CHAPTER I
INTRODUCTION

1.1 Introduction

The World Food Conference, convened by the Food and Agricultural Organisation (FAO) in 1974, drew the attention of the world community for the first time to the urgent need of devising ways and means to ensure food security for hungry millions of the world in general and South Asia in particular. The World Food Summit (WFS) in Rome in November 1996 focused the world's attention on the chronic problem of hunger and malnutrition, as well as the potential for increasingly acute food shortages in South Asia. These historic events made some ways into the academic world to research on such an important aspect of mankind and suggest ways and means to improve the food scenario in the world. The present research study is just a small endeavor in this process. The term "food security" is comparatively a recent use, meaning a sustained supply of appropriate food to everyone in a society to enable their healthy development without serious disruption to the environment, their livelihoods and their culture. It can be assessed globally, nationally, locally, and at the level of households and individuals. Various types of risks generate food insecurity and are likely to be temporary, seasonal or chronic. The assessment of food security needs an external agency. Interventions should consider how individuals, households and local support systems assess their particular food security risks and respond to them.
The idea of food security is normally used at macro level, mainly concerning supply side. A nation enjoys food security when it has enough access to food through domestic production, buffer stocks, imports or foreign food aid and could satisfy the needs of its entire population. At micro level, the idea refers to both demand for and supply of foodgrains with more emphasis on demand side. In other words, at the household level, food security essentially implies physical as well as economic access by all the people to enough food for an active healthy life\(^1\). The definition of food security endorsed by the FAO/World Health Organisation International Conference on Nutrition held in Rome in December 1992, reads: "access for all people at all times to enough food for an active, healthy life." The WFS broadened the definition by adding both physical and economic access rather than just 'access'. It further adds the stage of having both safe and nutritious as well as sufficient food and such adequacy of food should meet people's dietary needs as well as their food preferences for an active and healthy life. The immediate points of contact between trade with these definitions are through 'access' and 'sufficiency'.

An alternative approach to defining what is food security is that of 'entitlements' to food, developed by Amartya Sen. Each person has an entitlement to food derived from his or her own production, from exchange through barter, markets or working in non-food production activities, or from transfer (of food) either from the family, the community, civil society or the state. A failure of a person's food entitlement would threaten his or her food security; a failure in all of them would lead

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to complete deprivation of food. The immediate link between trade and this approach is through the entitlement of exchange. WFS states that "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."

Improving physical and economic access by all, at all times to food is mentioned because it emphasises the human-centered, gender-sensitive approach. It broadens the scope to focus additionally on economic access to food and hence the need for "secure and gainful employment" as well as "equitable and equal access to productive resources such as land, water and credit". Underlying this concern is the need to focus attention on "vulnerable and disadvantaged individuals, households and groups" among which women predominate. To achieve food security concerted action is required at all levels - individual, household, national, regional and global. The Rome Declaration on WFS reaffirms the "right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger".

According to Maxwell and Frankenberger food security means a "secure access at all times to sufficient food for a healthy life". M.S. Swaminathan redefines food security as "livelihood security for the households and all members within, which ensures both physical and economic access to balanced diet, safe drinking water, environmental sanitation, primary education and basic health care". The households

are a central social unit of access to food. The basic features of food security are food availability and food accessibility.

Going beyond the earlier definitions of food security in terms of food availability and food accessibility, a broader definition involves a number of aspects: a sustained availability of adequate food, balanced diet, means to acquire adequate and appropriate food for healthy life, sufficient education, and comparative costs of alternative appropriate consumption.

Most governments are concerned not only with the food security of individuals or households but also with national food security. The duty of any responsible government is to assess to what extent the national food system can function without excessive reliance on external food aid/imports and/or imports of food system inputs. Such dependency could lead to external political and economic pressures, risking national independence.

In order to understand the concept of food security, one can start by considering the household as a fundamental unit. A food-secure household can be defined as one which has access to enough food for its individual members to lead a healthy life at all times. As regards trends in household food security measured by the percentage of undernourished population, what seems clear is that for India and Sri Lanka where the bulk of farm or national income is derived from domestic agricultural production, household food security has been closely linked to domestic production.
Thus food security has three elements: the availability of food (quantity), the ability of the people to obtain quantity of food (access), and required quality (nutritional value).

There can be four kinds of food insecurity:

i. Chronic food insecurity is said to develop when food insufficiency is failing to supply adequate nutrition for the individuals of a country persist (e.g., low income groups – such as landless labourers, small and marginal farmers and the urban poor).

ii. Transitory food insecurity occurs when instability in food production risks the recurrence of drought or famine.

iii. National aggregate food insecurity crops up when an economy fails to supply its aggregate food requirements even after exhausting all available means to do so: domestic production, food aid, purchase of food internationally, and running down of buffer stocks and reserves.

iv. Individual food insecurity or food consumption insecurity can happen when certain individuals, households or groups cannot gain access to adequate food with the incomes at their disposal.

Therefore, food insecurity hinges as much on the lack of purchasing power and entitlement as on unstable production and supply. To ensure food security, what is required are long-term solutions taking account of socio-economic, environmental and political factors.

What is significant for households and individuals is the availability and adequacy of food intake, i.e., whether the quantities actually consumed meet their consumption requirements. This intake can be produced or procured, but since both production and income/prices constantly fluctuate the easy and feasible solution is to
evolve a national buffer-stocks policy. The food aid also helps but is not advisable for a long-term basis. So the need for a national scheme dealing with the delivery of food to the poor, and international food aid to stabilise food availability. The poor adjust the expenditure on food because the major share of their incomes is spent on foodgrains. One solution lies in commercial food imports, but this again involves growing dependency. So huge imports for a long period mean a conflict between national food security and national political security. The other alarm about imports is whether a food-deficit nation can afford to pay for them.

At all levels - household, domestic or international - fluctuations in prices often affect food security. One should consider other factors also: developing counties' limited and rapidly diminishing resources, the state of the environment which suffers from yield increases; and the availability and costs of credit to households. The other factors include the lack of transportation facilities, markets and infrastructure – often the result of poor management or planning. The lack of off-farm employment opportunities for the poor and women further contribute to food insecurity.

Food security is also a function of entitlement to food through access to land and other means of production, or through productive employment. When there is no purchasing power, the poor resort to household-level coping strategies, which are in fact counterproductive. It is said that to overcome the governments need to tackle the problems of unstable food prices and real wages, and foster micro-enterprises, i.e., fisheries and agro-related sectors. The solution lies in the people's participation in schemes designed to help them. The governments also need to decide on trade deficit
and the risks of large debt burden to crucial for huge foodgrain imports. They ignore the issue of financial flows to agriculture, or the establishment of a regional food-security stock mechanism. Government policies should ensure an enabling political, social and economic environment designed to create the best conditions for the eradication of poverty and for durable peace, based on full and equal participation of women and men, which is most conducive to achieving sustainable food security for all.

Therefore, central to the issue of food security is the issue of co-operation. The quest for food security begins at the small holder level. But its effective pursuit will be at various levels in the medium and long term not only to produce more food but also to remove poverty and create adequate entitlements for those who need food. It involves a reorientation of domestic policies and priorities in South Asian countries so as to mobilise the potential of the rural poor by encouraging their participation in development process.

It is also argued that the imperatives of food insecurity arise due to the imbalance between population growth and foodgrain production. Tim Dyson emphasises that population growth will pose the main challenge to food production in the next few decades. The better feeding of the humanity in the years up to 2020 can be really accomplished only by a considerable increase in the volume of inter-regional food transfers through trade. The imbalance between food supply and population growth compels the developing economies to propel an efficient distribution

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mechanism. An efficient public distribution system, and stable and secure food production emerge as integral parts of food security in the developing countries. A crucial aspect of food security is the efficient management of food economy in a society, which does not have to depend on external assistance to meet the normal shortages occurring in agriculture.

Poverty is the gravest of problems for any nation. Poverty is not only dependent on agricultural production (availability of food) but also income (prices). The implications of poverty are the population growth without proportionate increase in agricultural output. The ratio of the people below the minimum standards of nutrition, health, shelter and education has grown. Poverty (low or lack of income) cannot be eliminated without the growth of agriculture. Agricultural growth is needed for poverty alleviation because agriculture is a dominant sector of all the developing economies. So rapid increase in foodgrain production should be the priority of any development strategy — a factor which depends on rainfall, irrigation, fertilizers and land. In many developing countries in the world in general and South Asia in particular, the agricultural sector remains the important contributor of the gross domestic product, employment generation and rural household incomes.

A sustained agricultural development provides food security, besides reducing poverty and hunger. The developing agricultural sector of India and Sri Lanka accounts for a large share of Gross Domestic Product (GDP), employs a large proportion of the labour force, represents a major source of foreign exchange (Sri Lanka), supplies the bulk of basic food and provides subsistence and income for large
rural populations. Thus, significant progress in promoting economic growth, reducing poverty and enhancing food security cannot be achieved in India and Sri Lanka without developing more fully the potential productive capacity of the agricultural sector and its contribution to overall economic development.

Several factors have contributed, in varying degrees to the development of agriculture in India and in Sri Lanka. However, two key factors stand out - the past policy bias against agriculture and the high degree of distortions on world agricultural markets due to the protection and subsidisation. The traditional policy bias against the agricultural sector, reflected in direct and indirect taxation of agricultural production and exports, arose for a variety of reasons. Revenue considerations were one major factor as agriculture was the only viable economic activity available for taxation in Sri Lanka in the immediate post-Colonial period. A second important factor was the socio-political imperative of maintaining low food prices, commonly operated through state-controlled marketing boards. These factors, taken together, had the unintended consequence of depressing farm prices and profitability, thus reducing incentives for investment in the agricultural sector.

Agricultural sector policy reforms remain high on the agenda of India and Sri Lanka. The common objectives of these reforms are:

i. To enhance productivity;
ii. To raise the levels of production of basic food crops to their potential;
iii. To improve the quality and standards of products; and
iv. To diversify production and exports by promoting the development of new crops and the processing of primary products.
Enhancing food security would require building farming capacity, attracting new investment, promoting innovation and providing infrastructure, farm inputs and credit. Agricultural development thus is the best advisable solution to help small and marginal poor farmers, so the rural poor become productive and improve their living standards.

The issue of public distribution as a strategy to mitigate widespread poverty in most developing countries under-consumption levels is very important. The food shortages result in price spiral, which make it difficult for the poor to purchase adequate food supplies. So the government's responsibility lies in the stabilisation of foodgrain prices through a public distribution system.

In 1983 the United Nations defined the goal of food security as giving “population both economic and physical access to a supply of food, sufficient in both quality and quantity, at all times, regardless of climate or harvests, social level or income”.

The rising food prices seem to be the foremost economic indicator of food insecurity. Food security is the result of expanding human demand for food, oceanic fisheries, irrigation and crop variations through the use of fertilizers. The food security of future generations is now greatly dependent on investing heavily in family planning, on educating girls and creating more employment opportunities for women. A household is said to be food secured when it has the necessary purchasing power to buy foodgrains and access to the required foodgrains.

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5 Food and Agricultural Organisation, *Food security: still Far From the Goal*, (Quebec City, 1995).
1.2 Significance of the Study

South Asia is emerging as a deprived region in the world - embracing nearly one-fourth of humanity. It is the poorest, most illiterate, malnourished and the least gender-sensitive region\(^6\). The significant question of how long will it take for the poor to gain access to these means and to provide food security for the disadvantaged population facing deprivation and hunger? Food self-sufficiency is a major goal for India and Sri Lanka since independence. The issue of food self-sufficiency is linked to improving access to food through raising effective demand and is linked to rural development, stimulating production and promoting economic diversification.

The key factor constraining the agricultural potential of India and Sri Lanka - that is, the high levels of subsidies and protection provided to agriculture - remains a serious problem. Domestic support to agriculture encourages over-production which in turn increases supplies on domestic markets (by reducing import demand or increasing export supply) and depresses domestic prices. This thesis reviews the current state of food security in India and Sri Lanka and studies how the public distribution system ensures food security in the context of the recent socio, economic, political and environmental development. It outlines recent agency responses to weaknesses in food security and identifies some of the major pressures, tensions and priorities regarding Indian and Sri Lankan food security. Improved strategies, policies, and programmes for agricultural and rural development are essential if developing countries are to increase their agricultural output and eradicate hunger in future. Population growth is

still outpacing foodgrain production in India and Sri Lanka. This research provides a comprehensive assessment of progress in foodgrain output and prospects of the countries in the region, and a clear analysis of the challenges of development faced by them. It attempts a preliminary assessment of how such food security aims are currently being achieved or thwarted in South Asia: especially in India and Sri Lanka. Public distribution could be viewed either as a tool of macro-economic management or as an anti-poverty measure. In the former, the main concern of policymakers is the management of scarcities through buffer stocking, rationing and imports. The emphasis is to ensure availability in the face of fluctuations in output and inflation. As an anti-poverty measure, public distribution aims to transfer incomes to low-income groups and the programme has become more targeted towards the poor. It also seeks to raise the nutritional standards of vulnerable groups and ensure household-level food security. Food security in India and Sri Lanka has to do more with physical access to food than with economic access.

1.3 Survey of Literature

There are diverse sources of literature available on different issues of food security. However, the existing literature can be reviewed under some themes: global, regional and household policies and programmes, agricultural production, food import/aid, food prices, and insurance and reserves.
Valdes's edited book is a collection of papers presented in International Food Policy Research Institute Conference in 1976. Part one of the book stresses the nature and magnitude of food insecurity in Less Developing Countries (LDCs) stressing the various practical problems at the country level. The part two presents various national and international approaches to coping with food insecurity. Valdes has focused on the variability in agriculture caused by the impact of fluctuating weather on the size of harvests. The book also describes the nature and magnitude of food insecurity in LDCs and stresses the various practical problems at the country level.

Sen has focused on the causation of starvation in general and of famine in particular in his book Poverty and Famine. He has used an alternative method of analysis - the entitlement approach - concentrating ownership and exchange. He has also provided general analysis of the characterisation and measurement of poverty. The various approaches used in economics, sociology, and politics are critically examined. He has further experimented the entitlement approach in countries such as India, Ethiopia, Sahel, and Bangladesh.

The World Bank Report outlines the nature and extent of food security problems in developing countries extensively. It has also explored the policy options available to these countries in addressing the problems and indicates the solutions of international financial institutions. It suggests policies to achieve the desired goal in cost-effective methods.

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8 Amartya Sen, Poverty and Famine: An Essay on Entitlement and Deprivation, (Delhi, 1982).
Mellor\textsuperscript{10} (1988) examines how the current global food surpluses can provide the basis for sustained growth in effective demand for food. He suggests that there are structural factors in high-income countries, and increasingly also in low-income countries, that are contributing to the supply of food grains, and that these are likely to remain in effect for the foreseeable future. In the short run, such surpluses can support carefully targeted food subsidies to meet the food needs of low-income households. For the longer term, they can support food-for-work efforts to create rural infrastructures needed for a broad based rural growth strategy.

According to Alamgir and Arora,\textsuperscript{11} to understand the concept food security, one should consider household as a fundamental/basic unit. A food-secure household can be defined as one which has access to enough food for all individual members to lead a healthy life. At sub-national level, food security reflects the assured availability of food during a given period for individual households to draw on to meet their minimum requirements. National food security includes household and sub-national and more. Food security hinges as much on a lack of purchasing power and entitlement as on variable production and supply. To ensure food security, what is required are long term solutions taking factors such as socio-economic, environmental and political. They have made an attempt to examine the food security for all through published and unpublished secondary data of food production, entitlement through land and income generation, internal and external macro environment.

Amitava\textsuperscript{12} has taken an attempt to look at the impact of structural adjustment programmes (SAP) upon food security and through the food security question the impact of SAP on environment. Food security has been looked at from both the environmental perspective and from the perspective of entitlement and deprivation. It concludes by saying that reduction in input subsidies in India moving towards aggregate food insecurity and individual food security. The SAP induced policies have created a conditions where food security is endangered, the poor are not improved and environment is the net loser.

According to Asian Productivity Organisation,\textsuperscript{13} in South Asian countries, much of the attention has been drawn to the arid and semi-arid areas for cultivation. Devendra\textsuperscript{14} has suggested in his paper that mixed farm operations, food-fed systems i.e., pigs-vegetable-duck-pond system integrated tree cropping system with small ruminants (goat and sheep) may ensure food security.

Wendy and Alex\textsuperscript{15} have emphasised that to reduce poverty and hunger will require encouragement of rural development in general and a prosperous small-holder private agricultural economy in particular. They further stress that food security can be met by renewed commitments to ensure that the poor and hungry benefit from increasing agricultural productivity.

\textsuperscript{12} Amitava Mukherjee, \textit{Structural Adjustment Programme and Food Security}, (Aldershot, 1994).
\textsuperscript{14} Asian Productivity Organisation, \textit{Sustainable Agriculture Development in Asia}, (Tokyo, 1994).
\textsuperscript{15} Wendy S Ayres and Alex F McCalla, "Rural Development, Agriculture, and Food Security", \textit{Finance and Development}, vol.33, no.4, (December, 1996).
Graham *et al.*\(^{16}\) has reviewed the evidence of the 'liberal' Welfare States to protect the hungry and the poor. He outlines that the unique and specific reasons for the growth of hunger are changing economic conditions and the adequacy of welfare programmes. Several studies have demonstrated that hunger is an outcome of prolonged high rates of unemployment, underemployment, growing inequality in terms of wealth distribution and the declining value of real wages and welfare benefits or purchasing power of the households. They also suggest that 'the right of food security to all' as an effective weapon.

Moving from global to regional issues, Siamwalla\(^{17}\) has found that trade occupies a more strategic role than stocks in domestic stabilisation policies among members of Association of South East Asian Nations but the reliance on imports may well impose an additional burden on the international rice market. He further argues that a regional commodity agreement on rice may contribute to a significant reduction in the world price stability. The buffer stock of the region based on jointly controlled stocks seems far from actual implementation in significant scale.

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Hay and Rukuni\textsuperscript{18} have explored the Southern African Development Coordination Conference (SADCC\textsuperscript{19}) countries' record in tackling food security issues from market stabilisation through production to consumption and entitlements. They advise redirection towards these latter issues, but pinpoint financial and institutional constraints especially on policies based on stocks or trade management. The SADCC Food Security Program requires technical and financial capacity in order to pursue its objective: but the success of collaborative ventures rests to a more critical extent on the level of confidence which exists among member states.

Tyagi and Vyas's\textsuperscript{20} edited book is related to the food security in India, China, Indonesia, the Philippines, Sri Lanka and Thailand. The authors analyse specific policy measures which have played a crucial role in increasing physical and economic access to food in the countries studied. They also critically examine the various approaches followed by the different countries to manage their food economies. The background paper specifically attempt to examine the conditions for food availability and to become self-sufficient in foodgrains and analysed the performance of agricultural sector in achieving self-sufficiency by meeting the requirements of the whole population in South and Southeast Asian countries.

\textsuperscript{19} SADCC countries are Angola, Botswana, Lesotho, Malawi, Mozambique, Zimbabwe, Swaziland, Tanzania and Zambia.
Radhakrishna has provided the supply-demand trends of foodgrains and discusses how they may be modified in order to ensure food security using National Sample Survey Organisation's consumption data from 1970-71 to 1991-92. He further documents the access of public distribution system supplied to the poor using the data of United Nations Development Programme's Research Project on Strategies and Financing for Human Development, Centre for Development Studies, Thiruvananthapuram. He also highlights how to improve the efficacy of the public distribution system in transferring food to poor and achieve cost effectiveness at the same time. He further reviews the empirical studies on the effects of policy reforms on food security to the poor.

Khadka has examined the magnitude, imperatives, and the required level of a regional food reserve system in the South Asian Association for Regional Cooperation (SAARC) regions. He focuses on determining instability in food consumption in the member countries. He has further documented the net food availability and the determinant factors are domestic production, carryover stocks, and commercial imports. He has used the FAO data and SAARC countries data sources. But he fails to examine measures aided at achieving food self-sufficiency nor does he focus on the exchange entitlement or on distributional equity and nutritional component of food security. He also fails to document the detail agricultural and distributional policies evolved.

Reardon et al.\textsuperscript{23} examine the strategies used by rural households to ensure consumption security in the face of drought-induced production shortfalls. Using household-level primary data representing a poor cropping year in Sahelian and Sudanian villages of Burkina Faso, the authors try to establish two sets of arguments: the income strategies of rural households in these areas are importantly dependent upon the generation of purchasing power in non-cropping occupations and despite greater self-sufficiency in crop production and higher aggregate incomes, the Sahel sample received much more food aid per person than the Mossi Plateau sample in the Sudanian zone.

Kennedy\textsuperscript{24} presents the results from a 1984-85 study in South Nyanza, Kenya to evaluate the effects of shifting from maize to sugarcane production on household-level food security. The area allocated to subsistence food production is similar for sugar and non-sugar producing households. Incomes of sugarcane producers are significantly higher than non-cane producers and a portion of this incremental income is used to increase household caloric intake. This results of the study proves that the commercialisation of agriculture never being a hindrance to food security at household level. The South Nyanza study was initiated at the request of the government of Kenya to investigate the impact on income, production, and consumption of shifting from maize to sugarcane production.


Von Braun traces the effects of technological change to production and income effects, and to consumption and nutritional effects in Gambia of West Africa by using probit and logit regression models. The specific research questions addressed are: through what mechanisms and to what extent does rapid and substantial technological change in food crop production improve household-level food security and how does this translate into measurable nutritional improvement. The main findings of the empirical analysis are: it cannot be assumed that by focusing investment on ‘women's crop’, one helps women farmers. Technology has substantially increased household income which is spent on increased calorie consumption. It is found to significantly improve children's nutritional status, especially in the ‘rainy’ season.

Elizabeth finds that the households prefer to buy expensive grains even at very low level of income and food scarcity. She finds that marginal farmers with alternative income prefer to buy better grain from the open market than the subsidised low quality and coarse grains from the public distribution system.

Sudhir and Harris have analysed the way food expenditure can be used as a welfare indicator of the general living standard of a family. They have used four indicators namely income per capita, total expenditure per capita, food expenditure per capita, and the share of food in total expenditure. They concluded that food expenditure per head provide a stable welfare indicator in the context of a group of

households facing homogeneous prices by presenting an analytical model to investigate these connections and also as empirical study of Sri Lankan data.\textsuperscript{28}

Lele and Wilfred\textsuperscript{29} have raised the policy directions tailored to deal with rural food security but expressed some skepticism as to the effectiveness of consumption stabilisation programmes in reaching the poor. They pointed out the understanding among private traders and government in trading and storing, the promotion of drought-resistant crops such as millet and sorghum and how the farm-level storage and market outlets play an important role in alleviating food insecurity. They further stressed that food security is not necessarily synonymous with stability in total food supplies. They have failed to consider the urban food security approaches in the other LDCs.

George\textsuperscript{30} in his paper has provided a detailed and analytical description of a very large public procurement and distribution system that has been in effect in India for a long period. He has also presented a detailed description and analysis of the way the system operates and its costs and benefits in Gujarat, Kerala, Punjab, Tamil Nadu and West Bengal.

Suryanarayana's\textsuperscript{31} study has addressed to a critical examination of public distribution system in India. It is found that the co-ordination between production, procurement and distribution and co-operation between consumers and dealers and

\begin{equation}
X(\text{J}_{\text{3}}, \text{S}_{\text{r}}), \text{U} = \text{9G}^{\text{N}} \text{N}^\text{q} \text{p}
\end{equation}

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\text{28 Central Bank of Sri Lanka, Consumer Finance Survey 1981/82, (Colombo, 1982).}
\text{31 G. Suryanarayana, Public Distribution in India, (Allahabad, 1985).}
\end{flushright}
Government is very important for the success and efficient public distribution system in serving the people. The rural coverage was comparatively low through the study conducted in Andhra Pradesh. Avoiding imports of foodgrains, achieving self-reliance in production and improvement in procurement were also important.

Narayanan\textsuperscript{32} has made an attempt to study the problems of allocation of foodgrains by the central Government to the states is a crucial objective approach to achieve the aims of the public distribution system. He has used only regression model to analyse the demand-supply management policy.

Neville\textsuperscript{33} has systematically documented an analysis of food stamp scheme, its costs, and benefits by using the data of consumer finances survey of Central Bank of Ceylon of 1978/79 and 1981-82. He has further provided the feasible guidelines for modifying the programme in protecting the vulnerable group.

Hay\textsuperscript{34} analyses the objectives, structure and success of the Botswana Drought Relief Program between 1982 and 1985 in terms of its impact on lost income and employment. However, the paper argues that underlying rural unemployment both precipitated the crisis and was aggravated by it. The paper therefore proposes that famine management should be based on a 'employment', as well as 'income' theory of famine. The one major issue which this paper does not touch is the extent to which supply management contributes to drought relief. The emphasis in this paper on

\textsuperscript{32} S. Narayanan, Demand-Supply Gap and Public Distribution of foodgrain in India. (New Delhi, 1986).
resource transfers and employment is not intended to exclude the relief strategies and policy instruments from considerations.

Tyagi\textsuperscript{35} has highlighted the total development policy for the agricultural sector with special emphasis on the two macro-policy measures i.e., agricultural price policy and public distribution of foodgrain.

Bapna\textsuperscript{36} has presented a review of the growth and working of the public distribution system in India, its present status and coverage, its direct and indirect effects and its cost in terms of finance and opportunity cost in development. The purpose of the study is to provide a basis for improving the Public Distribution System to achieve the goals of food policy.

Kabra's\textsuperscript{37} book contains a collection of articles dealing with various aspects of public distribution system in the context of India's political economy in general and food system in particular. It highlights the public distribution system, evolves an unexplored approach to its understanding by working out the implications of the macro-level constraints and possibilities highlighting the factors determining access in different sections have to this component of the food system. This work brings out the interplay of various aspects of socio-economic reality in the sphere of an important and on-going form of state intervention in the food-economy of India.

\textsuperscript{37} Kamal Nayan Kabra, Political Economy of Public Distribution of Food in India, (New Delhi, 1990).
Kabra and Ittyerah\textsuperscript{38} have done a study based on primary data obtained through a sample survey covering the whole country and an analysis of secondary data about different aspects of public distribution system. This project examines the evolution and operation of its overall design on a policy and a programme as an integral part of the food economy of India. It has taken twin questions, i.e., target-group orientation and viability of Fair Price Shops. The study evolves an integrated package of policy and administrative measures for increasing the effectiveness of the public distribution system as a component of the minimum needs programme for the poor.

Venugopal\textsuperscript{39} has investigated the reasons for not providing adequate access to foodgrains particularly in rural areas under the uneven foodgrain production among the Indian states, even though Government of India spends huge sum to subsidise public distribution system. The issues discussed are intensity of hunger in rural poor households and how it defeats self-employment strategies. He also emphasises that the financial constraints involved in the rational use of foodgrains in rural wage employment programmes, the need for community food management, employment programmes like Integrated Rural Development Programme, Nutrition Programmes.

\textsuperscript{38} Kamal Nayan Kabra, and Anil Chandy Ittyerah, \textit{The Public Distribution System in India}, (New Delhi, 1992).
Gopalan\textsuperscript{40} in his keynote paper on 'Towards India's Food and Nutrition Security', has highlighted the changing trend in food production in the new horizons. Here he stresses the importance of sustainable environment friendly food production to ensure food and nutrition security. He also briefly analyses the importance of public distribution system and how it eliminates poverty and ensuring food and nutrition security.

Nawani\textsuperscript{41} has analysed the concept food security and historical perspective of food management in India. He also analyses the food security under the scenario of production, availability of foodgrains and dynamic relations between poverty, purchasing power and consumption of foodgrains. He has studied the operational effectiveness of public distribution system and concludes that only poor households should be covered under public distribution system during the SAP.

Swaminathan\textsuperscript{42} has stressed the need for the introduction of 'National Food Security Act' to ensure national sustainable food security. He has also analysed the food security through the scientific and environment feasible agricultural food production to combat poverty and sustain food security. He has highlighted that a conducive macro-policy environment would seek to accomplish the goal of food security.

\textsuperscript{40} C. Gopalan, Towards India's Food and Nutrition Security, Key note address at the National Symposium on "Food Security for the Poor" organised by the FAO and Indian Association for the Advancement of Sciences, (1995).
Peter has briefly reviewed the current economic environment and summarises the elements of food policy analysis. He starts with food consumption patterns, food production potential and the effect of the macro policy environments. The macro economic policies are: fiscal, budgetary, and monetary policy; macro prices for labour, capital, and food; and the foreign exchange rate. The analysis sketches out the double-edged role of food-prices as an important element providing an analytical framework for understanding the entire food system. He has attempted to explain how the food consumption sector of a country responds to an economy threatened by domestic or international macroeconomic crisis. Food policy analysis integrates the consumption, production, and marketing sectors of the food system into a consistent framework for understanding tradeoffs involved in reaching society's objectives with respect to reducing hunger, improving food security, and raising farm productivity.

Barker, et.al. have examined the change over time in production variability with technological change as the main explanatory variable. They have presented a thorough analysis of the potential stability characteristics of water control, agronomic practices and plant breeding on wheat, rice and maize yields.

Josling shows in his paper how the stabilisation of food consumption shifts the instability to other markets. He has provided a framework to analyse the implications for the variability in food production and stocks with the concomitant adjustment required in government budgets and foreign accounts. Josling further develops a model to bring out the logic of stabilisation scheme which is sufficiently general to apply at the world level by using the price stability in the world wheat market.

Vyas has discussed in his paper the diversification in agriculture, the rationale for diversification between agriculture and non-farm sector. He further examines the determinants of the diversification at enterprise level. He has also highlighted the food insecurity due to diversification agriculture in India.

Sharma and Varant have featured the role of foodgrain production and related issues in India's sustainable growth and development of the economy. They have also critically examined the past growth and performance in foodgrain production as well as developments in the growth and patterns of foodgrains consumption. The study has further displayed how far the rapid growth in foodgrain production would be necessary to accelerate economic growth and reduce rural poverty by using the data from 1949-50 to 1983-84. They have explicitly highlighted the role of diversification of agriculture

and importance of major inputs like, irrigation, High Yielding Varieties of food crops, fertilizer, etc. to have a substantial impact on foodgrain production.

Ahmed48 has highlighted that food security in Egypt depends highly on large and increasing extent of food imports and food subsidies. It implies that these policies may drain resources needed for economic development and the expansion of productive capacity in agriculture. As a consequence, effects to deal with food insecurity may exacerbate the long-term food problem.

Reutlinger and Bigman49 have illustrated the magnitude of some of the adjustments that occur under alternative strategies in a hypothetical developing country model to India. They have examined the choice between a trade-oriented approach and domestically held reserves. They conclude that trade policies can be efficient stabilisation force for most of the countries.

Huddlestan50 has documented the lack of correspondence between past food aid flows and import needs in LDCs, which clearly aggravate the burden of imports, particularly in years of high world prices. His ‘variable component’ of food aid would represent a major adjustment programme which would greatly enhance food security in poor countries. He has concluded that a different orientation of food aid flows, could greatly enhance food security, and overall economic development. However, food aid

flows would not have been sufficient to cover needs in an occasional but widespread bad harvest year.

A variable food aid model operating through a grain insurance programme is presented by Johnson.\textsuperscript{51} He has argued that a substantial degree of internal price stability could be achieved with this proposal at a low cost to each developing country. His results indicated that food security could be achieved by modifying the distribution of food aid without significant increase in the average long-run. It seems probable that grain insurance programme would greatly enhance food security in poor countries. But the food aid would be very closely linked to the availability of grain reserves of donor countries.

Fonseca\textsuperscript{52} has analysed the importance of food aid operations under the constantly changing pattern of socio-economic and political circumstances in India. The book also has analysed the food policy of Government of India and how self-sufficiency of food and food aid operates. The food aids are for vulnerable groups, pregnant and nursing mothers, infants and school feeding progress, food aid in food-for-work programme. It stresses the consequences of bulk food aid on agricultural prices and production and the effect of food-for-work programme on agricultural wages.

\textsuperscript{52} A.J. Fonseca, Food Aid for Relief and Development: An Evaluation, Indian Social Institute, (New Delhi, 1983).
Pinckney and Valdes\textsuperscript{53} compare and contrast efficient wages of using, stock, trade and consumption variabilities for countering production fluctuations in Kenya and Pakistan. The implications of production instability for price stabilisation have been analysed through optimal policy. They conclude that the efficient policies use stocks only to a small extent except where the world prices are low and the country has a strong desire to minimise imports.

Terrant\textsuperscript{54} has argued that the consumption of food or demand is price-pulling function of the people and their income but not the agricultural production. He predicts that demand for food will increase by 30 per cent by the end of the 20\textsuperscript{th} century in India. It gives a clear indication that food production has to increase by way of sustainable means.

Louis\textsuperscript{55} examines the implications of a financial food facility and an insurance scheme, to reduce food insecurity. He has concluded with a sample of 46 countries that the cost of expanding the scope of the facility to cover food imports does not raise the sum of compensation for short-falls under the existing scheme. Moreover, this financial food facility would have benefitted particularly the lower income countries.

1.4 Scope and Objectives

This research attempts to initiate a comparative study of food security in India and Sri Lanka through a supply and demand-side approach. Several studies on

different issues of food security have been reviewed above. However, there is no comparative study focusing on the viability of national food security in India and Sri Lanka. The study is undertaken on the rationale that the sample countries are following dissimilar distribution mechanisms i.e. the ‘Public Distribution System’ in India and ‘Food Stamp Scheme’ in Sri Lanka. The reason for selecting food security in South Asia is that it seems to be the principal component of human security in recent years.

The main objectives of the study are:

i. To examine the food policies in India and Sri Lanka;

ii. To study the macro-level food security of India and Sri Lanka through an analysis of area, production, and crop diversification, exercising an impact on supply factors;

iii. To analyse the role of food imports and aid in ensuring food security;

iv. To analyse demand factors with effect on population growth, consumption patterns, etc., and

v. To make an assessment of food distribution mechanism in India and Sri Lanka.

1.5 Hypotheses

i. Population growth rate and food security are inversely related.

ii. Higher food production per capita is positively related to food security.

iii. A higher diversification of food crops in agriculture is positively correlated with food security.

iv. A diversification of cropping pattern in favour of non-food crops will reduce food security.

v. The better targeting of food distribution system increases food security.
1.6 Data and Methodology

This study utilises both primary and secondary sources for data, using quantitative methods to assess the importance of national and regional food security through the availability of foodgrains in India and Sri Lanka. The performance of the agriculture sector since 1961 has been evaluated by estimating the growth rate.

1.7 Chapterisation

The first chapter attempts to examine the issues, concepts, evolution, and general state of food security in India and Sri Lanka in detail. It also clearly documents the literature on food security, different data sources, and also methodology adopted to test the hypotheses.

Chapter II assesses the performance of food crops i.e. cereals, rice, wheat, coarse grains, pulses, etc. since 1961 in South Asia in general and India and Sri Lanka in particular at macro level.

Chapter III documents the state of current government policies and programmes to ensure food security, particularly policies relating to the supply, demand and distribution, and suggests ways to improve them in India and Sri Lanka.

Chapter IV focuses on the determinants of demand for food since independence. The major determinants of food demand are population growth, rising income, foodgrain prices, and shift in consumption patterns.

Chapter V seeks to establish how the households form a central social unit of access to food through the public distribution system in India and Sri Lanka.

Last chapter provides a summary of the main findings and contributes some policy