REGIONAL DISPARITIES IN KERALA'S ECONOMIC DEVELOPMENT

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CENTRE FOR DEVELOPMENT STUDIES
TRIVANDRUM
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REGIONAL DISPARITIES IN KERALA'S ECONOMIC DEVELOPMENT

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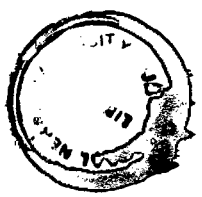

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1988

I hereby affirm that the work for this dissertation titled Regional Disparities in Kerala's Economic Development being submitted to the Jawaharlal Nehru University for the award of the Degree of Master of Philosophy was carried out entirely by me at the Centre for Development Studies, Trivandrum.

Trivandrum,
31-12-1988.

Thomas George

Certified that this dissertation is the bonafide work of Thomas George and has not been considered for the award of any other degree by any other university. The thesis may be forwarded for evaluation.

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CONTENTS

ACKNOWLEDGEMENT

LIST OF TABLES

LIST OF MAP

		Page No
CHAPTER I	INTRODUCTION	1 - 7
CHAPTER II	A CONCEPTUAL AND THEORETICAL FRAMEWORK	8 - 24
CHAPTER III	A PROFILE OF KERALA ECONOMY	25 - 63
CHAPTER IV	NATURE OF IMBALANCES IN KERALA	64 - 91
CHAPTER V	SUMMARY OF RESULTS AND CONCLUSIONS	92 - 102
	TECHNICAL APPENDIX	103 - 107
	APPENDIX TABLES 1 - 11	108 - 119
	REFERENCES	120 - 123

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LIST OF TABLES

Table No		Page No
3.1	Population Growth in Kerala 1901 to 1956	32
3.2	Trend and Period-wise Growth Rate in Agriculture (1962-63 to 1985-86)	35
3.3	Districtwise distribution of Marine Fish Landings in Kerala in 1978, 1981 and 1983	40
3.4	District-wise Distribution of People Depending on Fisheries	41
3.5	Marine Fish Landings in Kerala India	42
3.6	District-wise Distribution of Commercial Banks	50
3.7	Area-irrigated District-wise	52
3.8	Percentage of Literacy and the Number of Schools in Kerala	54
3.9	Number of Medical Institutions, 1985	57
3.10	Percapita Income of Districts at Current Price	59
3.11	District Income at Current Price	60
3.12	Job seekers Registered in Employment Exchange	62
3.13	District-wise Job Seekers	63
4.1	Distribution of the Co-efficient of Regional Imbalances	65
4.2	Inter-regional Imbalances in 1975 and 1985	67
4.3	Classification of Indicators according to the value of Balance Ratio	74
4.4	Quotient of Disparity of Income	82

4.7	Composite Index of Development	88
4.8	Comparison of Y_g and Y_d	89

APPENDIX

A1	Indicators Used in the study	108
A2	District-wise Distribution of Area, Population, Growthrate & Density of Population	110
A3	Land Utilization Pattern	111
A4	Area and Production of Principal Crops	112
A5	Production of Important Crops District-wise	113
A6	Co-efficient of Imbalance in the years from 1975 to 1985	114
A7	Inter-Regional Imbalance	115
A8	Balance Ratio of the Indicators	116
A9	Quotient of Disparity	117
A10	Composite Index of Growth	118
A11	Composite Index of Development	119

LIST OF MAP

MAP OF KERALA SHOWING ADMINISTRATIVE DIVISIONS

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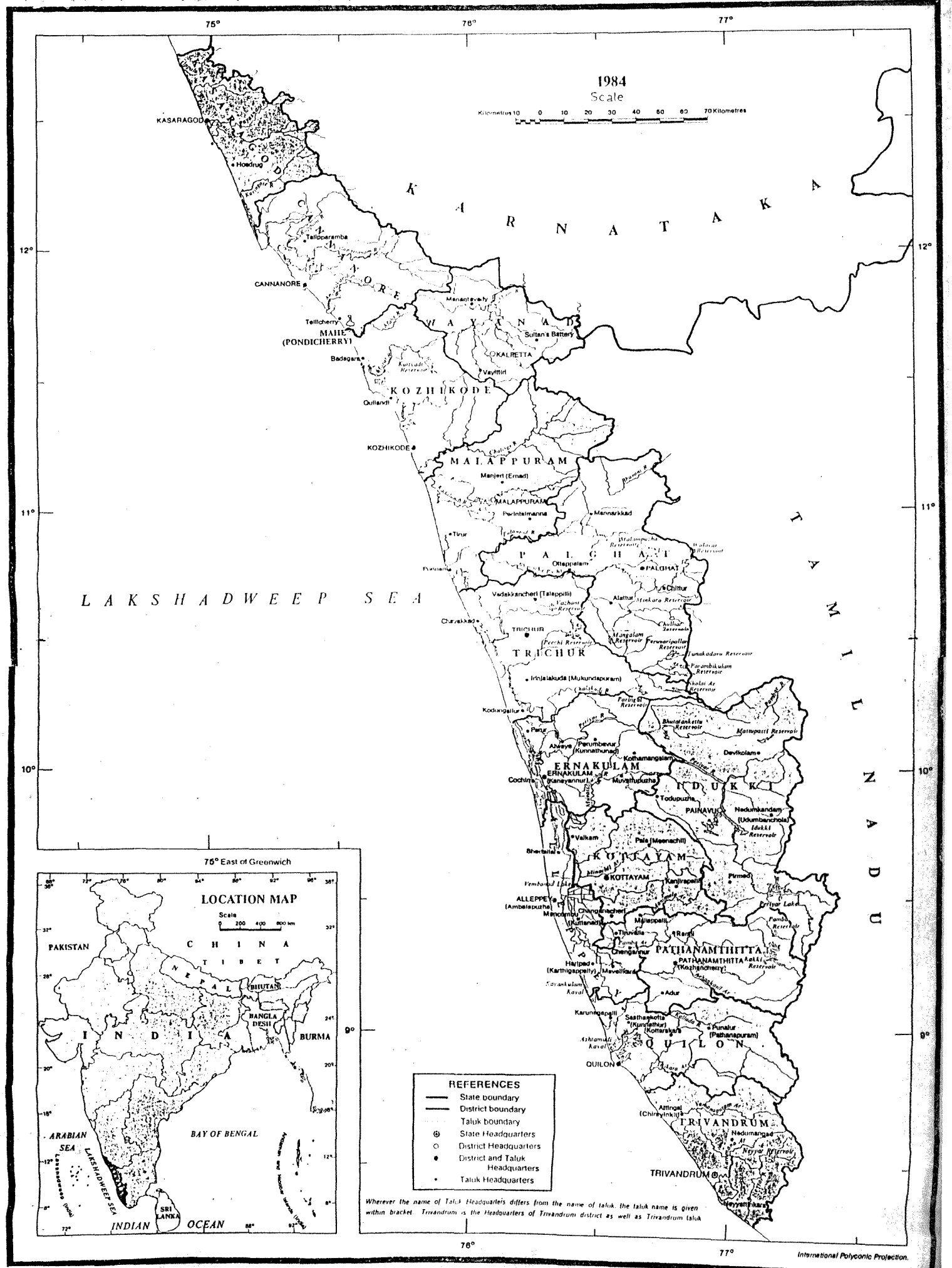

COURTESY: Resource Atlas of Kerala, Centre for Earth Science Studies, Trivandrum, 1984.

CHAPTER I

INTRODUCTION

The Problem

The problem of regional and sectoral disparities in socio economic conditions received considerable attention in the post-second world war period. This may be the outcome of three main factors,

(i) widening disparity in the standard of living of the people in the developed and developing countries,

(ii) attempt in the developing countries to achieve progress through planned economy,

(iii) emergence of development theories which made valuable contributions to the task of economic and social re-structuring.

The first factor aroused a curiosity to understand the reasons of disparity, the second factor initiated a search for appropriate models of development and the third factor presented a variety of perspectives for a structural change.

The existence of regional disparities in the level of development is one of the basic characteristics of a developing country like India. As Krishna Bhardwaj puts it, "The two questions that have compelled the attention of Indian economists are:

(a) The persistent slackening of the Indian Economy which some have characterised as structural retrogation noticeable particularly after the mid-sixties.

(b) The deepening inter-regional imbalances that are increasingly expressing themselves in the form of social and political tensions" (Bharadwaj, 1982).

The inter-regional differences have their explanation basically in the same causal forces which explain also the over all rate and pattern of growth of the collective economy, although no doubt, there are conjunctional specification of individual regions. The process of such disparity indicates that a few regions have experienced relatively a high rate of growth over time, resulting in a relatively high level of development in comparison to other regions which have experienced slow rate of growth and a low level of development.

Social scientists often believe that regional imbalances are inherent in the process of development and the tendencies for disparity are stronger in the earlier stages of development. Myrdal (1958) and Kaldor (1970) feel that the basic forces inducing development are disequilibrating in nature. Once the process of divergence is started, often it will be further accelerated as a result of the new development. Myrdal recognises that the spread effects are usually stronger when the economy develops and the backwash affects are more powerful than the spread effects in the beginning. Hirschman (1958) also suggests that the polarization effects are stronger than the trickling down effects in the earlier stages of development.

The problem of imbalance has been systematically analysed by economists, sociologists, geographers and political scientists in both developed and developing countries. It has added significance in developing countries because of its effects on the political and economic stability of the countries. Lack of basic needs among the people in certain areas or groups encourages separatist tendencies. Divisive forces have been found at the other extreme of development with the strong feeling that their region would be better of once divided as a separate nation. But it is a fact that no country can have a well integrated economy when widening disparities exist in the levels of development and the standard of living of the people. These considerations have created a strong desire among many countries to achieve balanced regional development and in countries following planned development approach, balanced regional approach is incorporated as an objective of planning.

There are different views on the basic determinants of regional growth differentials. Isard and Reiner (1961) consider that the disparity in economic growth may be due to three main causes namely,

i) uneven distribution of natural resources

ii) lack of access to major markets including foreign markets,

iii) unequal distribution of inherited know how and labour skills among regions.

Hemalatha Rao (1984) has attributed that the inter-regional disparities are caused by the following factors:

1. Historical factors, attributed to the initial advantages enjoyed by some regions under the colonial (rule).
2. Non-uniform distribution of natural resources
3. The social, economic and political factors responsible for causing gaps to emerge.

Most of the factors mentioned above as the causes of regional imbalances have significant influence on Kerala economy since the state experiences high levels of disparities in the process of economic development. Prior to the formation of Kerala in 1957, the state was segregated as Travancore, Cochin and Malabar under the administration of the native rulers. Malabar was the part of Madras presidency and was brought under the direct control of the foreign rule. Cochin and Travancore were ruled by the royal familes having league with the British. Being the three independent regions they followed different strategies for growth and development. The measures taken up in these areas had resulted in different levels of progress. Further, within each area there existed some amount of regional variations. Thus it is generally felt that the state had inherited certain amount of regional imbalances and there had been systematic efforts to reduce the problems of imbalances. After thirty years of its existence in the current set up it is appropriate to analyse the extent to which regional imbalances persist in Kerala.

Objectives of the Study

The major objective of this study is to measure the extent of regional imbalances in Kerala and to identify the areas where disparities are most acute. For the purpose of this study, a region is defined as an administrative unit with the following characteristics.

a) It is under an administrative agency

b) It possesses a data base

Using these guidelines, a district is identified as the region.

The specific objectives of the study are,

i) to measure the extent of imablances in the different districts of Kerala.

ii) to identify the districts that lag behind in the development process.

iii) to suggest some measures to reduce the imbalance in the development of different districts.

Methodology

This study is mainly based on secondary data obtained from Various agencies such as the Directorate of Economics and Statistics, the State Planning Board and the Department of Census. A number of publications of other Government Departments as well as research organizations are reviewed to obtain sufficient insights regarding the development of the districts in Kerala. Further, discussions were held with officials

and non-officials to ascertain the validty of some of the findings and to seek their views on the underlying factors.

The conceptual framework and statistical tools used in the analysis are described in the second chapter and an explanation of the steps involved in obtaining some of the measures is provided in the technical appendix.

Scope and Coverage

This study covers the 11 districts (the newly formed Pathanamthitta, Wynad and Kasargod are not studied separately due to the non-availability of data for the period) in Kerala. For analysing the current status of development of the districts, 25 indicators have been selected on the basis of the availability of data, from various sectors such as Agriculture, Industry, Human Resource Development, Transport, Health, Banking, Power, Income and Housing. (Table A_1 Appendix)

Chapter Analysis

The findings of the study are presented in five chapters. Chapter I introduces the problem of disparity, the general causes and objectives of the study. Chapter II discusses the conceptual and theoretical frame work for analysing regional disparities. An analysis of the status of Kerala economy in various sectors such as agriculture and allied sectors, industry, service sector, income and employment is presented Chapter III. The analysis based on the conceptual frame

work presented in the second chapter is given in Chapter IV. The problem of regional imbalances, the quotient of income disparity, the composite index of growth and development are discussed in this chapter. Chapter V contains the summary and conclusions.

Chapter II

A CONCEPTUAL AND THEORETICAL FRAMEWORK

Growth and Development

This chapter analyses a few important contributions in the area of growth and development of regions. In particular an attempt is made to differentiate between growth and development and to highlight the various theories on regional disparity. It also provides some of the measures used in quantifying regional imbalances.

A discussion on economic development is dependent on how we value the goals of economy's policies. Any definition of the concept of economic development necessarily becomes a persuasive one implying that it is a desirable objective (Meier, 1986). There is a tendency to use the terms economic development and economic growth interchangeably. But these terms have difference in content. It is true that growth is an essential component of development. Growth shows increase in Gross National Product and Percapita Real Income, whereas development, besides these, involves structural changes in institutional, social and administrative factors as well as the peoples' attitude, customs and beliefs.

The models of development before 1960's emphasised the savings ratio and the capital output ratio as the basic determinants of economic growth. It was pointed out (Mishra, 1988) that the rate of growth

of GNP was determined by the national savings ratio and the national capital output ratio. Hence the major problems of development were to

i) increase capital per head by increasing the rate of saving.

ii) increase the efficiency of capital.

iii) increase percapita income by lowering the rate of growth of population.

But the experience of the sixties revealed that this approach cannot bring about necessary changes in underdeveloped countries. It was generally accepted that savings and investment alone do not make sufficient conditions for development.

The modern approach has two premises. First, the under developed countries are dominated by a number of industrially developed countries and this dominance is advocated by the rich class in the under developed economy whose prime interest is the continuance of the capitalist system for personal benefits. The second is that the international dependence leads to expert advice and sophisticated models from the developed countries for the underdeveloped ones, which cannot be implemented due to the institutional and structural constraints and these policies, instead of promoting growth and development serve the interest of the powerblock both inside and outside the country. In view of these, the modern developing economy does not aim at the increase in GNP as an indicator of development, but aims at needed structural changes in order to eradicate poverty and unemployment, bring down the disparity in income and raise the level of living (including health, education and cultural progress)

The inability of GNP per head to measure development has led to greater emphasis on employment, eradication of poverty, basic needs and other welfare measures to estimate the level of development. The measurement of development today is not confined to the progress of industrialisation alone for several reasons. First, the progress of industrialisation is highly dependent on agricultural development. Without the necessary support from the primary sector, industries will have only adverse effects. Secondly, economic development is much more than the simple acquisition of industries. As Myrdal (1968) has rightly put it, development is "the upward movement of the entire social system". Hence the measurement of development should have indicators related to the various sectors of the economy including agriculture, industry, education, health, transport and communication, power, housing etc.

Once the indicators are identified, there should be proper chances of comparison of these indicators between rich and poor countries or regions and present different views on the widening or narrowing gap of the regions. It would be quite helpful to identify the regions or countries which posses the basic needs and make an assessment as to how far their policies are apt to promote growth of output and development in the economy. But it has to be agreed upon that nothing much is done to improve the capacity of developing countries to *identify*, collect and issue primary data on a regular and systematic basis. A massive effort on this line is called for.

The concept of Region

'Region' got much concern in the Development Economics ever since the emergence of third world countries in the post-world war period. By sixties the peripheral countries of colonialism caught the attention of the economists with their deep rooted problems of poverty and urge for a new development pattern according to one's own resource base or structural conditions. Hence the economic doctrines of pre-war period had to seek new dimensions to account for the new changes. The diversity in character and structure of the newly formed nations necessitated micro level study of the problems keeping the region as the basic unit of analysis.

The concept of region is considered to be one of the most important turning point in the history of geography. Yet many uncertainties remain as to its meaning and significance. The region need not be a district on physical geographic unit. It may sometimes be a district or block or even just a village (Mandal, 1988). According to West (1966) the definition of region can be classified into subjective and objective aspects. The subjective definiton takes into account the subjective factors such as home, neighbourhood and other places within which a person operates. The objective approach tries to identify a region in terms of political, geographical, economic, developmental and so on. In this sense the region has a spatial dimension.

Zialkowski (1969) defines a region as a group of people living together in a given area under conditions of mutual interdependence,

experiencing similarity of traits and sharing a sense of common solidarity. This definition makes similarity of the concept with the concept communiy and it illustrates the region as a collectivity of people in a sociological phenomenon.

Having defined the concept of region, certain characteristics are looked into in locating a region in the present study. Since the study focusses on the imbalances in Kerala economy the lowest possible unit of region can only be a district on the following reasons.

1. It is a separate unit with the availability of data.
2. It is under one administrative agency.

This cannot have homogeneity in structure since some of the districts have diversity in climate, geographical features and even in standard of living in the different parts of the region.

The Philosophy of Regionalisation

The regional segregation has relevance in the study of a nation's economy since the various parts of an economy do not have similar factor endowments, development potentials or uniformity in the level of development. A uniform strategy for growth and development cannot bring out similar levels of changes due to the diversity in regions. This puts much significance to the concept of regionalisation in the context of economic planning. In the process of planning the regions should have its own decentralised methods, not to be treated as separate fragments, but as parts of a complete national pattern. The Planning

Commission of India (1961) observes that "Development of regions and of the national economy as a whole have to be viewed as parts of a single process".

The concept of regionalisation leads to spatial elaboration of national plans, models and programmes for development. It has greater significance today because the region plays a vital role in the economic life of the country. Any weakness in the region's performance can aggravate the economic situations in the country and widen the disparity and imbalances.

Theories on Regional Disparity

The theories on regional growth discusses the problems of imbalances also. There is much difference of opinion among the economists about the course of regional imbalance during the process of development. Myrdal (1958) remarks that once growth gets started in a region and meets with initial success, there will be an accumulation of all kinds of economic and non-economic activities around that region. This happens because of ever increasing internal and external economies. "If things are left to market forces unhampered by a policy interference, industrial production, commerce, banking, insurance, shipping and almost all these activities which in a developing economy tend to give a bigger than average return and in addition Science, art, literature, education and higher culture generally would cluster in certain localities and regions, leaving the rest of the country more or less in a backwater."

The exposition of the above explanation is that economic and social forces will tend to strengthen the disequilibrium situation by leading to cumulative expansion in the favoured region, at the expense of other regions, which become comparatively worse off, slowing down their future development. What Myrdal had in mind was that once development differences appear, a chain of cumulaitve expansion is set in motion in the favoured region with backwash effects on other regions, causing development differences to persist or even diverge. Myrdal views the growth process in a developed region as having two effects, spread effect and backwash effects. "Spread effects are the centrifugal forces of expansionary momentum emanating from the centres of economic expansion to other regions" (Myrdal 1957) Hirchman (1958) contends that the diseconomics from the congestion of industries, weakening home market etc. will lead to the emergence of converging movement in the long run. These diseconomies and the policies of government can ensure an extensive spread of development. Hence the disparity tend to diminish over time, "once the movement towards north south polarisation within a country has produced for some time" (Hirschman) or as the economy matures (Williamson, 1968). The backwash effects imply that capital, skilled labour and enterpreneurship will tend to migrate to the developed regions since they have better opportunities for development. But such immigration to expanding region will induce further improvement in transport and communication, health and education, improving efficiency and productivity and widening further the competitive advantage of the growing region over the lagging ones, with the latter experiencing the migration of the factors of production.

The spread effects are weaker in under developed countries. In many of the poorer countries the natural drift towards inequalities is supported by the socio-political and religious institutions which invite the exploitation of the rich over the poor. This stresses the importance of the state intervention to narrow down the inter-regional imbalances since the natural end to the process of cumulative causation is time consuming (Thirwall,1972).

Hirschman's Analysis

According to Hirschman (1958) growth tends to concentrate around the initial point because of the external economies. Development in one region can affect other regions both favourably and adversely. Hirschman calls the favourable factors as the "trickling down forces" and the unfavourable ones as the "polarization effect". Development at the growth pole trickles down to the backward areas through inter-regional trade and transfer of capital to backward areas. The migration of labour to the growth pole brings down the presure of population in the backward areas. At the same time greater investment and concentration of resources in the growth pole and the negligence shown to the backward regions lead to polarization.

Concentration-Cycle Hypothesis

This hypothesis states that regional disparities diverge initially only to converge later on. Myrdal (1958), Hirschman (1961), Williamson (1968) and Alonso (1968) are the exponents of this hypothesis. Williamson

analysed the empirical evidence of this hypothesis later. There is little difference in the analysis of each. Myrdal concentrates on the divergent phase and points out that in the long run there will be convergence. Alonso also focusses on the divergent phase. Williamson and Hirschman analyse both the convergence and divergence and conclude that convergence makes a high level of equilibrium.

The classical economists believed that the free flow of factors in a laissez-faire economy could take care of all the regions wiping out the inter-regional disparities. They concluded that the absence of national markets in labour, capital and products result in the regional concentration and the widening imbalances. But according to Myrdal, Kuznets and Hirschman such free enterprise economy will increase interregional inequality.

The Harrod-Domar Model of economic growth highlights the fact that once there is divergence between the regional growth rates, it will further diverge. Regions with higher growth rate enjoy higher income which further raises their potential for growth, while the lagged ones, lag behind leading to wider disparity among the developed and less developed regions.

The growth models of Solow, Swan and Meade stress the convergence in full employment and perfect competition. Solow (1956) in his model demonstrates that due to the variable technical co-efficients (capital-labour and capital-out put ratios) there will always

be a tendency for the C.L.R to adjust itself in the direction of an equilibrium ratio. The regions with higher C.L.R will have a higher real wage and a lower marginal product of capital and the reverse is true for the region with the lower capital labour ratio. Capital will therefore flow from higher to lower wage regions and labourforce from lower to higher wage regions. This will result in equalisation of factor returns in all regions and thereby convergence in the process of regional growth. Solow's analysis thus has the converging tendency to the equilibrium path of steady growth.

Centre - Periphery Model of Friedman

Friedman's model (1964), emphasises cumulative and self reinforcing advantage of the initial location and limited advantages of backward regions. He argues the following stages of economic growth in the developing economies.

1. Lack of inter-connection between independent local centres in the pre-industrial society.
2. Centre-periphery relationship which implies that growth gets concentrated in one or two centres.
3. The integration of all the regions in the national economy though the urban economy.

These stages conclude that once the process of development starts it goes on diverging. Secondly, the process of development bridges the gap between regions, Thirdly, the process of development diverges in the initial stage to converge later on. To analyse these

derivations it is found that a developed area goes on growing at faster rate while the backward area is stagnating or progressing at slow rate and thereby the gap is widened. The assumption that the regional imbalances converge in the long run is only a theoretical truism as far as the developing countries are concerned. It may be true with the developed ones where the well established institutions and infrastructural devices can transmit the gain of development to the other regions. This transmission effect is rarely seen in the less developed countries mainly because of the socio-political hindrances. A better solution to this is the emergence of a large number of growth centres to cover up the regional imbalances.

Growth Pole Theory of Francois Perroux

This theory is expounded by the French Economist Francois Perroux. It owes much to Schumpeter's analysis of economic development, having 'discontinuous sports', generating economic growth and Myrdal's concept of 'spread effect' in the process of development. Perroux (1970) suggests that "growth does not appear everywhere and all at once, it appears in points or development poles, with variable intensities; it spreads along diverse channels and with varying terminal effects to the whole economy". He believes that with the innovative entrepreneur, a large scale firm generates momentum of growth and these impulses of growth are transmitted to other sectors. These centres act as the growth poles which ensure spread effects and hence regarded as the pioneering centres of the economy of backward regions.

The growth pole theory takes into account that growth at certain poles and external economies created would accelerate the process of growth in the region as a whole. As it is viewed in the Myrdal's analysis, the spread effects is considered as weaker in the underdeveloped countries. The regional integration and inter-dependence are taken as the solution to this problem.

The Schumpetarian theory of inter-industry linkages and industrial interdependence are the basic constructs of the growth pole theory. This concept of growth pole is related to Perroux's studies about an 'economic space' as a field of forces consisting of centres, "each, being a centre of attraction and repulsion, has its proper fields, which is set in the field of other centres". Hence the 'economic space' becomes a unit of analysis like 'region'. Every regional growth pole consists of large scale industries with the economies of scale which transform the stationary economy to the path of regional imbalances.

Measures of Regional Imbalance and Disparity

A study of the imbalance and disparity of the regions should necessarily be multi-dimensional in order to obtain a comprehensive picture of the pattern of disparity. The dimensions mentioned here include imbalances with respect to indicators of development, growth of regions over a period of time, the development-status of each region etc. These dimensions are not separate entities by themselves, since they are all derived from the same group of data. But each of

them provides cross links in establishing the pattern of development/ disparity.

CHOICE OF THE MEASURES: Based on the availability of data and the scope of study, the following measures were chosen for the analysis of imbalance/disparity:

1. Co-efficient of Regional Imbalance

The co-efficient of Regional Imbalance is a summary measure describing the intra regional imbalances with respect to an indicator (Mandal, 1987). The measurement is done in terms of the deviation of the value of the indicator for the region (district) vis-a-vis that of the norm region (State). For this purpose the balance ratio, Y_{Rj} as indicated below is ued. A co-efficient very close to zero or a low value indicates, reduced imbalance as far as that indicator is concerned:

The co-efficient is expressed as

$$C_j = \left\{ \frac{\sum_{R=1}^{m} (Y_{Rj} - 100)^2}{m} \right\}^{\frac{1}{2}}$$

where, Y_{Rj} = Balance ratio . $Y_{Rj} = \frac{X_{Rj}}{X_{Sj}}$ ie. the ratio of the development indicator for the region to that of the state.

X_{Rj} = Value of the indicator j of the region

X_{Sj} = Value of the indicator j of the State

m = No. of regions

The co-efficient of imbalance is useful in testing the representative character of the balance ratio at the aggregate level. The operational significance of the co-efficient of Imbalance is that it presents priorities among different indicators. Higher values of co-efficient indicates the need for higher priorities to the indicator for balanced development.

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Theoretically speaking, the range of Co-efficient could be any positive value but the expected range will be 10-90% .However, upto 20% imbalance may be treated as normal in a planned economy and not considered warranting grave attention. Though this is a measure at a point of time, by obtaining the mean of the co-efficient for various years, the value is integrated across time.

2. Composite Index of Growth

This is a composite index which points towards development of a district during the time interval (o,t) ie. base year to terminal year. Composite Index of Development as put forth by Iyengar, Nanjappa and Sudarshan (1981) has been renamed and used for this purpose. Composite Index of Growth makes use of the weighted average of the growth co-efficients of indicators.

DISS
X:g7.4412'N8
M8

DISS
338.95483
G2938 Re
TH2810

Composite Index of Growth,

$$Y_g = \sum_{j-1}^{n} W_j \; Y_j$$

where W_j - weight assigned to the jth indicator

Y_j - $X_{j(t)}/X_{j(o)}$

$X_{j(t)}$ - Value of the indicator in the terminal year

$X_{j(o)}$ - Value of the indicator in the beginning year.

The weights assigned to these indicators though arbitrary are based on intelligent judgement. The expected range of value would be between 0.5 to 2.5 for a continuous period of 10-15 years. Values between 0.9 to 1.0 would indicate a stagnation in the economy. Values below 0.9 a retardation and value above 1.0 acceleration. Values more than 1.5 would indicate a concentrated and deliberate effort in boosting the economy and values above 2.5 and below 0.5 suggest an abnormal growth/retardation which require close attention and explanations.

Obviously, this is a measure estimated across a time span (say 10-12 years).

3. Quotient of Income Disparity

Quotient of Income Disparity is a measure to examine the effect of economic development of a region with respect to the per capita income on the inter-regional income differentials (Nair KRG, 1971)

Since per capita income is one single indicator which could be a major representative feature of the economy, this is considered a worthwhile exercise. The expression used to estimate the content is:

Quotient of Disparity, Q_D = Range of Qr

where, $Qr = (Y_R/Y_S) \quad (P_p/P_S)$

Y_R = Region Income

Y_S = State Income

P_R = Region Population

P_S = State Population

Here again, the range could vary from 0.5 to 2.5. Eventhough, this may seem to be a superfluous measure, since per capita itself is an indicator used in the calculation of other measures, the quotient of disparity may at times bring in unexpected results which could be easily explained in terms of a vast difference in the density of population between the regions.

4. Composite Index of Development

All the three measures described above indicate the trend of the economy. It was felt that the status of the economy vis-a-vis the Norm Region should also be known to obtain a comprehensive picture. This need has urged to develop a statistical expression to measure the composite Index of development.

$$Y_d = \sum_{j=1}^{n} W_j \, Y_{Rj}$$

where Wj = Weight of the 'j' the indicator

$$Y_{Rj} = \frac{Y_{Rj}}{Y_{Sj}} \quad \text{(balance ratio)}$$

X_{Rj} = Value of the 'j'th indicator in the district 'R'

X_{Sj} = the mean value of the 'j'th indicator (value of the indicator in the State)

Weights are assigned in the same way as it is done for the use of composite index of growth. To obtain a steady and, integrated value for the Index, the mean of the value over a period of 10-12 would be chosen. The value thus obtained is expected to give an indication of the status of the economy of the region and thus enable a proper ranking.

Chapter III

A PROFILE OF KERALA ECONOMY

This chapter attempts to present an overall view of the socio-economic conditions in Kerala with particular emphasis on regional disparities. It is hoped that the background information included in this chapter will provide a sound basis for understanding the regional imbalances.

Kerala, a narrow strip of land at the South West corner of Indian Sub-continent was formed in 1956, joining Travancore(in the south), Cochin State (in the middle) and Malabar of the Madras province (in the north). This small state lies between 8° and 12° north latitude and 75° and 77° east longitude. Along the north-south axis the state extends from Manjeswaram (Kasargod) to Prasala (Trivandrum), a distance of about 585 Km. The east-west axis is 120 Km. at the widest point from the Western Ghats to the Arabian Sea. Nearly 41 rivers flow from the ghats to the sea and a chain of backwaters connected by canals run parallel. Three rivers Kabani, Pampar and Bhavani flow to the east and reach Tamil Nadu. The layout of the ghats, the course of the rivers and the location of lagoons divide the state into three natural zones: the low land, mid land and the high land. Though there are no hard and fast lines of demarcation separating the three zones, each is characterised by its own distinct physical and agronomic features.

The low land is a plain region with sandy soil. The chief crops cultivated in this region are paddy and coconut. This is the most thickly populated area in the State. Apart from agriculture the chief occupation of the people are coir making and fishing. The midland has an undulating topography. The soil of this zone is laterite and a variety of crops are grown. The chief crops of this area are rice, tapioca, banana, mango, spices, sugarcane and cashewnut. The high land is mountainous with rocky and loamy soils. The physical features and the climate of this region are suited for the growth of plantation crops. The major portion of this area is covered with thick forest and the density of population is very low. The chief occupation of the people is connected with the plantations.

Climate

The diversity of the physical features of the state finds reflection in the diversity of climate. In the mountainous areas, it is chilly cold, at an elevation between 300 and 5000 feet the climate is cool and refreshing. In the coastal belt the climate is generally hot with a high degree of atmospheric humidity. The temperature in the plains ranges form 70° and 80° F. At the foot of the ghats, it goes up by 5 to 6 degrees; higher up the mountains, it falls to 50°F by day and to freezing point by winter nights. In the higher ranges, the temperature varies from 45° to 60° in March and April and 30° to 60° in November to January. The coastal area has a high percentage of humidity in the air, reaching up to 90% while it progressively diminishes towards the ghats.

Seasons and Rainfall

There is no well defined season in Kerala. Summer and Winter are practically controlled by South-West and North-East monsoons, which are peculiar to the West coast of India. Autumn and Spring are slightly distinguishable in regard to climatic conditions and agricultural practices.

The South-West monsoon sets in between June and September while, the North-East monsoon occurs between September and November. The change from South-East to North-East takes place sometimes early in August and sometimes late in September. These two months are comparatively dry with occasional showers. Almost 90% of the annual rainfall is precipitated by the two monsoons, the South West and the North West. The remaining 10 percent of the rainfall occurs in the months from December to May. With an average rainfall of 300 cm. the land enjoyed fertility and the green fields, coconut groves, tea and rubber estates and tropical forest became the unique character of the state.

Natural Resources

Since the land is having a general slope form east to west the streams have a westward flow. It is a characteristic of most of the rivers that they are tidal in lower reaches. Many of the rivers drain in to backwaters or lakes which are connected to the sea. The river beds or the shores of the backwaters are rich in fertility for the natural vegetation and cultivation of various crops. Moreover, the

natural links of the backwaters by canals form an important means of communication. The steep falls at the source of some rivers have been harnessed to generate electricity.

The soil has deposits of several valuable minerals in the different parts of the State. The beach sands in Quilon District are rich in heavy minerals like monocite, ilmenite, zircon, rutile and silliminite. China clay suitable for the manufacture of porcelain is found in many parts of the State. Deposits of graphite also occur in many parts of the State. The backwaters of the coastal areas contain large quantities of lime shell. This source of calcium carbonite is being used for the manufacutre of cement.

Forests extend over 11.22 lakh hectare in the State. The reserve forest represent nearly 82 percent of the total forest area. Under the various afforestation schemes the area planted increased from 1.57 lakh hectares in 1985-86 to 1.60 lakh hectare in 1986-87.

The decline in the area under forest has been causing concern. The forest policy lays emphasis on restoration of forest to one third of the geographical area of the State. According to the State Forest Department, about 29 percent of the area is iunder forests, where as it is only 21.6 percent according to the National Remote Sensing Agency, Hyderabad.

Socio Economic and Historic Background

Kerala had occupied a prominent place in the International trade scene eversince the beginning of its history. Its contacts with the countries of far east and west have played a significant role in the socio-economic development of the state. The trade relations with the Arabs, Assyrians, Babylonians, Phoenicians, Greeks, Romans and the Chinese led to the spread of Christianity, Judaism and Islam and developed a balanced religious and caste composition which helped the emergence of an independent culture in Kerala.

Spices in Kerala attracted the foreigners, even in 3000 B.C. The Arabs and the Phoenicians were the first to enter the land for trade. They were followed by the Greeks and the Romans. The most important export of Kerala to the West was pepper. The Romans considered it as 'black gold'. But the administrative instability in Rome in 3 A.D. weakened the trade with Kerala (Sreedhara Menon, 1967). Like the Arabs and the Romans, the Chinese were also engaged in the trade of Pepper from Kerala in the beginning of the A.D. or even before that. The European influence became strong with the arrival of the Portuguese in 1498, followed by the Dutch (1602), the French (1644) and then the British.

The social structure of ancient Kerala was based on caste divisions in Hinduism. The Brahmins, Kshatriyas and Nayars belonged to the upper castes and they were to follow the social customs which

were rigid in structure. Untouchability was seriously observed for the low-caste and slavery was present especially among the agricultural labours who belonged to the low caste. Some kind of social degeneration existed in the ancient Kerala.

The spread of Christianity and Islam worked as a corrective force in the social set up of Kerala. The Muslims made a strong commercial base for North Kerala and developed religious fraternity with the Hindus. The Christianity could bring in social changes and missionaries opened centres of learning for all. The different religions possessed better understanding and tolerence. The native Hindu rulers had great religious tolerence and allowed the Christian *missionaries* to preach their religion.

The trade relations with the foreigners in the ancient past made an economic background of this state. Quilon, Cochin and Calicut were the important ports. Canannore, Thanur, Chaliyam, Ponnani, Purakkad, Anjengo and Thengapatnam were also famous for their role in trade. Cochin port was known for the trade of ginger, spices, arecanut and pepper. Calicut was a cosmopolitan trade centre. Besides the Arabs, Chettis, Gujaratis and the native Moppilas were the traders in Calicut. Despite the age old trade relations the economic scene of Kerala was getting worse, mainly due to the decline in the price of pepper which resulted in poverty among the people.

Population

Kerala has a very dense population scattered over the State. The population is rather well advanced in its demographic transition, with rapidly declining population growth, a high average age at marriage, rapidly developing family welfare schemes, a relatively low and declining fertility rate and slowly declining mortality rate. The achievement in literacy is commendable, though the economic transition is very moderate.

The population growth rate in Kerala had always been higher than that of India until 1971, between 1901 and 1971 the State population grew up by 297 per cent while the all India growth was 187 per cent. But the decade 1971-81 witnessed an appreciable change in the trend when the population of Kerala grew at an annual rate of 1.7% which was much less than the all India level of 2%. The estimate from 1982 to 1986 also show an average rate of growth of 1.34% per annum as against the all India average of 2.4 per cent. (see table 3.1)

Table 3.1

POPULATION GROWTH IN KERALA 1901 to 1986

Year	Population (in lakhs)	Annual growth Rate (Per cent)	
1901	63.96	1.90	
1911	71.48	0.90	
1921	78.02	0.90	
1931	95.07	1.98	
1941	110.32	1.50	
1951	135.49	2.08	
1961	169.04	2.24	
1971	213.47	2.26	*Projected
1981	254.54	1.74	population
1982*	257.91	1.32	
1983*	261.35	1.31	
1984*	264.86	1.32	
1985*	268.41	1.34	
1986*	272.02	1.34	

Source: Government of Kerala - Department of Economics & Statistics

Kerala has an area of 38864 Sq.Km. divided into 14 districts with Trivandrum the Southern most and Kasargode the northern. For administrative convenience the state is divided into 61 taluks and 1557 villages. There are three corporations - Trivandrum, Cochin and Calicut, 43 Municipalities and 1001 Panchayats in the State. In 1981 the total population in the districts ranged from 554 thousand persons in Wynad to 2596 thousand persons in Trivandrum. The density of population stood between 194 persons/Sq.Km. in Idukki and 1486 persons/Sq.Km. in Alleppey. (Table A2 in the appendix)

Kerala doesn't have the features of an urbanised State. In 1981 only 18.7 per cent of the population lived in the urban areas while it was 23.7 per cent in the all India level. But the unique feature of Kerala is that there is the absence of rural urban distinction. There is no village system, nor any locality concept of the village. The houses are scattered and they stretch the length and breadth of the land, with very little distinction of village or city life.

Land Use Pattern

At the time of formation of the State about 48 per cent of the land was under crop production and the cropping intensity was 120 per cent. The subsequent trend of land utilisation reveals a better position in the early seventies with 56.7 per cent of land put to crop production and the cropping intensity at 135 per cent. After 1970-71 there has been practically no change in the net or gross cropped area and as for the intensity a marginal decline has been recorded from 132.6 in 1981-82 to 130.9 in 1985-86. The trend of cropping pattern as seen from the table (A3 Appendix) shows that the changes in the area under various crops are due to the substitution among the different crops. The plantation crops like rubber registered tremendous increase in area while major food/subsidiary food crops like rice and tapioca registered drastic decline.

The decline in the cropping intensity might be due to the reduction in area sown under the categories cultivable waste land, land

under miscellaneous tree crops and land put to non-agricultural uses. This shows that it is the seasonal crops which are relatively more vulnerable to natural calamities, compelling the farmers either to leave the land completely fallow or to limit the number of additional crops. Of the total geographical areas 27.85 per cent is forest land, 2.13 per cent barren and uncultivable land 7.1 per cent put to non-agricultural uses, 1.2 per cent under miscellaneous tree crops, 3.2 per cent cultivable waste, 1.8 per cent fallow land, 56.3 per cent net sown and 17.4 per cent of the sown area is cultivated more than once. In 1982-83, 12% of the area was irigated. (Table A2 in the Appendix)

Agriculture and Allied Sectors

Agriculture has been the main stay of the Kerala economy. It accounts for about 35 per cent of the State Income, providing employment and livelihood to more than 40 per cent of the working population and supplies raw materials for most of the traditional Industries. In 1960-61, 54 per cent of the state income was from the agricultural sector while only 38 per cent of the working population were the dependents. This means that the pressure on the primary sector in the economy of Kerala is increasing.

Agriculture in Kerala is characterised by a diversity of crops with intercropping pattern. There exists specialization also in terms of principal crops. Of the major food grains paddy accounts for 90 per cent of the area and coconut, tapioca, rubber, cashew, pepper,

banana, coffee, tea, arecanut, cardamom and sesamum account for about 84 per cent of the area under non-food grain crops.

The overall performance of the agricultural sector can be measured by the growth rate of area and yield. The following table presents the growth rate in agriculture.

Table 3.2

TREND AND PERIOD-WISE GROWTH RATES IN AGRICULTURE

(1962-63 to 1985-86)

Crop	growth rate (India) 1962-63 to 1985-86	growth rate (Kerala)	
		1962-63 to 1974-75	1975-76 to 1985-86
All crops			
Area	C (0.53)	1.8	- 1.0
Output	C (2.75)	3.6	- 0.8
Yield	C (2.22)	1.7	- 0.2
Food grains			
Area	C (0.45)	0.8	- 2.1
Output	C (2.90)	1.8	- 0.8
Yield	C (2.45)	1.0	- 1.2
Non-Food Grains			
Area	C (0.70)	2.4	NS
Output	C (2.40)	4.4	NS
Yield	C (1.70)	2.0	NS

C : Constant is no trend

NS : Not significant

Source : Kannan K.P., Pushpangadan, K , "Agricultural Stagnation and Economic growth in Kerala: An explanatory Analysis" W.P.No.227, C.D.S, Trivandrum, June 1988.

Table (3.2) shows the declining trend in production, acreage between 1963 and 1975 shows that yield contributes more to the growth of output of food grains,and for non-food grains,the contribution of area is more. During the second period from 1975 to 1986, there is a negative growth rate for all crops. Yield increase is outweighed by a negative growth rate of area leading to a negative growth rate of output for food grains. No significant change is seen for non-food grains during this period.

An analysis of the changes in area and production of the principal crops (Table A4 in the Appendix) between 1956-57 and 1984-85 that some of the important crops such as rice, sesamum, sugar cane, cotton and tea find a reduction in the area of cultivation. At the same time the crops which register an increase in area has only a marginal change in the 30 years, except rubber which was increased by 3.8 during the period.

Coming to the levels of production rice has a decline of 7% from its position is 1971-72 followed by coconut (14.8%), Pepper (32%), Plantain (8.5%), Ginger (66%), Cashew (36%), Tapioca (31.8%). Only tea, coffee and rubber present a positive trend in the output.

A district-wise study of the production of important crops shows that Palghat has the highest production of rice (28%) followed by Ernakulam (12%), Trichur (12%) Alleppey (11%). The production in

the other districts is below 10%. Idukki has the lowest rice production with its hills and geographical features suitable to plantation crops. (Table A_4 Appendix). Cannanore and Calicut have the lead in the production of pepper. Trivandrum finds a high level in the production of Tapioca (22%) and Coconut (14%). The production of Tapioca (19%) Sesamum (15%) and Rubber (11%) seems to be reasonably high in Quilon. The newly formed Pathanamthitta produces 18% of Sugarcane while it is Palghat contributing the big share (33%) to the toal production in the State. Alleppey has a high level in the production of Sesamum (32%) while Kottayam stands in the forefront in Rubber (26%) and Cocoa (37%), Pineapple, Ginger, Turmeric, Banana, Tapioca and Pepper are also produced in large quantity. Idukki has the dominance in Cardamon (80%) and Tea (73%), while the production of Sugarcane, Pepper, Coffee, Rubber, Cocoa and Ginger seems to be reasonably high in the district. Ginger, Turmeric, Banana, Sesamum, Coconut, Rubber, Cocoa and Pineapple are produced in Eranakulam and the production of each comes above 10%. The contribution of Trichur seems to be low in all the crops except for rice. But the major crops of the region are Turmeric, Banana, Sesamum, Coconut and Pineapple. Palghat produces 10% of Turmeric, 11% of Cardamom, 8% of Cashew and 8% of Coffee. The chief crops of Malappuram are paddy (8%), Banana (13%) Cashew (10%), Tapioca (7%), Sesamum (76%) and Coconut (6%). Calicut dominates in the production of Coconut (21%) and stands second in Pepper (19%). Rice production seems to be very low in Calicut, while Ginger, Turmeric, Banana and

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Note:- The percentages given in brackets indicate the share of the product in the State output.

Rubber are the other main crops of the region. Wynad, the tribal region of Kerala has a unique position in the production of Ginger (26%), Coffee (73%) and Tea (19%). It is the largest producer of Ginger and Coffee. Pepper and Turmeric are also produced in good quantity. Cannanore tops the list of the regions producing ashew and ' epper. 59% of the state total production of cashew is from this region. Coconut (13%), Pineapples(26%), Rubber(8%), Tapioca(7%), Banana(8%), Turmeric (10%), Ginger(9%), rice(5%) and Pepper(24%) are the other main crops here.

Animal Husbandary and Dairy Development

This Sector has high potential for development in the economy of the State. 70 to 75% of the population engaged in the Sector come from the family of marginal farmers or the agricultural labourers. Their contribution to the State income is only less than 2 per cent.

The State had a cattle population of 56 lakh in 1982 of which 12.36 lakh was cross-bred cows. To look at the regional distribution of the live stock (Live Stock Census, 1982) 12% of the total 56,44580 was in Quilon, 11% in Cannanore, 10% in Palghat, 9% in Ernakulam, 8.7% in Kottayam, 8.5% in Malappuram, 8.4% in Trichur, 8.3% in Alleppey, 7.5% in Trivandrum, 5.5% in Idukki and 3.5% in Wynad. Once the two districts - Pathanamthitta and Kasargod - have been formed mainly out of the regions of Quilon and Cannanore, the live stock population seems to be high in Palghat and Ernakulam. It is Ernakulam which has the maximum production of milk in the State.

Annual milk production increased from 7.83 lakh tonnes in 1977-78 to 13.34 lakh tonnes in 1986-87, showing an average annual increase of 8 per cent. The per capita availability of milk was 131 gram in 1986-87 (which was 126 gram in 1985-86) as against the W.H.O. recommendation of 280 gm. per day.

Inspite of the advance made in the cattle breeding and milk production, the States fodder bases continues to be weak. Decline in area under rice cultivation has affected the production of straw which has been the traditional staple fodder. Cultivation of green fodder can be taken up only as an inter-crop and naturally fodder has to compete with various traditional intercrops. Out of about 3 lakh tonnes of cattle feed reported as being sold in the State in a year, the production in the co-operative Sector is only 1.3 lakh tonnes.

Fisheries

Kerala has a long coastline with a total distance of 590 Km. from South to the North. This is a land of rivers,lakes and backwaters. Hence the State has high potential for the development of fisheries.

The fishable area in the State consists of the continental shelf within 200 metres depth range, spread over 39 lakh hectare and the inland water area suitable for promotion of culture fisheries extending

over 3.6 lakh hectares. As for the regional spread of the fish harvest Trivandrum, Quilon, Alleppey, Trichur, Malappuram, Kozhikode and Cannanore are the districts having marine fish landings. The following table (3.3) presents the quantity of marine fish produced in each district during 1981 and 1982.

Table: 3.3

DISTRICT-WISE DISTRIBUTION OF MARINE FISH LANDINGS

IN KERALA IN 1978, 1981 AND 1982

No	Districts	1978 (Tonnes)	1981 (Tonnes)	1982 (Tonnes)
1	Trivandrum	60871(16.3%)	29152(10.6%)	54090(16.6%)
2	Quilon	106296(28.5%)	46796(17%)	92508(28.4%)
3	Alleppey	41913(11.2%)	38127(13.8%)	34090(10.5%)
4	Ernakulam	46053(12.3%)	35032(12.7%)	35661(11%)
5	Trichur	11959(3.2%)	19759(7%)	24548(7.5%)
6	Malappuram	12963(3.4%)	10235(3.7%)	10147(3%)
7	Kozhikode	40436(10.8%)	33180 (12%)	31481 (9.7%)
8	Cannanore	52127(13.9%)	62539(22.8%)	43270(13.3%)
	State	372618	274820(100%)	325795(100%)

Source : "Statistics for Planning" 1983 and 1986, Department of Economics and Statistics, Government of Kerala.

It can be noticed that fish landings increased by 18.5% in 1982 compared to the previous year's level. But this increase seems to be the result of a remarkable production of marine fish in Trivandrum and Quilon. Trichur also finds an increase, though its contribution to the state total has only a marginal increase. All the regions find a decline in growth compared to the production level in 1978. 13% of decline is seen in the aggregate output in 1982 from the level in 1978.

It is estimated that 8.47 lakh people depend on Fisheries for their living. This is 3.2 percent of the total population of Kerala. Of the total dependents 6.55 lakh live on marine products and the rest 1.92 lakh depend on the inland fisheries. The district wise distribution of people is available in table 3.4.

Table: 3.4

DISTRICT-WISE DISTRIBUTION OF PEOPLE DEPENDING ON FISHERIES

No.	District	No. on Marine Products	No. on Inland Fishing
1	Trivandrum	1,39,349	1,026
2	Quilon	78,222	29,051
3	Alleppey	93,218	52,740
4	Kottayam	--	21,092
5	Idukki	--	--
6	Ernakulam	60,534	54,853
7	Trichur	58,180	16,824
8	Palghat	--	450
9	Malappuram	63,009	3,608
10	Calicut	82,640	10,170
11	Wynad	--	810
12	Cannanore	43,891	752
13	Pathanamthitta	--	711
14	Kasargod	36,183	620
	Total	6,55,226	1,92,707

Source: Statistics for Planning 1986. Government of Kerala.

The maximum sustainable yield per fisherman within the inshore sea is the lowest in the State (2.88 tonnes while the All India level is estimated at 4.66 tonnes). The dependence on the sea is also high in Kerala with 1043 fisherman per 100 sq. km. compared to 56 in Gujarat and 269 for the country as a whole. In 1965 the contribution of Kerala to the total fish production in the country was 40 percent. This declined to 18 per cent in 1986. The details are given below.

Table: 3.5

MARINE FISH LANDINGS IN KERALA-INDIA

Year	Marine Fish Landings (lakh tonnes)		Percentage Share of Kerala
	Kerala	India	
1965	3.39	8.33	40
1970	3.93	10.79	36
1975	4.21	14.23	30
1980	2.80	12.50	22
1981	2.74	13.78	20
1982	3.25	14.24	23
1983	3.85	14.15	27
1984	4.25	18.09	23
1985	3.32	17.16	19
1986	3.36	18.50	18

Source : State Planning Board,
Government of Kerala
"Seminar on the issues of the Eighth Five Year Plan" (1988).

Kerala's share in the export earnings of marine fish was 54.45 percent in 1976-77, declined to 40.60 in 1980-81, 43.75 attributed to the defective operational side which shows that the inshore sector is over capitalised with higher levels of investments and the resources of the off shore remains untapped. The potential of the inland fisheries also is not fully exploited. The aggreagate fish production in 1987 was 3.64 lakh tonnes out of which 92.3% was the share of the marine sector and only 7.7 per cent belonged to the inland sector.

Industry

It was in the middle of the 19th Century that the efforts of industrialisation were enunciated in an organised way in the regions of Travancore, Cochin and Malabar. Instead of the big industries small industrial units were started to meet the needs of the people.. But there are historical evidences showing the existence of the unorganized industrial units in the various parts of the state even in the later part of the 18 century.

The first industry on a factory basis was started in the year 1881 in Quilon. It was a textile mill. Before long a coir factory was opened in Alleppey. By the end of the 19 century many industrial units were organished in Palghat and Calicut. The contributions of the British Planters in developing industrial units of rubber and tea in the beginning of the 20th century were commendable.

Industrialisation in Travancore got momentum even before independence. The major industrial concerns like the Trivandrum Rubber Works, Travancore Plywood (Punalur), Travancore Sugars and Chemicals Ltd., Travancore Glass Manufacturing Factory, Rayons Factory (Perumbavoor), Travnaocre Titanium Products, Indian Aluminium Compnay, Indian Rare Earths Ltd., are the pioneers even from the pre-independence period.

Cochin had a unique position in industries from 19 century onwards. Weaving, Coir, Coconut oil, timber, tiles, bricks, bell metal were the major industrial products of the region. A weaving mill was started in Trichur with a capital of 1.5 lakh in 1908. The coir products and coconut oil were exported from Cochin. 14 factories in Trichur and 2 in Chittoor were making tiles and bricks. For the guidance of industrial development a separate Industries Department was instituted in 1919 and proper training was given to the school children in balck smithy, electroplating, engraving, weaving and manufacturing of metal plates.

The age old trade relations in Malabar region with the foreigners gave enough potential for the growth of industrial units there. Most of the production units in the beginning were agro-based. Coconut oil, sugar, oil from sesamum and groundnut, coir, tiles, bricks, reeds, matches, metal vesels and soap were the chief products of the industries in Malabar region in the ancient past. Beypore, Parappanangadi, Ponnani Thirurangadi and Quilandy were the centres of coir production, while

tiles were produced from Olavacode, Ponnani and Puthiyirakallu(Calicut). Spinning and Weaving developed in Malabar only in the second part of the present century. Calicut and Cannanore had the major spinning centres.

The planned efforts for industrial development is seen only from the Second Five Year Plan onwards. Industries are being organized in the Centre, State, Co-operative and Private Sectors. But even after three decades of planning Kerala is known for its industrial backwardness among the Indian states. Only 20 percent of the people depend on this sector and the contribution to the state income is about 20%.

The major industrial centres of the state are Ernakulam,Cannanore Calicut and Quilon. Ernakulam and Calicut are advantageous of the structural facilities such as the harbour and commercial markets. Quilon and Cannanore are known for the traditional industries.

There were 208 large and medium industrial units in Kerala as at the end of December 1987. Of these, 18 units are in the Central Sector, 45 in the State Secotr, 13 in the co-operative sector, 27 in the Joint sector and 105 in the Private sector. Nearly 31 units are under the various stages of implementation as at the end of 1987, of which 50% are in the State Sector and Joint Sector.

The total investment in 190 large and medium manufacturing units in the state as at the end of March 1987 stood at Rs.1725 crores. The number of persons directly employed was 88,220.

Public Sector Enterprises

The public sector in Kerala has a long historical background. Even before independence industries were organized under the Government ownership. On August 17, 1935, The Trivandrum Rubber Factory was started and this became the first of its kind in India. In 1940 the Ceramic Factory was opened in Quilon District. Travancore Minerals at Chavara (Quilon) which was started as a joint stock company in 1922 was nationalised in 1949. Similarly the Travancore Plywood Industries (Punalur) registered in 1942 as a private concern was taken over by the Government in 1947. Since the Second Five Year Plan steps have been taken to strengthen the public sector.

As on 31.3.1987 there were 98 State Public Sector enterprises comprising of 90 Government companies and 8 statutory bodies. Of the 90 Government companies seven were holding companies and 24 subsidiary companies.

The total capital invested in the Public Sector as on 31.3.1987 is Rs.1646 crores. KSEB (Rs.676 crores) Kerala Minerals and Metals (Rs.121 crores), KFC (Rs.100 crores) KSRTC (Rs.80 cores) Malabar Cements (Rs.58 crores) and KELTRON (Rs.55 crores) are the major concerns. 69 per cent of the total man power employed in the state public enterprised comes from the above firms.

The performance of the public sector is a powerful indicator of the trends in the state economy. Of the 98 public sector enterprises 54 were incurring losses during 1986-87. The loss amounted

to Rs.86.27 crores. 15 out of them earned a marginal profit of Rs.4.50 Crore in 1986-87.

The State Government extends financial assistance to large and medium scale industries by way of share capital and loan. An amount of Rs.300 crore has been spent by the Government during the period from 1951 to 1987 for the development of the industries. In addition to these a total outlay of Rs.55.83 Crores was provided during the third and fourth year of the Seventh Plan. The KSIDC, KFC and the KSEDC are the pioneering institutions in the Industrial development of kerala.

Small Scale Industries

The growth of the small scale industrial units in the state shows an impressive picture. The number has gone up from 31.499 at the end of 1984-85 to 47191 as at the end of 1987-88. 319 handicrafts units, 9 Cashew processing units. 47 Beedi making units, 21 Bricks manufacturing units and 50 other units under the co-operative sector. But the working status of the industrial co-operative societies is not satisfactory. Only 645 societies were working while the rest were dormant or under liquidation.

Traditional Industries

Among the traditional industries the Coir Industry is the largest one, giving employment to 4.3 lakh of people. The co-operativisation

programme has been adopted to revitalise the coir industry. As on 31.3.1987, there were 577 primary co-operative societies in the state. The production of coir and coir products earned the foreign currency to the level of Rs. 31.44 crores in 1985-86 as against Rs.32.85 crores in the previous year. Non-availability of adequate quantity of husk, decline in export market, insufficient working capital are the major problems of the coir industry.

Nearly 1.45 lakh of people depend on Handloom Industry and the total number of looms comes to 95,000. The production and distribution of Handloom cloth is mainly controlled by the Kerala State Handloom Weavers Apex Co-operative Society (HANTEX) in the organized sector. The production increased from 42.55 million metres valued at Rs.30 crores in 1985-86 to 50.40 million metres valued at Rs.3149 crores. In the unorganized sector production increased to 41.02 million metres worth Rs.39.24 crores in 1985-86.

The major handicrafts of Kerala are ivory carving, metal casting, mat weaving, reed weaving, cane work, wood and horn carving etc. It is estimated that nearly 50,000 craftsmen depend on this industry. The bamboo industry and the beedi industry are the other two major small scale industries in Kerala. Nearly 3 lakh people depend on the former while the Kerala Dinesh Beedi Society itself provides job to 40,000 people.

Service Sector

1. Transport and Communications:

Kerala has a well developed road transport and communication infrastructure. The length of the road increased to 110649 Km. in 1986-87 from 98955 Km. in 1980-81. Of this, the length of the PWD Roads is 19,752 Km. Total number of motor vehicles in 1986-87 is registered as 4.14 lakh while it was only 1.95 lakh in 80-81. Both the public and private agencies operate in the passenger service. The K.S.R.T.C is the Public Sector agency which has 24% of the total stage carriage in the State. About 75% of the total road length comes under the Panchayats.

The total Railway route length of 913 Km. in 1986-87 is not the result of desirable change since the route length was 896 Km. 1970-71. The two main airports are in Trivandrum and in Cochin.

Kerala has made remarkable progress in the communication facilities. The average area served by a Post Office is 8.10 Sq.Km. as against 22.16 S.Km. in India as a whole. There are 7 telephones per thousand persons as against 6 in the All India level. The increase in the number of vehicles during the period from 1975 to 1987 comes to 246 per cent. The number of passenger buses increased from 7826 in 1975 to 16704, in 1987. Telephone Exchanges show a remarkable increase from 286 in '75 to 599 in '87 with a total equipped capacity of 1,77,721.

2. Banking:

Banking is a powerful indicator of dynamism of the economy and in Kerala there is much change in the number of banks and the volume of transaction during the last 20 years. The total number of commercial banking institutions was 601 in 1969 which increased to 2708 in 1985. In addition to the commercial banks there are co-operative banks, industrial banks, indigenous bankers and traditional money lenders in the state. Table 3.6 present the districtwise distribution of the commercial banks in three years.

Table:3.6

DISTRICT-WISE DISTRIBUTION OF COMMERCIAL BANKS

District	Number of branches during		
	1969	1979	1985
Trivandrum	53	200	275
Quilon	41	179	165
Pathanamthitta	..	..	162
Alleppey	48	227	189
Kottayam	55	187	224
Idukki	..	58	81
Ernakulam	142	349	394
Trichur	106	264	298
Palghat	57	170	212
Malappuram	..	119	169
Calicut	50	171	216
Wynad	..	..	49
Cannanore	49	204	180
Kasargod	..	..	94
State	601	2128	2708

Source: Statistics for Planning 1986, Government of Kerala.

The growth of bank branches is remarkably high in most of the regions except Idukki and Wynad. Ernakulam, Trichur, Trivandrum, Kottayam, Palghat and Calicut show more commercial banks either because of their development in trade and commerce or the unique position in the governmental transaction. It is to be noted that Idukki and Wynad the production centres of cash crops find low level in banking facilities which can further weaken the economic activity of the region.

3. Irrigation and Power:

The irrigation potential of the state is estimated at 16 lakh hectares (net) and 25 lakh hectares (gross) till the end of March 1987 an area of 3.81 lakh ha or 5.82 lakh(gross) was brought under irrigation through major, medium and minor irrigation schemes with an investment of Rs.655 crores. The extent of land that can be brought under irrigation in Kerala through the major and medium schemes is estimated at 6 lakh(ha) or 14 lakh ha(gross). The completed major projects can irrigate an area of 0.77 lakh ha(net) or 1.47 lakh ha (gross). The projects which are partially commissioned irrigate gross area of 2.1 lakh ha. Up to the end of 1985-86 an amount of Rs.69.32 crores was spent to give irrigation facilities additionaly to 168936 ha (net) or 201510 ha (gross).

The data on the district wise distribution of land irrigated are given below.

Table:3.7

AREA IRRIGATED-DISTRICT WISE

Distrcit	Net sown area (hectare)	Area irrigated (hectare)	Percentage irrigated
Trivandrum	143404	12127	9
Quilon	205998	3824	2
Alleppey	145046	25046	17
Kottayam	182517	5183	3
Idukki	160724	3298	2
Ernakulam	178614	50988	29
Trichur	156501	40371	26
Palaghat	212884	63754	30
Malappuram	201689	23468	12
Calicut	162284	7472	5
Wynad	129356	5788	5
Cannanore	310779	17425	6
State	2189850	258744	12

Source: Estimated from the Statistics for Planning 1986, Government of Kerala.

It may be noted from table 3.7 that only 12% of the total net area sown is irrigated in the state as a whole. The districtwise study of the area irrigated shows that Palghat, Trichur and Ernakulam have the higher percentages of irrigated area while Alleppey is not much behind. The major irrigational projects like the Malampuzha in Palghat

and Peechi in Trichur have successfully extended the water facilities to the districts. Minor irrigational schemes are powerful in Alleppey and Ernakulam with their natural endowments of water resources. The other regions lag behind mainly because of the delay in the work progress of the projects like Kallada project in Quilon, Pazhassi project in Cannanore, Kuttiyadi in Calicut etc.

On the energy front the situation is not satisfactory since the state depends on hydel power. The failure of monsoon during the past few years has brought down the level of power generation.

Social Service

Education: The modern system of education in Kerala owes much to the British administration and the efforts of the Christian missionaries in the early part of the 19 century. The emergence of the western education made valuable reforms in the social life of the people. In the beginning of the century the Protestant Missionaries opened schools at Nagercoil (1806) in South Travancore and in 1813 a Theological Study Centre was started in Kottayam by the C.M.S. Missionaries. In 1818 Rev.J.Dasan, and English Missionary started a school in Mattancherry (Cochin) with the financial assistance from the Government of Cochin. The Bassal Missionaries laid the foundation for the western education in Malabar. They started a Primary School at Kallai in 1848 and an English School at Tellicherry in 1856.

With 70.4 per cent literacy (while it is 36.2 per cent in the All India level) Kerala secured, a remarkable position among the Indian states. The percapita expenditure on education has increased from Rs.30/- in 1970-71 to Rs.176 in 1986-87. It is estimated that 30% of the total expenditure of the state was made on education in 1986-87, of which 79.78% was on school education, 13.3% on University education, 4.46% on Technical education and 2.46% on descriptives of general education.

Besides the formal education given through the institutions, informal centres of education also perform remarkably high in the state. As a result the percentage of literacy in Kerala has gone up compared to the all India level. Table 3.8 gives the trends of growth in literacy from 1901.

Table: 3.8

PERCENTAGE OF LITERACY AND THE NUMBER OF SCHOOLS IN KERALA

District	Literacy (%)					No. of schools	
	1901	1931	1951	1971	1981	1981	1986-87
Trivandrum	13.21	26.05	49.90	62.54	70.50	909	943
Quilon	10.62	26.08	53.38	63.97	74.11	1210	898
Pathanamthitta	..	..	..	..	..	..	730
Alleppey	17.36	35.73	61.94	70.44	78.52	1065	747
Kottayam	19.03	36.29	62.66	72.88	81.66	882	918
Idukki	..	..	..	56.42	67.44	396	459
Ernakulam	14.21	29.98	54.12	65.37	76.82	919	979
Trichur	13.76	32.85	48.24	61.61	73.59	973	998
Palghat	9.54	15.19	30.18	46.69	58.00	883	815
Malappuram	.	..	..	47.90	60.50	1269	1322
Calicut	11.25	16.09	33.65	57.23	70.12	1189	1218
Wynad	.	.	..	..	58.33	225	256
Cannanore	11.12	19.47	40.15	54.84	65.74	1670	1254
Kasargod	..	..	..	..	..	..	505
State	11.85	25.58	47.37	60.42	70.42	11590	12142

Source: Statistics for Planning, 1980, '83, '86, Government of Kerala.

In the beginning of this century the state had 11.85 percentage of literacy which increased to 70.42 in 1981. Kottayam had the highest percentage in 1901, followed by Alleppey and Ernakulam. The same trend is repeated in 1981 also. But Quilon which stood behind Trichur, Trivandrum, Calicut and Cannanore in 1901 made a remarkable progress by 1981 to secure the third place among the districts in the level of literacy.

The trends in the post-independence period reveal that the northern part of Kerala has considerable change in literacy. The percentage of change between 1951 to 81 is the highest in Calicut (108) followed by Palghat (92),Cannanore (64),Trichur (53) and Ernakulam (43). The reason for such a change can be viewed as the attempts of the government and the private agencies in starting schools in these regions which were much backward in the pre-independence period. Kottayam and Alleppey having the lead in literacy both in 1901 and 1981 have an illustrious past in education with the Christian Missionaries starting the educational centers in the different parts of the regions. Trivandrum and Ernakulam enjoyed the patronage of the princely states in spreading education in the pre-independence period. The lowest level of literacy is reported in Palghat and Wynad as per the data in 1981. The School/ Population ratio, (Keeping the 1981 population as constant) shows that Pathanamthitta and Cannanore have better positions, (one shool covers 1518 people in Pathanamthitta while it is 1539 in Cannore). The level of Trivandrum is the lowest with a ratio of 1:2753.

Health

Kerala's health standards are comparable to that of the developed

countries of the world. The declining birth rate, death rate, infant mortality rate and increase in the span of life to 64 years (54 years is the all India level) highlight the health situation in the state. The family welfare schemes have remarkable progress among the people. The birth rate has declined from 38.9 per thousand in 1951-60 to 22.9 per thousand in 1985. The death rate declined from 22.3/1000 to 6.4/1000 while the infant mortality rate showed an astonishing level of decline from 153 to 33/1000. The story behind such a commendable state of affair is the services rendered by the medical instituions in the state. The number of institutions and beds had registered a manifold increase during the last thirty seven years of development. During the period of 1951-85 there was 415 per cent increase in the number of institutions and 559 per cent increase in the number of beds. Allopathic health facilities consists of 159 hospitals, 444 P.H. Centres, 397 dispensaries, 20 T.B. Centres. The bed population ratio increased from 130 in 1985-86 to 132 in 1986-87.

The State has a well developed Ayurvedic System of treatment. There were 97 hospitals,500 dispensaries and 228 Grant-in-aid Vaidyasalas in the state at the end of 1986-87. The total bed strength was 1769 in 1986-87. The Homeopathic Institutions increased from 251 in 1985-86 to 279 in 1986-87. The bed strength was 700. The per capita expenditure on health has come to Rs.50.13 in 1986-87.

Kerala has a good net work of medical institutions spread all over the state, both in modern allopathy and the age-old indigeneus medicine. It isaremarkable feature that more than the dispensing units, the medical institutions work as the centres of health education which can do very valuable service in the bodycare and healthy living. The distribution of medical centres in the districts reveals that Wynad

Table: 3.9

NUMBER OF MEDICAL INSTITUTIONS . 1985

District	No. of Medical Institutions			Total
	Allopathy	Ayurveda	Homeeopathy	
Trivandrum	101	58	26	185
Quilon	72	40	19	131
Pathanamthitta	47	25	NA	72
Alleppey	73	41	21	135
Kottayam	66	31	20	117
Idukki	50	22	16	88
Ernakulam	102	50	24	176
Trichur	97	71	13	181
Palghat	84	46	14	144
Malappuram	90	54	22	166
Kozhikode	67	35	18	120
Wynad	31	10	3	44
Cannanore	132	38	27	197
State	1012	521	213	1746

Source: Statistics for Planning, 1986, Government of Kerala.

and Idukki stand behind in the number of medical institutions. The backwardness of these regions in the infrastructural development is reflected as the cause of the low level of medical institutions. (Table3.9)

State Income

The State percapita income whch was only Rs.594 in 1970-71 at current prices increased to Rs.2371 in 1986-87, while in the previous year it was Rs.2140 and the growth rate comes to 9.7 per cent. If the percapita income of the State is considered at constant prices (1970-71) there was a decline of 1.1 per cent during 1986-87 which shows that the inflationary trends in Kerala were very high.

A district wise analysis of the per capita income of current prices indicates that in 1985-86 Wynad had the highest percapita income, followed Idukki. While it was Ernakulam and Idukki enjoying the top position in 1984-85. Ernakulam, Kottayam and Kasargod come with in the five ranks. Malappuram has the lowest percapita income. A comparative study of the percapita income reveals that the highest growth rate is seen in Cannanore and the average growth rate is 1.5%.

Table: 3.10

PERCAPITA INCOME OF DISTRICTS AT CURRENT PRICE

District	1981-82 (Rs)	1985-86 (Rs)	Growth rate
Trivandrum	1441	2152	1.5
Quilon	1454	2205	1.5
Pathanamthitta	..	2223	..
Alleppey	1457	2111	1.4
Kottayam	1647	2354	1.4
Idukki	1972	2936	1.5
Ernakulam	1954	2882	1.5
Trichur	1397	2020	1.4
Palghat	1311	1790	1.4
Malappuram	918	1320	1.4
Calicut	1272	1903	1.5
Wynad	2346	3380	1.4
Cannanore	1204	1881	1.6
Kasargod	..	2226	..
State	1444	2140	1.5

Source: Economic Review, 1987, Government of Kerala.

Among the districts Ernakulam contributes the highest share (13.4%) to the state income. Trivandrum stands second (10.3%) while it is Trichur securing the third place (9.1%). Wynad and Idukki have the low levels of contribution mainly because their source of income is only from the products of the high lands. The following table presents a comparative study of the district income in 1981-82 and 1985-86.

Table: 3.11

DISTRICT INCOME AT CURRENT PRICE

Districts	1981-82 (Rs.in lakh)	1985-86 (Rs.in lakh)	Growth-Rate	% of share in 1985-86
Trivandrum	37693	60687	1.6	10.3
Quilon	41434	52551	1.3	8.9
Pathanamthitta	..	26738	..	4.5
Alleppey	34498	42797	1.2	7.2
Kottayam	28157	43408	1.5	7.3
Idukki	19424	30912	1.6	5.3
Ernakulam	50029	79382	1.6	10.4
Trichur	34349	53523	1.6	9.1
Palghat	27095	39927	1.5	6.7
Malappuram	22377	34450	1.5	5.8
Calicut	28820	46420	1.6	7.8
Wynad	13257	20383	1.5	6.7
Cannanore	34085	39471	1.2	6.7
Kasargod	..	21101	..	3.6
State	371218	591750	1.6	100

Source: Economic Review, 1987, Government of Kerala.

A low growth rate is seen in Quilon, Alleppey, and Cannanore from 1981-82 to 1985-86,

Employment

The estimated population of Kerala in 1987 is 276 lakhs. Out of these 30.34 lakh are job seekers on the live registers of the Employment Exchanges. Though the State has only 3.7 per cent of the total population in India, the unemployed in Kerala comes to 10 per cent of the total unemployed in the country. The number of under employed persons is estimated to be 15 lakhs. Thus the back log of unemployment becomes 45 lakh, which as a porportion of a total labour force of 107 lakhs, works out to 40 per cent. Among the total number of the unemployed and under employed nearly 62 per cent are having qualifications above the primary level. At the end of December 1987 the professional, technical and related work seekers numbered about 82,000 of which 1532 are doctors, 4443 engineers, 297 agricultral graduates and 25 veterinary graduates The employment in the organized sector as on 31.3.1987 was 16.89 lakh which includes 5.77 lakh in the public sector and 5.12 lakh in the private sector. It needs special mention that the job seekers through the employment exchanges in 1971 was only 4.87 lakh which increased to 19.51 lakh in 1981 and 30.34 in 1986-87. The percentage of increase is 55 during the period of 1981-87. The details are given in the following table.

Table: 3.12

JOB SEEKERS REGISTERED IN EMPLOYMENT EXCHANGES

(lakh)

Qualification	1970-71	1980-81	1986-87
S.S.L.C. & Above	1.79	9.24	16.83
Below S.S.L.C.	2.94	9.80	12.69
Professional & Technical	0.14	0.17	0.82
Total	4.87	19.51	30.34

Source: Government of Kerala, Kerala Economy in Figure 1987, (State Planning Board)

The trend of unemployment in the districts can be verified with the date on the job seekers in each district. In 1975 the total number of registered job seekers had been 6,11,242. Trivandrum had the maximum number, while the lowest number was in Idukki. By 1984 the total number increased to 23,18,163 and the same trend of 1975 is seen for the highest and lowest number of job seekers. The percentage of growth in job seekers is 275. The district-wise distribution indicates that rate of growth in the number of job seekers is the highest

Table:3.13

DISTRICT-WISE JOB SEEKERS

No	District	Job seekers 1975	Job seekers 1984	Rate of change
1	Trivandrum	139215	439346	3.2
2	Quilon	73464	214019	2.9
3	Pathanamthitta	..	211407	..
4	Alleppey	55611	63978	1.2
5	Kottayam	58213	182501	3.1
6	Idukki	14617	61274	4.2
7	Ernakulam	120948	310103	2.6
8	Trichur	55336	173780	3.1
9	Palghat	27204	139150	5.1
10	Malappuram	35076	107459	3.1
11	Calicut	64469	218531	3.4
12	Wynad	..	46795	..
13	Cannanore	47089	149370	3.2
	State	611242	2318163	2.8

Source: Economic Review 1976, 1985, Government of Kerala.

in Palghat while it is the lowest in Alleppey. The growth rate in the State seems to be 2.8 in the decade (Table 3.13)

Chapter IV

NATURE OF IMBALANCES IN KERALA

The profile of Kerala Economy presented in the third chapter reveals the existence of imbalances among the regions (districts) in Kerala. The fourteen districts lying in three geographical zones - Lowland mid land and high land have heterogenous pattern of growth and development. This chapter makes an attempt to measure the level of disparity using some specific indicators and to identify the backward regions in the state. As specified in the Appendix(Table A1) the indicators represent agriculture, industry, human resource development, transport, health, banking, housing and income. The study covers a period of 11 years from 1975 to 1985.

Co-efficient of Regional Imbalances (C_j)

The Co-efficient of Regional Imbalances from 1975 to 1985 varied between 10% for literacy and 112% for workers in industry. Out of the 25 indicators 5 have an imbalance level of less than 20 per cent. The distribution of the indicators according to the level of regional imbalance is presented in table 4.1

Table: 4.1

DISTRIBUTION OF THE CO-EFFICIENT OF REGIONAL IMBALANCE

Co-efficient of Regional Imbalance	No. of Indicators	Indicators	Percentage of Imbalance
Below 20	5	Literacy	10
		Female Literacy	12
		Work Participation Rate	13
		House with water availability	14
		Cropping intencity	15
20 - 30	7	Land utilization	22
		No. of medical institutions	22
		Percapaital income	24
		District Income	25
		No. of students	26
		Length of P.W.D. Roads	27
		Rain fall	29
30 - 40	6	Banks/1000 people	31
		No. of Schools	31
		Electrified houses	33
		No. of Commercial Banks	35
		No. of Arts & Science Colleges	38
		Consumers of Electricity	39
40 - 50	3	Family Planning Programme	41
		Employment	41
		Small Scale Industrial Units	43
Above 50	4	No. of Vehicles	51
		No. of factories	52
		Area irrigated	85
		Workers in Industry	112

Since the regional imablance is persistent in the process of growth and development, a reasonable level of imbalances may be accepted as normal. Here it is arbitrarily taken as 20 per cent. Once such an allowance is given, a high degree of imbalance is seen in the distribution of resources and the process of development over the regions. The two indicators of agriculture(land utilization and area irrigated) have the regional imbalance level of 22% and 85%, respectively. The indicators such as the number of schools, colleges, commercial banks, factories small scale industries, vehicles, workers in industry and percentage of eletrified houses have more than 30 per cent of regional imbalances. Most of these items come under the infrastructural components of the economy whose deficiency can weaken the whole economy inspite of the various other measures in the process of economic development.

The attempts to verify the trends of imbalnces reveals that a steady change is not seen from the beginning for any indicator either as declining or increasing. But by the closing years of the study the general trend of the imbalances is declining, though the quantum of change is only marginal (Table A6 Appendix).

A region-wise study shows that except Calicut, Kottayam and Palghat all the other districts exhibit a fall in the regional imbalances between 1975 and 1985. This is calculated as the average of imbalances for the various indicators in 1975 and '85 for each region. The increases in imbalances in Kottayam and Palghat are vary marginal, 0.04 per cent and 0.20 per cent respectively.

A considerable fall in the level of regional imbalances is seen in Trivandrum and Quilon while Idukki, Eranakulam, Trichur, Malappuram, Alleppey and Cannanore present only minor levels of decline. The decline in the imbalances in Trivandrum and Quilon can be explained in the light of the growth in various sectors of the regions. Coming to the sector-wise distribution of imbalances, Trivandrum had decline in the imbalances of agriculture, industry, human resources development, transport, health and power (Table A7 Appendix). In Quilon the imbalances seem to have reduced in industry, human resource development and income. The increase in the regional imbalance as seen in Calicut is mainly due to the hike in imbalances in agriculture, human resource development, health and income.

Table:4.2

INTER-REGIONAL IMBALANCE IN 1975 AND 1985

No	Region	percentage of Regional Imbalance	
		1975	1985
1	Trivandrum	45.69	30.52
2	Quilon	90.43	72.74
3	Alleppey	17.76	16.75
4	Kottayam	29.20	29.24
5	Idukki	60.02	57.08
6	Ernakulam	56.82	51.52
7	Trichur	30.47	24.30
8	Palghat	46.57	46.76
9	Malappuram	49.85	35.67
10	Calicut	30.19	38.72
11	Cannanore	32.74	28.43

Regional variation of the Indicators

It is estimated from the balance ratio of indicators pertaining to particular region, which is ratio of the value of the indicator in the region to the value of the state average ($Y_{Rj} = \frac{X_{Rj}}{X_{sj}}$) This value is powerful enough to present the strength of the region on a particular indicator of development. (Table A8 Appendix).

a. Variation in Agriculture:

Agricultural development is a complex phenomenon with high dependence of the sector on rainfall, climate, type of soil etc. which are generally beyond human control. Land utilisation, area irrigated and cropping intensity influenced by there factors. Hence the backwardness in Agriculture in Kerala may be viewed as the deficiency in the value of these indicators.

The estimated values of balance ratio show that Trivandrum, Palghat and Malappuram have deficiency in rainfall while the other regions keep up a desirable level during the period of study. As for the land utilisation most of the regions present a lower level except Quilon, Palghat, Calicut and Cannanore. Irrigational facilities are available in Alleppey and Ernakulam since these districts are surrounded by backwaters and lakes while Trichur and Palghat have the irrigation projects such as Malampuzha and Peechi.

b. Industry

Industry is the engine of economic development. Today industrialisation has been accepted as the means to the speedy transofrmation of the socio economic structure. An economy with the professed goal of balanced growth and social justice has to see that benefits of industrialisation reaches all parts of the country. Hence the reduction of regional imbalances becomes the prime task of the planning process.

Industrial sector in Kerala is studied with three indicators- number of working factories, small scale industrial units and workers in industry. All the three indicators have wide range of imbalances. The regions with the historical advantages in the industrial development alone keep up the standard inspite of various steps for industrial development in the state as a whole. Quilon, Ernakulam, Trichur, Palghat, Calicut and Cannanore showed higher balance ratio while Idukki and Malappuram stand much behind, but it compensates the deficiency in the number of small scale units while Idukki is pushed backward even in this.

Workers of the industrial sector are concentrated in Quilon Ernakulam and Trichur. The dominence of Quilon might be due to the traditional industries like cashew, tiles and bricks. Trichur could reduce the imbalances in industry during the period of study by starting new industrial units. Hence its position in the number of industrial workers is high. Ernakulam has the highest balance ratio with its

concentration of industries and it has the maximum number of workers. But Palghat which finds a place in the industrial map of Kerala has a poor show in the number of workers because of the sick industrial units for want of capital.

c. Human Resource and Infrastructural Development

If the industry is the engine of growth and development the human resource and infrastructural items make the path to development. A country's efforts to improve the lot of the people become easy only with the improvement of the skill of the people by giving better education and health, providing facilities of transport, power and communication. Kerala with its unique features in education and health have a good profile in human resource development. The indicators verified under this are number of schools, students, colleges, people employed, work participation rate, literacy, number of vehicles, houses electrified and with water availability, number of banks, bank/1000 people etc.

The indicators of human resource development have a fair balancing in most of the regions except for Idukki and Malappuram. Idukki is backward in schools, students, colleges and employment. But its general literacy and female literacy have high values. Malappuram is much behind in employment, number of colleges and work participation rate compared to the other regions.

Length of P.W.D. Roads and the number of vehicles have been taken to assess the progress of transport in each district. The balance ratio of the length of P.W.D. road for all the district is above 70% while for vehicles Idukki and Malappuram are far below. It may be noted that the number of vehicles have the influences not only fo the length of road but the nature of terrain, nearness to the important city etc. Therefore it is not without reason that Trivandrum, Ernakulam and Calicut show very high balance ratio where as Idukki has a low level.

Two indicators have been taken to study health status-number of medical institutions and the family planning programmes, Except for Idukki all the regions possess a high value of the indicators. Malappuram is next to Idukki in the backwardness of family welfare programmes. Trivandrum, Quilon, Alleppey, Ernakulam, Trichur and Cannanore have well developed medical system with their age old concentration of medical institutions both in the allopathy and indigeneous medicines. Idukki finds an ill-placed position here also.

Banking service seems to the high in Ernakulam and Trichur districts with the highest number of banks and the ratio of banks per thousand population. Ernakulam, the industrial district of Kerala and Trichur, the district with the highest deposit of Gulf money substantiate this finding. The districts below the norm value are Quilon, Idukki, Palghat and Malappuram, of which Idukki stands the lowest in the rank.

As for the consumers of electricity Idukki the place where electricity is generated to having 15% of the norm value, followed by 45% in Malappuram and 58% in Calicut. The claim of cent per cent electrification of the village stands questioned in the light of this experience.

Income is considered to be a powerful yardstick of better living, provided the infrastructural facilities are available to the region. Idukki with its backwardness in most of the indicators got a high ratio of percapita income to its credit, though its contribution to state income is low. Trivandrum with its high position in employment, cropping intensity and other infrastructural development has only a balance ratio of 92% in the percapita income while that of Alleppey is only 71% though it possess a better position in various indicators analysed. The low position in factories and industrial workers might be the reason for such a state of affairs.

The status of housing is studied with the indicators-electrified houses and the houses with water availability. Since date are available only for 1981 these indicators are not included in the computation of composite index of growth and development. The data for the year 1981 reveal that Idukki and Malappuram stand behind all the other regions in electrification. The value of the balance ratio is only 52% for Idukki while it is 45% for Malappuram. The water availability ratio for Idukki is 92% and one feels it as a paradox that the district which has the high potential of power and water is pushed to "poverty in the midst of plenty".

Classification of Indicators according to their value

The strength of the regions over the indicators is studied by classifying the indicators according to the value of balance ratios. Trivandrum has 15 indicators with their values, above hundred. The indicators with value below hundred include rainfall, female literacy, land utilization, area irrigated, number of factoris, industrial workers, number of schools, literacy, work partcipation, P.W.D. roads and percapita income. This highlights the necessity of special attention to these indicators to bring up this region to higher levels of development.

Quilon has a better place when compared to Trivandrum in the value of indicators. 19 out of 25 indicators have values above hundred. The six indicators lagging behind are area irrigated, work participation rate, commercial banks, banks per 1000 people and electrified houses. Of this the area irrigated has a value of 27% only. All the other except the banks per 1000 people possess a value between 90 and 100. Quilon with its traditional status in agriculture, trade and commerce finds backwardness in the area irrigated and the numer of commercial banks.

Table: 4-3

CLASSIFICATION OF INDICATORS ACCORDING TO THE VALUE OF BALANCE RATIO

District (Ranked)	Indicators with value above 100	Indicators with value below 100, but above 50	Indicators with value below 50
Ernakulam	Rainfall, Area irrigated, Cropping intensity, Working factories, S.S.I, Workers, No. of students, Percentage of literacy, Female Literacy, No. of colleges, work participation, Employment, P.W.D. Roads, Vehicles, Medical institutions, Family Planning Programmes, Banks, Banks/1000 people, Consumers of electricity, Percapita Income, District income, Electrified houses (22)	Land utilization, Schools, Houses with water availability. (3)	
Trichur	Rainfall, Area irrigated, Cropping intensity, Factories, SSI, Workers, Students, Literacy, Female literacy, Colleges, Vehicles, Hospitals, Family Planning Programmes, Banks, Banks/1000 people, Consumers of electricity, Dist-income, Electrified houses, Water availability (19)	Land utilization, Schools, Work participation, Employment, Length of P.W.D Roads, percapita income. (6)	
Quilon	Rainfall, Land utilization, Cropping intensity, No. of Factories, SSI, Workers i Industry, No. of schools, Students, Percentage of Literacy, Female literacy, Colleges, Employment, Length of P.W.D. Roads, Vehicles, Medical institutions, Family Planning Programmes, Consumers of electricity, Percapita income, District incoem (19)	Work participation, No. of Banks, Electrified houses, Houses with water availability, Bank/1000 people. (5)	Area irrigated, (1)
Alleppey	Area irrigated, Cropping intensity, SSI, Schools, Students, Literacy, Female Literacy, Colleges, Hospitals, Family Planning, Banks/1000 people consumers of electricity, District Income, Electrified houses, Houses with water availability (16)	Rainfall, Land utilization, workers in Industry, work participation Rate, Employment, P.W.D. Roads, Vehicles, Percapita income (9).	

1	2	3	4
Trivandrum	Cropping intensity, S.S.I, Students, Percentage of literacy, Colleges, Employment, Vehicles, Medical institutions, Family Planning, Banks, Banks/ 1000 people, Consumers of electricity, Dist-income, Electrified houses, Water availability (15)	Rainfall, Land utilization, Area irrigated, Workers, Schools, Work Participation, Length of P.W.D Roads, Percapita income, Female literacy, (9)	Working factories (1)
Calicut	Rainfall, Land utilization, Factories, S.S.I, Schools, Students, Colleges, Employment, Vehicles Family Planning, Percapita income, District income, Water availability (13)	Cropping intentsity, Workers, Literacy, Female Literacy, Work participation, P.W.D Roads, Medical institutions, Banks, Bank/ 1000, Consumers of electricity, Electrified houses. (11)	Area irrigated (1)
Cannanore	Rainfall, Land utilization, Factories, S.S.I, Schools, Students, Employment, P.W.D. Roads, Medical institutions, Banks, Consumers of electricity, District income, Water availability. (13)	Area irrigated, Cropping intensity, workers, Literacy, Female literacy, Colleges, Work participation, No. of Vehicles, Family Planning, Banks/1000 Percapita income, Electrified houses. (12)	
Kottayam	Literacy, Female Literacy, Colleges, P.W.D Roads, Banks/1000 people, Percapita income, Electrified houses. (7)	Rainfall, Land utilization, Factories, Work-participation, Employment, No. of Vehicles, Cropping intensity, S.S.I Schools, Students, Medical institutions, Family Planning, Banks, Consumers of electricity, District income, Availability of water (16)	Area irrigated, Workers in Industry. (2)
Palghat	Land utilization, Area irrigated, Cropping intensity, Factories, Work Participation, Bank per 1000 people. (6)	Rainfall, Workers Schools, Students, Literacy, Female literacy, Colleges, Employment, P.W.D Roads, Vehicles, Medical institutions, Family Planning, Banks, Consumers of electricity, Percapita income, District income, Electrified houses, Availability of water. (18)	S.S.I Units (1)

1	2	3	4
Idukki	Rainfall, work participation, Percapita income. (3)	Land utilization, Cropping intensity Literacy, Female Literacy, Employment, P.W.D Road, Medical institutions, Banks/1000 people, District Income, Electrified houses, Water availability, (11)	Area irrigated working Factories, S.S.I Units, workers in Industry, Schools, Students, Colleges, Vehicles Family Planning, Banks, Consumers of electricity. (11)
Malappuram	Schools, Students, Water availability. (3)	Rainfall, Land utilization, Area irrigated, Cropping intensity, S.S.I units, Literacy, Female literacy, Colleges, Work participation, P.W.D Roads, Medical institutions, Family Planning Commercial Banks, Bank/ 1000 people percapita income District income. (16)	Working factories, Workers in Industry Employment, No. of Vehicles, Consumers of Electricity, Electrified houses (6)

Nine out of twenty five indicators have a balance ratio less than hundred in Alleppey, Rainfall, land utilization, number of factories, workers in industry, work participation rate, employment, roads, percapita income and district income are the indicators having the value less than hundred. Of these, the number of factories, workers in industry, employment and percapita income have a very low value. The low percapita income, employment and work participation might be the result of the deficiency in the number of factories or workers in industry or even the lack of proper land utilization by which the agricultural development could have provided more employment and higher income.

Kottayam has higher values for seven indicators, Literacy (both general and female), number of colleges, roads, banks, percapita income and electrified houses are the indicators with the higher values of growth. It is worth mentioning that most of these indicators come from the sector of human resource development or infrastructural items. The high percapita income of Kottayam is the result of its cash crops especially plantation crops which became the main source of the regions income. This region tops the list of literacy and the instituions for higher education. With this background once we analyse the other indicators, the backwardness in their values of balances ratio is not sufficient to say technically that the region is behind in progress. Cropping intensity, irrigation, workers in industry, the number of industries etc. present very low level in the measurement. But in the

light of the nature of crops, mostly perennial the backwardness in the cropping intensity or irrigation doesn't adversely affect the region. Since this region is fundamentaly having dependence on the plantation crops or forest resources the industrial backwardness has only little effect on the standard of living of the people. But it would be desirable to make a master plan seeking the chances of organizing the types of industrial units preferably agro-based, strictly on the availability of the resources in the region.

Idukki, the region of hills, valleys, power generation and spices plants cultivation present a gloomy picture of its growth performance. Only three indicators rainfall, work participation and the percapita income out of the 25 studied have the value above the stipulated level. Rainfall is its natural blessing, work participation is high because of the estates tea, rubber etc. in which there are a good number of labourers since the population consists mostly of workers. High percapita income is the result of the plantation crops and the forest resources. To verify the other indicators of development area irrigated, workers in industry, number of factories, S.S.I. Units, schools, students, colleges, vehicles, family planning programmes, banks and consumers of electricity have balance ratio below 40. Most of these indicators can find improvement only with the state participation in the economic and infrastructural building activity.

Ernakulam, the industrial belt of Kerala finds backwardness

only in three indicators-land utilization, number schools, and houses with water availability. Most of these indicators possess the balance ratios between 90 and 100. The backwardness in land utilization can be explained as the influecnce of the geographical features of the region. The marshes with much water logging or the backwaters do not permit an all-time cropping as it is possible in several other regions. Drinking water availability is a serious problem especially to the urban dwellers of Ernakulam. The water supply schemes seem to be less efficient compared to the other major cities like Trivandrum and Calicut. The port and such infrastructural devices have given much higher position to Ernakulam in the number of industries, workers, S.S.I units, irrigation facilities, roads, vechicles, banks, emcployment and income. The remarkable achievements of the region get: reflected in the fact that there is no indicator having less than 75 per cent of value.

Trichur, the cultural capital of Kerala, has a well-developed irrigation system with the dams and canals. The newly started industrial units, strong banking service, a good net work of medical insitutions and educational centres make a strong base for the economy of this region. At the same time the reason for the lower land utilization despite the irrigation facilities has to be veiwed seriously. Coming to the percapita income level the trend is much below the expectation since the district is well known for its immence flow of gulf money. So long as there is no scheme for the productive investment of such deposits, both the level of employment and the percapita income are forced to continue below the state average as seen in the Table A8 in the Appendix.

Palghat, famous for its irrigation facilities with the Malampuzha Dam and the paddy fields has only six indicators having the stipulated value to its credit. Indicators coming under the agricultural sector find better position. Work participation rate is high since the agriculture and the industrial units have the potential of employment. But the employment level is low. The indicators having low values come under health, literacy, transport, income and educational institutions. A resource based planning project is the need of the district.

The formation of Malappuram as a seperate district was meant for bringing down the disparity of that region with its vast number of people uneducated, unemployed and living in poverty. After a decade of its formation this region finds encouraging level only in the number of schools, students and water availability. Its backwardness is serious in the number of industrial units, workers, vehicles, consumers of electricity and employment.

Calicut occupies a unique position in the history of Indian trade and commerce. Ever since the foreigners contact with India, Calicut had its role as a trade centre. No wonder it has a well developed commercial infrastructure which led to the emergence of industrial centres, employment, workers, educational facilities and above all the higher percapita income. But this region is badly in need of more attention to the irrigation facilities, availability of electricity, number of banking institutions, work participation rate and literacy of both the male and female. The low level of work participation may be

due to the rigidity in the social structure which has the serious influence of the religion. Improvement in literacy can solve this problem to some extent. Roads and medical institutions have not shown the expected improvement inspite of the urban character of the region. Thirteen indicators possess value greater than hundred while nine are in between 75 and 100.

The trends presented by the indicators in Cannanore are more or less similar to that of Calicut, but for consumers of electricity and the number of medical institutions. Cannanore is known for the indigenous medicines and this gives a high value of balance ratio to the district in the number of medical institutions. The region needs much attention to irrigation facilities, cropping intensity, number of educational institutions, literacy, transport, banking and electrification. It is seen that all the indicators possess value greater than 75 in the district.

Quotient of Disparity of Income

This has been estimated to examine the effect of an increase in the percapita income on the inter-regional income differentials. The following table gives the quotient of disparity of income of various regions from 1975 to 1985.

Table:4.4

QUOTIENT OF DISPARITY OF INCOME

Region	QD	Mean	Rank
Trivandrum	0.996	1347	5
Quilon	1.036	1402	4
Alleppey	0.972	1316	7
Kottayam	1.203	1625	3
Idukki	1:245	1684	2
Ernakulam	1.258	1702	1
Trichur	0.939	1270	8
Palghat	0.906	1226	10
Malappuram	0.681	921	11
Calicut	0.987	1335	6
Cannanore	0.926	1253	9
State	1.000	1353	

The quotient of disparity ranges from 0.681 (Malappuram) to 1.258 (Ernakulam). Idukki stands second while Kottayam gets the third place. The reasons why Trivandrum, Alleppey, Palghat and Cannanore are having low levels of income can be explained with their performances in the key sectors like agriculture and industry. Both agriculture and industry have very low profile in Trivandrum. The main source of income

to the people in the region is from the service sector. Since the work participation rate is low the percapita income is also low. Despite the irrigation facilities and high cropping intensity, land utilization does not seem to have achieved much progress. Hence the agricultural sector is incapable of absorbing the unemployed. Similarly Industry also has a sluggish trend. The region is in a better postion in regard to small industrial units, but the balance ratio of workers is low. This results in the low level of employment and income.

The dependence on long term crops has given a high level of income to Kottayam. It is seen that the work participation rate or the level of employment have very little to do in explaining a high income in the region. The sources of income to Idukki may be the forest resources and cash crops. The high work participation rate, especially from among the working class of the region is also a cause for the high percapita income.

The strong industrial base and the associated teritary sector as well as infrastructural development provide a high level of income to Ernakulam. It tops the list for the quotient of income while Trichur, Palghat, Malappuram and Cannanore find lower levels due to the inefficiency of either the industrial sector or agriculture. The general sources of income generation reveal that the tertiary sector is not powerful in its contribution to improve the standard of living but at the same time a good share of the state revenue is spent on education, health, transport and power which do not support the growth of the core sectors. It is high time that proper analysis is made on the functioning of these sectors since the agriculture and industry are directly related to the sectors like transport, power etc. Moreover, the agricultural sector

faces very unfavourable trends with a declining growth rate either because of the conversion of land or the sluggish cropping, or the unfavourable pressure of the socio-economic variables deep rooted in the political instability which leads to the financial crisis and which casts its spell on the life, especially income and employment of the people.

In analysing the reasons for the lower percapita income the trends in the sectoral change may also be viewed as relevant. The composition of the economy tells us that there is a decline in the dependence on agriculture from 57% in 1971 to 53% in 1981 (Statistics for Plannin, 1986), industry having a marginal increase from 19% to 20% while the tertiary sector finds a remarkable change from 24% to 28%. But this change from the primary and secondary to the tertiary cannot be viewed as a sign of development as professed by the traditional development theories since the component of this sector adds to the unweildy economic activities. This becomes quite apparent from the composition of the tertiary sector. It is seen that only 8% of the people come under the trade and commerce which is a powerful factor in this sector, and the rest come under other various services like education, health etc. which exist on the large share of the state economy and contribute nothing to the process of productive investment. An economy with too much transfer payments cannot expect anything more than this. But the emergence of powerful tertiary sector becomes a blessing to the economy only when it is an outcome of the growing agricultural and industrial centres.

Composite Index of Growth during 1975-'85

This study has mainly focussed on a time period of 11 years from 1975 to 1985 for 11 districts. The newly formed districts (Pathanamthitta, Wynad, Kasargod) are not included separately due to the non-availability of data for the period of study. An attempt is made to make the Composite Index of Growth in the various districts from 1975 to 1985, by computing the values of the indicators in the base year and terminal year and deriving the ratio with the weight given to each indicator. Such an exercise is done to trace out the regions which got the highest value of growth during the period and to rank them accordingly. Table 4.5 gives the trends of growth as per the index obtained :

Table: 4.5

COMPOSITE INDEX OF GROWTH FROM 1975 to 1985

(Y_g)

No	District	Index	Rank
1	Trivandrum	1.61	10
2	Quilon	1.59	11
3	Alleppey	1.71	7
4	Kottayam	1.76	6
5	Idukki	2.38	2
6	Ernakulam	1.79	5
7	Trichur	1.70	8
8	Palghat	1.94	3
9	Malappuram	2.41	1
10	Calicut	1.90	4
11	Cannanore	1.66	9

It is observed that Malappuram and Idukki top the list while Trivandrum and Quilon are lowered to the bottom. The values obtained by Malappuram and Idukki highlight the fact that momentum of change is remarkably high in these two districts compared to the other regions. Palghat and Calicut also present a better level while the other districts get the ranks below them. The index of growth in Malappuram seems to be 2.4 while that of Idukki is 2.38.

A micro level study of the growth of indicators shows that the index of growth for small scale industrial units, number of vehicles, family planning programmes, percapita income and the district income comes to 2 or above 2. Idukki has the highest growth in the S.S.I (11.82) followed by Palghat (7.42), Kottayam (5.3), Malappuram (4.94), Calicut (4.46), Alleppey (4.40),Trichur (3.92),Quilon (3.49), Trivandrum (2.98) and Cannanore (2.61). As for the increase in transport facilities Malappuram has the highest growth of 3.78, followed by 3.38 in Alleppey, 3.26 in Quilon, 3.25 in Trichur, 3.11 in Cannanore, 2.91 in Ernakulam, 2.85 in Idukki. Percapita income and District income also show a growth rate of more than 2 except for Palghat and Malappuram which possess a growth of 1.68 and 1.93 respectively. A general trend of growth reveals that Malappuram has the maximum number of indicators whose value of growth is 1.5 or above. Table 4.6 gives the range of the index in different districts indicators accrding to their value of growth based on the values in (Table A10 Appendix).

Table:4.6

CLASSIFICATION ACCORDING TO THE INDEX OF GROWTH

No	Region	Number of indicators	
		Below 1.5	Above 1.5
1	Trivandrum	15	8
2	Quilon	16	7
3	Alleppey	15	8
4	Kottayam	13	10
5	Idukki	15	8
6	Ernakulam	16	7
7	Trichur	16	7
8	Palghat	15	8
9	Malappuram	10	13
10	Calicut	13	10
11	Cannanore	16	7

Composite Index of Development (Y_d)

The Composite Index of Development presents the status of the regions in the process of change from 1975 to 1985. This is computed with the balance ratio of each indicator in each district and summarised in Table 4.7.

Table: 4.7

COMPOSITE INDEX OF DEVELOPMENT

Region	Value of the Index	Rank
Trivandrum	1.02	5
Quilon	1.30	2
Alleppey	0.96	7
Kottayam	0.87	9
Idukki	0.56	11
Ernakulam	1.41	1
Trichur	1.16	3
Palghat	0.92	8
Malappuram	0.68	10
Calicut	1.01	6
Cannanore	1.09	4

The ranking of the districts according to its development in various indicators as at the end of 1985, by indicates and entirely different picture compared to the value in the Composite Index of Growth. Ernakulam stand ahead of all the districts followed by Quilon and Trichur. Trivandrum has only a fifth place while Malappuram and Idukki with their traditional backwardness find a place in the lower stratum. (Table – A11 Appendix)

A comparative study of the growth in each district during the period of 11 years, and the status (development) by the end of the period is available in Table 4.8. The term growth is used here to present the quantitative change in each indicator of development in 11 years, while development shows the achievement of the district as by the end of the time period 1985. The weighted index is used to measure the trends of grwoth and development. The weights assigned (as shown in the table A1 in the Appendix) are arbitrary as done in several

Table: 4.8

COMPARISON OF Y_g AND Y_d

No	Region	Rank in Y_g	Rank in Y_d
1	Trivandrum	10	5
2	Quilon	11	2
3	Alleppey	7	7
4	Kottayam	6	9
5	Idukki	2	11
6	Ernakulam	5	1
7	Trichur	8	3
8	Palghat	3	8
9	Malappuram	1	10
10	Calicut	4	6
11	Cannanore	9	4

studies of similar nature.*

Quilon and Trivandrum have lower ranks in growth but they have high status in development. The development process even from the pre-independence period for the historical reasons might have given a better position to these regions. Alleppey has the same rank in both, while Kottayam has higher values of growth, not in development. Malappuram and Idukki which find commendable progress in growth, have to go a long way to keep pace with the other regions in the levels of development. Hence the degree of disparity is higher in these two regions. Alleppey is to be reviewed as a neglected region with its low ranks in growth and development. Trichur and Cannanore possess low growth during the period of study, but their achievements, inherited from the past have placed them to the front row with third and fourth positions in development. To consider the regions coming within the first five ranks as safe Ernakulam, Quilon, Trichur, Cannanore and Trivandrum are comparatively better in their position. But it is to be verified whether the programmes followed for achieving growth are capable of keeping their levels in the years to come.

Note: *

1. Dr.Hemalatha Rao (1984) and S.K. Mandal (1987) have used the arbitray weights in their studies of disparities in Karnataka and Bihar, respectively
2. The general trends are insensitive to the changes in the value weights.

The study on the Regional Disparity in Kerala's economic development proves that there exists substantial interdistrict variations in the development pattern. The finding that 20 out of 25 indicators analysed are having imbalance above 20% shows the existence of inter district variatons in Kerala. The percentage of regional imablance shows a remarkable decline only in Trivandrum, Quilon and Malappuram. In all other districts either a marginal increase or decrease cannot present a fundamental change in the economic conditions.

The year-wise analysis of the imbalance of indicators (Table A5 Appendix) shows that the imbalances were quite unsteady in their change. For example, the number of factories had an imbalance of 50.88 in 1975 which went on increasing till 1979 to 55.14 and then declined to 51.92 in 1981. Again an increase is seen in 1982 which leads to a decline in the subsequent years. Such trends are visible for the indicators such as Land utilization, area irrigated, cropping intensity, employment, number of schools and colleges,number of vehicles,hospitals family planning programmes, commercial banks, consumers of electricity, percapita income and district income. Hence the comparison of the imbalance in the base year and the terminal year alone cannot present the real picture of the economy in its efforts to overcome the imbalances. These fluctuating changes of ups and downs in the imbalances prove the inefficiency of the planning programmes to overcome the problems of inter regional disparities. Hence we arrive at the conclusion that inspite of the various measures the regional imbalances remain more or less the same over time.

Chapter - V

SUMMARY OF RESULTS AND CONCLUSIONS

The problem of regional disparity in Kerala's economy has been studied keeping the district as the region using 25 indicators of development. Though there are 14 districts in Kerala the three newly formed districts - Kasargod, Wynad and Pathanamthitta are not taken separately due to the non-availability of data over a period of ten years. The indicators belong to core sectors such as agriculture, industry, human resource development, transport, health, power and housing.

The Analysis of Imbalances

The study has utilised the data from 1975 to 1985. It is observed that the disparity in the number schools, colleges, commercial banks, electrified house, number of working factories and small scale units, vehicles, workers in industry is high. At the same time a close look at the trends of imbalances reveals that a steady change is not seen from the beginning till the end, either as increasing or decreasing.

The classification of indicators in each district according to the balance ratios shows the strength of the region. Ernakulam got 22 indicators with a value above hundred,19 each in Trichur and Quilon 16 in Alleppey, 15 in Trivandrum, 13 each in Calicut and Cannanore,

7 in Kottayam, 6 in Palghat, 3 each in Idukki and Malappuram. This trend gets reflected in the composite Index of Development where Ernakulam tops the rank while Idukki and Malappuram get the lowest ranks. But in terms of the changes from 1975 to 1985, the backward regions Malappuram and Idukki obtains the high rank. The regions Quilon, Trivandrum, Trichur and Cannanore which find better ranks in development are pushed backward in the growth process.

The indicators having value less than 100, are considered as backward in the process of growth. Ernakulam got low values for land utilization, number of schools, houses with water availability. Trichur find backwardness in land utilization, number of schools, work participation, employment, length of P.W.D. roads, percapita income. Six indicators work participation rate, number of banks, electrified houses, houses with water availability, bank/1000 people and area irrigated seem to be low in performance in Quilon. Alleppey's low performance is in rainfall, land utilization, working factories, workers in industry work participation rate, employment, P.W.D. roads, number of vehicles and per capita income. Trivandrum, the capital district of Kerala has only 15 indicators with value above hundred. Rainfall, land utilization, area irrigated, number of workers, number of schools, work participation, length of P.W.D. roads, per capita income, female literacy and working factories seem to be backward in Trivandrum. Calicut has backwardness in cropping intensity, workers in industry, literacy, female literacy, work participation rate, P.W.D. roads, number

of medical institutions, number of commercial banks, bank/1000 people, consumers of electricity and electrified houses. Most of these items come under either human resources development or service sector. Cannanore has similar trends as calicut. Kottayam has backwardness in most of the indicators except literacy, female literacy, P.W.D. roads, bank/1000 people. The low levels of development are quite evident in the number of indicators having lesser values in Idukki and Malappuram. Rainfall, work participation rate,and percapita income find a better place in Idukki while Malappuram has only the number of schools, number of students and houses with water availability to its credit for having the stipulated value.

The quotient of income (percapita income) disparity gives the lowest position to Malappuram while Ernakulam secures the highest rank. The regions coming under the first five ranks in percapita income are Ernakulam, Idukki, Kottayam, Quilon and Trivandrum. Since the percapita income is indicative of the standard of living to a limited extent, the five regions do not possess much problems of poverty compared to the other regions. At the same time, Idukki with its 2nd rank in income finds backwardness only because of the non availability of basic infra-structural needs.

Backward and Developed Regions

The regions with low profile in the process of development are termed as backward regions, while the developed regions are marked

on the basis of the value of balance ratio. But at the same time it generates particular interest whether any region in Kerala can be said as developed since every region has the problems of development in various sectors. Ernakulam which occupies the highest rank in development has three indicators having value less than 100, while Quilon which gets the 2nd position has 6 indicators with lower value. As for the other districts within the first five ranks (arbitrarily taken as norm for development) 10 indicators in Trivandrum, 6 in Trichur and 12 in Cannanore have values less than 100. Hence the most developed among the regions can be said only as 'developing' region in the present situation in Kerala economy.

The fast developing regions in Kerala have a peculiar spread. The regions at the two ends of the state Trivandrum and Quilon in the south, Calicut and Cannanore in the north show the sign of better prospects in development and so are the two regions - Ernakulam and Trichur in the central part of the state. These regions have historical reasons for attaining the higher levels of growth and development and they enjoyed the patronage of the royal administration long before the emergence of the state of Kerala. The strategies followed by the rulers for development were powerful enough to make a strong infrastructural base on which the economy could attain a high status in development. The other regions were neglected and have stories of backwardness even today.

There exists considerable chances for overcoming the problem of disparities in Kerala economy. As the backward regions are identified, the scope for area-based economic planning becomes quite evident. Each and every region should find a place in the process of planning in accordance with the resource base and the level of infrastructural achievement. Proper care is to be taken to see that both the developed and underdeveloped regions have different approaches in the process of economic planning and also it is important that the reduction in disparity should not be at the cost of lowering the developed regions to the level of the underdeveloped ones.

Decentralisation of the planning process to the village level can take up the challenges of the imbalances in Kerala economy. The example relevent here is the resource potential in the backward regions of the economy. Idukki, Malappuram and Palghat are located as the backward regions compared to the other regions in the process of development. With the endowment of natural resources or the industrial potential, these regions should get special attention with pre-determined projects. Once we strengthen the District Administration and the District Planning Programme each and every district can be incorporated in the planning activity according to its resource base and need. The planning machinery working at present in the state adds to the unweildy features of bureaucratic planning. The people's participation in the planning is only in principles at present.

The major bottleneck in the efforts of decentralisation of planning is thefeeling that once the District Planning Office is started with several posts for civil servants,strictly on bureaucratic line,the planning process has begun. What has happended in the state today is that such offices have become the centre for accommodating people from various servies. This venture doesn't have the resource personnels or technocrats who are genuinely interested in the problems of the region and capable of contributing to the development process of the region.

In the efforts to bring down the regional imbalances there is the relevance of a master plan integrating the geographical regions of the state. The state can be divided into three natural zones as referred to in Chapter III - the lowland, midland and highland. The low land consists of the coastal regions and 6 districts - Trivandrum, Quilon, Alleppey, Ernakulam, Trichur and Malappuram. The midland has mostly the food crops production and the high land possesses the plantation crops or the forest resources. Together with the District Planning if a perspective programme is made for the development of the geographical zones the imbalances can be considerably reduced. The development of the marine products which remain much idle today can give better income and living to the people. Since the midland has homogeneous crops this can also be taken as a single macro unit of development. Similarly the high land with its peculiar characterstics in crops and climate need special attention as this region is expected to keep the balance of the climatic condition. Afforestation, development of plantation

crops and the collection of forest resources become the core activity in this region which necessitates planned efforts. Hence the macro-level regional planning becomes essential.

Another important step to reduce the regional disparity is to improve the infrastructural devices which can promote the process of development. Roads, transport, power, educational centres and communication facilities can create momentum for change. Deficiency in these may adversely affect the primary and secondary sectors and thereby the life of the people. It is seen that the infrastructure is powerful only in urbanised centres while the districts like Malappuram, Idukki and Palghat stand much behind. The lack of proper planning is the cause for this. So it is advisable that such regions with infrastructural backwardness are identified and steps are taken to implement the programmes to rectify this problem.

Decentralised Planning (Regional and Area based)

Having identified the disparity in growth and development and also the regions which remain backward, programmes and policies for regional and area specific development have to be implemented. This can be done only through the process of regional planning.

Regional planning is meant for reducing the disparity and promoting economic development with the aim of balanced growth in the economy. So long as the 'regions have concrete disparity an unbalanced strategy

of growth would be desirable since each and every region has the differences in factor endowments. In view of the limited resources selective programmes appear to be suitable to the economic conditions of the region, in the beginning. At the same time a total regional planning is desirable subject to the availability of the resources.

Regional planning, either as selective or total does not find a good place in the process of Indian Planning. We are having many programmes, such as IRDP, IADP, DPAD, SADU etc. for the improvement of the rural life, but these programmes are only temporary arrangements which cannot give proper base to the economy or play a permanent role in the process of economic planning. Moreover, people's participation in the planning programmes has not become effective. This is mainly because of the character of our planning strategy which is fundamentally centralised and bureacratic. Economic surveys, regional studies, seminars and publishing pamphlets on the needs of planning and introducing the subject as a part of education can arouse much interest among the people. Kerala with its high rank in literacy will find the people's participation quite encouraging, provided the planning machinery is well structured.

The Scope for Regional Integration

It is quite natural that the selective regional planning can bring in 'backwash' effects in the beginning, but if the regions have proper linkages the spread effects become more powerful to avoid the cumulative causation which is an obstacle to growth. Regional integration can help

in achieving regional balance. This would help to keep up a higher level of efficiency, keeping the preference function of each region. It increases the inter-regional inter dependence and reduces the regional imbalances, thereby leading to better utilization of resources.

Regional integration can also bring in *'X-efficiency' a concept which suggests more output with the given factor endowment and management. It promotes the linking of the urban and rural sectors and brings down the existing disparity. The experience in the Kerala economy reveals the lack of proper integration among the regions. There is wide gap between the developing and under developed regions. The development pattern in the urban centres do not influence the rural life mainly becuse of the deficiency in the infrastructural items. The resource potential in the regions like Idukki, Malappuram, Palghat and Kottayam remains untapped with very low linkage effect with the industrial belt. These regions do not possess a self contained package programme to mobilise the resources. A series of 'packages' or projects are essential for the integration of various spatial levels and for the integrated development of the regions. As far as Kerala economy is concerned, there is much scope for regional integration since the high land, midland and coastal region have their specific characteristics in the potential for development. The regions with the plantation crops and the forest

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* The term refers to the quality and effort associated with labour and management services. This term has been used by Prof. Harvery Leibenstein in his article "Allocative efficiency versus X-efficiency" (American Economic Review, LVI, June 1966.

resources should find a master plan of development, the regions with the food crop production should have some integrated scheme for improvement, the regions with the immense potential of marine products should get more scientific projects for utilising resources. As the district wise programmes are important in bringing down the disparity and promoting balanced growth, a 'geographical region' based programmes are also inevitable for the development of Kerala economy. This can be achieved only through the regional planning in which are specific programmes have to be enunciated.

A Frame for Regional Planning

This study comes to the conclusion that a new orientation in planning alone can ensure a solution to the regional imbalances and balanced development in the economy of Kerala. First of all we have to do away with the centralised bureaucratic planning which ascertains that mere financial allocation is planning. Though it is important, a spade work of the planning process is more important. It needs men of skill-economists, geographers, technical experts, resource personnels from various faculties, social reformers, people's representatives and workers' representatives to sit together and plan out the programmes fo implementation. To begin with, decentralization can go up to the block though the village is the most desired level as *the lowest* unit of planning. The Block-machinery has to collect information and do the monitoring of the plan projects, while the villages have to give the necessary information regarding the specific areas which need attention.

On the basis of the information furnished by the Block-level machinery, development plan should be formulated at the district level in accordance with the directives of the State Planning Agency. The District Level Planning Board should consist of the Government official Collector,Planning Officer, Heads of various Departments, People's representatives and social workers. The chief function of the District Planning Agency is to co-ordinate the Block Level Plans and to supervise the implementation process. Proper evaluation is to be made at the block, district and State levels.

A development strategy on the basis of regional planning as conceived in the analysis given above can bring down the disparity and promote faster economic growth leading to balanced development. This would help the generation of employment potential, improve the income level and standard or living of the people in Kerala.

TECHNICAL APPENDIX

CALCULATION OF THE MEASURES OF REGIONAL DISPARITY AND IMBALANCES

A. General:

1. All regions will be known by a subscript R = 1,m (m=11)
2. All indicators will be known by a subscript j = 1,n (n=25)
3. Time (Year) will be difined by t = 0, 11 say, (1975 to 1985)
4. Thus, $X_{(R,jt)}$ means, the value of the indicator j for the region, R in the year t. eg. $X_{(3,12,8)}$ means, the value of the indicator no.12 for the Region, 3 in the year 8 (1982)

The order in which the subscripts are written will remain unchanged. However, if only two subscripts are found, it means 't' is omitted, and if only one subscript is found, it means both 't' and 'R' are ommitted.

eg. $X(_{3,12})$ - time omitted (value of 3rd indicator for Region 12)

X_{12} - time & region omitted (value of 12th indicator)

5. The secondary data will be rearranged in the following format:

Time (t) = Year 19

Region (R)	INDICATORS (j)				
No. & Name	1	2	3	J	n
1. Trivandrum					
2.					
R.					
m. Kasargod					
Norm value	X_{S1}	X_{S2}	X_{S3}	X_{Sj}	X_{Sn}

6. From the tabulation above the norm values Xsj for each year is computed (subscript 'S' stands for norm region).

B. **TO FIND THE CO-EFFICIENT OF REGIONAL INBALANCES:**

The co-efficient of regional imbalance of jth indicator,

$$C_j = \left\{ \frac{\sum_{R=1}^{m} (Y_{Rj} - 100)^2}{m} \right\}^{\frac{1}{2}}$$

Y_{Rj} = balance ratio ie. ratio of the indicators and the corresponding norm.

X_{Rj}/X_{Sj}

X_{Rj} = Relative indicator j of the Rth region

X_{Sj} =

m = No. of regions (districts) = 11

Steps: For Year 1

1. Find mean of indicator j to obtain X_{Sj}. List them as X_{S1}, X_{S2}..... X_{Sj}.....X_{Sn}

2. Find Y_{Rj} ie. Y_{1j}, Y_{2j},.....Y_{Rj}.....

   Y_{mj} as X_{Rj}/X_{Sj} i.e. X_{1j}/X_{Sj}, X_{2j}/X_{Sj},.....X_{Rj}/X_{Sj}.....X_{mj}/X_{Sj}

3. Obtain C_j, b_j with the above formula

4. Repeat for all the study years. List. Obtain mean value of C_j.

5. Repeat for all the indicators j = 1,n

6. List them in descending order

To find the balance ratios of various districts

7. Tabulate the balance ratios obtained in step 2 for various years.

8. Find the mean values. Identify the region's imbalance on each indicators.

C. **TO CONSTRUCT COMPOSITE INDEX OF GROWTH:**

$$Y_g = \sum_{j=1}^{n} W_j Y_j$$

W_j = Weight of jth indicator

Y_j = $X_{j(t)}/X_{j(O)}$

$X_{j(t)}$ - Size/value of jth indicator in terminal year t

$X_{j(O)}$ - -do- refernece year O

Steps:

1. Assign weights to indicators nl, n2,....Wj.....Wn

2. Choose reference year and terminal year (say over 11 years) in such a way that both the years are representative of the trends. (ie. avoid years during which major calamities have occured,which might have influence on the value of indicators).

3. Obtain values of indicators $X_{j(0)}$ and $X_{j(t)}$. Here again the values represent the trend. If not, make suitable adjustments (Mention the adjustments made).
4. Obtain ratios $Y_j = X_{1(t)}/X_{1(0)}, X_{2(t)}/X_{2(0)}, \ldots\ldots X_{j(t)}/X_{j(0)} \ldots \ldots X_{n(t)}/X_{n(o)}$
5. Obtain Y_g as $Y_1 + W_2Y_2 + \ldots\ldots\ldots W_jy_j + \ldots\ldots + W_nY_n$.
6. Find Y_g for all the regions.
7. List them in the descending order.

D. QUOTIENT OF INCOME DISPARITY:

Quotient of Income Disparity,

Q_D = Range of Q_r

Where $Q_r = (Y_R/Y_S)/(P_R/P_S)$

Y_R = Region Income

Y_S = State Income

P_R = Region Population

P_S = State Population

Steps: For Year 1:

1. Find the ratio Q_r indicated above for each of the districts.
2. Repeat the procedure for all the years.
3. Obtain the mean value of all the Q_r values and express it in the form of range.

E. COMPOSITE INDEX OF DEVELOPMENT:

The expression is, $Y_d = \sum_{j=1}^{n} W_J \; Y_{Rj}$

Where, W_j = Weight of the jth indicator

Y_{Rj} = X_{Rj}/X_{Sj}, the balance ration

X_{Rj} = Value of the jth indicatior in the district 'R'

X_{Sj} = the mean value of the jth indicator.

Steps:

1. For Year 1, tabulate the balance ratio Y_{Rj} obtained in Section (B) for each of the indicator
2. Using the weights used in Section (C), find the weighted average as (W_1, Y_R + W_2 Y_{R2} +.....+ W_j Y_{Rj} + ... W_n Y_{Rn} obtain Y_d for all the Regions.
3. Repeat the procedure for the years.
4. Obtain Y_d as a mean of all the Y_d for all the regions
5. Rank them in descending order.

Table A1

INDICATORS USED IN THE STUDY

No.	Indicators of Development	Weight assigned
	Agriculture	
1	Average Rainfall	.03
2	Land Utilization	.05
3	Area irrigated	.06
4	Cropping intensity	.05
	Industry	
5	Working factories	.06
6	Small Scale Industries	.06
7	Workers in Industry	.06
	Human Resources Development	
8	School for General Education	.03
9	Students for General Education	.02
10	Percentage of Literacy	.03
11	Female Literacy	.03
12	No. of Arts and Science Colleges	.03
13	Work Participation Rate	.04
14	Employment in Public and Private Sectors	.05
	Transport	
15	Length of P.W.D. Roads	.05
16	No. of motor vehicles	.04
	Health	
17	No. of Medical institutions	.05
18	Progress of family Planning	.01
	Banking	
19	No. of Commercial Banks	.04
20	Banks/1000 Population	.04

	Power	
21	Consumers of Electricity	.05
	Income	
22	Percapita income	.06
23	District income	.06
	Housing	
24	No. of electrified houses	Not included
25	Percentage of houses with water availability	in the composite Index.

Table A_2

DISTRICT-WISE DISTRIBUTION OF AREA, POPULATION, GROWTH RATE & DENSITY OF POPULATION

1971 & 1981

(in '000s)

District	Area in sq.km.	1971 population				1981population				Decadal Growth rate (%)
		Persons	Males	Females	Density of population per sq.Km.	Persons	Males	Females	Density of population per sq.km.	
1	2	3	4	5	6	7	8	9	10	1 1
Trivandrum	2192	2198	1095	1103	1003	2596	1279	1317	1184	18.08
Quilon*	2579	2413	1206	1207	522	2193	1185	1108	850	NA
Pathanamthitta*	2731	-	-	-	-	1108	539	569	406	NA
Alleppey*	1256	2126	1048	1078	1128	1865	913	953	1486	NA
Kottayam	2204	1539	773	766	701	1697	848	849	770	10.29
Idukki*	4998	766	396	370	150	969	493	476	194	NA
Ernakulam	2408	2164	1089	1075	910	2535	1269	1266	1053	17.18
Trichur	3032	2129	1023	1106	702	2440	1162	1278	805	14.60
Palghat	4480	1685	819	866	383	2044	994	1050	456	21.30
Malappuram	3548	1856	909	947	510	2403	1171	1232	677	29.43
Kozhikode	2345	2106	1058	1048	569	2245	1111	1134	957	23.25
Wynad	2132	-	-	-	-	554	284	270	260	33.87
Cannanore	2997	2365	1172	1193	415	1931	947	984	644	14.94
Kasargod*	1961	-	-	-	-	873	432	441	445	28.00
State	38863	21347	10588	10759	549	25454	12527	12927	655	19.24

Source: Census of India 1981

Statistics for Planning 1986

Directorate of Economics & Statistics, Government of Kerala.

Table A_3

LAND UTILISATION PATTERN

('000 Hectares)

Sl. No.	Mode of Utilisation	1957-58	1961-62	1971-72	1981-82	1982-83	1983-84	1984-85	1985-86
1	2	3	4	5	6	7	8	9	10
1.	Total geographical area*	3858	3858	3858	3985	3885	3885	3885	3885
2.	Forests	1018	1056	1055	1082	1082	1082	1082	1082
3.	Land put to non agricultural use	201	209	276	266	276	278	280	279
4.	Barren and uncultivable land	109	146	69	86	86	86	86	83
5.	Permanent pastures and other grazing land	48	45	28	5	5	5	4	4
6.	Land under misc. tree crops not included in net area sown	219	202	121	55	55	55	51	50
7.	Cultivable waste	191	141	77	130	130	129	130	126
8.	Fallow land other than Current fallow	83	61	21	27	27	27	27	28
9.	Current fallow	60	6	23	44	44	43	41	43
10.	Net area sown	1839	1932	2188	2190	2180	2180	2184	2190
11.	Total cropped area	2211	2341	2958	2905	2862	2862	2875	2867
12.	Area sown more than once	372	409	771	715	682	681	690	676
13.	Net area irrigated	256	327	439	240	258	NA	NA	NA
14.	Cropping intensity (%)	120.2	121.1	135.19	132.6	131.2	131.2	131.6	130.9

* According to village papers from 1975-76 on wards figures of Surveyor General of India adopted

1. Statistics for Planning 1986, Directorate of Economics & Statistics.
2. Economic Review 1987, State Planning Board, Government of Kerala.

Table: A_4

AREA AND PRODUCTION OF PRINCIPAL CROPS

Items	Unit	1956-57	61-62	71-72	81-82	82-83	83-84	84-85
1) Net Area Source	Lakh Acres	18	19	22	22	22	22	22
2) Area of Crops								
Rice	"	7.62	7.53	8.75	8.07	7.79	7.40	7.30
Coconut	"	4.59	5.05	7.30	6.67	6.74	6.82	6.87
Pepper	"	0.87	0.99	1.16	1.08	1.07	1.06	1.06
Cardamom	"	0.28	0.28	0.47	0.55	0.54	0.54	0.59
Plantain fruits	"	0.40	0.43	0.48	0.50	0.48	0.50	0.51
Sesamum	"	0.19	0.12	0.11	0.15	0.10	0.09	0.11
Cotton	"	0.09	0.09	0.07	0.06	0.05	0.06	0.06
Sugarcane	"	0.07	0.09	0.07	0.08	0.07	0.08	0.07
Ginger	"	0.10	0.12	0.11	0.13	0.12	0.13	0.15
Cashew	"	0.37	0.55	1.00	1.40	1.41	1.42	1.37
Tapioca	"	2.09	2.37	3.03	2.48	2.27	2.33	2.16
Tea	"	0.39	0.37	0.37	0.35	0.35	0.35	0.35
Rubber	"	0.82	1.33	1.88	2.37	2.56	2.71	3.12
Coffee	"	0.14	0.18	0.32	0.57	0.57	0.62	0.64
3) Production of Crops								
Rice	(000 tonnes)	887	1004	1352	1339	1306	1208	1256
Coconut	(Mn. Nuts)	3182	3247	4054	3006	3184	2602	3453
Pepper	(000 tonnes)	27	27	25	28	25	25	17
Cardamom	"	1	1	2	2	2	2	2
Plantain	"	296	317	362	327	289	216	331
Sesamaum	"	19	17	12	22	20	20	20
Sugarcane	"	19	17	12	2	20	20	20
Ginger	"	2	-	3	1	1	1	1
Cashew	"	59	86	113	79	76	77	72
Tapioca	"	1449	1645	5429	3745	3848	3005	3694
Tea	"	35	38	43	45	45	44	56
Rubber	"	22	25	88	139	152	162	189
Coffee	"	7	8	14	33	22	-	24

Source: State Planning Board, Government of Kerala.
Seminar on the Issues of the Eighth Five Year Plan 1988.

Table: A_5

PRODUCTION OF IMPORTANT CROPS DISTRICT-WISE 1984-'85

Districts	Rice (t*)	Sugarcane (t)	Pepper (t)	Ginger (t)	Turmerim (t)	Cardamom (t)	Banana (t)	Cashew (t)	Tapioca (t)	Sesamum (t)	Coconut (mn*)	Tea (t)	Coffee (t) 83-84	Rubber (t)	Cocoa (t)	Pineapple (t)
Trivandrum	45319 (3.6)	2 (.002)	925 (5.3)	780 (1.9)	68 (1.3)	4 (.001)	11069 (5.8)	4158 (5.8)	811539 (21.96)	19 (.001)	488 (14.1)	1051 (1.9)	14 (.001)	9568 (5.1)	105 (2.3)	4779 (5.0)
Quilon	58929 (4.6)	1119 (2.6)	1394 (5.0)	2615 (6.3)	144 (2.7)	2 (.0007)	15032 (7.9)	3431 (4.7)	713897 (19.32)	2127 (14.7)	275 (7.9)	174 (.003)	70 (.007)	20046 (10.6)	73 (1.6)	5504 (9.2)
Pathanamthitta	35920 (2.8)	7657 (17.9)	970 (5.5)	1328 (3.2)	32 (.006)	1 (.0003)	9736 (5.1)	418 (.005)	275048 (7.4)	201 (1.4)	124 (3.6)	188 (.003)	33 (.003)	14319 (7.6)	402 (8.8)	2282 (3.8)
Alleppey	140514 (11.18)	7340 (17.16)	846 (4.8)	654 (1.6)	4 (.0007)	-	11043 (5.8)	862 (1.1)	158661 (4.3)	4567 (31.6)	282 (8.2)	-	4 (.0004)	3199 (1.7)	425 (9.4)	2146 (3.6)
Kottayam	66572 (5.3)	1511 (3.5)	933 (5.3)	6413 (15.0)	1009 (19.5)	-	24980 (13.1)	626 (.008)	406902 (11.0)	66 (.004)	192 (5.6)	421 (.009)	262 (2.8)	49207 (26.0)	1661 (36.6)	7224 (12.1)
Idukki	17401 (1.3)	10430 (24.3)	1778 (10.2)	3379 (8.2)	310 (5.9)	2280 (80.0)	2262 (1.2)	318 (.004)	180158 (4.9)	245 (1.7)	44 (1.3)	41335 (73.3)	1297 (13.7)	17780 (9.4)	505 (11.1)	-
Ernakulam	149199 (11.8)	288 (.006)	547 (3.1)	7385 (17.90)	1125 (21.7)	-	26465 (13.9)	1583 (2.2)	205207 (5.6)	2131 (14.7)	363 (10.5)	-	66 (.006)	21727 (11.5)	668 (14.7)	6491 (10.8)
Trichur	147381 (11.7)	29 (.006)	677 (3.9)	156 (.003)	233 (4.5)	-	17599 (9.3)	3209 (4.4)	73773 (2.0)	1278 (8.8)	297 (8.6)	1296 (2.3)	9 (.009)	7507 (3.9)	68 (1.4)	2854 (4.8)
Palghat	350470 (27.9)	13961 (32.6)	263 (1.5)	986 (2.4)	523 (10.0)	310 (10.9)	12446 (6.6)	5843 (8.0)	234281 (6.3)	1121 (7.7)	76 (2.2)	1374 (2.4)	760 (8.0)	6879 (3.6)	63 (1.3)	2461 (4.1)
Malappuram	100712 (8.0)	73 (.001)	660 (3.8)	702 (1.7)	59 (1.1)	2 (.0007)	24529 (12.9)	7326 (10.1)	273579 (7.4)	2239 (15.5)	193 (5.6)	93 .001)	-	9522 (5.0)	143 (3.2)	2137 (3.6)
Kozhikode	23898 (1.9)	16 (.003)	2352 (15.5)	2455 (5.9)	654 (12.6)	3 (.001)	12261 (6.5)	1478 (2.04)	29607 (.008)	76 (.005)	676 (19.6)	-	-	11820 (6.3)	150 (3.3)	3358 (5.6)
Wynad	53489. (4.2)	73 (.001)	1835 (10.5)	10554 (25.6)	512 (9.9)	224 (7.1)	6720 (3.5)	292 (.004)	69035 (1.9)	115 (.007)	2 (.0005)	10397 (18.5)	6950 (73.4)	2116 (1.1)	76 (1.6)	1659 (2.8)
Cannanore	66098 (5.2)	161 (.003)	4170 (24.0)	3838 (9.30)	513 (9.9)	24 (.008)	15422 (8.1)	42750 (59.1)	262583 (7.1)	263 (1.8)	441 (12.8)	-	-	15210 (8.1)	197 (4.3)	15457 (25.8)
State	1255902	42754	17350	41245	5186	2850	189564	72294	3694270	14448	3453	56329	9465	188900	4536	59827

Source: Estimated from the Statistics for Planning 1986, Government of Kerala.

Figures in parenthesis indicate percentage

*t = tonnes

*mn = million nuts

Table:. A_6

CO-EFFICIENT OF IMBALANCE IN THE YEARS FROM 1975 TO 1985

C	Indicators	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
1	Rainfall	28.23	21.19	17.08	30.60	32.51	19.21	19.45	34.35	62.03	31.59	20.9
2	Land Utilization	21.41	21.07	21.91	16.48	21.88	22.61	16.46	22.48	21.14	19.60	32.27
3	Area irrigated	-	-	81.83	91.25	81.36	84.85	85.42	84.22	83.23	-	-
4	Cropping intensity	17.47	17.83	14.50	15.42	13.91	14.15	13.55	13.20	14.04	14.54	-
5	Number of factories	50.88	53.35	53.10	55.23	55.14	54.22	51.92	53.12	51.89	47.35	46.43
6	Small scale Industries	50.74	48.98	48.53	47.34	45.35	43.92	40.95	39.75	38.96	36.17	34.54
7	Workers in Industry	125.37	129.77	126.71	79.31	122.27	121.39	118.44	103.22	107.02	102.96	99.81
8	Number of Schools	-	31.81	31.81	31.61	31.60	30.88	30.23	30.68	30.69	29.68	29.37
9	Number of Students	-	-	25.94	25.23	27.94	23.89	24.82	24.91	25.22	25.34	25.69
10	Literacy	-	-	-	-	-	-	10.01	-	-	-	-
11	Female literacy	-	-	-	-	-	-	12.46	-	-	-	-
12	Arts and Science College	-	39.18	39.18	40.97	39.84	40.97	39.67	37.92	34.53	34.53	-
13	Work participation	-	-	-	-	-	-	12.60	-	-	-	-
14	Employment	40.94	42.02	44.79	41.91	41.33	40.47	40.56	39.33	36.46	37.64	-
15	P.W.D. Roads	37.51	31.30	26.92	-	26.79	23.46	22.52	21.93	-	-	-
16	Number of Vehicles	-	56.90	58.02	51.62	54.67	52.01	52.73	49.76	41.57	48.48	47.54
17	Number of Hospitals	24.94	21.83	19.77	19.25	24.03	23.02	21.69	21.43	-	20.12	21.41
18	F.P. Programme	46.76	37.81	36.41	50.18	50.46	46.28	39.27	35.04	69.28	33.34	28.95
19	Commercial banks	41.68	-	-	38.02	36.49	34.09	43.23	32.21	30.99	30.90	30.48
20	Bank/1000 population	43.06	-	-	34.45	28.45	27.95	26.38	32.20	34.33	28.42	28.03
21	Consumers of electricity	-	-	35.76	35.60	35.14	44.30	41.70	39.83	39.79	-	-
22	Percapita income	12.79	13.67	11.34	12.07	-	-	16.58	40.75	36.46	36.27	39.21
23	District income	22.32	24.87	-	26.92	-	-	25.77	24.69	25.91	25.30	27.47
24	Electrified houses	-	-	-	-	-	-	33.00	-	-	-	-
25	House with water availability	-	-	-	-	-	-	11.86	-	-	-	-

Table: A_7

INTER-REGIONAL IMBALANCE

No.	Region	Agriculture %		Industry %		Human Resources %		Transport %		Health %		Banking %		Power %		Income %	
		1975	1985	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985
1	Trivandrum	33	32	45	35	33	23	95	92	61	16	7	11	33	28	9	16
2	Quilon	32	44	220	169	48	34	34	40	14	25	17	31	15	32	24	20
3	Alleppey	11	17	27	25	14	15	22	10	28	4	4	17	18	21	4	15
4	Kottayam	29	40	41	28	30	33	27	26	18	25	30	16	22	13	15	16
5	Idukki	45	48	81	78	63	56	71	58	67	49	46	48	-	-	32	13
6	Ernakulam	53	59	67	72	36	34	78	58	7	6	97	58	57	56	13	-32
7	Trichur	40	36	34	24	17	15	13	12	14	9	55	22	24	43	9	17
8	Palghat	83	90	51	37	23	25	20	27	42	17	15	13	26	24	14	29
9	Malappuram	39	9	76	58	36	34	53	40	41	8	57	27	65	42	23	43
10	Calicut	40	46	40	22	19	25	35	22	19	44	17	9	44	26	6	77
11	Cannanore	43	36	36	26	37	35	17	15	42	28	14	24	12	8	11	19

Table A_8

BALANCE RATIO OF THE INDICATORS

R_i/C_j C1		TVM R_1	QLN R_2	ALPY R_3	KTM R_4	IDU R_5	EKM R_6	TCR R_7	PGT R_8	MLP R_9	CAL R_{10}	CNR R_{11}
1	Rainfall	56.51	100.90	99.27	96.63	107.79	115.89	114.83	86.45	88.31	120.84	138.97
2	Land utilization	87.10	119.06	83.82	91.72	63.77	94.37	90.50	126.31	99.02	106.11	140.46
3	Area irrigated	52.32	27.12	119.88	24.78	11.15	214.97	173.36	267.65	90.51	34.48	78.39
4	Cropping intensity	118.59	115.75	113.95	97.12	77.79	100.31	110.81	113.21	93.64	90.30	80.76
5	No. of factories	43.51	106.17	77.84	87.33	18.55	181.01	130.41	109.21	33.21	150.03	159.23
6	Small scale industries	128.47	121.40	102.31	90.96	16.13	173.49	127.49	48.63	55.28	100.87	123.85
7	Workers in Industry	64.76	445.11	62.46	36.41	17.01	168.16	150.10	50.23	13.92	93.95	94.23
8	No. of Schools	85.99	114.30	103.60	84.27	36.83	88.36	92.38	83.86	117.47	118.05	147.23
9	No. of students	106.78	126.15	105.18	79.20	37.15	109.84	114.50	82.76	105.10	119.78	124.54
10	Literacy	100.17	105.23	111.50	115.96	95.76	109.08	104.50	82.36	85.91	96.25	93.35
11	Female literacy	100.00	106.62	114.04	120.50	94.98	110.67	106.62	78.28	84.03	93.22	90.32
12	Arts and science College	131.95	109.79	109.63	140.38	21.72	148.44	130.35	65.67	56.40	104.26	81.88
13	Work participation	99.25	90.08	97.72	99.60	126.70	102.53	97.40	119.74	79.82	88.61	98.46
14	Employment	140.54	186.65	72.04	55.76	77.58	141.21	96.89	75.79	45.90	117.08	107.46
15	P.W.D. roads	95.30	157.03	80.78	114.66	94.89	126.99	89.05	79.49	70.06	82.30	107.88
16	No. of vehicles	198.29	105.45	83.39	67.52	26.49	185.92	106.30	73.37	46.32	115.37	81.51
17	No. of hospitals	110.19	105.66	107.26	76.65	62.91	104.06	114.88	91.51	95.29	94.33	148.61
18	F.P. programme	181.95	128.73	113.98	95.07	30.81	114.16	103.95	52.79	57.04	124.31	97.10
19	Commercial banks	107.57	93.31	113.44	94.69	33.23	172.68	125.39	87.23	62.85	97.78	107.79
20	Bank/1000 population	102.62	69.64	100.81	132.19	91.77	171.86	125.89	110.44	68.35	85.54	83.22
21	Consumer of electricity	132.69	116.00	115.67	83.98	16.68	156.31	142.67	77.16	44.99	58.15	110.71
22	Percapita income	92.02	105.42	71.35	106.85	114.25	113.98	85.91	86.63	65.98	145.51	86.23
23	District income	112.30	126.75	100.24	85.20	51.91	137.38	100.83	81.63	70.24	115.68	113.96
24	Electrified houses	127.46	96.29	120.82	130.30	52.02	151.21	129.22	91.51	45.38	72.93	82.80
25	Houses withwater availability	118.76	97.57	108.29	75.05	92.11	94.69	103.11	87.08	102.29	108.84	112.12

Table: A_9

QUOTIENT OF DISPARITY

$$Q1 = \frac{\text{Income of Region}}{\text{Income of state}} / \frac{\text{Population of Region}}{\text{population of state}}$$

$$= \text{P.C.I. of the Region/P.C.I. of the State}$$

Region	1975	1976	1977	1978	1981	1982	1983	1984	1985	Q	Mean	Remarks (Rank)
Trivandrum	858	926	975	943	1378	1441	1570	1894	2140	0.996	1347	5
Quilon	930	1081	991	958	1441	1454	1686	1950	2126	1.036	1402	4
Alleppey	819	859	902	900	1329	1457	1612	1854	2111	0.972	1316	7
Kottayam	1049	1125	1151	1099	1468	1647	1914	2148	2291	1.201	1625	3
Idukki	949	1052	1127	1019	1836	1972	2143	2682	2378	1.245	1684	2
Ernakulam	906	990	1127	1285	1736	1954	2173	2372	2773	1.258	1702	1
Trichur	756	790	874	915	1328	1397	1594	1820	1952	0.939	12709	8
Palghat	1044	896	836	932	1191	1311	1442	1622	1759	0.906	1226	10
Malappuram	674	695	824	802	923	918	1040	1114	1302	0.681	921	11
Calicut	846	890	987	1019	1376	1272	1580	1949	2092	0.987	1335	6
Cannanore	774	813	962	1003	1371	1204	1445	1700	1993	0.926	1253	9
STATE	873	920	978	989	1399	1457	1654	1828	2083	1.000	1353	

Steps followed:

1. Arrange PCI of all the districts from year 1975 to 85 for all available years.
2. Find the Mean of all the years for each districts.
3. Quotient is calculated by dividing each of the mean by the mean of the state

Ref: Statistics for planning, Directorate of Economics & Statistics, Government of Kerala.

Table: A_{10}

COMPOSITE INDEX OF GROWTH (Y_g)

Indicators	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Y_g
Weight	.03	0.05	.06	0.05	0.06	.06	.06	..03	.02	.03	.03	.03	.04	.05	.05	.09	.05		.04	.04	.05	.06	.06	
R_1	0.809	.908	1.133	.956	1.793	2.98	1.11	1.11	.99	1.13	1.17	1.13	.94	1.48	1.11	2.01	1.31	2.49	1.91	2.00	1.40	2.49	2.93	1.6095
R_2	.712	.777	.366	1.00	1.46	3.49	.90	1.11	.95	1.20	1.17	1.31	.85	1.29	1.08	3.26	1.22	4.4.	2.16	1.25	1.66	2.29	2.08	1.5930
R_3	.834	.902	1.095	1.08	1.73	4.40	1.18	1.06	.95	1.11	1.14	1.07	.92	1.28	1.26	3.38	1.20	2.78	1.96	1.40	1.77	2.58	2:31	1.7130
R_4	1.291	.880	.499	.87	1.99	5.30	1.77	1.08	.88	1.12	1.14	1.24	1.00	1.28	1.15	2.85	1.18	3.36	1.84	1.57	1.53	2.18	2.47	1.7574
R_5	.649	1.022	.745	.98	1.80	11.28	1.34	1.41	1.18	1.20	1.24	2.5	1.00	1.15	1.10	1.81	1.38	9.13	1.80	1.14	1.96	2.89	3.57	2.3835
R_6	.869	1.088	1.242	1.131	1.84	3.59	1.37	1.14	.94	1.18	1.211	1.35	.97	1.39	1.03	2.91	1.29	3.56	1.55	1.40	1.41	3.06	3.55	1.7902
R_7	.749	.926	1.151	.819	1.66	3.92	1.20	1.07	.95	1.19	1.34	1.27	.93	1.36	1.09	3.24	1.17	3.81	1.53	1.37	1.48	2.58	2.85	1.7012
R_8	.764	.924	1.21	1.252	1.89	7.42	1.35	1.08	1.20	1.24	1.31	1.25	.91	1.24	1.19	2.04	1.13	7.59	1.74	1.66	1.40	1.68	2.05	1.9364
R_9	.644	.949	1.524	1.032	4.36	4.94	3.53	1.19	1.36	1.26	1.36	1.66	80	1.57	1.20	3.78	1.42	8.17	2.77	3.50	2.04	1.93	2.43	2.4085
R_{10}	.778	1.206	2.507	.755	1.43	4.46	1.06	1.16	1.22	1.19	1.27	1.42	.82	1.44	1.54	2.66	1.37	5.03	2.35	2.00	1.58	2.47	2.57	1.9001
R_{11}	.562	.955	1.358	.946	1.81	2.61	1.14	1.04	1.18	1.19	1.26	1.30	.88	1.46	1.20	3.11	1.12	3.00	2.16	1.50	1.49	2.57	2.97	1.6606

Table: A_{11}

COMPOSITE INDEX OF DEVELOPMENT (Y_d)

Indicators	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Y_d	Rank
Weight	.03	.05	.06	.06	.06	.06	.06	.03	.02	.03	.03	.03	.04	.04	.05	.04	.05	.01	.04	.04	.05	.06	.06		
R_1	.57	.87	.52	1.19	.44	1.28	.65	.86	1.08	1.09	1.00	1.32	.99	1.41	.95	1.98	1.10	1.82	1.08	1.03	1.33	0.92	1.12	1.02	5
R_2	1.00	1.19	.27	1.16	1.06	1.21	4.45	1.14	1.26	1.05	1.07	1.10	.90	1.87	1.57	1.05	1.06	1.29	.93	.69	1.16	1.05	1.27	1.30	2
R_3	.99	.84	1.20	1.14	.78	1.02	.62	1.04	1.05	1.12	1.14	1.10	.98	.72	.81	.83	1.07	1.14	1.13	1.01	1.16	.71	1.00	0.96	7
R_4	.97	.92	.25	.97	.87	.91	.36	.84	.79	1.16	1.21	1.40	1.00	.56	1.15	.68	.77	.95	.95	1.32	.84	1.07	.85	0.87	9
R_5	1.08	.64	.11	.78	.19	.16	.17	.37	.37	.96	.95	.22	1.27	.78	.95	.26	.63	.31	.33	.92	.17	1.14	.52	0.56	11
R_6	1.16	.94	2.15	1.00	1.81	1.73	1.68	.88	1.10	1.09	1.11	1.48	1.03	1.41	1.27	1.86	1.04	1.14	1.73	1.72	1.56	1.14	1.37	1.41	1
R_7	1.15	.91	1.73	1.11	1.30	1.27	1.50	.92	1.15	1.05	1.07	1.30	.97	.97	.89	1.06	1.15	1.04	1.25	1.26	1.43	.86	1.01	1.15	3
R_8	.86	1.26	2.68	1.13	1.09	.49	.50	.84	.83	.82	.78	.66	1.20	.76	.79	.73	.92	.53	.87	1.10	.77	.86	.82	0.92	8
R_9	.88	.99	.91	.94	.33	.55	.14	1.17	1.05	.86	.84	.56	.80	.46	.70	.46	.95	.57	.63	.68	.45	.66	.70	0.68	10
R_{10}	1.21	1.06	.34	.90	1.50	1.01	.94	1.18	1.20	.96	.93	1.04	.89	1.17	.82	1.15	.94	1.24	.98	.86	.58	1.46	1.16	1.01	6
R_{11}	1.39	1.40	.78	.81	1.59	1.24	.94	1.47	1.25	.93	.90	.82	.98	1.07	1.08	.82	1.49	.97	1.08	.83	1.11	.86	1.14	1.09	4

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