their study suggested that how the dependent variables are explained by different component related to expenditure. Patel S. D. and Rajyaguru A. J. (2016) analysed the various forms of consumption expenditure function through the Keynes Psychological Law (or Absolute Income Theory) of consumption function. This analysis showed the importance of cereals consumption in the food basket of the rural households.

1.2.4 Inequality in Consumption:

Keynes (1936) Keynesian psychological law of consumption deals that increased income is distributed between consumption and saving. The psychology of the community is such that when aggregate genuine income is increased aggregate consumption is increased, but not to the proportion of increase in income. Again Propensity to Consume has not the mere desire to consume, but the actual consumption that takes place or is expected to take place, out of varying amounts in the change in disposable income.

Hjelm, Mathiassen and Wadhwa (2016) analysed inequality in food security based on asset ownership, housing characteristics (stock) complement household consumption (flow). Whereas wealth indices and consumption per capita has been associated with each other and both are drivers of food security, they cannot be used interchangeable for food security analysis.

Warr (2014) and Treiber (2014) studied and estimated the food insecurity and the determinants of food insecure. They proved to indicate by which expansion of agricultural output within the countries which were developed. Food insecurity associated with alleviation both the rate of undernourishment and the rate of poverty incidence. It was insufficient to rely solely on aggregate economic increase or alleviation in poverty incidence to deliver improved food security. But the evidence also revealed that higher food prices worsen both undernourishment and poverty. Agricultural output must be increased without at the same time raising food prices.

Blundell (2011) argued that it was not enough to just describe inequality, but instead it was necessary to analyze determinants in order to understand how individuals and families ameliorate adverse effects in inequality. Understanding how

well defined mechanisms such as taxes and welfare, use of the credit market, family labor supply and durable goods replacement work is important in the design of policy for redressing the adverse consequences of inequality and poverty.

Lakner et. al.(2016) and Çami(2017) estimated the inequality of consumer's spending in Albania by calculating and decomposing the Gini coefficient for expenditures. The data had been taken from the 2012 Living Standard Measure Survey (LSMS) that provides data on livelihood expenditures on multiple categories of services and commodities. The outcomes suggests for an inequality of 0.371 for total consumption versus an inequality of 0.403 for total income. About 78 percentages of all household expanses consist of food, utilities and household operations. Consequently, expanses on other consumption components were perceived as being a luxury with a high relative inequality (relative Gini) coefficient.

Chakravarty (1987) & Bhalla (2003) studied on the theme period out that one of reasons for adopting a interventionist economic policy was the apprehension that total reliance on the market mechanism would result in excessive consumption by upper-income groups, along with relative under-investment in sectors essential on the economic development. India policymakers adopted a middle path, in which there was a tolerance towards income inequality, provided it was not excessive and could be viewed to result in a higher rate of growth than would be possible otherwise. Study revealed that in both urban and rural sector Gini Coefficient declined between 1993-94 and1999-00.

Singh et. al. (2003) and Jha et. al. (2004) could not find strong evidence of increases in household inequality for the period 1993-94 and 1999-00. There were

some indicators of increases in regional inequality but they were neither uniform nor overly dramatic. They studied the convergence of economic performance at a sub-state level.

Himanshu (2013) analyzed the role of two India's major food security programmes which were the Mid Day Meal Scheme (MDM) the Public Distribution System (PDS), that as a direct impact on poverty reduction and on nutritional intake. The study also revealed a methodology to take into account the role of food-based transfers by including the implicit transfers from that policy along with generating consumption expenditure estimates consistent with the transfers.

Jabo, Ismail Mohamed Mansor, Shamsuddin, Mad. Nasir, Abdullah, Amir Mahir and A.M Maikasuwa (2014) they have been studied a representative sample of general household to 3380 livelihoods of rural areas. Surveyed panel data had been adopted by the technique of World Bank Living Standard Measurement Survey (LSMS). The food secure situation in Nigeria had been estimated by using the Foster Greer and Thorbecke (FGT) class of decompose food poverty measures which satisfied both transfer axioms and monotonicity . In their study they conjecture that, the higher incidence of food security during post harvesting season might likely be due to inability of small farmers small holding and to utilize their time into non-farm income generating activities due to high labour demand for operating farm.They concluded that the public schemes ensured provision of infrastructure such as roads and boosting farming among rural subsistence.

1.2.5 Tribal Consumption:

Basumatary (2015), Mishra and Gupta (2014) estimated the consumption expenditure pattern on education and health, fuel, intoxicants and cell-phone expenditure of Jalah Development Block in case of Bodo tribes. On the basis of primary data, analysis had been showed that the consumption expenditure of the tribes basically were depended their income that they can derive by selling their labour in agricultural sector.

Sali (2016) estimated the economic activities and its relationship to expenditure pattern among the tribes of Kannur District in Kerala. The economic life dealt with materials want of people and activities related with the fulfillment of resources and needs, which constituted the parts of economic life. Various durable and nondurable goods' consumption depended on the availability of income, market and household's decisions as well as on the availability of goods and services.

Whereas De and Kundu (2015) estimated that through the tribes got nutritional value from alcohol but there were many adverse effects of alcohol consumption in their study. Their study evaluated the accuracy of the anthropometric indicators used to classify the addiction of alcohol across the children, adolescents, and adult among there tribal villages. Their study had been conducted at Jhargram block of Paschim Medinipur District of West Bengal, India.

Jain (2001) tried to study the tribal transformation in respect of the new perspective of the globalization. The study was conducted among the tribal's of Rajasthan. The tribal's were also drawn into the contemporary web of new economy. This might be a kind of shock to the tribal people. Weekly market gained popularity among the tribal's and a cluster of villages, as there were one or two such markets.

This weekly market was influenced by globalization. This had been linked the tribal to consumerism.

Gupta (1986) made a field study about the functioning of the Integrated Development Project (ITDP) in Birbhum district of West Bengal. The ITDP's single-line-administration system gave no scope at any level to the popular participation in decision making also. The ITDP had no infrastructure by which it could project a high profile in the blocks and the villages under its jurisdiction. Even its officers could not be able to get any feedback from the people.

Pal (2007) had attempted to study the nature of socio-economic changes among the Santals cultivators in respect of the agricultural modernization. He made his study in two villages from each districts of Barddhawan and Birbhum of West Bengal. Santals of Barddhawan were comparatively more advanced than that of Birbhum in this regard. It had been noticed that the tendency towards education was expanding. Old members of a family were mostly illiterate, but they were trying to give education to their children. They were aware about the government reservation policy on services, so they think that their children got government services by getting proper education. The educated Santal youths did not know the names of all ceremonies and rituals of their own community. Thus, the agricultural modernization had changed the Santals' socio-economic culture gradually.

Bandyopadhyay (2000) stated that tribals residing in West Bengal rank next to the Odisha. Despite that they have not come under any land ownership system. Even they possess no residence of their own. Children of such families can't dream having education or medical facilities. While writing on tribals in the sub-division Jhargram of West Midnapur district during the period between 1992 to 2000, the author

observed that not a single tribal family got any land from the government, rather they have become victims of big land owners, money-lenders and other traders.

Chowdhuri et. al. (1997) was trying to review the changing situation among Scheduled Tribes of West Bengal during the period 1951 to 1991. They estimated that though the majority of the tribals reside rural areas even today, there was a trend of gradual increase in the percentage of urban population. Despite the fact that there was a steady educational development among the ST communities of West Bengal, the percentage of literacy rate was still very poor. Indebtedness and money-lenders still existed as a part of their life. The author, after a thorough investigation of tribal development during the last fifty years suggested taking necessary steps not only for their own development but also for the interest of progress of the country.

Chowdhuri et. al. (1992) estimated the impact of family oriented economic programmes among the STs of West Bengal. It is interesting to note that with their traditional skills which the tribals retained in their occupations (since historical past) were well utilized by them, particularly when these were given to them in the form of scheme to uplift their economic condition. They also concluded that if the implementing agencies extended the benefits to the tribal families after examining their knowledge, experience, skill, attitude and other economic factors, more success which would have created a positive impact on the economy of the tribal communities might be observed.

Gupta (1992) in a paper has made an attempted to present a socio-cultural profile of STs of West Bengal. In West Bengal there were two main tribal communities i.e. Mongoloid (Lepcha, Bhutia, Garo etc.) and Proto Australoid i.e.(Ho, Munda, Santal, Bhumij etc.) tribal communities. He estimated here about their pattern of dresses, settlement, occupational structure, food habits, religious ideas and

cultural life etc. According to her, before independence the tribal societies were isolated from the mainstream of our national life, but now due to various government and non-government developmental programmes they are not unknown to the outsiders and a good many changes are taking place in their way of life.

1.2.6 Impact of Social Security Programs in Consumption:

According to Sen and Dreze (1991) the focus of the social security is to enhance and protect people's capabilities to be adequately nourished, to be comfortably clothed, to avoid escapable morbidity and preventable mortality. The average experience of poorer sections understates the precarious nature of their survivals, since a certain proportion of them undergo severe and often sudden dispossession, and the threat of such a thing happening is ever present in the lives of many more.

Som (1994) stated the view in a paper presented at a seminar on Development of Social Protection programmes in developing countries that in discussing the question of extending Social Protection to the entire population one was drifting from one Utopian world to another confounded Utopia. He pointed out that for the last decade or so and more particularly during the last three or four years the Social Security system all over the world was under great strain. The ILO was consulting the World Bank and the I.M.F about the future of Social Security.

Prabhu (2001) observed that the economic regime prevailed in the country from Independence to the early 1990s had assigned a special responsibility to the state to protect the right of the weaker sections and to remove the impediments that prevented them from active participation in economic processes. The economic reforms initiated in did not directly call for any change in the commitment of the nation to the workers or to the government's role in translating it into concrete action. In fact the reforms

emphasized the continuing role that the state should play in the field of social security, education and public health.

Naidu (2003) analyzed the social security for workers in the post reform period. According to Naidu social security measures for labour became important in India after the implementation of economic reforms. The first part of the decade of reforms gave the proper focus on this problem, though amounts had been set apart in every budget. There had been a decline in the allocations made for social security in general and labour in particular.

The World Bank strategy paper (2011) studied its 10-year plan on social assistance and labour. The overarching goals of the strategy were to help improve resilience, opportunity and equity among the people across both the low and middle-income economies. The strategic direction had been help to developing economies move from fragmented approaches to more harmonized systems. This new strategy addressed the gaps in current practice by helping make social assistance and labour more responsive, became productive more, and more inclusive of excluded regions and groups; notably low-income economies and the vvulnerable, the disabled, those were in the informal sector .

Gentilini et. al. (2014) in their study gave information on the state of social security nets in developing and less developed economies. The World Bank definition of ‘safety nets’ refers to social assurance programmes. Using data of 146 countries the report provided new estimates on the coverage of social security net programmes, their features, level of government spending, and current empirical evidence. It also reviewed important policy and practical developments and focusing emerging innovations.

ILO's (2014) report offered a comprehensive institution of evidence both on the massive progress made over the last decade and on the remaining gaps that need to be fulfiled. Based on a life-cycle hypothesis, the report provides an overview of the recent organization of social welfare systems, benefits, economies coverage, and expenditures for men and women of working age, child and older people. It also analysed the trends and current policies, and called for the expansion of social security in pursuit of recovery crisis, inclusive development and social justice.

Katnalli (2015) and Rao et. al. (2015) studied and examined the trends in food security in India with the latest available evidence in terms if availability. Availability was a necessary condition for food security though per capita availability of food grains is around 200 kg per annum the availability of non food grains food commodities had been shown an impressive trend. This paper's conclusions had some important implications for the food policies to ensure food security in India.

World labour report (2000) examined the on income security and social assistance for the labour in the less developed and developing economics. It offered a snapshot of the main problems that had been tackled, the mechanism that were being used, their success and non success and the challenges for the coming future. The report described the measurement of social protection that could be put in place both for poverty alleviation as well as for risk minimize, through no fault of their own, households and/or individuals fall into poverty.

Bundy et. al. (2009) their study gave a guidance on how to develop and promote effective school feeding programme, both as a productive assistance net, as part of the response to the global crises, and as a fiscally sustainable investment in

human capital. Data revealed that in every economy for which we had information was seeking to provide food, in some way and at some scale, to its school children.

IATT (2009) in their study reviewed an established national social assistance programmer in eight economies to examine the experiences of scaling up. It examined the institutional dynamics by looking at the location of programmes within ministries, leadership and changing drivers, and promoted a holistic, integrated approach. It established a relation between ministries which were the important factors for determining effectiveness. It noted that the cash transfers were often dominate the dialogue, which detracted from comprehensive programming and had been less effective than a broader focus on integrating social transfers and social services. Success of a programme depends on clear leadership, finance coordination, and donor harmonization, including support from a government official.

Barrientos (2010) in his comprehensive report provided an overview of social assistance programs and an assessment of its impact in Latin America, East and South Asia, and Sub-Saharan Africa. Economies with stronger social assistance had been shows lower levels of poverty and vulnerability and were more resilient in the face of social and economic change. Though, financial sustainability and capacity limitations were challenging that must be addressed. It had been helpful to view social assistance financing as a remake of public expenditure rather than a new expense.

Karunarathne et. al. (2002) and Rao (2007) had been studied the Social Assistance in Asia and the Pacific - Reforming formal social assistance systems in India and Sri Lanka and to analyze the formal social assistance systems of India and Sri Lanka. While many of the social, demographic, and economic indicators differentiated across the countries, the structure of the social assistance systems, challenges, and

reform directions are quite same. They found that the provident fund organizations in both the countries had been highly inefficient and needed to modernize and benchmark their governance, operations, and investment policies. The dualism in their systems, which had been resulted in relatively generous non-contributory pensions being provided to civil servants, also needs to be addressed.

1.2.7 Impact of Common Property Resources in Consumption:

Gang (2007) the tribal society is a unique phenomenon with natural diversity and people in India. India has been well known for their extreme poverty of the individuals and households, the tribal peoples constitute the core of the poorness. Poverty, poor health improper sanitation, illiteracy and other social disputes across the tribes are exerting a dragging effect on the Indian economy. India has experienced substantially high economic growth and the long term trends suggest that the poverty in India is on a declining trend. But looking into the factual performance, one can say that the pace of development was rather too slow in reaching the weaker sections of the society especially the tribal community. A major source of the difference in the causes of poverty between these two social groups lies in the characteristic effect of occupational structure. The main factors, responsible for the wide spread poverty across the Jhumias of the state Tripura was lack of employment scope.

Gupta (1989) had made a case study on the economical conditions of the Kols, the Baigasand the Gonds of Baghelkhand in Madhya Pradesh. The purpose of the survey was to identify the factors responsible for poverty of tribes and estimate the effectiveness of the social protection programmes from independence. He concluded that these problems should be tackled at three fronts, namely economic, social and administrative. Shah A. and Sajita O.G. (2008) discussed the poverty status and the

multiple deprivations across tribal groups in the state Gujarat and to explore appropriate policy options for strengthening their subsistence through a bonding of forest and non-forest based interventions.

Debnath (1992) stated that forest played a vital role in tribal culture and economy. Their livelihood had been very much dedicated by the right of the forest from delivery to death. On the level of dependency with the forest tribal may be categorized into two groups. i.e., (a) Isolated in living in remote inaccessible forest areas (Bonda, Jarwa etc.) and (b) Advanced who are participating shifting cultivation and having few contact without side (Khand, Maria etc.). All tribes worship the forest as "Mother Goddess". It was seen that the agricultural tribal people regularly visit the forest for their recreation. They maintain a happy life with the forest; their folk songs and dances revolve round the forest and also organize their annual hunting in the forest.

Sahu (2012) analysed that the impact of institutional process on economic rights and social justice for the tribals in Orissa clearly underlines the fact that tribals continue to be the most marginalised section of the society. He summarized that the prevailing tribal development schemes need to be integrated with local forest management policy resources to adopt the constructive forest dependence of tribals in protecting their own survival subsistence economy and traditional practices.

Paul et. al. (2012) attempted to know the effective management of forest and socio economic development of the tribal forest dwellers. Their study had been conducted in Ramnagar Village under Bonovilla Forest Protection Committee of Illumbazar Beat, Birbhum, and West Bengal.

Jana et. al. (2012) in their study have been based on the data collected primarily from the six FPCs in West Medinipur district of West Bengal. They have tried to

measure the dependence of households on protected forests through the parameters like earning from felling and NTFPs, etc. The elements behind such dependency had been analysed also. They have also investigated whether the share money from feeling is being utilised for social capital formation. Their study revealed that there was much scope of improving the living standard of the rural poor through joint forest management.

Madan et. al. (2000) on their study analysed common property resources (CPRs) of the seven-villages that had been carried out between the year 1993 and 1996 across the agro-ecological zones of West Bengal. The findings of their study were that CPRs had made upto 12 percent of income of poor households' fodder and fuel were the most important CPRs that had been accessed by the poverty stricken households. Girls and Women were mainly responsible for collection of CPRs, which may be why their importance to the poor had been largely ignored. Poor people have being systematically excluded from access to CPRs, a key component in their subsistence, at an alarming rate.

Mandal (2015) revealed that the Common Property Resources had played an important role in the economy of the surveyed villages although the consumption value from community forest had been higher for the non-poorer households in absolute terms again in relative terms, the poor households' dependency on forest community had been very crucial and important for their subsistence. So, there had been an urgent need to form sustainable management of Common Property Resources, particularly the forests in order to avoid 'the tragedy of commons'. Therefore, there was an urgent need to strengthen the age-old traditional system of village council headed by Gaon Burah in addition to the village Panchayat with specific purpose of management of these resources.

1.3 Gap of the Study:

From the brief review of the existing literature, it is found that there is hardly any research work indicating about the changing pattern of the consumption pattern of the tribal groups in the backward districts of West Bengal. Again the consumption pattern across tribes and non - tribes is the point of study that has not find from the literature review. Again no study has been found where the consumption scenario of tribes has not been compare with the mainstream population. There is hardly any study that has explored the tribal dependence on marketed items and changing pattern of non-marketed consumption items. Again there is no research work that reveals the intra-tribal and regional variation of consumption. The impact of social protection programmes and common property resources in the level and pattern of the consumption of tribals in the backward region are not adequately addressed in the literature. The present study has tried to fill up these gaps.

1.4 Objectives:

The present study sets the following objectives:

I. To analyze the trend and pattern of tribal consumption vis-à-vis non-tribal consumption of West Bengal
II. To analyze the dependency of market and non-market sources of tribal's consumption.
III. To study the variation of the pattern of consumption among major tribes and across regions (in selected backward districts of West Bengal).

IV. To evaluate the impact of social protection programmes and common property resources on the status of food security of tribes in the backward districts of West Bengal.

1.5 Hypotheses:

The following are the proposed hypotheses for our present study

I. The tribal consumption diversified towards high value products.

II. The tribal dependency on non- marketed consumption items is declining over time.

III. The variation of the pattern of consumption among tribes and across regions is not significantly different.

IV. The social protection programmes and common property resources have played the important role for food security of tribes in the backward region.

1.6 Sources of Data:

While the overall objective of the present study is to analyze the trend and pattern of tribal consumption in between regions across tribes (in selected districts of West Bengal) we try to develop a comparative analysis at the district level and for this purpose we take resort to the secondary data. However, on account of the limitations of the secondary data and for the sake of an in-depth and detailed study we have tried to collect and use primary data to analyze our research hypothesis. This section deals with the sources of the secondary data, methodology of collection of primary data and that of analysis of primary and secondary data.

1.6.1 Secondary Data and their Sources:

Secondary data relating to consumption have been collected mainly from National Sample Survey Organisation (NSSO). We have selected three backward districts with tribal dominance of West Bengal i.e., Puruliya, Bankura and Paschim Midnapur for our study. The NSSO collects the data of household consumer expenditure at regular intervals of a nation. The NSSO surveys have been operated through household interviews from a random sample of households selected through a scientific design. The unit level data on nutritional patterns and consumer expenditures collected by the NSSO have been be used for this analysis. The present study incorporates the NSSO unit level data for the four years (1993-94, 1999-2000, 2004-05, 2009-10 and 2011-12).

Data have also been used from the Census of India. Detailed information of the different government schemes are also collected from different offices of the Government of West Bengal namely, a) National forest Development Report, b) Directorate of Rationing, c) Department of Panchayats & Rural Development and d) Department of Health and Family Welfare, and e) Bureau of Applied Economics and Statistics.

Among 19 districts of West Bengal these three districts are also treated as drought prone districts (Entire Puruliya district, 27 % of Paschim Midnapur, and 32 % of Bankura). Not only that, a significant area of these districts have forest land – 22 percentin Bankura, 18 percentin Paschim Midnapur and, 15 percentin Puruliya (State Forest Report 2010-11). These districts are described as JangalMahal of West Bengal that means forest regions largely inhabited by tribal population.

The region is also witnessed the following socio-economic backwardness: a) agricultural is the main occupation; according to latest Census (2011), 63 percentof the population peoples are predominately dependent on agriculture for their livelihoods),

b) low agricultural productivity and low agricultural wage (Das 2010) c) excessive dependence on forest for livelihood and the problem of deforestation, d) cattle breeding, cottage industries, artisan products and collection of forest products are subsidiary occupations (Das 2010), e) lack of infrastructural discrepancy and modern industries, d) lack of education, healthcare and other civic amenities, f) low level of education; estimated literacy rate in this region is 61 percentas per Census 2011 which is much lower that state average, and g) social backwardness with high unemployment and high incidence of poverty (29 percenthouseholds are poor in Bankura, 37 percentin Paschim Midnapur and 36 percentin Puruliya (Govt. of West Bengal 2008). Rural Development Report (2013-14) has listed India's 640 districts and 5,955 sub-districts in the descending order of backwardness on the basis Index value used five indicators from Census 2011: i) Agricultural Worker (ii) Female literacy (iii) Households Electrification (iv)The Availability of Drinking Water and Sanitary latrine within premises (v) Banking service in Households level. On the basis of this ranking we classify backward and developed districts in West Bengal. Among the 19 districts of West Bengal 10 districts are relatively backward districts and 9 districts are relatively developed districts (Table 1.1).

Table1.1: Ranking of districts of West Bengal on the basis of backwardness index

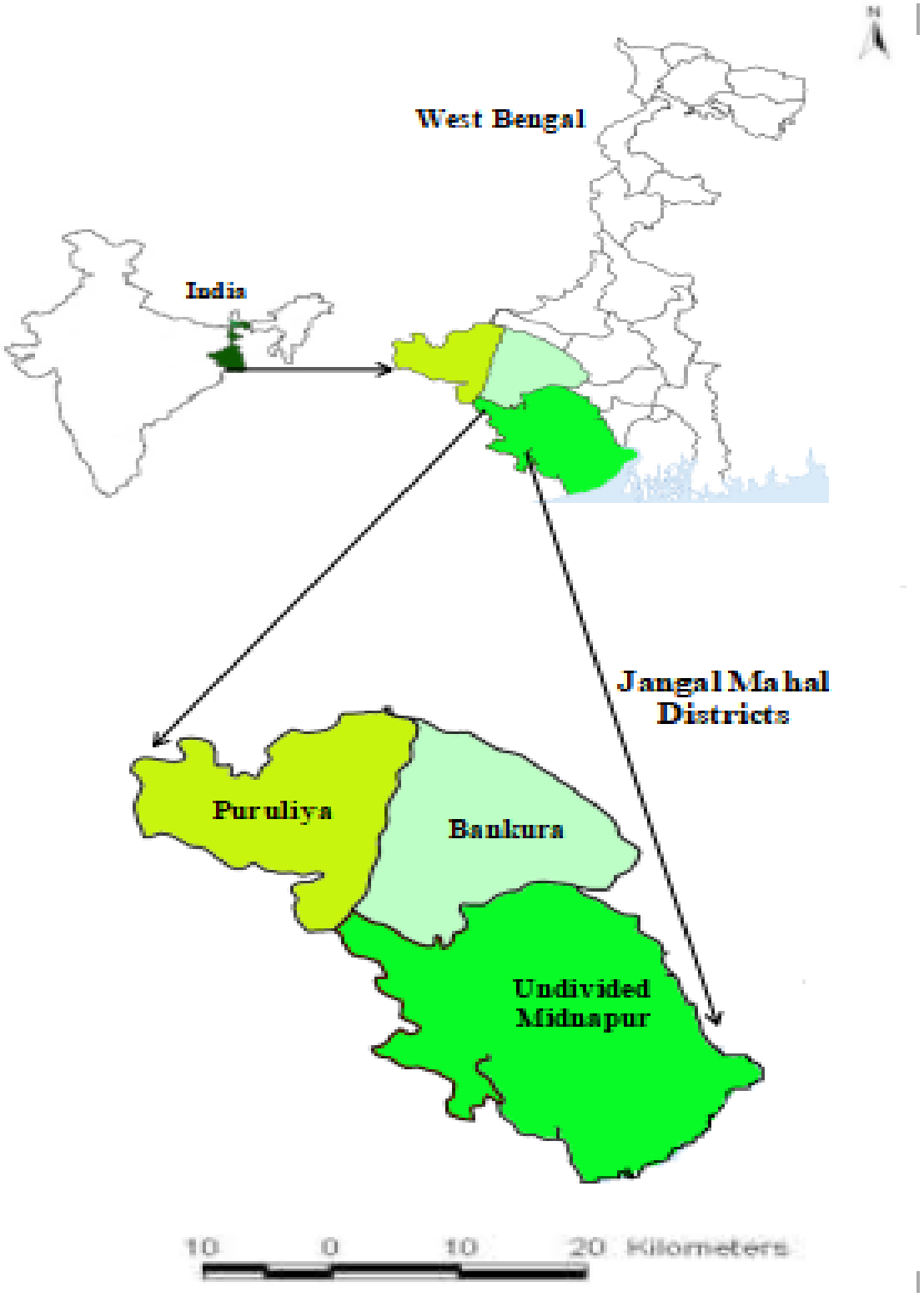
Backward Districts	**Rank**	**Developed Districts**	**Rank**
Puruliya	19	South 24 Parganas	9
Uttar Dinajpur	18	Nadia	8
Malda	17	Purba Midnapur	7
Bankura	16	Barddhaman	6
Birbhum	15	Hugli	5

Dakhin Dinajpur	14	Darjeeling	4
Kochbeehar	13	Howrah	3
Murshidabad	12	North 24 Parganas	2
Paschim Midnapur	11	Kolkata	1
Jalpaiguri	10		

Source: Indian Rural Development Report, 2013-14

Note: Districts are ranked in descending order of backwardness

Figure 1.1: Map of the Study area



The reports of NSSO of rounds 50th (1993-94), 61st (2004-05), 66th (2009-10) and 68th (2011-12) brings out the variation in the level of consumer expenditure by occupation type of household, social group of household and size of land possessed by

households in rural India. Consumer expenditure on different food and non-food items are generally used as the main for measurement of the standard of living of tribes in our study area. In general, tribes consumed the food baskets consists of cereals, pulses, vegetables, fish meat and beverages. In case of non-food items are education, health, travelling, clothing and beading. Living closely to nature the tribes are mainly dependent on forest products and/or product from their arable land. So these items are terms as non-marketed sources of consumption in the NSSO calculation of consumption expenditure. NSSO unit level data are not presentable at the districts or sub-districts levels. Therefore we have combined the districts into the region which is presetable in NSSO data. In our study the Western region of West Bengal has been studied, combining with the three districts namely Puruliya, Bankura and Midnapur (undivided).

1.6.2 Primary Data and Sample Frame

The NSSO data could not provide the consumption of different tribal groups across districts. Again the impacts of Social Protection Programmes and Common Poperty Resources have not been evaluated from NSSO data. On account of limitations of the secondary data to serve the present study a detailed primary survey will be made. Primary data are collected from the households which are selected on the basis of stratified random sampling. The main scope in the household level surveys is to calculate aggregate household consumption and their components. From the traditional approach to the measurement problem, and the one that have been used in many surveys, is to collect data or information at the grass root level. The data of consumption can be collected by the household interviews consisting of retrospective questions regarding consumption. Closely associated to the decision on measurement

instrument (like questionnaire for the food and non food consumption) is the decision on studied or reference period. High-frequency items such as food usually have rather short reference periods that is taken as last 30 days or one-month recall. The situation is different for low-frequency items. Recall of expenditures on low-frequency items such as household clothing's, bedding's and others durable goods must cover a relatively longer period i.e., last 365 days or last one year since a period that is too short would result in large variances in the estimates of totals. That's why the length of a suitable reference period consequently differ between item groups.

The survey has been conducted in the year 2015-16. A multi-stage stratified sampling technique has been adopted for the selection of the sample districts to the sample households. The sampling process has been consisted of four stages viz., at the first stage districts, taluka/blocks were in the second, villages were in the third and the sample households have been selected ultimately at the fourth stage (Table 1.2). On the first stage three backward districts of West Bengal namely Puruliya, Bankura and Paschim Midnapur has been purposively selected for the present study due to its dominance in tribal population. Now, all the blocks of these districts are not equally important. So, in the second stage of sampling two blocks selected randomly from each sample district which has the tribal predominance. Within a block all villages are not equally important in respect of social and economic characteristic. In view of this, in the third stage two villages has been drawn randomly from each sample block with high density of tribal population. Finally in the last stage of the sampling process 50 sample households from each village have been randomly selected due to uneven distribution of households of sample villages. Accordingly we have selected 600 households for the study.

1.2: Sampling Framework of the Study area:

Stage I	Stage II	Stage III	Stage IV
Districts	**Blocks**	**Villages**	**Households**
Puruliya	Bundwan	Kunchia	50
		Sirishgora	50
	Kashipur	Khaliathol	50
		Majramura	50
Bankura	Raipur	Karamara	50
		Bankanali	50
	Ranibaudh	Kama	50
		Budhkhila	50
Paschim Midnapur	Binpur2	Lagadari	50
		Kushmura	50
	Narayangarh	Tarf Barepanda	50
		Daharpur	50
		Total	600

Source: Authors sampling on the basis of Census of India (2011)

Weights of each category depend on the corresponding ratio of population belonging to the category obtained on the basis of village level data of Census 2011. Numbers of households are proportional to the ratio of population belonging to these four categories. Total 600 households have been studied across the districts.

The study has been taken into consideration in terms of Monthly Per Capita Consumption Expenditure (MPCE). The necessary information that have been collected from the sample household:

a) General information of the households: General information of households includes their Age, Sex, Castes, Castes, Education level, income earners of the households.
b) Occupation of the members of the households: Occupational pattern of the household members includes Self Employed in Primitive Activities, Self Employed in Modern Agriculture, Self Employed in Non Agricultural Sector, Casual Labour and Regular employed.
c) Information relating Land: Different types of land holdings of tribes include Land less, Marginal, Small and Semi medium Lands.
d) Item wise total food consumption and total values: The food items such as Cereals, Pulses, Milk , Vegetables, Egg, Fish, Meat, Spices, Fruits , Beverages, Tobacco and Intoxicants and Fuel and lights.
e) Item wise total non-food consumption and total values: The non food items such as Entertainments, Clothing, Education, Medicine, Transport and Durable goods.
f) Source of the consumption: The sources from where are tribes collected and/or purchased i.e., marketed or non marketed sources of consumption. Marked purchase, fair price shop purchase is the marketed sources and home production, forest collection; gifts are the non marketed sources.

A household is a cluster of persons who normally lives together and consuming food from a common kitchen. If though, a group of person between them polled their

income for spending, they together has been treated as forming a single household any person who is normally resident of the surveyed households is considered to be the member of a household. The member of a household may or may not be related by blood to one other. The members who report their age at last birthday as fourteen or less than that has been considered as children.

1.7 Research Methodology

The data that has been collected and /or estimated has been processed and scrutinized for maintaining the outline laid down for the objective at the time of the research plan development. This was essential for ensuring that all relevant data are available for making contemplated comparison and analysis.

1.7.1 Methodology of Data Analysis:

i) Poverty Gap and Food Insecurity Gap:

The status of poverty is measured by using the methodology of Foster, Greer and Therbecke (1984) as

$$PI_{\propto} = \frac{1}{N}\sum_{i=1}^{q}\left(\frac{PL - E_i}{PL}\right)^{\propto} \quad ; \propto = 0, 1, and \ 2$$

Where, PL signifies that the poverty line and Eisignifies that the expenditure of the i-th individual or household.

When, $\alpha = 0$, PI_0 implies the incidence of poverty

$\alpha = 1$, PI_1 implies the depth of poverty

and $\alpha = 2$, PI_2 implies the severity of poverty

Again the status of food insecurity (FIS) is measured with the help of the Foster, Greer and Therbecke (1984) methodology which has been mentioned in case of Poverty Gap. In case of Food Insecurity Gap analysis when the value of

$\alpha = 0$, FI_0 implies the incidence of Food Insecurity (IP)

$\alpha = 1$, FI_1 implies the Depth Food Insecurity (DFI)

and $\alpha = 2$, FI_2 Implies the Severity of Food Insecurity (SFI)

Poverty Gap analysis has been used to estimate the status of poverty between tribes and non tribes of the study area. Whereas food insecurity gap analysis has estimated the position of food insecurity between the two groups.

ii) Gini Coefficient:

The Gini coefficient has been used to measure the inequality between tribes and non tribes of our study area. It is defined as a ratio with value between 0 and1, i.e., the numerator is the area between the Lorenz curve across tribes and non tribes and the equality line and the denominator is the area under equality line. The Gini coefficient has been used to measure the inequality between tribes and non tribes of our study area. Gini coefficient has been developed by Corrado Gini a statistician from Italy at 1912.The Gini coefficient has been defined by Gini as

$$G = \frac{2}{n^2 \bar{x}} \sum_{i=1}^{n} i(x_i - \bar{x})$$

Where G has been used to measure the inequality, which defines as the mean of absolute differences across all pairs of households and/or individuals for some measure, x refers to an observed value, n is the number of values observed and $\bar{x}$ is

the mean value. This analysis will help us to find the consumption inequality between tribal and non tribal household of the study area.

iii) Correlation and Regression:

Correlation denotes the degree of association across variables. Suppose two variables x and y are related that variations in the magnitude of a variable tend towards by the variations in the magnitude of the other variable, and then they have been said to be correlated. If y increases as x increases, the two variables are said to be correlated positively. Again if y decreases as x increases, the variables are said to be correlated negatively. If the values of y are not affected by the changes in the values of x, the variables are said to be uncorrelated. On the basis of Pearsonian correlation coefficient a correlation matrix has been constructed which is used to understand the interrelation among the variables. To examine the factor relationship both correlation and regression analysis has been used wherever it is necessary. Regression analysis is the most important way to estimate the exact relationship between dependent variable and independent variable. The estimation is done by means of suitable equations, derived on the basis of available bivariate data. Such an equation has been known as a Regression equation and the geometrical representation of it is called a Regression curve.

The equation of multiple linear regressions is as follows:

$$\hat{Y} = b_0 + b_1 X_1 + b_2 X_2 + \ldots + b_p X_p ,$$

where $\hat{Y}$ represents the expected value of the dependent variable, X_1 to X_p are the p distinct independent variables, b_0 represents the value of Y when all of the independent

variables (X_1 through X_p) has been equal to zero, and b_1 through b_p represents the estimated regression coefficients. Every regression coefficient represents the change in Y relative to a one unit change in the respective independent variable. In the multiple regression model, for an example, b_1, is the change in Y relative to a one unit change in X_1, taking the values all other independent variables constant (i.e. the remaining independent variables are held at the same value or are fixed). Again, statistical tests have been performed to assess whether each regression coefficient has been significantly different from zero. Assessing only the p-values concludes that these independent variables are equally statistically significant. Finally the magnitude of the t statistics provides a means to judge the relative importance of the independent variables. So that we can estimate the major independent variables those have impacts on consumption expenditure of the tribal households.

iv) Path Analysis:

Path analysis is a form of statistical multiple regression analysis , which has been used to evaluate the causal models by evaluating the relationships between the dependent variable with two or more than two independent variables. Using this model one can estimate the magnitude as well as significance of causal relationships across the variables.

Path analysis has been theoretically useful also, because, unlike other methods, it forces us to specify correlations across all of the independent variables. As a result, the model showing causal techniques through which independent variables can produce direct as well as indirect effects on the dependent variable. Path analysis has been developed by a geneticist, Sewall Wright, in 1918.

v) Testing of Hypothesis:

a) The equality between two means is tested by Fisher t-test. Let there be two sets of populations of which the variables are normally distributed with mean μ_1 and μ_2 and unknown standard deviations δ_1 and δ_2 respectively. m_1 and m_2 are the sample mean and s_1 and s_2 are sample standard deviations.

If the two unknown standard deviations are equal ($\delta_1 = \delta_2$) then to test the null hypothesis $H_0 : \mu_1 - \mu_2 = 0$, the appropriate test statistic is

$$t_{n_{1+}n_{2-2}} = \frac{m_1 + m_2}{s\sqrt{(1/n_1 + 1/n_2)}}$$

Where, $S = [(n_1-1)s_1^2 + (n_2-1)s_2^2] / (n_1 + n_2-2)$

For the alternative $H_1: \mu_1 - \mu_2 \neq 0$, H_0 is rejected for the given samples if $|t|$ I (observed) > $t_{\alpha/2}$ n_{1+} n_2-2 (table) and is accepted otherwise. On the other hand, if the alternative is $H_1: \mu_1 - \mu_2 > 0$, H_0 is rejected for the given samples if t (observed)> t_{α} n_{1+} n_2-2 (table) and is accepted otherwise, and if the alternatives is $H_1: \mu_1 - \mu_2 < 0$, H_0 is rejected for the given samples if t (observed) < $-t_{\alpha}$ n_{1+} n_2-2 (table) and is accepted otherwise.

When the assumption of homoscedasticity is untenable ($\delta_1 \neq \delta_2$), a test for the difference $\mu_1 - \mu_2$ is made by a simple approximation suggested by Cochran and Cox. This is based on the results that the statistic

$$\frac{(m_1 - m_2) - (\mu_1 - \mu_2)}{\sqrt{(s_1^2/n_1)+(s_2^2/n_2)}}$$

has upper α-point approximately the same as $(w_1 t_{\alpha,n_1-1} + w_2 t_{\alpha,n_2-1})/ (w_1+w_2)$

where t_{α,n_i-1} is upper α-point of the t-distribution with n_i-1 d.f. and $w_i = \delta_i^2/n_i$ may be well approximated by $w_i = s_i^2/n_i$ (i=1,2), even for moderately large samples. Thus, e.g., if $H_0 : \mu_1 - \mu_2 = 0$ is to be tested against $H_1: \mu_1 - \mu_2 \neq 0$, then the observed value of $(m_1 - m_2)/\sqrt{(w_1 + w_2)}$ will be comparable with $(w_1 t_{\alpha,n_1-1} + w_2 t_{\alpha,n_2-1})/ (w_1+w_2)$ for acceptance or rejection of H_0. Note that if $n_1 = n_2$, then the critical value is just t_{α,n_1-1}.

b) Given two independent random samples of sizes n_1 and n_2 from two normal populations with unknown means, we may be required to test the hypothesis that the population variances are equal ($\delta_1^2=\delta_2^2$). For testing $H_0 : \delta_1/\delta_2 =1$, we use $(s_1^2/s_2^2)(\delta_2^2/\delta_1^2)$ is an F-statistic with n_1-1 and n_2-1. When the alternatives are $H_1 : \delta_1/\delta_2>1$, H_0 is rejected if for given samples $F > F_{\alpha,n_1-1, n_2-1}$. If the alternatives are $H_1 : \delta_1/\delta_2<1$, H_0 is rejected if for given samples $(1/F) > F_{\alpha,n_2-1, n_1-1}$. Lastly, when the alternatives are $H_1 : \delta_1/\delta_2 \neq 1$, H_0 is to be rejected if the samples in hand give either $(1/F) > F_{\alpha/2,n_2-1, n_1-1}$, or $F > F_{\alpha/2,n_1-1, n_2-1}$.

vi) Probit Model:

The status of food and nutritional insecurity has been analysed with the help of probit model. It also represents a sigmoid curve. The Probit model corresponds to the Cumulative Distribution Function (CDF) of a standard normal distribution. Here P_i is considered as standard normal CDF, which is evaluated as a linear function of explanatory variable(s). Thus, the Probit model is specified as

$$P_i = P(Y_i = 1)$$

$$= F(\alpha + \beta X_i)$$

Here $F(\alpha + \beta X_i)$ is the CDF of the standard normal distribution so that

$$P_i = F(\alpha + \beta X_i) = \int_{-\infty}^{\alpha+\beta X_i} f(Z)dz$$

Where

Z is the standard normal variable and f (Z) is the density faction of $Z \sim N(0,1)$

As in Probit model, the log-likelihood function is

$$ln\, L = \sum_{i=1}^{n_1} Y_i ln P_i + \sum_{i=n_1+1}^{n} (1 - Y_i) ln(1 - P_i)$$

$$= \sum_{i=1}^{n_1} Y_i ln\, F(\alpha + \beta X_i) + \sum_{i=n_1+1}^{n} (1 - Y_i) ln[1 - F(\alpha + \beta X_i)]$$

Maximizing ln L with respect to α and β and solving, we obtain estimates of unknown parameters.

It has been show that $LR \sim \chi^2$ with degrees of freedom k = number of explanatory variables in the model. Thus, our decision rule is: If $LR^* \sim \chi^2 > \chi^2_{\lambda,k}$, reject the null hypothesis which states that all the coefficients of the estimated model are simultaneously equal to zero, and conclude that there is overall significance of regression.

Statistical software package STATA has been used to analyze the Secondary data. Again Software Mathematica has been used to analyze the Path analysis. Whereas Data Analysis package of MS Excel, have been used for random number generation, mean calculation, deviation calculation and other basic statistical application.

1.8 Plan of the Study:

For analytical convenience, the thesis has been organized into six chapters. The Chapter 1 deals with introduction, the detailed literature, issues and evidence on the

subject matter has been reviewed and summarized objectives and hypotheses, data and methodological framework of the study in. Chapter 2 analyses the trend and pattern of consumption expenditure of tribes and non tribes in West Bengal. Chapter 3 analyses the tribal dependency on marketed and non marketed consumption. Chapter 4 examines the variation of pattern of consumption among tribes as well as across regions. Chapter 5 examines the impact of Social Protection Programs and Common Property Resources on the food security of tribal's in the backward region. Finally, Chapter 6 summarizes the main findings and makes concluding remarks with recommendation about related policy for development of tribal economy.