

INTRODUCTION

P.M.Thomas “Decline of paddy cultivation in Kerala a study of economic causes” Thesis. Department of Economics , Dr. John Matthai Centre, University of Calicut , 1996

Chapter I

INTRODUCTION

A review of the sector-wise growth rates in the Net Domestic Product of Kerala during the last three decades from 1960-61 shows that, except for the second halves of 1960's and 1980's, primary sector had registered either very low growth rates or negative growth rates. Primary sector was the predominant sector of the state economy in 1960-61 by contributing 56 percent of the state's Net Domestic Product. Thereafter as a result of the structural changes that had taken place in the economy, relative share of this sector began to decline. However, it remained to be the single largest sector till early eighties. In subsequent years tertiary sector became the largest contributor of the state's Net Domestic Product. Within a period of thirty years from 1960-61 to 1990-91 relative share of primary sector in Net Domestic Product of the state declined from 56 percent to 32.1 percent. Meanwhile the shares of secondary and tertiary sectors had increased from 15.2 percent to 28.2 percent and from 28.8 percent to 39.7 percent respectively.

Agricultural crop production accounts for nearly 95 percent of the State Domestic Product generated within the primary sector. In terms of growth rates agricultural sector of the state economy had passed through three phases corresponding to three different periods. During the first period (1960-61 to 1975-76) indices of agricultural production, area and productivity increased at the annual compound growth rates of 2.86 percent, 2.32 percent and 0.55 percent respectively. During the second period (1975-76 to 1985-86) growth rates in output, area and productivity turned to be negative. This period is usually termed as the

period of 'agricultural stagnation' in Kerala, during which the annual compound growth rates in agricultural production, area and productivity were found to be (-)2.35 percent, (-)1.53 percent and (-)0.87 percent respectively. Third period (1985-86 to 1990-91) has been a period of moderate recovery in the agricultural sector. During this period total cultivated area and agricultural productivity in Kerala have shown positive growth rates of 0.42 percent and 1.18 percent respectively.

Crop wise analysis of the performance of agricultural sector in Kerala, since mid seventies, shows wide inter crop variations in growth rates. While the area under and output of the two major food crops in the state viz., paddy and tapioca, had declined during this period, some of the major commercial crops such as coconut, rubber and pepper have gained in terms of both area and production. Thus the visible signs of a revival observed in the agricultural sector of the state economy during the second half of eighties can be attributed to the better performance of commercial crops while the performance of food crops in general continued to be poor.

The overall performance of the state's rice economy was rather satisfactory till early seventies. During the period 1960-61 to 1974-75, area, production and per hectare productivity of paddy had shown annual positive growth rates of 1.10 percent, 2.06 percent and 0.93 percent respectively. After attaining its peak level of 8.81 lakh hectares in 1974-75, area under paddy in the state began to decline. During the period 1975-76 to 1991-92, area and production of paddy declined at the annual rates of (-) 3.09 percent and (-)1.54 percent respectively. In spite of it, per hectare productivity of the crop continued to be positive during this period also.

1.1. Importance of the Problem

Rice accounts for more than 98 percent of the food grains produced in the state. Per capita daily availability of domestic rice in Kerala during the year 1961 was 162 grams which rose to 173.64 grams by the year 1971. However, during the year 1981 it decreased to 144.24 grams and later in 1991 it further declined to 97.15 grams. The dismal performance of the rice economy of Kerala creates a wide range of problems in the economic development of the state which is primarily agrarian in nature.

As per 1981 census, there are 29.1 million people in Kerala and rice is their staple food. The adult equivalent population in the state during 1991 is estimated to be 240.82 lakhs.¹ The required balanced diet of an average adult in Kerala, as recommended by the State Nutrition Board should contain 460 grams of cereals per day.² Accordingly, the total cereal requirements of the state amounts to 40.46 lakh tonnes in 1991. However, the domestic production of rice was only 10.60 lakh tonnes. Keeping 10 percent of the product for seed, feed and wastage, actual availability of domestic rice for home consumption amounted to 9.54 lakh tonnes which had been sufficient to meet only 23.58 percent of the state's internal requirements. For the rest of the rice the state had to depend on external sources.³

During the past two decades, the gap between internal production and requirement of rice in the state has been widening. Domestic production of rice was enough to meet 41 percent of the state's requirements during the year 1971. In 1981

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1. Adult equivalent population is estimated as 82.76 percent of actual population. See, Government of Kerala (1982), *Food Projection for Kerala State upto 2001 A.D.*, State Planning Board, Thiruvananthapuram.
 2. Suseelan P. (1988), "Problems and Prospects of Rice in Kerala", (Paper presented at the *VIII Five Year Plan Workshop on Agricultural Development*, Thiruvananthapuram, October 6), p.4.
 3. Eventhough in Kerala, tapioca is considered as an inferior substitute for rice, recently its importance as a food item is becoming more and more insignificant. During the last decade itself per capita availability of tapioca in the state had declined by 41.43 percent.

it was sufficient to meet 34 percent of the internal demand and at present more than three-fourth of the state's rice requirements are met either through imports by private traders or through central allotments. The State Planning Board had projected the cereal requirements of the state for the year 2001 AD as 54.81 lakh tonnes which include 10 percent for seed, feed and wastage. Assuming that the production of rice in the state will not further decline from the level of 1990-91, anticipated deficit for the year 2001 AD would be 83.60 percent. Allowing this gap to be filled by supplies through private imports or central allotments is very unsafe. Raising some cereal substitutes within the state is also a remote chance. Hence it is very important to revitalise the rice economy of the state.

Recovery of the paddy sector in Kerala is vital on many other grounds also. Paddy accounts for 90 percent of the total area under food crops in the state. According to the Establishment of Agency for Reporting Crop Statistics (EARCS) estimates for 1988-89 it is cultivated in 20.53 percent of the net area sown in the state. In the year 1990-91, 18.39 percent of the total cropped area in the state was under paddy cultivation. Again, paddy crop provides more than 105 million man days of employment and contributes nearly 20 percent of the state's agricultural income at 1984-85 prices.⁴

Compared to many of the plantation crops and garden crops, paddy cultivation is more labour intensive. For example, during the period 1980-81 to 1989-90, share of labour costs in per hectare cost of cultivation of paddy on an average for the three seasons Autumn, Winter and Summer were 65.40 percent, 64.80 percent and 64.92 percent respectively. For coconut crop share of labour costs in per hectare cost of cultivation during the same period on an average was only 52.69 percent.⁵

4. Suseelan P. (1988), *op. cit.*, p. 1.

5. Shares of annual average human labour costs were estimated from, Government of Kerala, *Report on the Cost of Cultivation of Important crops in Kerala*, Department of Economics and Statistics, Thiruvananthapuram, (1980-81 to 1989-90).

Similarly the estimated share of wages in the gross value of product in paddy crop is found to be 32.12 percent and for coconut it is only 14 percent.⁶ Moreover, the proportion of hired human labour use to the total human labour requirements in cultivation is also found to be comparatively higher in paddy crop. With its high rate of labour absorption capacity, paddy crop is of special significance in a state like Kerala where the rate of unemployment is very high.

Paddy crop not only provides food for the human population, but is also a major source of fodder. According to the Live Stock Census 1987, there were 32.24 lakh cattle and 3.29 lakh buffaloes in the state. Only a negligible proportion of the state's total geographical area is kept at present as permanent pastures and grazing lands. In the year 1991-92 it was only 0.04 percent of the total area. In order to feed the state's ever growing and large bovine population, straw, which is a by product of paddy can be effectively used. However, the declining trend in paddy cultivation in the state adversely affects the availability of straw and thereby reduces the supply of fodder.

Most of the agricultural development programmes envisaged by the state government since the formation of Kerala have been designed for the development of paddy sector and a lion's share of agricultural subsidies so far disbursed by the government had gone to the paddy sector. Similarly, nearly 20 per cent of the total plan outlays during the various Five Year Plan periods were earmarked for the development of primary sector and a major portion of it was meant for the development of paddy crop. Again with a view to increase the area under paddy and to augment its productivity government had formulated and implemented a number of programmes in the state. Intensive Agricultural District Programme (I.A.D.P) of 1960-'61,

6. Unni, Jeemol (1981), *An Analysis of changes in the cropping Pattern in Kerala with Particular Reference to the substitution of coconut for Rice 1960-61 to 1978-79*, M.Phil Dissertation, Centre for Development Studies, Thiruvananthapuram.

Intensive Paddy Development Programme (Package Programme) of 1971-72, Group Farming Programme of 1989-90, Integrated Programme for Rice Development (I.P.R.D.) of 1994-95 etc. were exclusively meant for the development of paddy cultivation in the state. In spite of all these measures paddy sector of the state economy has been showing declining growth trends both in area and production since mid seventies.

Development of the agricultural sector is considered to be a necessary condition for the overall development of any underdeveloped region. Agricultural development of Kerala in turn, is invariably related to the performance of its paddy sector. Even though many attempts had already been made to analyse the nature and extent of the agricultural stagnation experienced by the state since mid seventies and to evaluate the performance of the state's rice economy in general, much efforts were not yet made to identify the prime reasons behind the dismal performance of the paddy sector. Present study is an attempt in this direction, that may reveal the various causes which are impairing the development of paddy cultivation in the state.

1.2. Objectives of the Study

Objectives of this study are,

- a) to examine the trends in area, production and productivity of paddy crop in Kerala during its post formation period,
- b) to examine the economic causes for the decline of paddy cultivation in the state and
- c) to identify the current problems of paddy cultivation.

Keeping the second objective in view, the study focus on the examination of the following aspects.

- i) Role of different sources of productivity in improving per hectare yield of paddy in the state.

- ii) Changes in absolute profits and profitability of paddy crop over the past years.
- iii) Comparative profitability of paddy and its alternative crops.
- iv) Role of Public Distribution System, land prices, absentee land owners, shortage of labour and capital and conversion of paddy fields for non agricultural uses in the decline of area under paddy crop in the state.

1.3. Hypotheses

- a) Sources of productivity in paddy crop have not significantly helped to improve its productivity in Kerala.
- b) Low profitability of paddy cultivation and the low relative profitability of paddy compared to its alternative crops have induced paddy farmers either to keep their fields fallow or to shift their fields for the cultivation of other crops.
- c) Growing pressure on land, land price differentials, shortage of labour and capital, absentee land ownership and aversion of younger generation to paddy farming also have resulted in the decline of paddy cultivation in the state.

1.4. Methodology and Data Source

1.4.1. Methodology

Period covered in this study is the post formation period of the state. Overall performance of paddy crop is assessed by estimating the growth rates in output and its two components - area under the crop and its productivity. In order to estimate growth rates, the semi-log linear curve

$$\text{Ln } Y = a + bt$$

where, the growth rate, $G(t) = b$, had been used. In cases where time series data are not given, compound growth rates are also used. Compound growth rates are estimated as,

$$G(t) = \sqrt[n]{\frac{Y_t}{Y_0}} - 1$$

where Y_t and Y_0 are the terminal and base year values respectively. Relative contribution of the components in output changes for the different periods have been estimated by using the additive decomposition scheme,

$$Q_1 - Q_0 = (A_1 - A_0) Y_0 + (Y_1 - Y_0) A_0 + I$$

where the first component shows the area effect, second component shows the yield effect and the third component shows the interaction effect of area and yield.

In the present study, growth rates in the performance of paddy crop are estimated period-wise, district-wise and season-wise. In period-wise analysis, considering the changes in growth trends, period of the study is divided into Period I (1960-61 to 1974-75) and Period II (1975-76 to 1991-92). In district-wise disaggregation, considering the re-organisation of districts, annual growth rates are estimated for the period from 1985-86 onwards. Seasonal variations in growth rates are examined by assessing the performance of paddy crop during the three different seasons viz., Autumn, Winter and Summer. Coverage of High Yielding Variety (HYV) seeds, proportion of irrigated paddy area, extent of the use of chemical fertilizers and plant protection measures adopted in paddy farming are considered as the sources of productivity in paddy crop.

Per hectare profit of paddy and its alternative crops for the different years have been estimated by finding the difference between per hectare cost of cultivation and value of product, including the value of by-products, if any. In this study, cost of cultivation is defined as the paid out costs which include the costs on items such as hired human labour, animal and machine labour, seeds or seedlings, manure and plant protection measures, land taxes, irrigation charges and other operational expenses plus the imputed value of self labour used in the cultivation of the crop. Due to the

rapid appreciation of land value in the state, if changes in land value is introduced as an item of the cost of cultivation, then cost of production is found to be highly inflated. Hence interest on land value is not included in the calculation of per hectare cost of cultivation.

In the case of paddy crop, average cost per season had been estimated as the Weighted Arithmetic Mean (WAM) of costs incurred during the different seasons in each year by taking the proportion of area under the various seasons as the respective weights. Profitability of crops have been estimated as the ratio of per hectare profit and cost of cultivation. In order to compare the profit and profitability of paddy crop with other crops, three of its alternative crops, viz., coconut, tapioca and banana are taken.

In data analysis, popular statistical tools like Mean, Range, Coefficient of Variation, Pearson's Coefficient of Correlation, Rank Correlation Coefficient etc. are used and in significance testing, test statistic 't' has been applied.

1.4.2. Data Source

While assessing the performance of the rice economy of Kerala it would have been better to cover the entire period from 1956, the year in which the state was formed. However, the statistical base for the state was not properly organised till the year 1960-61. Land utilisation surveys were systematically conducted on an annual basis from that year onwards. Therefore data related to the area, production and productivity of crops in Kerala used in the present study are from the year 1960-61 onwards. From the year 1961-62, Crop Cutting Surveys were conducted in the state as an ICAR Scheme to estimate the productivity of various crops. After the introduction of a scheme for Establishment of an Agency for Reporting Crop Statistics (EARCS) in 1975-76, the system of agricultural data collection has further improved. From the year 1980-81 onwards Department of Economics and Statistics (DES) began

to conduct annual surveys on the cost of cultivation of important crops in the state. It enables to fill up the data gap related to the cost of cultivation of major crops in Kerala.

Present study is primarily based on secondary data collected from sources such as the publications of the Department of Economics and Statistics which was formerly known as the Bureau of Economics and Statistics, State Planning Board, State Land Use Board, Department of Census, National Sample Survey Organisation etc. Various research papers, Commission reports and periodicals were also used as the sources of secondary data.

Primary data have been collected to examine the current problems of paddy cultivation. For the purpose of primary data collection, a field investigation was conducted in ten selected villages of Kuttanad region, five each belonging to Kuttanad and Kottayam taluks. The field survey had been conducted during the months of May and June in 1996. Sample farmers were selected by the method of quota sampling. Accordingly, relevant data were collected from ten sample paddy farmers from each of the selected ten villages using a structured interview schedule.

1.5. Plan of the Study

This study consists of eight chapters. First chapter is the introductory chapter. In the second chapter a brief review of earlier studies concerned with the analysis of the performance of agricultural crops in general and that of paddy crop in particular is given. Third chapter is divided into two sections. While a brief account of the trend and pattern of agricultural development in Kerala since its formation is given in the first section, second section of the chapter deals with the performance of paddy crop in the state. Role of the major sources of productivity in enhancing paddy productivity in Kerala is discussed in the fourth chapter. Changes in per hectare profit and profitability of paddy crop over the past years in relation to the decline of area

under the crop is examined in the first section of the fifth chapter, while in the second section of the chapter, relative profitability of paddy crop compared to its alternative crops and its relation to the conversion of paddy lands for the cultivation of other crops are mentioned. Other causes for the decline of paddy cultivation in the state are discussed in the sixth chapter. Findings of the field survey conducted in Kuttanad region with a view to identify the present problems of paddy farming are shown in the seventh chapter. Conclusions and findings of the present study are summarised in the eighth chapter.

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