CHAPTER – 1
DESIGN OF THE STUDY
1.1 Introduction

Development of a nation is possible only when all its citizens are well fed. The word development loses its meaning when food, one of the basic necessities of life, is not met with for everyone. Reports show that thousands of people perish out of hunger, malnutrition and stunted growth around the globe annually. The poorer sections of the society especially the rural poor, backward classes, landless labourers are the worst hit. Most importantly, women and children among them who go to bed with an empty stomach and a lot of people still starving for a meal, a day, is a harsh reality. In the words of Dr. Norman Borlaug, “You can’t build a peaceful world on empty stomachs and human misery.” Thus, the concept of food security gains its importance worldwide with great relevance in today’s scenario.

Today, food security is a major problem all over the world. The concept of food security has got predominance since 1970’s. The term food security envisages need to ensure food security for all in the plane of sustainable development. Now a day’s food security is a common problem because of mainly two factors. Firstly, there is lack of availability of food (Physical access to food) and secondly, lack of purchasing power of the people (Economic access to food). United Nation’s Committee on World Food Security defines the term food security as “the condition in which 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.” To put it in simple terms, food security in a country means availability, accessibility and affordability of food for all its citizens, at all times.

The Food and Agriculture Organisation (FAO) stated four pillars of food security as availability, accessibility, affordability and stability. Factors such as growing population, climate change, rising food prices, land-use pattern etc. have a significant impact on food security. The availability component in food security deals with the production of food items and the accessibility of food deals with the consumption side. Affordability deals with the purchasing power of the individuals. Access to food is determined by entitlements (Jha and Srinivasan, 2004). Mainly there are four types of entitlements, namely; production based entitlements, exchange based
entitlements, labour based entitlements, and transfer based entitlements. The Right to Food, which UN recognized in the Declaration of Human Rights in 1948, ensures all human beings free from hunger, food insecurity and malnutrition. The concept of food insecurity and its impact is also as important as food security. Famine, hunger and stunted growth are the outcomes of global food insecurity. Of which, women and children are most adversely affected.

Food insecurity has two dimensions, namely short term or transitory and long term or chronic. In the short term, at the aggregate level, instability in cereal production, stocks, food prices, income export earnings, and food imports in the short run give rise to instability in food consumption. Internally, food prices depend on cereal production and food imports. But the regions with the chronic food insecurity are primarily an internal problem. Instability and shortage in cereal production due to non conducive agro climatic conditions can be attributed to the chronic food insecurity (Rao et al, 1987)

Food insecurity is increasing in the world where 925 million people are undernourished. Out of them, about 900 million people are living in developing countries (FAO, 2010). More than 70% of these people live in rural areas and depend, directly or indirectly on agriculture for their living. Usually, there are limited number of markets and less diversity and availability of food items in rural areas that affect food security of rural households.

At the macro level food grains availability in India is calculated as 87.5 percent of gross production (the rest is estimated as requirement for seeds, farm animal feed, and waste) plus net imports minus changes in government stocks. Assuming no net change in private stocks, this can be taken as a good proxy for overall food grains consumption in the country. During the 50 years before Independence food grains availability declined from 545 g to 407 g per head per day. Considering five-year averages India saw a rise in the food grains availability per head from 416 g during 1950–55 to 485 g by 1989–91 (Patnaik, 2004). However, since then there has been a slide to a low of 445 g per head per day by 2006, a level not seen since the drought years of the 1970s.
India is the second largest country in the world in the matter of population. The population of India was provisionally estimated by the census 2011, at 121.01 crore comprising 62.37 crore males and 58.65 crore females. It is the most important considerable plus point of India, because it involves large human capital. Recently most of Indian people are struggling with the bread and butter due to the continuously increasing prices of food grains, vegetables, pulses and other cereals. Around 70% of the Indian population lives in rural areas, often working in the informal sector. Though food availability may not be a problem of rural households, food utilization could be a problem. Rural household should be enlightened on the various food items and the need for a balanced diet.

At the household level, food security refers to an issue of availability. The household must be able to consume the required quantity of food grains. Food security has two sides, demand side and supply side. Demand side depends on the growth of population, the age composition of household, and the calorie intake in every day. Food supply deals with the quantity of consumption. There are mainly four channels of food supply in rural areas, i.e.; own production, open market, fair price shops, and wages in kind. Farmers access to food grains through own production. This is known as direct access to food. Household depends on other three channels of food supply and access to land but producing only nonfood crops is termed as indirect access of food. Poor people do not have adequate means or entitlements to secure their access to food, even if food is available in local markets (Sen 1981) and the major factor responsible for food insecurity is the lack of purchasing power or exchange entitlements.

The food deficit countries normally try to overcome the food shortage through food aid. It has been seen that food aid is an important means to improve food security by providing the means to protect the consumption and nutritional status of the poor (Mellor, 1985). Vyas (2003) pointed out that food security is too complex an issue to be left only to the state to resolve. The markets and the civil society institutions also have a role to play towards achieving these objectives. It is only when
the civil society institutions, markets and the state policies converge that we will come closer to the ideal of food security for all.

Against the national average of over three-quarters of land under food grains, in Kerala only about one-fifth of the land is under food grains. The dominance of non-food crops leads to the decline in the area of traditional crops and the share of agricultural sector to the Gross State Domestic Product (GSDP) has increased throughout the years since the formation of the state. The share of agriculture and allied sectors in the total GSDP of Kerala has also declined from 14.38 percent in 2011-12 to 10.38 percent in 2015-16. The state produces only 15 percent of its required quantity of food grains by itself and the remaining we depend on other states. Kerala continues to be a consumer state and the food deficit state in India due to the poor performance in the primary sector.

1.2 Review of Literature

This section is devoted to the review of literature relevant to the topic of the study. Some of the similar studies which have direct relevance to the problem under investigation have been traced out. Thus; literature review aims to expose the critical points of current and collected knowledge on the topic under study. Food security has been a persistent problem with all the economic activity. Several studies in this regard have been conducted from time to time and a number of high level committees have made innumerable recommendations and policies for reforms in the availability, accessibility and affordability aspects of food security system. To have glow on the existing manner of this nastiness, the findings of some studies have been comprehended under the following sub sections

I. Perspective of food security situation
II. Production and Distributional phase
III. Demand and Supply side aspect
IV. Policies and programmes facet

Here the study proposes to conduct a review of major studies in this area
1.2.1. Perspective of food security situation

Suryanarayana M H and Silva Dimitri (2008) illuminate the poverty and hunger situation in South Asia and in small islands in the Pacific. For the Asia and Pacific Region as a whole, despite efforts to accelerate economic growth and reduce poverty, only limited progress has been achieved in moving towards the target of halving the number of people who live in hunger. To achieve the goal of reducing the proportion of people who suffer from hunger to halve between 1990 and 2015, for the Asia-Pacific Region, the first thing to achieve is grain security, defined as availability of socio-culturally acceptable grain in the system, the grain is of adequate nutritional value and people have economic, physical and social access to such grain at all times, for a healthy life. Grain security is also one of the major factors that may affect the social stability and economic development of the region and the concomitant social disturbances. The study also provides a regional profile of food insecurity in different dimensions which could go a long way in decentralized formulation and implementation of the PDS.

The positive overall trend in increased food security relies on the capacity of Asian economies to address several key policy issues, including sustained economic growth, population pressure, structural changes in domestic economies, shifts in international comparative advantage, technological change, development in the domestic and international food markets, and environmental sustainability (Peng Yang Chao) and there is a need for effective targeted efforts for ensuring food security at the regional as well as household levels (Suryanarayana M H (1997))

Tweeten Luther (1999) examines the food security synthesis for poor in developing countries. The challenge of food security for our time is for economists to work with others regarding socio institutional changes essential for proven policies and practices to supply adequate diets. Poverty is best alleviated through broad-based, sustainable economic development. The most effective and efficient means to economic development is to follow the standard model which assures an economic pie to divide among people and among functions, such as human resource development, infrastructure, family planning, food safety net, and
environmental protection. The central puzzle—why food-insecure countries abstain from the standard model when it can bring food security—is explained by political failure. Terminating even the worst policies creates losers. Political failure is inseparable from broader institutional failure. Poorly structured, inadequate institutions often trace to cultural factors such as tolerance of the public for unrepresentative, corrupt, incompetent government. Thus, the challenge of food security for our time is socio institutional change. Understanding development processes and how to bring about constructive change is a multidisciplinary task.

There have been changes in environment too over the years and agricultural growth and environment have become part of the debate on sustainable agriculture. The task of ensuring food security to all will become more difficult if the balance is tilted in favor of one of these three important institutions - state, market and civil society and only one of them is made responsible for ensuring food security. Each of these institutions not only has a role to play, but have to complement each other to ensure food security in true sense of the term. Technical changes and sustainable agriculture touched on several matters of significance in the future of Asian agriculture. It was put forth that science in its diverse forms has much to offer by way of solutions to finding escape routes from poverty and to answering questions of resource sustenance and hence, the need for policy-makers to come to grips with these topics cannot be over-stated. Continuing with effective implementation of land reforms in many parts of Asia, including India, has long been agreed as an absolutely vital step in improving income distribution and in alleviating poverty but progress has been painfully slow. For agricultural and rural development, policy planning has to be according to different agro-eco systems of each area (Singh Surjith (2002)).

The famines and the prominent role which international aid and programmes have come to play in meeting famines is a sign of deterioration in the national food security systems rather than any improvement. It looks at the problems in providing food security to large population exposed to the risk of famines is a notable addition to the analytical literature in this field. Sen’s proposition that famines are an outcome of a breakdown in entitlements and the development economist’s
perception that agriculture gets low priority and resources on the plans of the developing countries. It explains the aspects of production, supplies, distribution, poverty and policy environment at the national and international levels and also tracing the weaknesses of the food security systems to the absence of broad-based and participatory agricultural growth quite persuasive. Food and agriculture were accorded a relatively passive role in economic development thinking and strategy articulation. The indicator is designed to classify countries into three groups, fair, poor and very poor. It contains explanations concerning the construction of the indicator and the country-wise data on the variables and status categories (Rao V M (1992)).

Food security and economic growth interact in a mutually reinforcing process over the course of development. It is only in modern times that entire societies have achieved food security (Timmer Peter C (2004)).

The problem of food insecurity in India is not of general systemic failure that arises due to supply shortage. It is in fact more a problem where certain sector suffers from a shortage of food in a general climate of increasing production. The main cause of food insecurity in India today is a lowering of purchasing power among the poor and vulnerable populations in rural and urban centers of the country, coupled with the inefficient functioning of the Targeted Public Distribution System (TPDS) and a slowdown of policy initiatives to step up support led security measures (ChakravartySujoy and Dand A Sejal (2005)).

In the beginning of 21st century, Indian agriculture faced major challenges. The country has an excess of food grains in public stock and yet every fourth Indian does not even get a minimum calorie intake over the years, India is witnessing a decline in production and productivity of coarse cereal grains. In India, where a major landmass of 92.3 ha; of cultivable area, constitutes rain fed regions, that dry land farming of food crops especially coarse cereals must be encouraged. Whatever be the strategy to ensure food security, it should be safe, socially acceptable, and eco-friendly through a sustainable food system that maximizes community self-reliance and social justice (Deepa B Hiremath and R L Shiyani (2012)).
Food grain production is at the moment fit, but we are facing double digit inflation in the case of food items. A paradox of endemic mass hunger co-exists with mounting food grain stock. India ranks an abysmal 67th in the Global Hunger Index 2010 among the Brazil, Russia, India and China (BRIC) countries. The position of Odisha is worse. To meet this challenge, recommendations made by the National Commission on Farmers (NCF) need urgent and concurrent attention. To meet the future needs of providing food security, greater attention needs to be devoted to the agricultural sector through larger investment in rural infrastructure including Research and Development of new technologies and by checking the diversion and plugging the leakages of food grains suggested through public distribution system (Karthik Prasad Jena (2012)).

The recent trend of rising food prices reminds that considerable sections of the urban population may face serious food insecurity even while the urban economy grows rapidly. A large segment of the urban working population is mostly without productive assets and relies primarily on wage or marginal self employment to survive. A large segment of the urban population faces food insecurity in terms of access to food. The food security situation may have worsened rather than improved for a sizeable segment of the urban population between 1998-2000 and 2004-06. The urban inequality has worsened in the period since 1991, the implications for the food security status of the urban poor. Expansion of productive and remunerative employment needs to be enabled through special assistance to the numerous small and tiny enterprises in the urban economy from credit to marketing support to infrastructure provision, urgent action needed to improve access to safe drinking water and toilets, urban PDS, promotion of urban and semi urban agriculture, especially horticulture and the interventions in flagship programmes such as the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) (Athreya Venkatesh (2010)).

The area under paddy cultivation increased substantially during the first fifteen years after the states formation. However, a steady decline in the area under rice cultivation from 1980s onwards. Today, rice occupies the third position among Kerala’s agricultural Crops with respect to area under cultivation and it is far
behind coconut and rubber. A variety of issues impinge on paddy cultivation in Kerala. The main issues are seasonal shortage in labour supply, low level of profitability, competition from other crops and the conversion of paddy fields into residential and commercial plots. To revive the paddy cultivation, the government of Kerala introduced a three-pronged strategy for agriculture. The strategy aimed to provide urgent relief to farmers in debt, to stabilize agricultural prices and to raise agricultural productivity and income. Government announced the minimum support price at which the farmers are able to sell the crop. Kerala State Civil Supplies Corporation Limited (popularly known as Supplyco) has procuring paddy from farmers of Kerala, mainly in the paddy producing regions. Based on the receipt of paddy issued by the agents, Supplyco transfers money to the farmer’s bank account. Kerala has built a strong set of democratic institutions at the local level and they have been a pillar of support to paddy farmers in the state; like Padasekhara Samitis, Thozhil Senas etc. to revive the paddy cultivation in the state (Jayan Jose Thomas (2010)).

The agricultural transformation in the regional economy of Kerala has been mainly driven by peasant rationality. The process of agricultural development in Kerala which was characterized by a paradigm shift towards commercial/perennial cash crops, mainly at the expense of food crops, especially, paddy. The choice of crops and agricultural land use decisions has been dictated by an increasing responsiveness to market forces. The cropping pattern underwent dramatic changes since 1961 through the 1980s and thereafter with the tremendous deterioration of food crop production. The agricultural transformation in the state has happened since late-1970s and continued through the 1980s, up to the early 1990s, until the enunciation of the economic reforms in 1991. All the districts in the state had experienced tremendous deterioration in the area under food crops, barring Alappuzha, Palakkad, Malappuram and Thrissur. In the case of two dominant commercial crops (Coconut and Rubber), constitute together almost half of the total cropped area in the state, with the highest reported in Kozhikode, followed by Kottayam, Pathanamthitta etc. One of the critical aspects of the agrarian transition in
Kerala has been the emergence and domination of rubber as a monoculture system across districts (Viswanathan P K (2014)).

Farmers’ wholehearted support and their economic wellbeing are vital for creating a sustainable food security system in the country. The Right to Food law could be implemented only with the help of farmers (Swaminathan M S (2010)). Agricultural development policies are commonly aimed at satisfying broad and conflicting objectives, defined in terms of efficient economic growth (through higher yields and higher-value activities), income distribution (including food security), and conservation of the natural resource base (through sustainable land use). To attain these objectives, economic incentives need to be identified that influence farmers’ decisions on land use and allocation of other resources (Keulen Van Herman et al. (1998)).

The main policy measures for improving the nutritional status of cultivators include improved agricultural technologies, plans and programmes for increasing income of the poor farmers. Dairy enterprises should be given more priority in diversifying agriculture and diets and raising both income and nutritional status of the farmers. The increased diversion of land from food to non food crops; implementation of minimum support price policy for food grain crops and assured procurement combined with low cost of inputs has forced the farmers to follow fixed cropping system regularly (M.N. Waghmare and S.N. Tilekar (2012)).

An analysis of the households that have access to the PDS, what they purchase, and what are their rupee savings due to their access to the PDS. Its impact on poverty levels (as is conventionally defined) due to the existence of the PDS. Almost half the rural population and a quarter of the urban population report consuming fewer calories than they require as per the widely believed norms. Calorie deficiency appears to be highly dependent on the type of commodities being consumed - for instance wheat eaters appear to be less calorie deficient than rice eaters. The PDS is barely touching the tip of the iceberg where helping the worse-off sections are concerned. Ideally, poverty incidence by the conventional measure (HCR)
and calorie deficiency should not be very different from each other. In the urban sector, its reverse holds true. The impact of PDS on the incidence of calorie deficiency and poverty does not appear to be significant. Finally, it is also important to note that the PDS is not strong enough and the only instrument to ensure the food security of the poor, because it serves the purpose only to those who have purchasing power and are ration card holders (Dubey Amaresh & Srivastav Nirankar).

The close linkages existing between food security and Public Distribution system (PDS), socio-economic development, rural health, human rights and improving human development indicators in the developing country like India. Review status of public distribution system and its relationship with the problem of food security and poverty incidence among the states of India. Poverty indices for all the states in India are calculated. Then it appears that the PDS is widely accessible to the households in the region. The PDS plays a relatively more important role in food security of the households rather than poverty reduction. Thus the current system is beset with significant level of adulteration, pilferage & Corruption and in order to remove pilferage, adulteration, & Corruption, there seem to be some improvements in the functioning of PDS. Therefore, successful implementation of PDS is a big challenge in order to gain food security in India (Ghumaan Kaur Gurdeep and Dhiman Kumar Pawan (2013)).

Swaminathan M S (2010) focused on the alleviation of hunger and safeguarding farmers’ income through four ways. The goal of food for all can be achieved only through sustained efforts in producing, saving and sharing food grains. Firstly, distribute the grains for which there is no safe storage facility. Food losses due to poor storage should be measured both in quantitative and qualitative terms. Subject to such screening, food grains fit for human consumption are best distributed free among the most deprived sections throughout the country. To begin with, about 5 million tons of wheat and rice could be allotted for this purpose from the stocks for which good storage conditions are not available. Secondly, Procurement of kharif crops. The MSP announced for rice and pulses is reasonably attractive and consequently, the production of pulses, rice, jowar, bajra, maize and oilseeds is likely
to be good. Over 20 million tons of rice will have to be procured during the next three months. Hence, no further time should be lost in making arrangements for the safe storage of the purchased grains. Thirdly, safe storage. The storage can start in every village in the form of grain banks and rural godowns and extend to strategic locations (hunger hotspots) throughout the country. It is time we invested in a national grid of ultra-modern storage structures. Lastly, Sow extensively during the rabi season. The rabi season is around the corner and it will be prudent to review the arrangements for the supply of the needed inputs like credit, insurance, seed, fertilizer and extension. Special efforts will have to be made to mount compensatory production programmes in areas affected by unfavorable weather during kharif. Similarly, the Save Grain campaign which was launched when we were food deficit was abandoned at a time when we needed it the most. It is to be hoped that the prevailing widespread interest in saving and sharing grains will lead to an effective “distribute, procure, store and sow” movement.

There are five new areas of transitional demand. The first relates to the withdrawal of the state from its role of supporting the peasantry and petty producers. The second element that comes to the fore relates to the struggle against such primitive accumulation of capital. Thirdly, in the absence of land augmenting investment and land augmenting technological progress, the agricultural output produced by the tropical land mass in the aggregate is not going to increase. Fourthly, even when there is no question of corporate capitalist encroachment, the peasantry may decide on its own to make a shift in land use. Lastly, in the period of neo liberalism, because of the absolute impoverishment that comes to large segments of the people, because the process of primitive accumulation of capital unleashed against peasants and petty producers is unaccompanied by any increase in decent employment, governments occasionally feel compelled to announce schemes of succor for people (Prabhat Patnaik (2014)).

1.2.2. Production and distributional phase

Chang Cheng-Ching (2013) edifies the food prices and the food insecurity problems in East Asia. The sharp increase in global food prices has
triggered the awareness of food insecurity problems and their impacts on the low-income, food-deficient countries, like East Asia. The food security in East Asia is largely contributed by domestic production. Despite of a doubled import of foods over the last decade to meet its ever-growing population, Asia remains the least dependent among all regions on food imports. However, the raised energy costs and grain prices due to increasing grain demand for biofuel purposes appeared to aggravate the undernourishment of poor households in the region.

Food security is the ability of a household to get access to enough food for all its members, either by producing it or by earning adequate to purchase in the food deficit regions of the Hindukush Himalayan ranges. The shift has been away from aid for subsidizing subsistence agriculture to aid for exploitation of the niche that these hills offer. Thus instead of concentrating on staple foods, farmers are encouraged to grow high value crops which will contribute to their incomes and thus their food purchasing power. The fault lies in the way traditional systems have broken down, and governments and NGOs have focused on supply without concentrating demand or the special features of the mountains regions. The initial problem of food shortage was a direct result of concentration on food grain production. Between 1950 and 1990 there was a doubling of the population in this region. An area that had already reached its peak production capacity now had to carry twice the burden of population. Per capita availability of resources declined despite the extension of cropping activities in marginal lands. There were no dramatic increases in productivity and thus food availability also declined. Farmers have been unable to secure for their households enough food simply by growing food-grains, which are not suited for the mountains in any case. Thus instead of food-grains, these farmers should be encouraged to grow high value cash crops which will increase income that will entitle them to enough food for the household. A new form of food insecurity now threatens the lives of the farmers of this region - the threat of depletion of key resources like water, fodder, and soil. Increasing entitlements (incomes) might have brought prosperity, but the steam is running out of this strategy. Entitlements are secure only
as long as endowments (key resources) have it in them to carry on producing at the current rate (Nagpal Shantanu (1999)).

National Academy of Agricultural Sciences (NAAS) (2003) acclaims the elucidations for the paradoxical problem of surplus food stocks. There is also the related problem of substantial quantity of food being wasted. This has happened because of inadequate attention in the past to its storage, preservation, processing, and proper distribution. India has fortunately through concerted efforts of scientists and farmers surmounted the state of food deficit and come to a stage of food surplus. In fact, it is now faced with the paradox of a huge buffer stock of food grains, while also housing the largest population of undernourished in the world. NAAS recommends the solutions for the paradoxical situation. A universal and user-sensitive Public Distribution System, Food Guarantee Scheme, Community Food Banks and various other food entitlement projects need to be implemented in an integrated manner so that the goal of hunger-free India can be achieved. Nutrition status will, however continue to fall, unless the purchasing power of the poor is increased. Hence, livelihoods for all should be the bottom line of all national development and import and export policies.

Vijay Kumbhar explains the problem of hunger as result of poor implementation of policy measures. India raises the twin problems of uncertain food production and unequal food distribution. The impact of unequal food distribution can have adverse effects on the rural and urban population living below poverty line. Food insecurity is not only an economic problem but also a problem of non-humanity approach in India. The availability of the food grains is enough to satisfy their needs. According to the statistical data published by the ‘Food Corporation of India’ and the government of India food grain availability is 229 million tons in 2008-09 which is 230 million tons in previous year. It is happening because food grain traders are doing speculation practices and sealing them in high prices than fair prices. We may say that, food insecurity is not only natural but also manmade. Most of the Indian people are struggling with the bread and butter due to the continuously increasing prices of food grains. Although, the food security problem in India is not severe if we success
in the proper distribution policy. This problem becomes serious due to the unfair trade practices by private traders doing in drought situation. The problem of hunger is due to poor economic accessibility.

Since independence, India faced two challenges: achieving food security and alleviate poverty. At that time India mainly depended on agricultural imports. From a net importer of food in 1950’s, India has transformed in the production of food grains during the last few decades. The green revolution resulted in a record grain output of 131 million tons during 1978-79. This established India as one of the world’s biggest agricultural producers. The public intervention programmes had emanated the food shortages in India, like Public Distribution System (PDS). According to government’s own estimate over 1.3 mt of food grains was wasted in the godowns of the Food Corporation of India (FCI) in a span of 10 years from 1997 to 2007. It was enough to feed 10 million people for one year. India loses an estimated over Rs. 58,000 crore of food grains every year due to wastage. The Planning Commission of India, the key policy advisory body has admitted that even though self-sufficiency in food production has been achieved, the population still lacks access to balanced food. The government has brought in a proposed legislation known as National Food Security Bill, 2011 under which 75% of the rural households will get subsidized grain under the epochal law (Das Sandip).

The population is projected to grow from 4.7 billion in 2005 to 5.1 billion by 2050. To feed a population of 5.1 billion, regional food production must increase dramatically by 2050. Because fewer farmers will have to feed more people with increasingly deteriorating resources, one is tempted to suggest that agriculture land could be expanded by bringing more land under agricultural use. In addition, Asian agriculture will have to cope with dangers from climate change. It presents a partial set of options addressing the elements of the framework are; Start a Second Green Revolution, Set the fundamentals right, invest more on food production and agriculture noting that better targeting of investment in agriculture is the best insurance against covariate shocks (Mukherjee Amitava (2009)).
It analyzes the impact of change in government expenditure and investment in agriculture and on the food situation in India and the impact of economic policy on food security. Purchasing power is the root cause for the declining food security in our country, especially among the rural poor. To a large extent, the neo liberal policies pursued in the post-1991 period have aggravated the situation by the shrinking demand due to lack of purchasing power. The decline in the public expenditure has affected the food security both from the demand and supply side though the demand side problems are more severe. To counter this situation, there is a rise in government expenditure especially on rural development. This must include setting up of irrigation work, extension of and provision of adequate credit facilities and provision of subsidies on farm inputs. The ‘food for work’ programme should be revitalized. This will provide adequate purchasing power in the hands of rural masses and will also reduce the excess buffer stocks of food grains of the central government (A.N. Shukla et.al; (2012)).

Raghavan M (2006) depicts the state intervention in the market for food grains; the accumulation and depletion of stocks were more or less predictably associated with the size of the crop. India’s history of wheat imports has been guided more by political considerations than by food security concerns. After a gap of six years, the government has again resumed large-scale imports of wheat. In early February, when there was hardly a month and a half for the rabi harvest to commence, the government allowed duty free import of five lakh tones of wheat for open market sales in the southern states, especially Kerala and Karnataka, where wheat prices were ruling high. Several observers have expressed uncertainty about the explanations given by the government for the largest ever wheat import in a single year so far. First, it was eager to bring down wheat prices in Kerala and Karnataka is un-convincing. Wheat is not a staple in the south. Kerala is a rice eating state and in Karnataka, rice and ragi are the main cereals of the common people. Second, wheat prices in southern states are generally higher than in the major wheat producing states of Punjab, Haryana and Uttar Pradesh. Third, had the government been concerned with buffer stocks, it should have exercised caution while dealing with whatever was
available in the central pool. Finally, the argument that the government was compelled to go in for massive imports because of a fall in wheat output and this therefore constrained the FCI in meeting its procurement target fixed for the season is not factually appealing. That apart, the experience in recent years shows that wheat procurement is not exceptionally sensitive to the volume of production. There were several instances in the past when the procurement and production of wheat have moved in opposite directions.

Sukhjeet K Saran and Richa Sharma (2012) explore the possibility of augmenting food grain production in India as well as in Punjab in future. In 1960-61, the per capita availability of food grains was an increasing trend, but in the 1990’s, especially during the latter half of the decade, it has declined sharply. The increase in area under non-food crops has decreased the per capita availability of food supply in many states in India. Punjab is self-sufficient in food grain production and is a food grain surplus state.

S S Kalamkar (2012) explains the challenges to food security, which come mainly from the slow growth of purchasing power of the people in the rain-fed eco systems. The chronic food insecurity which is primarily associated with poverty still persists in the country. The per capita per day availability of food grains in India is almost stagnant during last decade. Though physical access to food has achieved, economic access at the micro-level lagged behind indicating food and nutritional insecurity. The poor agricultural productivity and production and low level of food grain output resulting from the low level introduction of agricultural/crop technologies; poor rural infrastructure; high vulnerability of crop production to natural disasters are some of the reasons for the high degree of food insecurity. In order to ensure food security on a sustainable basis, importance should be given to the adequate supply of irrigation water to sustain the growth in agricultural production; water security for poor farmers to grow food for subsistence, and adequate economic incentives for farmers to maximize their production from the available land and water with least environmental consequences.
India has made enormous progress in providing food security to its people. Per capita calorie consumption increased 20 percent between the early 1980s and 2000. However, a sizeable share of the population still lacks access to sufficient quantities of food. Poverty remains a problem in that nearly a third of the country’s population lives below the poverty line. In the 1990s, rising prices of staple foods was the principal constraint in improving economic access to food. This increase was in contrast to a declining historical trend and reflects a fundamental contradiction in India’s food policy. Policymakers seek to provide low-priced food to consumers while supporting producer prices. Mounting government expenditure required subsidizing both farmers and consumers through price policies, implying the need for policy alternatives to address the trade-off between the welfare of the poorer consumer and that of the producer. A significant imbalance arises as Indian policymakers, operating through the FCI; pursue conflicting objectives of providing low-priced food for consumers while increasing support prices paid to farmers. Farm price increases tend to be passed to consumers, whether they seek access to food through the PDS, India’s main safety net mechanism, or through private retail markets. Policy alternatives to address the growing tradeoff between the welfare of the poor (who are net consumers) and that of producers can deliver strong improvements in food security (Persaud Suresh and Rosen Stacey (2003)).

It exposes the food policy of India from food security to food deprivation. Several measures were initiated to achieve the raising food production and improving food availability. These included price assurance to producers using the system of minimum support price implemented through obligatory procurement, inter and intra year price stability through open market operations, maintaining buffer stocks, and distribution of food grains at reasonable prices through the public distribution system. From a situation of massive shortages, India has emerged as a grain surplus country, and food security has been attained at the national level. A strong base has been created for grain production and meeting grain demand in the medium term. Prices of basic food items have remained relatively stable. The policy has had a positive impact on farm income and led to an economic transformation in the well-endowed, mainly irrigated, regions. Indian consumers meet their demand for
cereals from purchases in the open market and from supply through the public distribution system. About 91 per cent of demand is met from the open market and the remaining 9 per cent from PDS supply. The most serious implications of accumulation of very large quantities of rice and wheat in government stocks are on food security and fiscal resources. Apart from these, the accumulation of grain stock beyond reasonable limits affect export performance and participation of private trade in marketing. In order to achieve the goals of the food policy, the government has been procuring a substantial part of marketed surplus from selected food surplus states (Chand Ramesh (2005)).

The outcome in terms of food security and nutritional status will depend crucially on relative price movements along with changes in income levels (Manoj Panda and Ganesh Kumar. A (2009)).

Food and nutrition security are intimately interconnected, since only a food based approach can help in overcoming malnutrition in an economically and socially sustainable manner. Food production provides the base for food security as it is a key determinant of food availability. By mainstreaming ecological considerations in technology development and dissemination, we can enter an era of evergreen revolution and sustainable food and nutrition security. Public policy support is crucial for enabling this. India’s population is likely to reach 1.5 billion by 2030; the challenge facing the country is to produce more and more from diminishing per capita arable land and irrigation water resources and expanding abiotic and biotic stresses. India currently produces about 230 million tones of cereals to meet the needs of a population of 1.15 billion. The goal of food self-sufficiency however, unfortunately seems daunting especially in the context of the issue of producing enough and agriculture per se not getting the priority attention it deserves. The issue can be effectively addressed only when this is set right. Public policy support is crucial for ensuring this. Food security with home grown food grains can alone eradicate widespread rural poverty and malnutrition, since farming is the backbone of the livelihood security system in rural India. This will enable the Government to remain at the commanding height of the national food security system. Building a
food security system and containing price rise with imported food grains may sometimes be a short term necessity, but will be a long term disaster to our farmers and farming. A well-defined, pro-farmer and pro-resource poor consumer Food Security Policy is an urgent necessity (Swaminathan M S and Bhavani R V (2013)).

M S Toor et.al; (2012) examines the challenges and emerging trends in sustainability of food and nutritional security of India. India has made great strides towards increasing food grains production since mid-sixties. Increasing agricultural production and productivity is a necessary condition not only for ensuring national food security, livelihood security and nutritional security but also for sustaining the high levels of growth envisaged in the current plan. Capital investment in agriculture as a percentage of the Gross Domestic Product has been stagnating in recent years, although the capital expenditure in agriculture as a percentage of the GDP in agriculture has shown some improvement in the current five year plan. To fulfill the requirement of sufficient food along with nutritional security, a thrust on horticulture products is required. Raising farm productivity with adequate focus on rain fed areas, diversification of agriculture from just crop farming to livestock, fisheries and poultry and horticulture. While simultaneously addressing environmental concerns should be the focus for the agriculture sector. The consolidation of land holding in the rest of the country for proper utilization of natural as well as other resources in the agriculture sector.

The entire north-east has a deficit food production. In order to meet this deficit, the north-east is perennially depending on the rest of the India particularly since independence. The slow pace of urbanization and extremely sluggish and indistinct process of industrialization have failed to generate alternative means of livelihood for the surplus man power of the agricultural sector. Besides the state, which is the largest employer in the organized sector, is also engaged in gradual downsizing of the government machinery. Hence, employment in the public sector, instead of increasing, is decreasing in the wake of globalization and the public distribution system (PDS) is also dwindling. Besides, a large section of people have lost their land and livelihood as a result of environment, development and conflict induced displacement (Hussain Monirul (2004)).
The farmers’ having the right to sell seed is an essential component of our food security and simply cannot be trifled with. The consequences of denying the farmers the right to sell seed will lead to impoverishment and dependence for farming communities. It will also affect on national security in a quite dangerous way. The denial of the right to sell seed will lead to loss of income for the farmer. Far more worrying is that it will lead to the farming community losing control over seed production. This will ultimately threaten self-reliance in agriculture (Sahai Suman (2000)).

Before the inception of economic reforms, the farmers were protected and supported by the government and the government has supplied all agricultural inputs at highly subsidized rate that resulted in the form of a revolution in Indian agriculture. It increased the food grains production by increasing the yield and area under cultivation. But, after the adoption of New Economic Policy, the Indian agriculture is maintained enough to survive on her own feet. The reduction in subsidiary causes to increase the prices of agricultural inputs. This ultimately adversely affected the food grains production and productivity. It reveals the decline in growth of production and productivity of total food grain production in post reform period. The growth of coarse cereal and pulses in post reform period has increased, but the growth of production and productivity of rice and wheat are adversely affected in post reform period (Ahmad Firdos and Haseen Shaukat (2012)).

Shah Amita (1997) reviews empirical evidences on the changing patterns of food grain production in the post-reforms period and explore the feasibility of ensuring food security by improving access to land among the resource-poor households. There is a clear decline in the area under food grains in most parts of the country. The declining area was observed in several states like Andhra Pradesh, Bihar, Kerala, Orissa and Rajasthan right from the early 1980s. The process of diversification has been expedited during the post-reform period. During the 1980s, the decline in area was experienced by a large number of food crops except wheat and rice. Contrary to this the area under all the major oilseed-crops has increased. In the post-reform period, the pattern has remained more or less same except for the fact that maize has
gained in terms of area whereas rice along with some of the major oilseeds has lost some areas under their production. There has been a small shift in area from food grains to oilseeds in the post-reform period. In spite of the shift in area, per capita availability of food grains has shown marginal increase during the post-reform period. The shift towards oilseeds is not only important for ensuring self-sufficiency in meeting the increasing demand but, is also crucial for sustaining the economic viability of crop-production under the uncertain environment obtaining in dry land regions.

Ajay Kumar and Pritee Sharma (2013) explain the food security using regression models which show that for most of the food grain crops, non-food grain crops in quantity produced per unit of land and in terms of value of production climate variation cause negative impact. The state wise food security index and econometric model estimation reveal that the food security index itself gets adversely affected due to climatic fluctuations.

Rao V M and Deshpande R S (2002) enlighten the food security system, and it is inherently costly as it is based on surpluses of two superior cereals; rice and wheat and generated in few green revolution pockets of Punjab, Haryana, and western UP. The system is far too centralized, hierarchical and bureaucratic to achieve cost effectiveness. The system is practically absent in some of the hard core poverty areas. The present food security system reflects two basic flaws in our policy making for agriculture and rural development. First, the problems of relatively better off sections of farmers receive far more attention in policy making than the deprivations suffered by the poor. Second, while the areas lagging in development like drought-prone areas urgently need investment and infrastructure, the emphasis in policies remains on temporary and ad hoc relief measures. It is important to realize that this is not a congenial setting for progress towards decentralization, debureaucratisation and depoliticisation referred.

Over the years, stagnation in yield was observed which needs to be checked through location-specific technological and policy interventions in the
light of available natural resources and socio-economic constraints (Rooba Hasan and H.P Singh (2012)).

The food policy and agricultural development strategy adopted by India to improve food security situation paid rich dividends, and the ensuing improvements in food security can be accessed from several angles, i.e. agricultural price support policy, public-private share in grain trade, farm input subsidies, direct food and other assistance programmes, distribution of subsidized food grains through PDS, supplementary nutritional programmes, food for work and wage employment programmes, self-employment augmentation programme, food subsidy, food marketing system, marketing channels and market structure. These programmes are to increase food production and the strategy to improve food security (Acharya.S.S (2006)).

Suryanarayana M H (1997) enlightens the emphasis on investment in human capital by way of improvements in food and calorie intake for efficiency and economic growth. India has achieved considerable food security in the post-independence period in terms of conventional measures of economic and physical access to food. However, these macro measures, being summary measures, do not reveal much of the dynamics of changes in institutional and production conditions and their implications for food security at the macro level. There is a need for a shift from the current emphasis on productivity growth from improvement in resource allocation, towards productivity growth from improvement in human capital, and in turn, towards policies for public investment in human capital.

**1.2.3. Demand and supply side aspect**

Grain prices have risen dramatically during the past 18 months and are likely to stay high in the medium term. This will pose a serious threat to food security in India and other developing countries. Rice prices have increased by about 40 per cent over these two years. The current prices of cereals are so high that they do not conform to the cyclical fluctuations of the past. The rise in prices is on account of both demand and supply side factors. The use of grains and other agricultural products
as feedstock to produce biofuels in the form of ethanol and biodiesel is the primary factor that has triggered an upward shift in the demand for grains and has caused a major surge in prices. This has been particularly beneficial for developed countries like US and European Union, which can give support and subsidies to their producers for producing biofuel crops for domestic use without inviting the ire of other countries at the World Trade Organization. The second factor on the demand side is the ongoing shift in dietary patterns towards livestock and high-value agricultural products. On the supply-side, world production of cereals has remained stagnant around 2,100 million tones (mt) after 1996, whereas world population has been increasing by about 78 million per year. Consequently, per capita production of cereals in the world declined from 362 kg in 1997-99 to 336 kg in 2005-07. After 1996, cereal production was at its lowest in 2005-06 and 2006-07. Wheat production in 2007 suffered a setback due to drought in Australia and unfavorable weather conditions in Eastern Europe. A significant supply-side factor behind rising grain prices is the increase in the price of crude oil, which has raised the cost of production of agricultural products substantially. Due to all these reasons, grain markets are undergoing structural changes which will keep nominal grain prices high in the medium term (2008).

The countries in south Asia have a number of common features such as high man land ratio, large share of agriculture in Gross Domestic Product, high proportion of labour force in agriculture, weak infrastructure, low per capita income and a high proportion of population below poverty line. Rapid population growth and increased income levels during this period has contributed to a substantial increase in food consumption requirements, which could not be met in full due to slow production growth and inability to import food on account of unfavorable foreign exchange position. To achieve the preferred effect of food security through stability in consumption levels, it is imperative to achieve some level of stability in domestic production levels, especially since the other options of trade and aid may have only limited scope in the south Asian region. On the aggregate demand-side, population and income growth are two important factors contributing to the growth of food demand. The prospects of south Asian countries achieving food security in the broader
sense during the coming decades will depend on a number of simultaneous measures towards increased food production especially through technological change, population control, building up adequate buffer stock, target oriented programmes for the poor and generation of income and employment opportunities (George P S (1994)).

Kalamkar S.S and Sangeeta Shroff (2012) describe the agriculture in South Asian Countries now intertwined with many tribulations pose a threat to food security, i.e, low equilibrium trap with low productivity of staples, supply constraints, high prices, and un remunerative returns to farmers and area diversification towards commercial crops. Food production is unable to keep pace with population growth and the increasing productivity of food grains for which there exists great potential along with a well-organized distribution channel that would greatly help to uphold the food security in the country.

Timmer Peter C and Dawe David (2006) elucidate the availability dimension of food security. At the macro level, policy-makers have an opportunity to create the aggregate conditions in which households at the ‘micro’ level can gain access to food on a reliable basis through self-motivated interactions with local markets and home resources. Therefore, the perspective taken is primarily an economic one. These characteristics of rice-based food systems forge a strong link between politics and economics a link that policy-makers elected or not see as a public mandate to deliver food security.

Otsuka Keijiro (2013) explicates the food problem or the problem of food insecurity in a decisive manner and it tends to arise in the transition process from the extensive farming system relying on area expansion to the intensive farming system dependent on the intensive use of labor and other non-land inputs. In the early phase of this process, the food supply often fails to catch up with the increasing demand because the uncultivated land is exhausted, but yield-enhancing technologies and production methods are yet to be developed and disseminated. Grain imports increase as the wage rate increases further because the comparative advantage in food
production tends to decrease in land-poor countries where farm size is small and hence, labor-intensive production methods are used even when the labor cost is high.

Kannan K P et.al (2000) attributes the various dimensions of the food security system. Food security has a number of dimensions that go beyond the production, availability and demand for food. It is a question of the ability to access food for all the people at all times to lead a healthy life. The present level of food grains production may not be sufficient to meet the growing food demand in the coming decades. The projected supply of food grains will be lower than the demand for food grains by 36 to 64 million tones, if population, demand for food grains, and livestock feed continue to grow as in the past. This simply means that even if the present rate of food grains production is maintained, some of India's population will experience hunger and starvation in the coming years. International trade is the dependable mechanism for food security. The present PDS system is meaningful only in Kerala, Andhra Pradesh, Tamil Nadu, Jammu and Kashmir, West Bengal, Karnataka and Delhi. In all other states the coverage is quite low, the leakages are high and hence it is hardly an instrument for ensuring access to a minimum food to the poor. For improving supply of food grains and ensuring the sustainability of an efficient system of agriculture, adequate investment in agricultural infrastructure and Research and Development are needed.

Food availability provides access to food and in turn increases the nutrition status among the households. India is more or less self-sufficient in cereals but deficient in pulses and oilseeds. Due to changes in consumption pattern, demand for fruits, vegetables, dairy, meat, poultry and fishery products has been increasing. There is a need to increase crop diversification and improve allied activities. As economic growth picks up there is a change in the dietary patterns wherein people substitute cereals with high value food. Even though self-sufficiency in food production has been achieved, the population still lacks access to balance food. It is a matter of concern that even though cereal production has kept pace with the increasing requirements and average per capita intake of cereals have remained satisfactory. (Renu Martolia (2012)).
S.K.Govil et.al explains the importance of increase in the per capita availability of food grains and emphasizes to ensure the balanced food for ensuring nutritional security. India’s total food grain production has increased at an annual growth rate of about 2 percent during the period 2000-01 to 2010-11, which is mainly due to increase in productivity. The per capita cereal consumption showed a declining trend in both rural as well as in the urban areas. The total consumption expenditure has increased many times both in the rural and urban areas and the expenditure on food items exhibited a declining trend during this period. The food basket was found to be diversified both in rural and urban areas with higher levels of per capita consumption expenditure on milk and milk product, fruits and vegetables, meat etc. The per capita calorie intake declined in rural areas, whereas in urban areas it increased slightly during 1972-2010. Similar to calorie intake, protein intake has also shown a declining trend and fat intake showed an increasing trend in rural areas, whereas in urban areas, both the protein and fat intake indicated increasing trend.

The Economic Survey 1995-96 was ecstatic about rice and wheat emerging as major export commodities and about the use of 'surplus food grains. Even before 1996, we were compelled to arrange emergency import of two million tonnes of wheat. Such fitful interventions reflect neither good food policy nor good food administration. This has exposed the vulnerability of the Indian economy in terms of food security, and also highlighted the importance of supply-side factors in sustaining price stability. Inflation cannot be controlled by the one-point formula of controlling money supply. There has been a considerable discussion on the revamping of the public distribution system (PDS). It should be recognized that streamlining the food administration is equally important. The recent rise in wheat prices to unprecedented levels was not so much a reflection of the supply-demand imbalances as in aptitude of food administration (Majumdar N A (1997)).

The demand for rice and wheat is determined simultaneously based on their relative prices, taking into account substitution possibilities in consumption. Aggregate supply response for each cereal is assumed to depend on own expected future market price with producers having rational price expectations. The
government is assumed to maintain prices within a specified price band through either buffer stocks or variable levies/subsidies on trade itself (Srinivasan P V and Jha Shikha (1999)).

Jayanti Kajale and Sangeeta Shroff (2012) describe the role of and problems associated with the procurement and distribution mechanisms of the government in achieving food security. The demand for food grains is increasing with increase in the size of population, the sluggish growth in supply of food grains in posing a threat to India’s self-sufficiency in this regard. It is revealed that the activities of Food Corporation of India (FCI) such as procurement and public distribution of grains under food management policy through its instruments of buffer stocks, minimum support prices and issue prices have not been able to meet the demand for food grains in the open market segment as well as in the controlled segment adequately. This has resulted not only in coexistence of widespread hunger with adequate food stocks with the government but also in rise in open market prices of food grains. In order to solve the issue of food security, reforms such as strengthening of the PDS, timely release of the buffer stocks, improvement in the storage facilities for maintaining quality of stocks, extending and strengthening procurement operations of FCI to the north eastern states etc. have to be undertaken so that the country becomes self-sufficient in food grains and will no longer have to resort to export bans to safeguard domestic requirements

Prahadeeswaran M et.al; (2005) expounds the efficacy of the buffer stocking policies is reflected in the stability of food grain consumption and prices. The annual food subsidy involved in maintaining the system is huge and share of food subsidy to the total government expenditure is rising. In the case of Minimum Support Price (MSP), farmers find it more lucrative to sell their produce to the government than to sell it in the open market. As any monopoly, Food Corporation of India (FCI) suffers from inefficiency. Physical storage of grain by government agencies can lead to several inefficiencies.

The food accessibility and food availability at household’s level differ and behave differently across the regions and even within the states in the same
region of India. The analysis provides evidence that accessibility of food at household level is very closely related with available resources (land) and income. Also higher household income always did not ensure the food accessibility which mainly depends on the nature (daily, monthly and annual) of income from different sources. Decomposition analysis suggested that income from livestock activities and wages and salaries is more inclusive in terms of ensuring the food security at household level. The binary logit estimates shed light on the determinants of food security (Shiv Raj Singh and K K Datta (2012)).

1.2.4. Policies and programmes facet

India has a sharp focus on the question of food security. In recent years the stocks held by the government has exceeded minimum required levels and there is a phenomenon referred to as, a paradox of poverty amongst plenty. India government recognizing right to food and implementing various schemes to ensure food security, like Targeted Public Distribution System (TPDS), Mid Day Meal Scheme (MDMS) etc…., but the operational challenges like insufficient quantity and poor quality of grains, unsatisfactory administration etc… led to the failure of these schemes. India does not have a problem in terms of physical availability, as the production of food grains is more than adequate. Corruption is eroding the well-designed schemes. As the problem of food insecurity relates to both the demand and supply of food, a solution could be to empower people towards greater purchasing power as well as addressing the inadequacy of the distribution system and checking corruption and leakages awareness among people with regard to their right to food can escalate the process of equitable distribution and thus help to realize the right to food for all citizens (George Cheriyan (2006)).

The state's role in strengthening food security is more prominent in ensuring availability of food and ensuring its access by the households particularly the poor households. State interventions are of direct as well as indirect nature. If food grain markets perform these functions efficiently everyone will benefit and prospect of extinguishing food insecurity will brighten. Decentralization has imparted new role to the institutions of civil society at the village level to which we have not given
adequate attention. In the first phase of decentralization, the agency functions are more important. Another important function of the grass root organizations is to respond to the state initiatives and point out the lacunae in their functioning. The third role of the civil society, i.e., a proactive role in ensuring food security is an ethical role, moored in the principles of mutuality and fellow feeling (Vyas V S (2000)).

India was successful in achieving self-sufficiency by increasing its food production and also improved its capacity to cope with year-to-year fluctuations in food production; it could not solve the problem of chronic household food insecurity. This necessitated a change in approach and as a result, food energy intake at household level is now given prominence in assessing food security. It has become common practice to estimate the number of food insecure households by comparing their calorie intake with required norms. A distinction is made between transient and chronic food security. Transitory food insecurity is associated with the risks related to either access or the availability of food during the off-season, drought and inflationary years and so forth. Policies such as those relating to price stabilization, credit, crop-insurance and temporary employment creation are initiated for stabilizing the consumption of the vulnerable groups. In contrast, the problem of chronic food insecurity is primarily associated with poverty and arises due to continuously inadequate diet. Vision 2020 should aim at complete eradication of food insecurity both chronic and transient. Productivity generated by technological innovation particularly in less endowed areas and vibrant rural non-farm sector hold the key to eradicate food insecurity (Radhakrishna R and Venkata Reddy K).

Ray Ranjan (2007) explains the cereal shares in the household budget and the household’s overall calorie consumption on a greater importance of PDS. Both as a source of subsidized calories and as a poverty reducing instrument, the PDS is of much greater importance to female-headed households than it is to the rest of the population. Another important result is that, notwithstanding the sharp decline in their expenditure share during the 1990s, rice and wheat continue to provide the dominant share of calories, especially for the rural poor. The overall message is that especially in a period of significant economic change, one need to go beyond the
standard expenditure-based money metric measures to assess the changes in the living
standards of households. The results of this study also suggest that especially in a
period of economic reforms, pro-active government interventions need to be made to
stem the rise in the relative price of cereals vis-à-vis non-cereals. It shows that
expenditure-based figures of cereal shares in the household budget understate the true
importance of the cereal items in the household’s overall calorie consumption.
Moreover, the sharp decline in the expenditure-based share of cereals in the reform
decade in India did not translate into declines of similar magnitude in the calorie
shares of cereals. Notwithstanding the significant shift in preferences towards non-
cereal items such as meat, fish and eggs, and fruits and vegetables, the PDS items of
rice and wheat continue to supply over 50 per cent of the household’s total calorie
intake in the new millennium. The calorie share of cereals increases sharply as one
considers households at the lower end of the expenditure distribution.

Dev Mahendra S (1996) elucidates the poverty and food security
problem with emphasis on Public Distribution System (PDS) and employment
programmes (EGS for short) in Maharashtra and West Bengal. He considers poverty
as the major determinant of chronic and to some extent transient food insecurity. The
poverty line for 1987-88 shows that rural areas in West Bengal and urban areas in
Maharashtra are expensive places to live in India. In both these states, the agricultural
labour households constitute nearly 50 per cent of the poor in rural areas. In general,
per capita expenditure and person day unemployment rate are inversely related in rural
and urban areas of both the states. Turning to PDS, the estimates on per capita PDS
quantities as well as PDS quantities per market dependent persons show that there is
urban bias in both Maharashtra and West Bengal. PDS alone will not solve the
problem of food security. Apart from higher economic growth, a mix of policies such
as effective implementation of anti-poverty programmes including PDS, controlling
inflation, improving health facilities is needed for increasing food security in the two
states of Maharashtra and West Bengal and in other parts of the country.

In the budget food subsidy is in essence not a consumer subsidy
to the hungry poor but a cover-up for the inefficiency and corruption of FCI and
producer subsidy to the rich farmers lobby. To provide stability to food markets and prices, it calls for the intervention of state civil supplies departments in the international futures trade in grains and swift import and unloading of grains. For taking care of the poor who cannot buy food at market prices it recommends a programme of food stamps. The current PDS is no favour to the hungry poor. But instead of building an argument suggesting means to actually reduce hunger in the country it goes on to argue for privatization and globalization without showing how the two will reduce hunger. (Kumar Sanjay (2000))

Panth S Ananth (1997) mentioned about the rural household food security and it can be achieved basically by four means, i.e.; access to land, wage employment, self-employment; and the combination of the above three factors. He discussed about the important social measures taken by the government like, providing food grains at affordable price all through the year, providing wage employment during lean seasons of employment, providing pension to the old people and physically-handicapped and also the adequate social measures of the government makes it inevitable to have alternative arrangements. A few important networks are wages in kind, borrowings in kind, soft loans, and low prices of food grains and barter system. Food security can be maintained by the rural households better through their social networks rather than government support. The social networks function better in the irrigated areas than in the rain fed. In rain fed areas food security is achieved through stabilization in food grain yields. The government policies of PDS and wage employment programmes are supplementary to the existing social networks. For a developing country like India, it is not feasible, economically and administratively, to provide employment and also food grains to those below poverty line. Social networks can reduce the burden of subsidy on the government. They make rural systems more resistant and can help in reducing rural-urban migration

Beginning with supply side issues of availability, moving on to demand side issues of economic access, nutrition and absorption and finally to policy choices in the current global economic environment (Jha Shikha (2002)). Farmers’ wholehearted support and their economic wellbeing are vital for creating a sustainable
food security system in the country. The Right to Food law could be implemented only with the help of farmers (Swaminathan M S (2010)).

Swaminathan M S (2012) explains the food security status in India and evokes the role of food as people’s right. The brightest jewel in the crown of Indian democracy will be the conferment of the right to food through the National Food Security Act, recently introduced in Parliament. When it is implemented, this country will have to take the essential steps necessary to convert Gandhiji’s dream of a hunger-free India into reality. It is important to realize the significance of the Act in the light of the conditions that prevailed in India during the first 20 years after Independence. During the 1960s India was the largest importer of food aid, mainly under the PL480 programme of the U.S. In fact, during 1966, over 10 million tons of wheat was imported leading to India being labeled as a nation surviving on a ship-to-mouth basis. Today, India is set to commit over 60 million tones of home-grown wheat, rice and nutri-millets to fulfill the legal entitlements under the Food Security Act. When it becomes law, India will operate the largest social protection programme against hunger in human history. The Bengal Famine of 1942-43, which claimed over two million lives, provided the backdrop to India's Independence in 1947. The country's population was then a little over 300 million, that is, 25 per cent of the current population. During the first two Five Year Plans (1950-60), emphasis was placed on enlarging the area under irrigation and on fertilizer production. Scientists began extensive experiments in the 1950s to assess the response of rice and wheat varieties to fertilizer application. In July 1964, the whole-hearted support to spreading high-yielding varieties on a large scale, together with irrigation water and mineral fertilizer. In 1968, Indian farmers harvested about 17 million tons of wheat; the earlier highest harvest was about 12 million tons in 1964. Such a quantum jump in production and productivity led Indira Gandhi to announce the Wheat Revolution in July 1968. Green Revolution involved synergy among technology, services, public policies and farmers' enthusiasm. Farmers particularly those in Punjab converted a small government programme into a mass movement. The Food Security Act will confer double benefits – procurement at a remunerative price for the public distribution system will stimulate production, and consumers who need social support
to ward off hunger will be able to have economic access to the food needed for a productive life. The future of food security will depend on a combination of the ecological prudence of the past and the technological advances of today.

Per capita income of households shows the same pattern of relationship with nutritional status. A gendered analysis of access to productive resources, decision-making powers and intra-household allocation of work responsibilities is also needed to draw clearer linkages (Parasuraman P and Rajaretnam T (2011)). Confirming targeting errors and high leakages, the impact of these in-kind food transfers on poverty reduction, particularly of PDS in 2009-10, was found to be much larger than is usually acknowledged. Poverty reduction is only instrumental to the stated purpose of these interventions, which is access to food and improvement in nutrition. Moreover, the PDS continues to be controversial because of its leakages; and arguments to replace these by food coupons and cash transfers have resurfaced very strongly in the course of the debate on the National Food Security Bill/Act (NFSB/NFSA). Food self-sufficiency and income growth have reduced the need for such direct food interventions; we report a significant increase in the contribution of such in-kind transfers to both poverty reduction and nutrition (Himanshu and SenAbhijit (2013)).

Ramohan Anu et al. analyze food security/insecurity as a function of the household’s socio-economic and demographic characteristics, its access to social safety nets such as the PDS and MNREGS, and the extent to which they rely on these social safety nets to meet their food requirements. Despite making significant economic progress, food insecurity levels remain high in India, with an estimated 21% of the population being food insecure. Our analysis finds strong evidence to show that poverty, income from agriculture, religion and district heterogeneity influence food security. Food based safety nets appear to be implemented differentially.

The estimates of food grains production and requirement for the state of Kerala indicated that overall cereals and pulses requirement would be in deficit condition and the efficacy of any food security at the household level and
individual level can be judged only with reference to the PDS through which it is translated into action (Gajendra Singh and T.S Bhogal (2008)).

The distribution of households by ration card type among major states and major social groups; in 2004-05, the percentage of households reporting consumption during a 30-day period, from PDS and the reliance on PDS among major states in 2004-05. The need of the hour is not universalization of the PDS, but a revision of the food security norm, a BPL-friendly PDS and its efficient functioning (Suryanarayana. M. H (2008)).

Utpal Kumar De (2000) reflected the food grain requirement and per capita food grains production in the state, changing cropping pattern, the trends of PDS in Tripura. The state has not been successful in achieving food security by some aggregate measures of physical and economic access to food. Decreasing per capita food production and its availability leads to more insecurity in terms of physical access along with decreasing real SDP reveals reduction in economic access to food. The quantity of PDS supply has not been fully utilized which indirectly means excess supply.

Most of the villages without PDS shops are in UP and Bihar. A second factor conditioning Dalit access to the benefits of the PDS is the location in which the shops are physically situated. The third and most commonly reported form of discrimination in the PDS is caste-based favouritism by the PDS dealer in the distribution of goods (Thorat Sukhdeo and Lee Joel (2005)).

The changes in the PDS or the system of delivery of subsidized food during a period of structural adjustment, the period since July 1991, when there have been significant shifts in policies following a fiscal and balance of payments crisis. There are large gaps in the existing system of delivery of subsidized food, and large numbers of the income-poor are excluded from the PDS. No serious effort has been made by the central government and by a majority of state governments in the last few years to alter this situation by improving the delivery system and by specifically attempting to include the poor in the PDS (Swaminathan Madhura (1996)).
Dubey Amaresh & Srivastav Nirankar analysis the households that have access to the PDS, what they purchase, and what are their rupee savings due to their access to the PDS. Its impact on poverty levels due to the existence of the PDS. Almost half the rural population and a quarter of the urban population report consuming fewer calories than they require as per the widely believed norms. Calorie deficiency appears to be highly dependent on the type of commodities being consumed - for instance wheat eaters appear to be less calorie deficient than rice eaters. The PDS is barely touching the tip of the iceberg where helping the worse-off sections are concerned. Ideally, poverty incidence by the conventional measure (HCR) and calorie deficiency should not be very different from each other. We find that in rural sector the former is lower than the later. In the urban sector, its reverse holds true. The impact of PDS on the incidence of calorie deficiency and poverty does not appear to be significant. Finally, it is also important to note that the PDS is not strong enough and the only instrument to ensure the food security of the poor, because it serves the purpose only to those who have purchasing power and are ration card holders.

Ghumaan Kaur Gurdeep and Dhiman Kumar Pawan (2013) review status of public distribution system and its relationship with the problem of food security and poverty incidence among the states of India. The close linkages existing between food security and Public Distribution system (PDS), socio-economic development, rural health, human rights and improving human development indicators in the developing country like India. Poverty indices for all the states in India are calculated and then it appears that the PDS is widely accessible to the households in the region. The PDS plays a relatively more important role in food security of the households rather than poverty reduction. Thus the current system is beset with significant level of adulteration, pilferage and Corruption and in order to remove pilferage, adulteration, and Corruption, there seem to be some improvements in the functioning of PDS. Therefore, successful implementation of PDS is a big challenge in order to gain food security in India.
The system of rice scheme in the state covers the rural areas as well as to that extent differs from the PDS system in the rest of the country other than the one prevailing in Kerala state. In Andhra Pradesh the scheme was extended to the rural areas without making the eligibility requirement more rigorous and also without introducing any extra measures to improve the indirect targeting. This resulted in substantial budget commitments on behalf of the government in implementing the scheme. Food subsidies which aim at providing food security can be a part of much wider policy package of social security aimed at improving the quality of life of the people or they can be implemented without being part of a wider package. The final effect of food subsidies depend not only on the level of subsidies but also on how they are financed. If the financing is done through progressive direct taxation, then the welfare effects of such a subsidy scheme are going to be far greater than if the same is financed by deficit financing leading to an inflationary effect on the economy. If the same is financed by commodity taxation the effect depends on the bundle of commodities taxed. Similarly, the effect of food subsidies depends on the mobilization of quantities needed for feeding the public distribution system. The Food for Work programme may be an alternative to the rice subsidy scheme due to the huge investment needed to implement it (Rao Krishna I Y R (1993)).

K P Kannan explains 'the remarkable record' of Kerala in reducing child deprivation in general. The public distribution system, the free noon-meal scheme for school children, supplementary nutrition for pre-school children and old-age pensions has established a bottom line of food security. Joseph writes that 'what the noon-meal is really doing is to break the fear of future food insecurity'. In the context of the present situation in India, where there is a large 'food surplus' with burgeoning food stocks, the solution of the child labour problem would profit immensely from the usage of these food stocks (Lieten (2003)).

Public distribution system was utilized to its fullest extent by the rural households notwithstanding the occupational categories. The Almost Ideal Demand System (AIDS) analysis to estimate the household demand revealed that in all the three categories of households, any higher level of income would influence the
pattern of rice consumption followed by vegetables and milk. Fruits were found to be an inferior good for all the three categories of sample households. Oil, pulses and vegetables were found to be the complementary goods in all the three categories, showing a dismal state, since these goods are the most important dietary components for all age groups. Regarding food security, the agricultural labour and other worker households are found to be food insecure. Hence, a revamped direct food assistance programme by the government along with its other safety net programmes for rural poor can be oriented in order to address these serious food security issues in the rural areas. (T Ponnarasi and K Sita Devi (2012)).

The National Food Security Mission (NFSM) was launched in 2007-08 in 312 identified districts of 17 major states covering 136 districts under rice, 141 districts under wheat and 171 districts under pulses. At least 20 million tonnes additional food grains production were to be realized by 2011-12, with a break up of 10 million tonnes of rice, 8 million tonnes of wheat and 2 million tonnes of pulses. In Bihar an ambitious reform of the PDS was launched on January 26, 2007; a coupon system. The state government claimed that the coupon system would empower the poor and stop black marketing, and it was not a simple coupon, but a powerful weapon in the hands of poor. Later, the coupon system of Bihar has failed to prevent corruption and currently focuses on ‘targeting effectively’. The large exclusion errors of the BPL list can be avoided through the expansion of BPL list. A PDS dealer takes coupons while delivering partial entitlements or for that matter to get thumb impression on biometric device without delivering any amount of food grains (Hem Chandra Lal Das (2012)).

Ganesh Kumar A et.al; (2008) suggests an agenda for reforming the food grain management system in India which is much more cost effective and also well targeted to achieve the objectives of food security than the existing system. It evaluates the price support, buffer stocks and procurement operations to public distribution through fair price shops for national food security. It revisits the rationale
of each one of these inter related components and analyses how far the objectives are being met and at what cost.

The bill marks a radical departure from the welfare approach to a right based approach. The bill is not based on an explicit concept of food security. Estimates of food insecurity are based on outdated calorie norms, and hence, are exaggerated. A food security strategy should consider availability, access, stability and safe and healthy food use subject to some norms (Suryanarayana.M.H (2013)).

The National Food Security Bill is based on Sarvodaya principles as it has adopted a human life cycle approach, looks at providing coarse grains at subsidized rates, giving impetus to the public distribution system, giving woman the position as the head of the family, and synergizing drinking water, sanitation, hygiene and food. The Bill would focus on three fundamentals of food availability, food access, and food absorption. Food availability should be assessed from home-grown food and not from what is imported. Food access depends on the purchasing power of the people, and food absorption means the amount the human body is able to utilize. Elaborating on food access and food absorption concepts, the purchasing power of the producer consumer of agricultural produce remained poor and that was why most of them who formed part of the 66 per cent of the country, could not get access to food. The absorption power of women and children was not to the full capacity because of various deficiencies, and hence malnutrition of the mother and children remained a grave problem. Biological models depend on synergy and symbiosis for their success. A Sarvodaya society, or a high synergy society, can only be built on the foundation of harmony with nature and with each other. The choice with us now is to choose between Sarvodaya or the universal good, or sarvanasha or universal destruction (2012).

Swaminathan M S (2010) explains the food security bill and its implications. The proposed Food Security Bill should adopt a three-pronged strategy that constitutes a Universal Public Distribution System for all, low-cost food grains to the needy, and convergence in the delivery of nutrition safety net programmes. Based
on Article 21 of the Constitution, the Supreme Court has regarded the right to food as a fundamental requirement for the right to life. Fortunately, we are moving away from a patronage-based to a rights-based approach in areas relating to human development and well-being. Numerous programmes have been introduced by the Government of India from time to time to improve nutritional status. To ensure food security for all we should be clear about the definition of the problem, the precise index of measuring impact and the road map to achieve the goal. The National Food Security Bill should be so structured that it provides common and differentiated entitlements. The common entitlements should be available to everyone. These should include a universal public distribution system, clean drinking water, sanitation, hygienic toilets, and primary healthcare. India should not lose this historic opportunity to ensure that it takes a development pathway with regard to the nutrition, health and well-being of every citizen as the primary purpose of a democratic system of governance.

(Srivastava Shreya) explicates the complementarity of the PDS under the National Food Security Bill (NFSB). How the present Bill has dealt with these issues and further given suggestions to make the system more efficient and better appealing to the public. India holds 67th position amongst a total of 122 countries, in the 2010 Global Hunger Index developed by the International Food Policy Research Institute. This is a serious concern among the various agencies involved and the people alike. In order to obviate the problem the government has finally introduced the National Food Security Bill, 2011. The Bill is a revolutionary piece of legislation. By providing such food security, the Bill will be a big leap in the direction of ensuring social justice to the people which is a fundamental element of the Preamble to the Constitution of India. It seeks to include within its ambit the poor, needy, children and pregnant and nursing mothers by integrating various schemes. One such scheme is the Public Distribution System (PDS). The PDS is a means of distributing food grains and other basic commodities at subsidized prices through ‘fair price shops’. The scheme has been in existence for a long time now and has gone through many changes, such as shift from universalization to targeting, introduction of information technology and the like. However, there still exist problems like failure of precise identification of beneficiaries, leakages and diversions and great degree of
corruption. Therefore, firstly low productivity in agriculture must be attacked. This can be done by improving subsidies for farmers, giving them better quality fertilizers, pesticides and seeds. The next obvious step should be addressing the shortage of storage space for food grains in order to avoid wastage. These must be complimented with the improvement of the PDS.

Prachi Misra (2013) deals the fiscal implications and the distributional implications of National Food Security Act (NFSA). The food subsidy cost of implementing the FSA is estimated at RS. 124,502 crore for 2013-14. The paper titled as, The Food Security Act (FSA) Fiscal Implications: 2013-14 to 2015-16, not only deals with the fiscal implications, but also deals with the distributional implications of FSA. In addition to food subsidy, the other financial costs of FSA are setting up/running of state food commissions and District Grievance Redressal Offices (DGROs), expenditures on intra-state transportation of food grains and cash benefit to pregnant and lactating women etc… If implementation of the FSA requires merging the current classification under the Targeted Public Distribution System (TPDS) with new and more careful identification schemes, combining the grand fathering and misclassification scenarios could increase the incremental food subsidy cost of implementing the FSA in 2013-14 to Rs.55,726 crore.

Kirit. S. Parikh (2013) try to analyze the questions (objectives) like, the need for the Food Security Bill (FSB), its right for coverage, identification of beneficiaries, its effect on food grains production, its role on wipe out hunger and malnutrition, the FSB cost and there any better way, like, direct cash transfers in FSB. If resources are required for implementing FSB, they have to be found. It would be great if the government can find these by eliminating many other subsidies, such as on diesel and LPG. If not, FSB will only add to inflation, increasing poverty and hunger and neutralizing any benefit that may accrue to the poor from FSB.

Sally Trethwie (2012) explains the food insecurity situations in India, i.e.; mainly on access to grain. The paper titled as “India’s food Security Bill: A waste or win for the hungry; the food bill aims to reach 75 percent of India’s rural
population and 50 percent of the urban population. The bill ensures the implications of transforming food from commodity to public good. It argues that the grain currently distributed through Public Distribution System (PDS) is of low quality, in opportunely delivered, stored in unhygienic conditions, lacking in micro nutrients etc and it warns that the bill will contribute to growing inflationary pressures. The current food bill does not reflect for local sourcing and cash payments to farmers. Whatever the food bill delivers in the short term for the desperately, hungry must be seen as a positive outcome.

NFSA relies primarily on the existing Public Distribution System (PDS) as the primary axis for ensuring food security. The shift to targeted PDS in 1997, which dismantled the earlier universal access at relatively low unit subsidies, replacing it with much higher unit subsidies targeted towards the poor, led to increase in leakages between 1993-94 and 2004-05, along with decline in percentage of households who actually accessed PDS cereals. The states like Chhattisgarh, Odisha and Bihar have used available technology and mobile based tracking system to reduce leakages. The main challenge of NFSA is that, there is no mechanism to identify the beneficiaries, and there are no clear guidelines for exclusion and inclusion. An alternative in the form of Socio Economic and Caste Census (SECC 2011) was available and have been used to identify the beneficiaries, and estimate the number of households eligible for the benefit in each state. Apart from the administrative and technical challenges, successful implementation of NFSA will also require political conviction and willingness to fight malnutrition (Himanshu Bhushan (2013)).

The principal concern seems not to ensure food security to all and therefore to ensure a nutritional minimum, but to contain the government’s expenditure under the proposed NFS Act. After all, meeting the demand of the fiscal deficit is more important than putting in place universal rights to as a basic requirement as food. The Rangarajan Committee recommends a status quo on the present targeted PDS (TPDS) structure with lower prices for a slightly expanded BPL and higher prices for others. A universal PDS is the only option consistent fully with a right-based approach, and argues that feasible alternatives that are more universal and
less targeted are more likely to be effective in ensuring food security for the poor. Since targeting was introduced in June 1997 after a long experience with universal PDS, the food security cannot be attained without addressing issues of physical availability, distribution and stock management – it is not simply a matter of access that can be dealt with transfers, either directly in cash or through coupons or by differential pricing. It addresses concerns of the detractors but once rolled out, and if successful in reducing leakage while increasing access, could be converted easily to full universal PDS. All that is needed to achieve this is to set the percentage of Minimum Support Price (MSP) in the MSP-linked price so that this is the same as an acceptable price for the priority group (Himanshu and Sen Abhijit 2011).

The main problem is the Bill’s framework for the public distribution system (PDS), which rests on a complicated division of the population into three groups: Priority, General and Excluded households. Each group is to have different PDS entitlements. It merely recommended that the coverage of Priority groups should be no less than 46% in rural areas and that of Excluded households no more than 10%. Abolish the distinction between Priority and General Households and give them all a common minimum entitlement. Indeed, the rationale of this distinction is far from clear. Neither the National Advisory Committee (NAC) nor the Rangarajan Committee nor any other expert group recommended that the proportion of Excluded households should be as high as 25% in rural areas and 50% in urban areas. Insisting after this exclusion exercise, on a further division among the non-excluded households into Priority and General Households is unnecessary, impractical, and counter productive (2011).

The bill states that there will be two categories of people – priority and general – under which 75% of the rural population and 50% of the urban population will be entitled to subsidized food grains and the rest will be excluded. While the government’s bill has retained the monthly entitlement of the priority group of 7 kg per person as laid down in the NAC draft, it has further reduced the monthly entitlement of the general households from 4 kg per person to 3 kg per person. It goes on to say that the central government will determine the number of priority
households in each state based on state-wise poverty ratios to be updated from time to time. Even with regard to reforming the PDS, the bill does not say much, while the NAC had detailed proposals related to the management of fair price shops, procurement, transport, storage, transparency and accountability (2011).

1.3 Research Gap

While reviewing various studies it is understood that, in the literature on food security, lot of studies have been discussed about the problem of food insecurity and the co-existence of availability, accessibility and affordability issues. A few studies discussed about the rural households and their food baskets. From those discussions, it is evident that, sufficient literature is available on the topic at macro level. Many of these studies came in late 1960’s as a consequence of the agricultural reform, i.e.; the green revolution in the country, the implementation of economic reforms and the accomplishment of National food Security Bill. Hence still research gap remains at macro level. Most of the studies concentrated on the nutritional aspects, calorie intake, and distributional aspects of food security in the country. Coming to the Kerala case, there are only few studies focusing on the availability and consumption pattern of food and also especially among the rural households. The present work is a consolidated approach towards food security in Kerala among the rural households.

1.4 Statement of the Problem

Due to the increase in population and decline in area under food crops, Kerala is facing a severe food insecurity problem. The trend in Kerala clearly postulates towards cash crops, rather than food crops, because of the more remunerative nature of the cash crops. Rice (The cultivation of food crop, the major food crop is paddy and its output is rice, quantitatively rice will constitute only 65 to 70 percent of paddy produced. In earlier literature, these two terms were used interchangeably. Later, based on the recommendation of International Rice Research Institute, Manila, the term rice is more preferred. Hence, in this study, hereafter the term rice is used irrespective of cultivation or output) is the staple food of Kerala, and
we produce only 15 percent of our requirement (Economic Review, 2015), so the remaining portion, depends on other states for our daily necessities. This will make a question of food insecurity and sustainability issues to the current age groups and the future generations. Thus, there is a shortage of supply of food items in respect the demand of the population. Moreover, there are many households in rural areas mainly depend on the basic public intervention systems for their food requirements. In rural fields, primary sector and their allied activities are the main occupation of the households and they are not much concerned about the food systems. So the learning is bidden with the food basket of the rural households and their determinant factors. Thus, the study is attempted with the following objectives.

1.5 Objectives

The main objectives of the study are:

1. To examine the demand side and supply side availability of food in Kerala
2. To assess the food basket of rural households in Kerala
3. To identify the determinants of rural food basket in Kerala
4. To assess the impact of public intervention on food security in rural Kerala

1.6 Hypotheses

1. There is significant relation between the supply and demand of food grains
2. There is significant relation between the availability, accessibility and affordability of food security
3. There is significant relation between the determining factors of rural food basket and the utilization of the provisions of Public Distribution System.
1.7 Methodology

This section discusses the methodological aspects of the study. It deals with various sources of data, sample design, selection of the sample of rural households for data collection and the statistical framework for the analysis of data collected.

1.8 Sources of Data and Sample Design

The study made use of both primary data and secondary data. Secondary data have been collected from various publications of Government of India, State Governments, Reserve Bank of India (RBI), National Bank for Agriculture and Rural Development (NABARD), Food corporation of India (FCI), State Civil Supplies corporation, Economic and Political Weekly Research Foundation (EPWRF), Kerala State Planning Board, Directorate of Economics and Statistics (DES) Kerala, Directorate General of Commercial Intelligence and Statistics (DGCIS), National Sample Survey Organization (NSSO), World Development Report, Kerala Development Report, Economic Survey, Economic Review.

Multi stage systematic random sampling technique was used to select the districts, blocks, Panchayaths and wards and the sample of rural households for the purpose of primary data collection. On the basis of the major food producing areas in Kerala, three districts were selected for the study, i.e; Alappuzha, Thrissur and Palakkad. The major area, production and yield of food crops in Kerala in 2014-15 occupies in these three districts. For these districts 3 blocks, Chengannur from Alappuzha district, Kodakara from Thrissur district and Mannarkad from Palakkad district were selected by taking into consideration the major food crops and the number of rural households so as to support the objectives of the study. Taking into consideration rural households, the area and production of cultivation under different crops at the state level and in the district level (major crops such as Paddy, cereals, pulses etc.) were stratified for the study. Out of these blocks, 3 Panchayaths were selected for the survey on the basis of the most number of rural households in these Panchayaths. The surveyed Panchayaths are Mulakuzha from Chengannur block,
Mattathur from Kodakara block, Alanallur from Mannarkad block respectively. Out of these Panchayaths, three villages were taken on the basis of most number of rural households in these villages, i.e; Mulakuzha village from Mulakuzha Panchayath, Mattathur village from Mattathur Panchayath, Alanallur – I village from Alanallur Panchayath respectively. Out of these villages, 3 wards were selected from each village for the study in accordance with the size of rural household’s population. Ward-09, ward-04, and ward-07 were selected from Mulakuzha village. Ward-02, ward- 18, and ward-22 were selected from Mattathur village. Ward-10, ward- 07, and ward-08 were selected from Alanallur-I village. A field survey was carried out during the period from August 2016 – December 2016 based on personal interview by using a detailed pre-structured schedule. The schedule gives the detailed information on availability, accessability and affordability of food crops, land use pattern, cropping pattern, sources and purchase of food items, determining factors of the food articles etc. The study also examined the food basket of rural households in Kerala and identifies the determinants of rural food baskets in Kerala. In order to make the study more articulate and ample 509 households in the rural areas were surveyed, on the basis of 10 % of the rural population in the selected wards in each village.
Figure 1.1

Sample design

DISTRICTS

Alappuzha

Thrissur

Palakkad

3 Blocks

Chengannur

Kodakara

Mannarkad

3 Panchayaths

Mulakuhza

Mattathur

Alanallur

3 Villages

Mulakuzha

Ward no- 9

Ward no- 7

Mattathur

Ward no- 2

Ward no- 22

Alanallur-I

Ward no- 7

Ward no- 8
1.9 Scheme/Plan of the Study

The study is presented in six chapters. The first chapter deals with the introduction; which covers the literature review, research gap, statement of the problem, objectives, hypothesis, methodology and scheme of the study. The second chapter deals with the food security situation in India. Chapter three discussed the demand side and supply side availability of food crops in Kerala. Chapter four deals with the appraisal of food basket and identifies the determinants of rural food basket in Kerala. Chapter five deals with the public intervention to food security in Kerala. The summary of findings of the study with conclusion is brought out in the last chapter.