CHAPTER – 6
SUMMARY, CONCLUSION AND
POLICY IMPLICATIONS
6.1 Introduction

Food meets the dietary needs and preferences for an active and healthy life in the rural households in Kerala. The prominent dimensions of food security are the availability, accessability and affordability features of the food structure. The study explored the analysis of food security among rural households in Kerala. Due to the increase in population and decline in the area under food crops, Kerala is facing 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 and less attention needed compared to food crops. Rice is the staple food of Kerala, and we produce only 15 percent of our requirement, so for the remaining portion, we depend on other states for our daily necessities. This will make a question of food insecurity and sustainability to the present generation and also the future generations. Thus, there is a shortage of supply of food items in respect the demand of the population. The demand side depends on the growth of population, age composition of households and the calorie intake in every day and in the case of food supply, the quantity of consumption. Most of the food grain requirements in the state depend on the feasibility of other neighboring states. The percentage of deficit of food grains is declining and the dependency ratio of other states is increasing. Moreover, there are many households in rural areas who mainly depend on the basic public intervention systems for their food requirements.

The major objectives of the study are to examine the demand side and supply side availability of food in Kerala, to assess the food basket of rural households in Kerala, to identify the determinants of rural food basket in Kerala and to assess the impact of public intervention on food security in rural Kerala. The internal production in the state could not persuade the need of the food requirements in the state and it depends on the well being of other states. Rice is the main staple food in the food basket of rural households in Kerala and the income, taste and preferences are the main determining factors of rural food basket. The contribution of Public Distribution System
(PDS) in addressing the food security concerns of the rural households had played a significant role in the health achievements of the state.

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. Multi stage systematic random sampling technique was used to select the districts, blocks, Panchayaths and 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. From these districts, 3 blocks, Chengannur from Alappuzha district, Kodakara from Thrissur district and Mannarkad from Palakkad district were selected and the surveyed Panchayaths are Mulakuzha from Chengannur block, Mattathur from Kodakara block, Alanallur from Mannarkad block respectively taking into consideration the major food crops and the number of rural households so as to support the objectives of the study.

The first chapter deals with the introduction which covers the literature review, research gap, statement of the problem, objectives, hypotheses, methodology and scheme of the study. The second chapter deals with the food security situation in India which covered the entire food structure formation from the pre independent period to the present stage. Chapter three discussed the demand side and supply side availability of food crops in Kerala. It focused on the requirements and the dependence of other states for food in the state. Chapter four deals with the appraisal of food basket and identifies the determinants of rural food basket in Kerala. The scaling method was used to know the impact of different factors for determining the food structure in the rural households. Chapter five deals with the public intervention to food security in Kerala and mainly concentrated on the PDS in Kerala and the last chapter deals with the summary, conclusion and the policy implications.
6.2 Major Findings

6.2.1 Status of food security in India

- About 795 million people are undernourished globally, down 167 million over the last decade, and 216 million less than in 1990–91. The decline is more pronounced in developing regions, despite significant population growth.

- The use of land under the categories of total cropped area and area sown more than once are gradually increased after the period of economic reforms in India.

- The net availability of food grains mainly depends upon the production of major food grains in the country and the changes in population, climatic conditions etc. are some other factors on the net availability depends.

- The growth rate in yield of total food grains production in pre-reform period is 2.60 percent per annum, while in post reform period it has marginally increased to 2.65 per cent per annum.

- Area under cultivation exhibits the least increase with rice (0.23 %), wheat (22.46%), cereals (-1.85%) and pulses (3.09%). The percentage increase in yield of wheat was 70.95 in the pre reform period, which has gone down to 23.17 percent in the post reform period.

- The total production of rice in the country is estimated at 104.80 million tonnes which is lower by 1.85 million tonnes than the production of rice during 2013-14. Production of wheat estimated at 88.94 million tonnes is also lower than its record production of 95.85 million tonnes during 2013-14.

- The production of Coarse Cereals is estimated at 41.75 million tonnes which is lower than the production of Coarse Cereals during 2013-14.
Total food grains production during 2014-15 is estimated at 252.68 million tonnes is lower by 12.36 million tonnes than the record production of 265.04 million tonnes of food grains achieved during 2013-14.

The top producing 10 states accordingly are West Bengal, Uttar Pradesh, Andhra Pradesh, Punjab, Tamil Nadu, Bihar, Chhattisgarh, Orissa, Assam, and Karnataka. Among these the top three positions are occupied by West Bengal, Uttar Pradesh and Andhra Pradesh in 2014-15.

The very least wheat producing states are Andhra Pradesh, Arunachal Pradesh and Nagaland and they cultivate only very few of their area. The states like Kerala, Goa Manipur, Mizoram and Tamil Nadu have no production in wheat has takes place.

The very least coarse cereals producing states are Goa, Kerala and Tripura and they cultivate only very few of their area. In the case of Kerala, it produces only very rare part. The states like Manipur, Meghalaya, Mizoram and Netherlands are produce coarse cereals states in the country mainly after 2010-11.

The recent initiatives on food security introduced by the government after the economic reforms are mainly classified as Mid Day Meal Scheme (MDMS), Targeted Public Distribution System (TPDS), Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), National Food Security Act (NFSA).

India is home for 25 percent of the world’s hungry population. An estimated 43 per cent of children under the age of five years are malnourished.
6.2.2 The supply and demand side of food grains in Kerala

- The share of agriculture and allied sectors in the total GSDP of Kerala has declined from 14.38 percent in 2011-12 to 11.48 percent in 2014-15 and to 10.38 percent in 2015-16.

- The seventies was a period of decelerated growth in agricultural output in Kerala mainly due to a sharp decline in area under crops, especially food crops.

- The state produces only 15 percent of its required quantity of food grains by itself, and the remaining we depend on other states. From the time of the formation of the state, the per capita cereal consumption levels in Kerala, as well as the per capita calorie consumption levels have been lower than in India.

- The state level estimates of gross cropped area, net cropped area and cropping intensity has shown an increasing trend all over the years since the formation of the state. The cropping intensity has increased only slightly all over the years.

- Due to mixed cropping pattern, availability of irrigation facilities and other measures of intensification in agriculture, there is considerable increase in the double or multiple cropped areas. In order to assess the trends in intensity that is the ratio of total cropped area to the net cropped area, the cropping intensity is calculated. On assessing the years from 1960-61, the cropping intensity was maximum in 2005-06.

- The area under food crops has declined from 1960-61 to 2015-16. In 1960-61, the area under food crop was 1565.2 thousand hectares in 1960-61, it declined to 982.3 thousand hectares in 2015-16.
The production of food crops has increased dramatically from 1960-61 to 2015-16. In 1960-61, the production of food crop was 3036.5 thousand tonnes in 1960-61 and it increased to 4815.3 thousand tonnes in 2015-16.

The yield of food crops has increased dramatically from 1960-61 to 2015-16. In 1960-61, the yield of food crop was 1940.01 kg/ha in 1960-61 and it increased to 4902.07 kg/ha in 2015-16.

From 2004-05 to 2012-13, the trend shows that the area under food grains in Kerala has declined and a slight increase in the next year (2014-15), and again it shows the decreasing trend.

In 2004-05, the production of the total food grains was 679 thousand tonnes and it gradually declined to 552 thousand tonnes in 2015-16.

The yield of all the food grains except pulses has gradually increased all over the years. In 2004-05, the yield of the total food grains was 2238 kg/ha and it gradually increased to 2747 kg/ha in 2015-16.

In 2015-16, the area under rice cultivation was more in the districts of Palakkad, Alappuzha and Thrissur districts respectively.

The rice area and the percentage of rice area to gross cropped area are highest in three districts, namely Alappuzha, Palakkad and Thrissur.

The internal production has drastically declined from 1070 thousand tonnes in 1960-61 to 552 thousand tonnes in 2015-16 and the percentage rate in 1960-61 was 52 percent of the internal production and it has reduced to 15 percent in 2015-16.
In 1960-61, the requirement of rice was only 2058 thousand tonnes and it has increased to 3680 thousand tonnes in 2015-16, that means, all over the years the dependent ratio of the other states has increased severely. In 1960-61, our internal production of food grains was 52 percent and in 2015-16, it was reduced to 15 percent.

The requirement of rice and the dependence on other states are increasing throughout the years from 1971 to 2015. Almost 3393 thousand tonnes of rice is required in the state in 2015-16 compared to 1991 thousand tonnes in 1980-81, which implies the dependence on other states for our daily rice requirements is increasing.

6.2.3 An appraisal of rural food basket in Kerala

The average number of family members belongs to nuclear family. On these, Thrissur (100 percent) occupies highest number in the case of nuclear family. Palakkad district (8.33 percent) occupies highest in the case of Joint Family.

Most of the sample households in Thrissur district belong to Christian religion (65.2 percent). Hindu religion (51.3 percent) is highest percent in Alappuzha district. But almost 45.8 percent of the sample households in Palakkad district belong to Muslim religion. Hence there is a dominance of specific religion across the sample districts.

Most of the sample households belong to Coolie workers (38.1 percent). Among these, highest in this employment goes to Thrissur district (51.4 percent). Across the districts, the professional employees have seen very negligible level. Only 9.6 percent of sample households are engaged as agricultural labours.
Most of the sample households are included in salary/wage category (69.19 percent). The next is from other category (12.77 percent). A few is from a category of other than agricultural activity (91.18 percent).

Majority of the sample household were having primary education across the districts (31.68 percent). Primary education is highest in Thrissur district (44.5 percent). Across the districts, numbers of illiterate is high in Palakkad district (2.54 percent). 24.97 percent of the sample households belong to the category of graduation and post graduation across the districts.

The highest area of land is owned by the category of 6-20 cents (50.69 percent), and the least land owned by above 100 (0.2 percent). In this category, Thrissur has secured highest position in land owned classification.

17 percent of the households utilize their land for housing and cultivation purposes. Among the districts, the people in Alappuzha are using their land mostly for housing purposes (82 percent).

The public interventions and other private outlets solve the problem of non availability of essential food items easily and only very negligible part of the population still face the problem of lack of availability of essential food items.

Majority of the sample households purchased their requirements of food items from market using their own money and also the households mostly depend on Public Distribution system.

The majority of the food grains are easily available in the market and the households satisfy their daily needs very efficiently and very negligible part of the people in the sample households are against this view.
Regarding the different sources, the respondents have the opinion that, they purchased their needs from local dealers, nearby town, Maveli stores and others. Most of the households in the sample area have opined that the main source of purchase of food items is from local dealers.

77 percent of the population is of the opinion that they got enough food articles very easily from the markets.

Thrissur district occupies highest priority in terms of transportation facility in the sample households across the districts and only very negligible part of population are disagreeing with the facilities of transportation.

As compared to other districts; the financial status of the people in sample households across districts are very high; so they are able to afford all three meals a day.

26 percent of the people in the sample households spend more than one third of their income for buying food.

The nature of the employment is not very sound and the status of the income of the 37 percent of the people is very less compared to other sample households, and they can’t afford to buy food articles at the existing prices.

19 percent of the households strongly agreed that, they feels scarcity as a chronic problem now a days.

29 percent of the people do not worry about the market rates; they are ready to buy the food items at any cost.
The people in the sample households are more concentrated in the additional work to get money and the borrowed money; and the respondents in the Thrissur district are most favouring this view.

In the majority of the food items, income is the major determining factor of the food articles in the sample households and the second determining factor for the majority of the sample households is the tastes and preferences.

6.2.4 Impact of public intervention on Kerala’s food security

The major public interventions by the government are classified into Public Distribution System (PDS), Mid Day Meal Scheme (MDMS), Integrated Child Development Scheme (ICDS), Mahatma Gandhi National Rural Employment Programme (MGNREGA), and National Food Security Act (NFSA).

The number of APL card holders increased slightly to 62.64 lakh in 2015-16, from 62.52 lakh in 2014-15. There are 5.82 lakh AAY card holders in 2015-16 which was 5.83 lakh in 2014-15.

Out of the total ration card holders of 78.36 lakhs in 2014-15, the APL card holders are 49.85 lakhs and 24.94 lakh in the category of BPL and AAY categories. The total number of ration card holders increased throughout the years and very high increase in the case of AAY categories throughout the years.

Under the National Food Security Act (NFSA), the total number of card holders are more than 35 lakhs and the beneficiaries almost crossed 1.5 crore people. In the non-priority groups, the ration card holders almost crossed 45 lakhs and the beneficiaries crossed almost 1.8 crore people.
- The total ration cardholders of NFSA and NFSA category crossed almost 80 lakhs and the beneficiaries almost crossed 3.4 crore people.

- In the case of wheat, almost 49 percent of the people purchase their food items from PDS on monthly basis and it was high in Palakkad district. Among the sample households, they are reluctant to purchase sugar and others from PDS across the districts.

- Only 18 percent of the people access their food from fair price shops for their food requirements in the above the 2 kilometer.

- The top most of the people in the sample households do not bother about the entitlements, prices etc from ration shops, but it is very small part of the population. Among the districts, peoples from Thrissur district always keenly observe the ration entitlements per month.

- Almost 53 percent of the population opined that the allotted quota of ration items is adequate for their daily living. But 26 percent of the people strongly disagree that, they do not get enough quantity of ration items or allotted quota of ration items is not adequate.

### 6.3 Validity of hypotheses

- The first hypothesis to be tested was “There is significant relation between the supply and demand of food grains”. The data provided by the Kerala planning board and primary survey data validated this hypothesis. Until 1980’s the production of rice in the state was showed a declining trend and from the 20th century onwards the declining ratio has increased severely. Due to the shift in the cropping pattern of food crops to cash crops to earn quick profit. During the course of survey the households also admitted this view. Over the years the
internal production of rice in the state was declined and the dependence on other states for our food grain requirements has increased. Hence based on the data evidences and feed backs this hypothesis can be accepted.

The second hypothesis to be tested was “There is significant relation between the availability, accessability and affordability of food security”. The data presented in the previous chapters indicated that, a systematic relationship is seen between the availability, accessability and affordability of food security. The availability channel acquired through internal production external supply and the contribution of Public Distribution System (PDS). The feasibility of the households to purchase the food grains from the nearby shops and fair price shops are under the channel of accessability. When there is a link between these two, naturally it leads to the third channel; affordability of food security. It is assessed through the purchasing power of the households and their employment status. There is an inter relationship between these three channels and it lead to the sustainable food security. Hence based on the study there are many evidence to accept the hypothesis.

Third hypothesis is to be tested “There is significant relation between the determining factors of rural food basket and the utilization of the provisions of Public Distribution System (PDS). In the present study income, taste preferences and price of food grains are the major determining factors of the rural food basket. The majority of the households in the rural areas are depending on the provisions of PDS and only a minor part of the population is not willing to purchase food grains from the PDS due to their income level and their preferences of food habits. As a consequence of these factors, it is observed that there is no relationship between the determining factors of rural food basket and the utilization of PDS. Thus based on the available evidences, this hypothesis can neither be accepted nor rejected for the time being.
### 6.4 Policy Implications

- The performance of agriculture sector and the growth of food security are closely connected. Hence, the policy decisions on strengthening agricultural sector improve the food security situation in the state. This is possible by intensive farming, food crops oriented cultivation practices and its value addition.

- Kerala deserves immediate and adequate policy attention on the food security in the production and distribution channels. To protect the food availability, accessibility and affordability of the rural households cannot be effective until the proper cropping pattern strategies for the production aspect and the better distribution channels carried out by the government authorities.

- It is high time for the government to make the farmers aware about the present food situation in the state and give more encouragement for the food oriented cultivation in the state and through it reduce the dependence on other states for our daily requirements.

- Rapid increase in requirement ratio of food grains needs more food items to maintain the stability for the food needs. So the government needs to promote targeting distribution channels to the needy people and promote homestead cultivation in their own land.

- It has to be ensured that the food grains distributed through the ration shop are in accordance with the consumption preferences and requirements of the people in the state and exclude the high income people and it more narrowly concentrated to the targeted needy people.
A significant policy decision to augment the availability of food grains in the state is the immediate need of the hour. So the proper strategies have to be maintained for the improvement in the production and distributional aspects of food security in the state.

6.5 Conclusion

The study concluded that food insecurity is the major problem in Kerala because most of the requirements were satisfied through the dependence on other states and PDS also plays very crucial role in the supply of food grains. Majority of the households purchased their requirements of food items from market using their own money and also the households depend on Public Distribution system. In majority of the food items, income is the major determining factor and the second determining factor for the majority of the households is the tastes and preferences. If we are not bothered about the self sufficiency in the requirement of our food grain production and needs, then in the near future, food security will be the prime challenge in the state.

6.6 Limitations of the study

The study is based on the data collected from the rural households from three districts. The structure of population in these districts is mixed with urban and rural population, so the concentration of rural households gives only the partial picture of the study.

The high income category of households and their taste and preferences are seen in some of the households in rural areas. This may affect the comparison of different factors of rural households’ food preferences and the real picture of rural household structure.
The allocation of food grains to the various categories (APL, BPL, AAY, ANP) depend on the criteria for determining the inclusion and exclusion of the people in the households.

Because of the traditional culture of food habits among the households their consciousness results may likely to be influenced by outliers.

The data on import of food grains from other countries to Kerala are not available and the dependence on other states for food grains is estimated with the internal production in the state and the PDS contribution.

6.7 Contribution of researcher

The previous studies held in Kerala mainly concentrated on urban areas and the studies are focused on the macro aspects only. This study is very comprehensive and it covers 509 households in the major food producing districts in Kerala. The merit of the thesis is, the major areas of food security like, area, production and yield of major food grains, the determining factors of food articles in rural aspects and the public distribution channels are covered. Hence the study is humble addition to the available literature on this topic in Kerala.

6.8 Areas of further research

The subject of food security is vast one and further studies are possible in every aspect of the subject.

The studies on policies and programmes may be undertake by the government for the improvement of food security and its effectiveness in compare it with different districts.
➢ More detailed studies relating to calorie intake, nutritional status and consumption practices are to be encouraged.

➢ Studies may be needed for the maintenance of quality of food grains and reducing the targeting errors in the public distribution channels.