

DISTRICT URBANISATION REPORT

KOZHIKODE

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PREFACE >>



DEPARTMENT OF TOWN AND COUNTRY PLANNING - GOVERNMENT OF KERALA
January 2011

PREFACE

Planning is a prerequisite for effective development. Development becomes comprehensive when growth centres are identified considering physical, social and economic variables of an area in an integrated manner. This indicates that planning of villages and towns are to be complementary. Second Administrative Reforms Commission (ARC) while interpreting the article 243 ZD of the Constitution of India states as follows. "This, in other words, means that the development needs of the rural and urban areas should be dealt with an integrated manner and, therefore, the district plan, which is a plan for a large area consisting of villages and towns, should take into account such factors as 'spatial planning', sharing of 'physical and natural resources', integrated development of infrastructure' and 'environmental conservation'. All these are important, because the relationship between villages and towns is complementary. One needs the other. Many functions that the towns perform as seats of industry, trade and business and as providers of various services, including higher education, specialized health care services, communication etc have an impact on the development and welfare of rural people. Similarly, the **orderly growth of the urban centre** is dependent on the kind of organic linkage it establishes with its rural hinterland". Therefore a move of harmonizing urban and rural centres of an area can be said as a move of planned urbanisation of the area.

In this context, it is relevant to mention the 74th Amendment Act of the Constitution of India, which mandated the District Planning Committee to prepare a **draft development plan** for the district. As per Article 243 ZD of the Constitution, the District Planning Committee (DPC) shall consolidate Panchayat/Municipality Plans in the district and prepare draft development plan for the district as a whole. The Constitution also specifies that while preparing draft development plan due regard shall be given to matters of common interest between panchayats and municipalities including spatial planning, sharing of water and other physical and natural resources, the integrated development of infrastructure and environmental conservation. In this respect, the district of Kollam has conducted an important experiment of preparation of an Integrated District Development Plan (IDDP) for the district. Through preparation of IDDP, the District Planning Committee of Kollam has become the first ever DPC in the country to own a District Development Plan as envisaged by the Constitution. This path-breaking venture has become a model in participatory district planning in a spatial platform. The Plan was released during the international conference on district planning held at Kollam in August 2009. The Plan is now sanctioned by Government of Kerala. As per G.O (Rt) 354/04/LSGD dated 01.02.07, the State Government have extended the project to the remaining districts in the State and the districts of Alappuzha, Thrissur, Idukki, Palakkad and Wayanad were selected for extending the project in the first phase. However, even in these districts, preparation of IDDP is yet to be completed.

Preparation of such a plan will surely need decisions and commitment at various levels due to the multiplicity of agencies involved and the vast spectrum of aspects to be addressed. However, delay in planning shall not affect development. Hence a step by step approach may be adopted in planning. Therefore, the Department of Town and Country Planning evolved a sequence of plan preparation at district level, involving District Urbanisation Report (DUR), District Spatial Plan (DSP) and Integrated District Development Plan (IDDP).

The District Urbanisation Report defines the future spatial structure of a district, which is formulated

by integrating hierarchy and activity pattern of urban and rural settlements and the connectivity between them. The spatial structure of a district will act as a frame for the orderly development of urban centres and their rural hinterland subsequently leading to a planned urbanisation.

The District Spatial Plan is a synergistic form of the District Urbanisation Report, since as a plan it is congruent to a single unified physical design for the district through setting development goals and objectives and formulating the development concept of the district. DSP will frame the general policies and strategies and streamline directions of development of the district. The Development Directives of DSP is carved in the spatial platform through the synthesis of findings of the analysis over the spatial structure based on secondary sources of data. But it lacks the resource studies as co-ordination of various agencies remain as an uphill task.

The Integrated District Development Plan can be termed as the highest echelon of this series and manifest all features of the draft district development plan as envisaged in Article 243ZD of the Constitution of India. Democratisation of planning and translation of sectoral policies into spatial plans are the paramount qualities of IDDP as against DSP. IDDP comprises of two components; a Perspective Plan for 15-20 years and an Execution Plan for 5 years.

As said earlier, IDDP for Kollam District is already prepared under the leadership of the District Planning Committee, Kollam with the involvement of all the Local Governments in the district and Special Technical Advisory Committee for IDDP. The Department of Town and Country Planning gave technical support for Plan preparation besides coordinating the entire process in the role of nodal agency.

Now, the Department has prepared District Spatial Plans for the districts of Alappuzha, Thrissur and Palakkad and District Urbanisation Reports for the districts of Thiruvananthapuram, Pathanamthitta, Kottayam, Ernakulam, Idukki, Malappuram, Kozhikkode, Wayanad, Kannur and Kasaragod. The District Urbanisation Report for Kozhikkode is one among the series.

I take this opportunity to appreciate the officials of the Kozhikkode District Office of the Department, headed by Sri C.J Poulose in the preparation of this document. The State Project Cell for LDP-IDDP-SPP played anchor role in this regard, right from conceptualisation to shaping the end product. The toolkits and customised computer applications developed by the State Project Cell has enabled the district offices to accomplish the task in a time bound manner. I also appreciate the consistent efforts of Sri. Jacob Easow, Senior Town Planner, Smt.Ushakumari.P.R, Town Planner, Sri. Baiju.K, Deputy Town Planner and other officials of the State Project Cell. I also appreciate the officials of the circle headed by Smt Darley D S Mony, Senior Town Planner for their efforts in vetting and finalising the District Urbanisation Report for Kozhikkode.

This is a first step on the ladder leading to the **draft development plan** for the district as laid down in the Constitution. It is hoped that the district of Kozhikkode will further extend the District Urbanisation Report into Integrated District Development Plan for the district. Certainly, the District Urbanisation Report for Kozhikkode will provide a framework for development as well as future planning of the district.

Thiruvananthapuram
11-02-2011

Eapen Varughese
Chief Town Planner

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ACKNOWLEDGEMENT

An integrated approach towards regional development is quintessential for planned development , especially for the rural- urban continuum in Kerala. In an attempt to predict the trend of urbanisation in Kozhikode District for the next two decades, the Regional Town and Country Planning Office, Kozhikode conducted a study of the hierarchy, activity pattern and connectivity of the urban and rural settlements in the District. The preparation of District Urbanisation Report was indeed an excellent learning experience and equipped us to utilise sophisticated technologies for efficient planning. The Future Spatial structure of the District which is the output of the study, will provide a frame for orderly development of urban centres.

I express our sincere gratitude to Shri.Eapen Varughese, Chief Town Planner, Thiruvananthapuram for this initiative which turned out to be an enriching experience. State Project Cell, Thiruvananthapuram offered consistent guidance and technical support in each and every stage of the preparation of District Urbanisation Report. I extend our sincere thanks to Sri. Jacob Easow, Senior Town Planner, Smt. Usha Kumari. P.R, Town Planner, Sri. Baiju.K, Deputy Town Planner and other officials of the State Project Cell. The sustained efforts of the officials of the circle headed by Smt. Darley D S Mony, Senior Town Planner for time bound completion of the project is sincerely acknowledged. Also I take this opportunity to express sincere gratitude to all the line departments and local governments who cooperated whole heartedly in data collection.

Last, but not the least, I place in record my sincere appreciation to the officials of Regional Town and Country Planning Office , Kozhikode for their earnest efforts, determination and enthusiasm to complete the project fruitfully. We look forward to extending the District Urbanisation Report into an Integrated District Development Plan for Kozhikode.

Place: Kozhikode
Date : 31-01-2011

C.J. POULOSE
Town Planner , Kozhikode

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Chapter-1

INTRODUCTION

Urbanisation is considered as one of the most important indications of economic development. Urbanisation is the outcome of large scale industrialisation of urban areas and migration of people from rural areas in search of employment in various sectors. Urbanisation is also being caused due to the migration of people for better social and cultural facilities available in urban centers. In Kerala situation, the development of tertiary sector is the main cause of urbanisation. It is not the outcome of accelerated industrialisation as seen in Tamil Nadu, Maharashtra, Andhra Pradesh and Karnataka.

The Census 2001 gives a picture of urbanisation in Kerala. The number of urban settlements has decreased to 159 in 2001 compared to 197 in 1991. It is true that the jurisdiction of a few urban settlements in the State have expanded by including nearby Panchayats. Other reasons have to be explored. The number of urban agglomerations has increased from 9 in 1981 to 16 in 1991 and 17 in 2001. Unlike the other parts of the Country, the urbanisation in Kerala is not limited to the designated cities and towns. Barring a few Panchayats in the hilly tracts and a few isolated areas here and there, the entire state depicts the picture of an urban rural continuum.

Kozhikode District with 9.04% of the State's population contributes a 12% of State's income. Kozhikode, formerly called as Calicut, was the traditional capital of Northern Kerala under the Samuthiri ruler. It was a prominent region of Malabar. Today, it is a place of unique culture, ancient

monuments, serene beaches, historic sites, wild life sanctuaries, rivers and hills blended with a warm and friendly ambience.

Kozhikode city is the nodal point for all districts in the northern region. Kozhikode has traditionally been developed as a centre for forest and agro based industries. It has a high order of development in trade especially in food grains, marine products and spices. The city offers very high potential for development contributing to the economic development of the entire northern region of the state. In view of this Kozhikode is considered as one of the priority city in the State. This necessitates the study of urbanisation in the past and the trend of urbanisation for the next twenty years.

The report is organised in 13 chapters including the Introduction. Chapter 2 gives the overall profile of Kozhikode District. A brief description of the history and regional linkages of the District is given in Chapter 3. Chapter 4 & 5 studies the population and occupational structure of the District. Chapter 6 discusses the land use pattern of the District. The functional character of the settlement is analysed in Chapter 7. Studies on settlements and urban profile of the District are discussed in Chapter 8 and 9. Chapter 10 and 11 analyses the activity pattern and connectivity of the District. The spatial structure of the District is derived in Chapter 12. The findings of the urbanisation study of the District are concluded in Chapter 13.

Chapter 2

PROFILE OF THE DISTRICT

This chapter gives a brief description of the administrative divisions, area and population, physiography, physical features, socio economic aspects, status of infrastructure of Kozhikode District.

2.1 ADMINISTRATIVE DIVISIONS

Kozhikode District comprises of a single revenue division named Kozhikode Revenue Division consisting of 3 Taluks. Table 2.1 gives the name,

population and headquarters of the Taluks. Figure 2.1 shows the boundaries and head quarters of Taluks.

The only corporation of Northern Kerala is in the District and is the Kozhikode Corporation. Kozhikode Corporation was constituted in 1962 by annexing adjacent Grama Panchayats, as per the Calicut City Municipality Act 1961. The extent of the Corporation was 84.232 Sq.Kms. In 2010 Kozhikode Corporation expanded to 118.59 sq.km merging

Table 2.1 Taluks and Population

Sl.No.	Name of the Taluk	Population	Taluk headquarters
1	Kozhikode	1537138	Kozhikode
2	Vatakara	651191	Vatakara
3	Koyilandy	690802	Koyilandy

Source: Census of India, 2001



Fig. 2.1 Boundaries and Headquarters of Taluks

surrounding Panchayats viz. Elathur, Bepore and Cheruvannur Nallalam. The District has two municipalities, Vatakara (I Grade) and Koyilandy (II Grade). The Vatakara Municipality was constituted on 1st October 1958 comprising of Vatakara Panchayat and the nearby villages of Puduppanam and Nadkkuthazha. The first Municipal Council came into existence in 1962. The geographical area of the municipality is 21.34 sq.kms. Koyilandy Municipality was constituted on 1st April 1993. The geographical area of the municipality is 21.61 sq.kms. In 2001 Koyilandy Municipality was formed merging fully the revenue villages of Panthalayini and Viyyur vide G.O. (MS) No.75/93/LAD dated 31-03-1993. A portion of Arikkulam village was added to Koyilandy Municipality vide GO (P) No. 2541/99/LSGD dt.21/12/99. The total area of Koyilandy Municipality then became 29.05 Sq. Km. (Viyyur 8.86 Sq. Km., Panthalayini 12.74 Sq. Km., Arikkulam (P) 7.44

Sq. Km.). Figure 2.2 shows the administrative boundaries in detail.

Kozhikode district has 12 Block Panchayats. The name of blocks, head quarters and population is given in Table 2.3. Administrative boundary of Block Panchayats is given in Figure 2.3. The 12 Block Panchayats are divided into 75 Grama Panchayats, the

list is given in **Annexe 1**. Figure 2.4 gives the administrative boundaries of local governments.

According to 2001 Census, there are 117 Revenue Villages in the District. Out of 117 villages, 24 villages, 2 villages and a portion of one village in Koyilandy Taluk, 4 villages in Vatakara Taluk have been treated as urban.



Fig. 2.2 Administrative Boundaries of Corporation and Municipalities



Fig 2.3 Administrative Boundaries of Block Panchayats and Population

Table 2.2 Corporation and Municipalities

Sl.No	Name	Grade	Area in Sq. km	Location of head quarters	Population
1	Kozhikode	Corporation	118.59	Kozhikode	601887
2	Vatakara	I grade Municipality	21.32	Vatakara	75847
3	Koyilandy	II Grade Municipality	29.05	Koyilandy	68982

Table 2.3 Blocks and Head Quarters

Sl.No	Name	Area in Sq. Km.	Location of head quarters	Population
1	Vatakara	50.96	Chombala	123016
2	Thuneri	143.97	Thuneri	135116
3	Kunnummal	262.52	Vattoli	189745
4	Thodannur	96.77	Thiruvallur	127467
5	Melady	84.07	Melady	126008
6	Perambra	275.02	Perambra	159273
7	Panthalayini	69.5	Koyilandy	104575
8	Balusseri	278.53	Balusseri	231767
9	Koduvally	390.48	Koduvally	261710
10	Chelannur	125.08	Chelannur	167124
11	Kunnamangalam	337.94	Kunnamangalam	331381
12	Kozhikode	58.5	Guruvayurappan College	175233

Source: - Census of India 2001 and newly added block boundaries



Fig. 2. 4 Administrative boundaries of Grama Panchayats

2.2 AREA AND POPULATION

The extent of Kozhikode District is 2344 sq.km which is 6.03% of the area of Kerala State. The population of the District is 2879131 as per Census 2001, which is 9.04% of the State population. Kozhikode is the 4th populated district in the State. The density of population is 1057 which is 29% higher than the State average of 819 persons/sq.km. The growth rate of the District had declined from 16.69% in 1991 to 9.89% in 2001. The rural-urban break up of total population of the District shows that the District has an urban population of 11,01,157 in 2001. The present urban growth rate of the District is only marginally higher than

the total growth rate of the State (9.43%). More than 60% of the population is still rural. Figure 2.5 shows the rural urban composition in the District as per 2001 census.

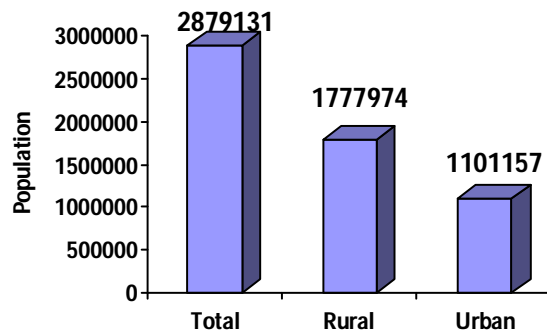


Fig 2.5 Rural Urban Composition

2.3 PHYSIOGRAPHY

Kozhikode District is situated on the south west coast of India. The District is bounded on the north by Kannur district, on the east by Wayanad district, on the south by Malappuram district and on the west by the Arabian Sea.

Topographically the District has three distinct regions - the sandy coastal belt, the rocky highlands formed by the hilly portion of the Western Ghats and lateritic midland. Of the total area of 2344 sq.km, the sandy coastal belt is 362.85 sq.km, lateritic midlands 1343.50 sq.km and rocky highlands 637.65 sq.km.

All the three Taluks spread over the three regions. The District has a coastal length of about 80 km. The highland region accounts for 26.80% and the lowland region for 15.55% of the total area of the district. Figure 2.6 shows the physical settings of the District.



Fig 2.6 Physical Settings

2.4 PHYSICAL FEATURES

a. Natural Subdivisions

As per the Planning Commission of India, agro climatically the District falls under West Coastal Plain and Ghats zone. Based on the physical features, the District can be categorized into 3 regions, viz

- The mountainous region- high land 75m above sea level.
- Plain coastal belt- low land falling below 7.5m from MSL.
- The undulating area between two regions (mid Land)

b. Climate

Kozhikode District falls within the tropical to sub-tropical climatic region and dominant feature is the monsoon. Maximum variation in relief from West coast to the hilly regions of the Western Ghats in the east and proximity to the sea, influence the parameters and also the District comes under one of the Agro-climatic zone of Kerala.

The maximum temperature in the region varies almost between 27.8°C to 32.2°C and minimum temperature ranges from 21.9°C to 26.8°C. April is the hottest month with mean temperature of 32.2°C and minimum temperature is 26.8°C. December is the coolest month with mean daily temperature of 21.9°C and maximum of 29.9°C. March to May constitute the very hot season. The monthly variation in temperature is minimum during winter season (November, December and January). In spring season (February and March) the diurnal, monthly and yearly variations are small, where as in summer (April and May), monsoon (June, July and August) and autumn season (September and October) the minimum temperature is 23.7°C.

The average annual rain fall in the District is about 3000mm. The southwest monsoon sets in the first week of June and ends in mid-August contributing about 60% of the annual rainfall. Northeast monsoon (September to December) contributes to about 25% of the annual rainfall. The period between December and May is practically dry.

In most of the time the percentage of humidity is very high especially in coastal region and it varies between 88.6% in July and August to 74% in April. Winds over the study area are seasonal and notable change in wind direction and speed is discernible between coastal and inland regions as well as between various localities. Within the region dominant wind is in the northwest direction. The average wind speed is generally high in April (4.4 km/hour) and least in end of the year, i.e. November or December month (2 km/hour). Evaporation is closely related to the various factors such as temperature, humidity, wind speed and bright sun shine hours. The monthly average Potential Evapo Transpiration (PET) estimated is 1316.9 mm. The monthly PET ranges from 81.3mm to 154mm. The PET during October to November is comparatively less and more in March to May.

c. Mountains:-

The eastern portion of the District comprised of portion of mountains plateau with lofty hills of which the Natavaram hills with a height of 1388 m is prominent.

d. River system:-

The rivers provide a cheap transport facility and a network of water transport system. The important rivers are Kuttiadi (Moorad), Korappuzha, Kallai, Chaliyar, Beypore and Kadalundi.

i. Kuttiadi River:-

Originating from the western slope of Wayanad hills at an elevation of 1200 m MSL, Kuttiadi or Moorad River flows southward to a distance of 3 km and flows westward. During the course of river, bed falls by about 600 m within a distance of about 3 km. This water fall is locally known as Orkateri falls. The main tributaries are Kadiyangadpuzha and Olipuzha. The length of the Kuttiadi River is 74 km and it drains an area of 583 Sq. Km. The total catchment area of the river is about 430 sq.km and is used for navigation purposes.

ii. Korappuzha River:-

Korappuzha River is formed by the confluence of Agalapuzha and Poonurpuzha and joins the

Lakshadweep Sea at Elathur. It has a length of 40 km with a drainage area of 6542 Sq. Km. Agalapuzha which is the main tributary originates from Kadiyangadumala at an elevation of 700 m above MSL. This also form an important part of West Coast Canal system. The navigable length of the river is 25 km. The other tributary Poonurpuzha, has a catchment area of 280 Sq. Km.

ii. Kallai River :-

Kallai River takes its origin from Cherukulathur village of Kozhikode Taluk at an elevation of 45 m from MSL. It is connected with Chaliyar and Korappuzha with artificial Canals. The river is tidal and has a length of 22km with drainage area of 96 km. It has a navigable length of about 10km.

iii. Chaliyar or Beypore River :-

Chaliyar or Beypore River, one of the major rivers of the State, originates from Elambiler hills. The total length of the river is 169km with a total drainage area of 2535 Sq. Km. This river is connected with Kallai by artificial Canals. The river is having a navigable length of about 70 km and motor boats can ply up to a distance of 22 km between Beypore and Vazhakkad.

v. Kadalundi River:-

Kadalundi River also known as Karimpuzha or Oravanpurampuzha, take its origin from forests of silent valley at an elevation of 1220 m above MSL. It is formed by the confluence of two main tributaries, Olipuzha and Velliyar and empties into Lakshadweep Sea at Kadalundi. The river has a total length of 130 km and drainage area of 1099 Sq. Km. and catchment area of 430 Sq. Km. The River is a part of west coast navigable system for about 23 km from Palathungal and Mannur. Kadalundi River is one of the rivers which are subjected to high flood damages.

e. Sea coast:-

Kozhikode District has a coastal line of 80km. There is a natural harbour at Beypore.

f. Backwaters and Canals:-

The important backwater in the District is Kuttiadipuzha in Vatakara Taluk. There is a con

tinuous inland water route connecting Vatakara with Ponnani which is part of West-coast canal system connecting Thiruvananthapuram and Hosdurg.

g. Forest

As a result of the formation of Wayanad district, the former Kozhikode district lost major portion of the forest area. Now the forest area lies as a narrow belt on the eastern side of the District bordering Wayanad district. These forest areas are suitable for growing Teak, Eucalyptus etc.



Fig 2.7 Kozhikode District - Existing Water Bodies

2.5 SOCIO-ECONOMIC ASPECTS

2.5.1. Literacy Rate

As per Census (2001), Kerala is the most literate state in India. The literacy rate is 90.86%. Table 2.4 gives the literacy status of districts of Kerala. Comparison shows that Kottayam is having highest rate (95.24%) and the lowest is in Palakkad (84.35%). The literacy rate of Kozhikode is 92.24% and is ranked 5th among the districts. From the table it can be seen that

the percentage has increased from 91.1% to 92.24% in last decade.

Table 2.4 Literacy Rate

SI No	State/ Districts	2001 Census	1991 Census
1	KERALA	90.86	89.81
2	Kasaragod	84.57	82.51
3	Kannur	92.59	91.48
4	Wayanad	85.25	82.73
5	Kozhikode	92.24	91.1
6	Malappuram	89.61	87.94
7	Palakkad	84.35	81.27
8	Thrissur	92.27	90.18
9	Ernakulam	93.2	92.3
10	Idukki	88.69	86.97
11	Kottayam	95.82	95.72
12	Alappuzha	93.43	93.87
13	Pathanamthitta	94.84	94.86
14	Kollam	91.18	90.47
15	Thiruvananthapuram	89.28	89.22

Source : Census of India 2001

2.5.2. Work Participation Rate

Table 2.5 gives the picture of workforce participation rate as per 2001 census. In Kerala the work force participation rate in 1991 census was 31.4% which has improved to 32.3% in 2001. But it is lower than the national average of 39.1% and Kerala holds only 29th position among other states and union territories.

From the table it can be seen that the work force participation rate of Kozhikode District is very poor and is less than the State average and occupies 11th position among other districts. Among SC population Kozhikode records the lowest WPR (34.5%) among districts and in the case of ST population the value of WPR being 37.5% which is next to lowest.

2.5.3. Net State Domestic Product (NSDP)

Table 2.6 gives the District level break up of Net State Domestic Product (NSDP) at prices for the year 2006- 2007. From the table it can be seen that Ernakulam dominates other districts in the case of NSDP where as Wayanad is the lowest. Kozhikode oc-

cupies 4th position and it contributes to 8.6% of the total NSDP of the state.

2.5.4. Per capita Income (PCI)

Table 2.7 shows the District level breakup of

the per capita income of the state for the year 2008-2009. Ernakulam District has highest per capita income where as Idukki is having the lowest. Kozhikode occupies 7th position.

Table 2.5 Work Participation rate of Total, General, Scheduled Castes and Scheduled Tribes population, State/ District 2001

Sl. No.	State/ District	Work Participation Rate in Percentage			
		Total	Gen	SC	ST
0	Kerala	32.3	31.2	40.4	46.3
1	Kasaragod	34.7	33.5	45.3	46.8
2	Kannur	31.8	31.4	39.8	44.9
3	Wayanad	39.5	37.4	43.5	48.1
4	Kozhikode	27.9	27.4	34.5	37.5
5	Malappuram	24.1	23.1	35.3	43.2
6	Palakkad	36.1	34	45	52.9
7	Thrissur	32.1	30.9	40.7	43.6
8	Ernakulam	36	35.4	41.3	42.2
9	Idukki	43.2	41.9	48.8	48.3
10	Kottayam	32.9	32.5	36.3	37.3
11	Alappuzha	34.3	33.8	39.4	40
12	Pathanamthitta	29.7	28.5	36.8	38.4
13	Kollam	32.1	30.6	41.7	43.3
14	Thiruvananthapuram	32.4	31.5	38.8	37.7

Gen - Other than SC /ST population, Source : Census of India 2001

Table 2.6 District Level Break Up Of NSDP Current Prices for the Year 2006-2007

Sl No.	Name of District	NSDP (Crore)
1	Thiruvananthapuram	14569.67
2	Kollam	9892.94
3	Pathanamthitta	5241.3
4	Alappuzha	8520.48
5	Kottayam	9130.07
6	Idukki	5027.85
7	Ernakulam	18729.37
8	Thrissur	12773.29
9	Palakkad	10023.14
10	Malappuram	10485.37
11	Kozhikode	11487.6
12	Wayanad	3073.05
13	Kannur	9515.27
14	Kasaragod	4269012

Source: - Economic review 2007

**Table 2.7 District Level Break Up Of PCI rates
Current Prices for the Year 2008-2009**

Sl No.	Name of District	Per capita Income(Rs)
1	Thiruvananthapuram	52146
2	Kollam	45412
3	Pathanamthitta	51098
4	Alappuzha	49474
5	Kottayam	57052
6	Idukki	47096
7	Ernakulam	72704
8	Thrissur	52088
9	Palakkad	45704
10	Malappuram	32247
11	Kozhikode	48835
12	Wayanad	36001
13	Kannur	48925
14	Kasaragod	43347

Source:- Economic review 2009

2.6 STATUS OF INFRASTRUCTURE

2.6.1 Road length

The **Annexe 2** gives the status of roads in the state 2009. Total length of road in the state is 21578.21 km. out of which Kozhikode shares 6.16%. From the table it can be seen that the road density i.e. length of road/1000 population for the state is 0.786. In the case of Kozhikode the road density figure is 0.461 which is the lowest and it is very much below the state average.

2.6.2 Educational Facilities

The total number of High Schools, UP Schools and LP School in Kerala as on 2008-2009 years is 12649, out of which 9.8% are in Kozhikode District. The number of schools/1000 population for Kerala is 0.397 and that of Kozhikode district is 0.43. This figure is highest at Kannur district (1.66) and Kozhikode is ranked as 5 and figure is 0.43. **Annexe 3** gives the district wise distribution of number of schools in Aided, Unaided and Government Schools in the state.

2.6.3 Health Institutions

Throughout the State there are 1279 Allopathic, 871 Ayurvedic and 561 Homeo institutions. In that there are 159 beds for 1 lakh population in Kerala. With regard

to this aspect Thiruvananthapuram is having the highest 292 beds/ lakh population and Kasargod 86 is lowest. Kozhikode occupies 4th position with 193 beds/ lakh population. **Annexe 4** gives the figures in detail.

2.6.4 Water Supply

Table supplied in **Annexe 5** gives an insight to the coverage of water supply schemes in the Kerala State. It can be seen that 65.15% of the rural population and 84.14% of the urban population is provided with drinking water under various water supply schemes i.e 70.08% of the State population is being covered. As far as Kozhikode District is concerned, in the case of table projects a serious lack of infrastructure i.e. only 51.27% of the population is covered with water supply scheme which invites serious attention. This is the lowest among the districts and the value is very much less than the percentage of overall State population provided with drinking water schemes.

2.6.5 Communication

In the field of communication the District is yet to develop a lot. There are 1057 telephone exchanges in Kerala out of which 8.74% in Kozhikode. The number of telephone /1000 population is highest in Kottayam i.e. 244 and the lowest at Wayanad 128. Kozhikode is having the value 175 which is ranked as 10th in the state. District wise details of telecommunication network are given in **Annexe 6**.

2.7 INFERENCE

The city has once flourished in trade owing the abundance of spices, timber and agricultural products coming throughout the district. Kallai was once the biggest timber trade centre in Asia. The agricultural base of Kozhikode district is declining slowly. Most of the traditional industries set up in the region are getting closed. The work force participation rate of Kozhikode District is very poor and is less than the State average. Now the economic base is shifting towards tertiary sector and IT based developments. The infrastructure facility in Kozhikode District has to be developed especially in the case of water supply.

Chapter 3

HISTORY AND REGIONAL LINKAGES

This chapter briefs the historical background and regional linkages of Kozhikode District.

3.1 HISTORICAL BACKGROUND

Calicut has a long history in functioning as a trade centre. Between 7th and 15th century Chinese monopolized trade in Malabar. The city flourished under the rule of Zamorins which started in the 14th century AD. They encouraged trade with Arabs and also established several education and cultural centres. By the arrival of Vasco de-Gama in 1498, Kozhikode experienced series of upheavals. The Portuguese built a fort and had several clash with Arabs till their power finally declined due to hostile relation with the Zamorins. There after Dutch established trading godown in Malabar and they are followed by the English and French. In 18th Century Tippu Sultan attacked Malabar region and established Malabar Capital at Feroke. In 1792 Malabar was conceded to the British by Tippu Sultan. Between 1792 and 1800 Malabar district with its head quarters at Calicut was under the Governor of Bombay, after which it was a part of Madras presidency, till India became



independent. In 1866 Kozhikode was made a Municipal Town and the provisions of the Town Improvement Act of 1865 were extended to it. The Municipal Town had a population of 1.92 lakhs in 1961 census. On the suggestion of delimitation committee, set up by Government, the extension of Town limits to 82.67 Sq. Km. came in to force from 15.1.1962 and the city corporation came into existence on 1.11.1962.

3.2 REGIONAL LINKAGES

Kozhikode District is situated on the west coast of Indian subcontinent at latitude 11° 15' N and longitude 75° 47' E. It is bounded on the North by Kannur District, East by Wayanad District, and South by Malappuram District and West by Arabian Sea. The city is located 414 km north of the State capital Thiruvananthapuram. The distance from Chennai and Mangalore are 618 km and 221 km respectively. The centre of economic development of the State, Kochi is at a distance of 220 km. The nearest airport Karipur is 28 km away from the city.

3.3 INFERENCE

Basking in the idyllic setting of the serene Arabian Sea on the West and the proud peaks of the Wayanad hills on the East, Kozhikode has been a prominent centre of trade and commerce from time immemorial. The District which still maintains the reminiscences of its glorious past, is excellently linked with the other major settlements in the State, and offers tremendous tourism opportunities.

Chapter 4 POPULATION

The growth of population, size, density, sex ratio, population concentration pattern, migration details of the District and the population projection is discussed in this Chapter .

4.1 POPULATION SIZE

The recasted population figures of the District shows that the District had a total population of 610058 in 1901. Its population had remained below one lakh up to 1941 and ranged between 1 lakh and 2 lakh from 1951 to 1971. In 1981 the population of the District had crossed 2 lakh. Table 4.1 gives the urban population

and total population of Kozhikode district, Kerala state and India and the graphical representation is given in Fig 4.1. Table 4.2 gives the percentage of urban population of Kozhikode district, Kerala state and India for the last four decades.

The urban population of India in 1971 was 20.1% and is gradually increasing and for the year 2001 the percentage is 27.78%. During 1971 the urban population of Kerala was lower than that of Nation and during 1981 there was a steep increase to 26.39% and during 2001 there was a slight decline i.e. 25.97%

Table 4.1 Population Details

Geographic Unit	1971		1981		1991		2001	
	Total	Urban	Total	Urban	Total	Urban	Total	Urban
Kozhikode	1821734	561570	2245265	610232	2619941	1004497	2879131	1101157
Kerala	21347375	3466449	25453680	4771275	29098518	7680294	31838619	8267135
India	542970823	109110000	672645426	159460000	846387888	217551812	1.03E+09	285354954

Source: Census of India, 2001

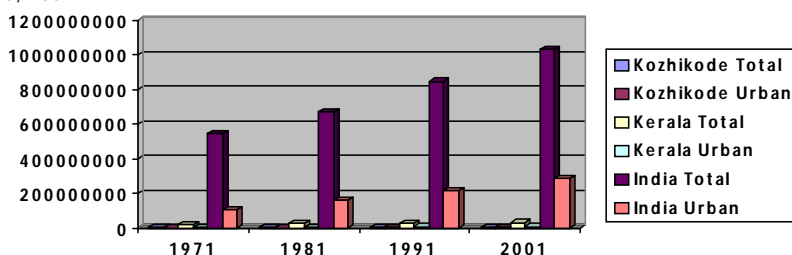


Fig. 4.1 Variation of Urban, Total Population of India, Kerala and Kozhikode

Table 4.2 Percentage of Urban Population

Geographical Unit	% of Urban Population			
	1971	1981	1991	2001
Kozhikode District	30.83	27.18	38.34	38.25
Kerala State	16.24	18.74	26.39	25.97
India	20.1	23.71	25.7	27.78

Source: Census of India, 2001

due to declassification of Pandalam, Piravam, Koothatukulam and Mannarkad Municipalities during 1991-2001. The percentage of urban population in Kozhikode district during 1971 was 30.83% which was almost double that the State and nearly 1.5 times of the Nation. In 1981 this value reduced to 27.18%. During 1991, 38.34% of the total population lived in the urban area and for the last decade the value almost remain same without further addition.

4.2 GROWTH OF POPULATION

The decadal growth rate percentage of both total and urban population of India, State and Kozhikode District is in given Table 4.3. The analysis shows that during 1981-91 the growth of urban population (60.97%) was phenomenal. This was largely due to the declaration of new municipal towns and census towns in the state and inclusion of peripheral

Table 4.3 Population Growth Rate Percentage

Geographical Unit	Population Growth rate (%)					
	Year 1971-81		Year 1981-91		Year 1991-01	
	Total	Urban	Total	Urban	Total	Urban
Kozhikode District	23.25	8.67	16.69	64.61	9.87	9.6
Kerala State	19.24	37.64	14.32	60.97	9.42	7.64
India	23.88	46.15	25.83	36.43	21.34	31.17

Source: Census of India, 2001

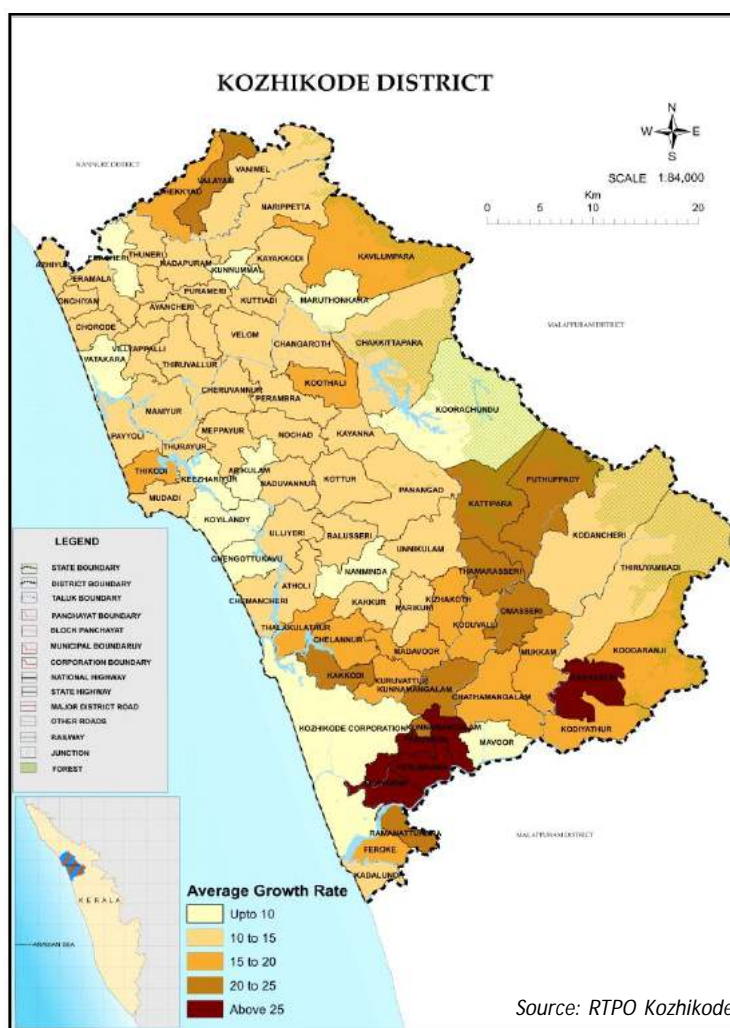


Fig. 4.2 Population Growth Rate

area with pronounced urban characteristics as urban outgrowths. This sudden surge can also be seen in the case of District as well during that period. During 1991-2001 decadal growth rate of urban population has decreased to 7.64% for the State and 9.6% for the District. Figure 4.2 gives Population Growth Rate. Among the Taluks, the highest growth-rate was recorded in Kozhikode.

4.3 POPULATION DENSITY

The density data of the District for the last one hundred years show that the District had a density of

260 persons per sq.km in 1901. The density of population in 2001 in the District is depicted in the figure 4.3 below. The density of the District had remained below 300 up to 1921. In 1931 and 1941, the density of the District crossed 300 persons per sq.km but remained below 400. In 1951, the density crossed 400 but was below 500. In 1961 the density of the District almost touched 600. The density crossed 700 but kept below 800 in 1971. In 1981, with highest increase of 181 persons per sq.km, the density of the District crossed 900 persons per sq.km. During the last one hundred years from 1901, the District had never experienced a jump in density. Of course there was phenomenal increase in density during 1961-1971 also. It is astonishing to note that in 1991 census the density of the District had crossed 1000 persons per sq.km. The present density of the District i.e., 1228 persons per sq.km is about five fold greater than the density recorded in 1901. The ratio of rural-urban density in 2001 is 1:4. Figure 4.4 shows the density of population 2001 in Kozhikode District.

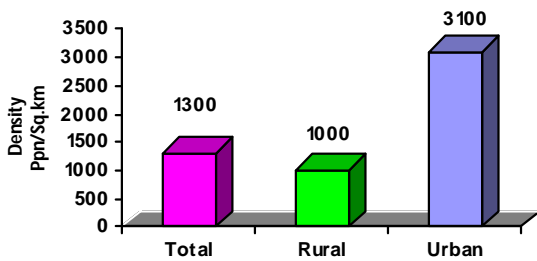
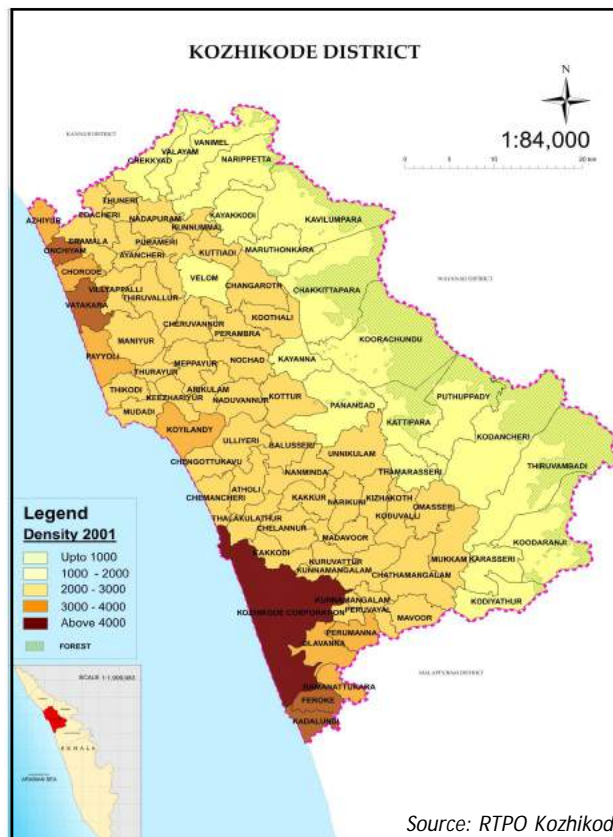


Fig 4.3 Population Density- Rural Urban Composition



Source: RTPO Kozhikode

Fig 4.4 Density of Population 2001

In Kozhikode District the density of population is high in the existing statutory urban governments and LSGs near the coastal area.

4.4 SEX RATIO

Sex ratio is defined as the number of females per 1000 male in the population. In 1991 Census, Kozhikode District had a sex-ratio of 1027 females per 1000 males as against 1036 females per 1000 males for the state. The sex ratio trend shows that sex-ratio of the district increased in the first three Censuses of 1901 to 1921. During these 20 years, sex-ratio increased from 1009 to 1038. In 1931, the sex-ratio had declined and in 1941, the sex-ratio had witnessed a rise. Thereafter it started declining up to 1971. Since 1981, the District is witnessing continuous increase in sex-ratio. During 1901-2001, the sex-ratio at the State level has increased by 54 points. At the District level also it increased by 48 points. Figure 4.5 shows the sex-ratio of the State/ the District in 1901 and 2001.

Kozhikode Taluk(1015). In all the Taluks, the sex-ratio has increased during 1991-2001. Among the rural areas of the Taluks, the rural areas of Vatakara Taluk had higher sex-ratio than urban areas in 1991, whereas in Kozhikode Taluk urban area had registered higher sex ratio than rural in 1991. In 2001 Census, urban areas of Koyilandy and Kozhikode Taluks have higher sex ratio than rural while Vatakara Taluk has shown higher sex ratio in its rural area. The sex ratio of the District is diagrammatically given below.

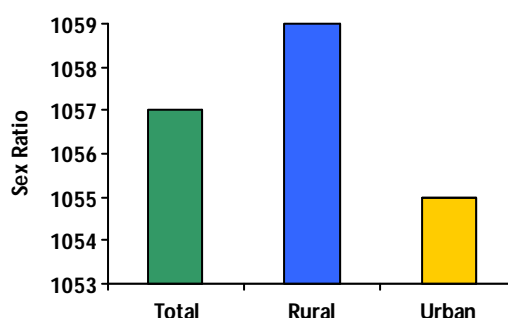


Fig 4.6 Sex Ratio - Rural Urban Composition

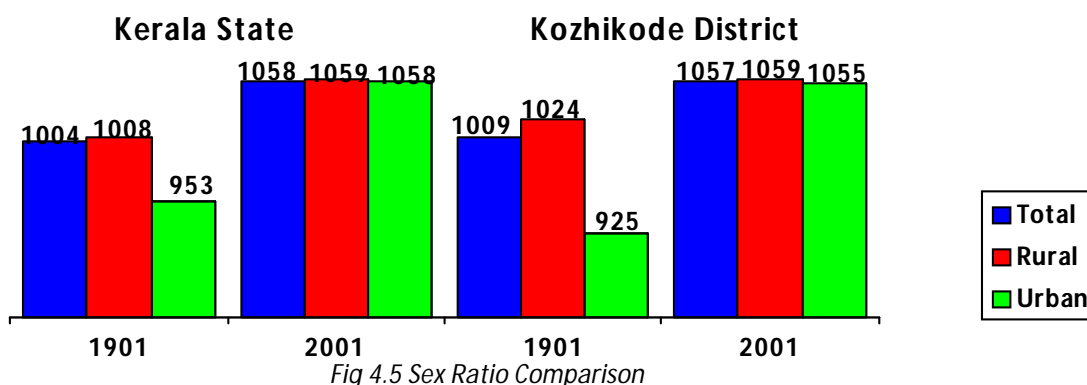


Fig 4.5 Sex Ratio Comparison

Generally rural areas have higher proportion of females than urban areas. In Kozhikode District, rural area has registered a higher sex-ratio than urban area both in 1991 and 2001 Censuses. The sex-ratio figures for the rural and the urban areas of the District were 1028 and 1024 respectively in 1991. Increase in sex ratio is seen in both rural and urban areas of the District in 2001. The urban sex-ratio has increased to 1055 and the rural sex-ratio to 1059 in 2001. Among the Taluks, the highest sex-ratio was recorded in Vatakara Taluk(1053) followed by Koyilandy Taluk(1027) and

4.5 POPULATION CONCENTRATION PATTERN

The population concentration pattern is derived by calculating the cumulative population after arranging the LSGs in the descending order of net residential density (total population/ habitable area obtained by subtracting the area of water bodies, forest paddy and other un-inhabitable areas from the ward area). Figure 4.7 shows the population Concentration in Kozhikode District. From the figure it can be seen that 2/3rd of the total population of the District is concentrated in 35.7% of the area of the District.



Fig. 4.7 Population Concentration -2001

4.6 MIGRATION DETAILS

In Kozhikode District, there were 7.7 lakh Intra State Migrants comprising of 2.9 lakh males and 4.8 lakh females. They constituted 95.6 percent of total migrants to Kozhikode District. The male and female migrants constituted 94.4 and 96.5 percent respectively. From the distribution of total migrants in Kerala by place of birth, it can be seen that females predominated in Intra-District Migration while males predominated in Inter-District, Inter-State and International migration. In the case of Kozhikode District, females predominated in Intra-State and Inter-District Migration while males predominated in Inter-District, Inter-State and International Migration.

In Kerala the number of migrants born in other States of India was 3.98 lakh in 1991 which constituted 4.9 percent of the total migrants whereas in Kozhikode District it was 0.31 lakh. This constituted 3.9 percent of the total migrants to Kozhikode District. Migrants born in other countries consisted of 0.5 percent for the State and the District.

In 1991 there were 31280 Inter-State Migrants to Kozhikode District, out of which 41.50 percent were from Tamil Nadu, 13.52 percent from Karnataka, 4.92 percent from Maharashtra and 24.20 percent from Union Territory of Pondicherry.

Out of 7.74 lakh Intra-State Migrants in

Kozhikode District, 51.46 percent were migration from rural to rural, 6.10 percent were from urban to urban, 20.70 percent were from rural to urban and 21.55 percent were from urban to rural.

In Kozhikode District, of the total 31280 migrants from other States of India, 14.77 percent were from rural to rural, 30.69 percent were from urban to urban, 12.30 percent were from rural to urban and 41.66 percent were from urban to rural. District wise number of migrants in Kerala is given in Table 4.4.

4.7 POPULATION PROJECTION (TREND BASED)

The population data from 2001 Census are entered in the Calculation Table 1 for getting the projected population.

The population data for Kozhikode district by decreasing rate method, apportionment method and the average values are reproduced in Table 4.5, 4.6, 4.7 respectively.

Table 4.4 District wise Number of Migrants in Kerala

Sl.No.	District	Return Emigrants	Emigrants	Non Residential Keralites	Out Migrants
1	Thiruvananthapuram	161441	189361	88918	46909
2	Kollam	85236	146892	73556	73225
3	Pathanamthitta	25534	53936	87764	100905
4	Alappuzha	60630	114020	72462	99073
5	Kottayam	28571	75610	118921	33606
6	Idukki	8436	1989	60771	6702
7	Ernakulam	61063	142785	105522	81108
8	Thrissur	104391	170308	150770	80582
9	Palakkad	51521	89655	126970	100130
10	Malappuram	143419	336251	15991	27205
11	Kozhikode	56845	158430	40544	41761
12	Wayanad	9127	15409	41866	6403
13	Kannur	53957	254453	56220	115349
14	Kasaragod	36132	98803	117811	57469
	Kerala	886303	1847902	1158086	870427

Source: Kerala Migration Survey 2007, CDS

Table 4.5 Method-1- Decreasing Rate Method

Year	Population	Growth rate	
1971	1821734		
1981	2245265	23.25	
1991	2619941	16.69	-28.22
2001	2879131	9.89	-40.72
2011	3047991	5.86	-40.72
2021	3153969	3.48	-40.72

Table 4.7 Method 3 Average Value Method

Projection -Final	Average Population	Growth rate
1971	1821734	
1981	2245265	23.25
1991	2619941	16.69
2001	2879131	9.89
2011	3059384	6.26
2021	3181853	4

Table 4.6 Method 2-Apportionment Method

Year	State Population	Population	Ratio	Change in ratio
	x	y	y/x	
1971	21347375	1821734	0.0853	
1981	25453680	2245265	0.0882	0.002872
1991	29098518	2619941	0.09	0.001827
2001	31841374	2879131	0.0904	0.000384
2011	33817196	3070778	0.0908	0.000384
2021	35198589	3209737	0.0912	0.000384

Total population census year is given in Figure 4.8 and population growth rate over last three decades is given in Figure 4.9.

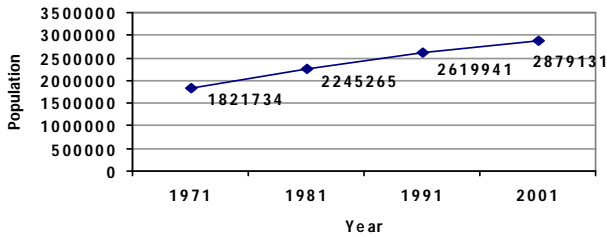


Fig 4.8 Total Population 1971-2001

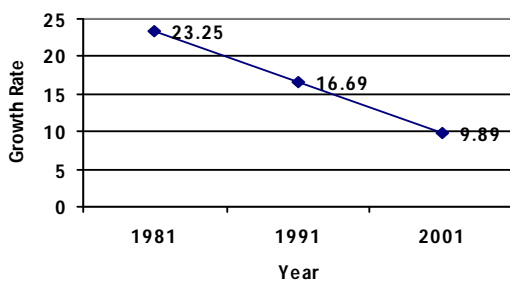


Fig 4.9 Population growth rate

The projected total population for the year 2021 and projected population growth rate over last 3 decades are given in Figure 4.10 and Figure 4.11 respectively.

The projected total population by the two methods differs slightly. The average of these two is

taken as the population figures of Kozhikode District. The figures are shown in Table 4.8.

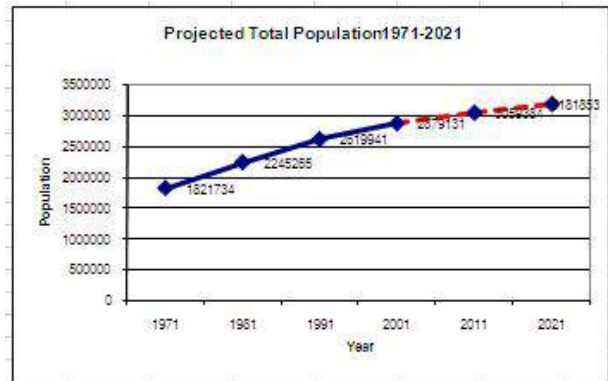


Fig 4.10 Projected Total Population 1971-2021

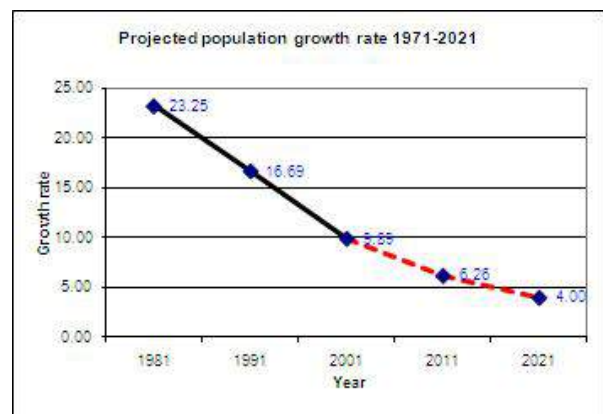


Fig. 4.11 Projected Population Growth Rate 1971-2021

Table 4.8 Final Projected Population Figures of the District

Year	Total Population as per decrease rate method	Total population as per apportionment method	Average population figures
2011	3047991	3070778	3059385
2021	3153969	3209737	3181853

4.8 INFERENCE

The population density of the District i.e., 1228 persons per sq.km is greater than the State average (819 persons per sq.km.). During 1991- 2001, decadal growth rate of urban population has decreased to 7.64% for the state and 9.6% for the District. As per the census 2001, in the district wise urban population in Kerala, Kozhikode (1101157) occupies the second place. The

coastal areas of the District show high density of population when compared to the other areas of the District. Majority of the total population is concentrated in the coastal belt and midland regions near to the coastal belt. It is projected that the population of the District will be increased by 1.8 lakhs and 1.2 lakhs in the succeeding decades, 2001-11 and 2011-2021 respectively.

Chapter 5

OCCUPATIONAL STRUCTURE

This chapter discusses the work force of the District, their variation in urban and rural areas, nine fold classification, spatial distribution of major classes and temporal variation.

5.1 WORK FORCE OF THE DISTRICT

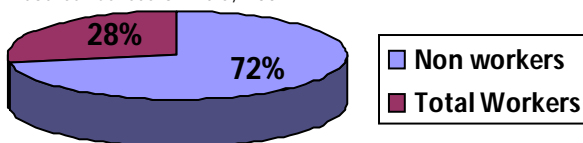
Total population of the District as per 2001 census is 2879131. The total workers (802900) are about 28% of the total population of the District.

Figure 5.1 & Figure 5.2 shows that the work participation rate of Kozhikode is almost steady for the last decades. There is no significant increase. The value

**Table 5.1 Kozhikode District
Total Workers 2001**

Non workers	2076231
Total Workers	802900
Main workers	630836

Source: Census of India, 2001



is very much less than the State average of 32.3% in 2001 census.

Table 5.3 gives the work participation rate among the 14 districts of Kerala State. From the table it can be seen that the work participation rate in the district is very low ie. 2nd lowest in the State. This is a matter of serious concern.

The temporal variation of workers shows increasing trend. But the rate of growth is not that much. This implies that the opportunity of working is not appreciable which causes shrinking of the economic

base of the District.

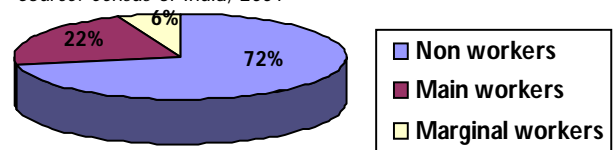
5.2 OCCUPATIONAL STRUCTURE

The variation of the occupational structure over the past 4 decades is given in Table 5.6 and Figure 5.3 for Kozhikode District and Table 5.7 and Figure 5.4 in the case of Kerala State. The striking feature of the above figures is that throughout the State, there is a drastic decrease in the number of productive sector workers ie. Cultivators, Agricultural Laborers. This indicates a decline in primary sector. The rate of decrease in the Household Industrial workers is

**Table 5.2 Kozhikode District Main
and Marginal Workers 2001**

Non workers	2076231
Main workers	630836

Source: Census of India, 2001



considerable from 1991 to 2001, where as the rate of growth in Other workers increasing considerably. The same trend is true for Kozhikode District as well.

**Table 5.4 Kozhikode District -
Workers Temporal Variation**

Year	1981	1991	2001
Total Workers	608546	691930	802900
Main Workers	490932	601060	630836
Marginal Workers	117614	90870	172064
WPR	27.10%	26.47%	27.90%

Source: Census of India, 2001

Table 5.3 Work Participation rate of Total General Scheduled Castes and Scheduled Tribes population, State/ District

Sl No	Name of State/District	Work Participation Rate			
		Total	General	SC	ST
1	Kerala	32.3	31.2	40.4	46.3
2	Kasaragod	34.7	33.5	45.3	46.8
3	Kannur	31.8	31.4	39.8	44.9
4	Wayanad	39.5	37.4	43.5	48.1
5	Kozhikode	27.9	27.4	34.5	37.5
6	Malappuram	24.1	23.1	35.3	43.2
7	Palakkad	36.1	34	45	52.9
8	Thrissur	32.1	30.9	40.7	43.6
9	Ernakulam	36	35.4	41.3	42.2
10	Idukki	43.2	41.9	48.8	48.3
11	Kottayam	32.9	32.5	36.3	37.3
12	Pathanamthitta	34.3	33.8	39.4	40
13	Alappuzha	29.7	28.5	36.8	38.4
14	Kollam	32.1	30.6	41.7	43.3
15	Thiruvananthapuram	32.4	31.5	38.8	37.7

Source : Primary Census Abstract -2001

Table 5.5 Kerala State Workers Temporal Variation

Year	1981	1991	2001
Total	7771220	9305143	10283887
Main	6791175	8196798	8236973
Marginal	980045	1108345	2046914
WPR	30.53%	32.05%	32.30%

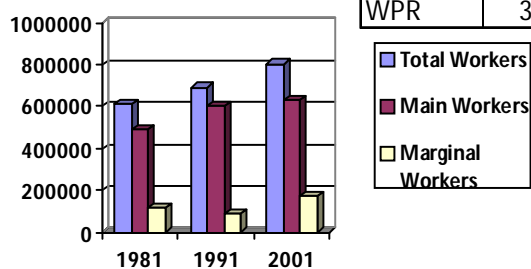


Fig. 5.1 Work force data -Kozhikode district

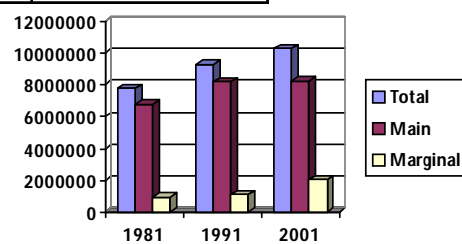


Fig. 5.2 Main and Marginal Workers

Table 5.6 Kozhikode District-Classification of Workers

Year	Cultivators	Agricultural Laborers	HH Industrial Workers	Other Workers
1971	57082	109990	17514	276309
1981	27315	80640	13746	378751
1991	37662	82022	14685	466691
2001	20670	35695	11741	562730

Table 5.7 Kerala State-Classification of Workers

Year	Cultivators	Agricultural Labourers	HH Industrial Workers	Other Workers
1971	1106663	1908114	265892	2935790
1981	887232	1917362	250506	3736075
1991	1014678	2103395	321713	4757012
2001	586360	1021559	275654	6353400

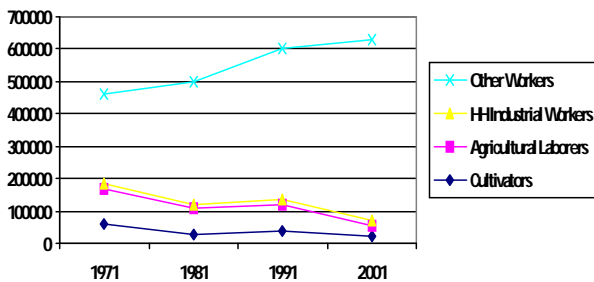


Fig 5.3 Variation in the number of different category of workers - Kozhikode District

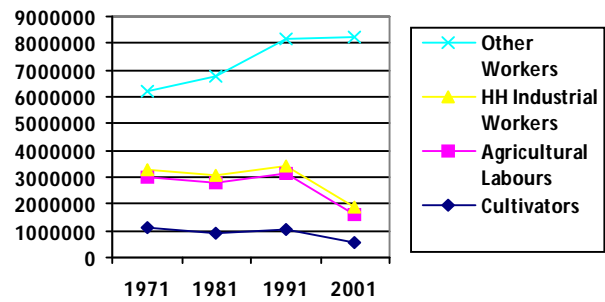


Fig 5.4 Variation in the number of different category of workers - Kerala State

5.3 OCCUPATIONAL STRUCTURE – VARIATION IN URBAN AND RURAL AREAS

Table 5.8 and Figure 5.5 gives the variation of workers in the rural area of Kozhikode district. It can be seen the number of Cultivators and Agricultural Labourers have decreased to half from 1991 to 2001.

Industrial workers also show a decline. More people are shifting to other jobs and the number of Other Workers is increasing. Table 5.9 and Figure 5.6 give the variation of workers in the rural area of Kozhikode district.

Year	Cultivators	Agricultural Labourers	HH Industrial Workers	Other Workers
1981	26349	64751	11187	251407
1991	31631	65819	9381	255067
2001	18859	31180	6734	305086

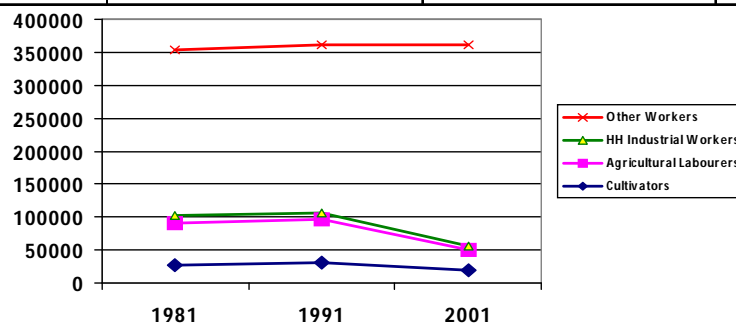


Fig 5.5 Variation in the number of different category of rural workers

Year	Cultivators	Agricultural Labourers	HH Industrial Workers	Other Workers
1981	966	6369	2559	127344
1991	6031	16203	5304	211624
2001	1811	4515	5007	255645

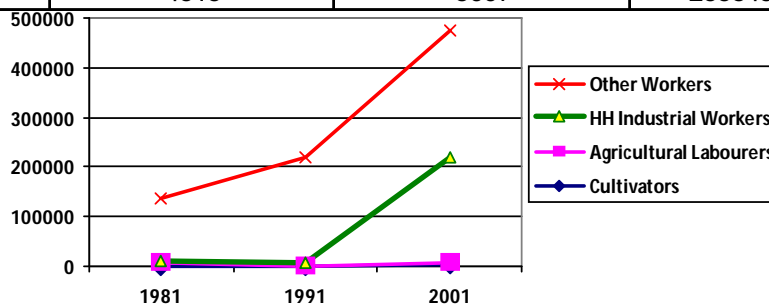


Fig. 5.6 Variation in the number of different category of Urban workers

5.1 OCCUPATIONAL STRUCTURE – ESTIMATION OF NINE FOLD CLASSIFICATION OF 2001

Table 5.10 shows the nine fold classification of workers local body wise according to 2001 census.

Table 5.10 9 fold classification of workers as per 2001 census

LSG name	Cultivators	Agricultural labourers	Livestock, Forestry, Fishing, Hunting, Plantation, Orchards, and allied activities	Mining and Quarrying	Manufacturing, Processing and repairs in Household industries	Manufacturing, Processing, servicing and repairs in other than household industries	Trade and commerce	Transport, storage and Communications	Other Services+ Construction
Azhiyur	90	160	1490	38	162	872	1901	658	1801
Chorode	82	452	1607	143	193	1341	2199	1094	2182
Eramala	187	489	868	319	114	948	1965	977	2090
Onchiyam	56	139	1592	52	71	971	1512	558	1989
Chekkiad	106	465	995	201	17	295	945	454	795
Edachery	407	993	478	773	129	601	1583	572	1410
Purameri	716	1368	868	366	30	293	869	556	1258
Thunery	240	940	650	97	34	283	1276	373	1107
Valayam	31	23	1371	200	21	187	702	675	909
Vanimel	78	65	2447	202	8	354	977	699	1207
Kunnummal	160	294	804	283	112	433	923	580	1292
Nadapuram	209	847	1189	177	84	928	2236	1025	2075
Kayakkodi	421	1403	1067	116	33	323	943	557	1111
Kavilumpara	116	352	3247	138	19	372	920	587	1117
Kuttiady	226	651	678	151	11	325	968	485	1093
Maruthomkara	360	501	2091	181	18	316	631	536	1030
Velom	637	1459	1122	274	162	302	1268	499	1445
Narippatta	329	848	2231	217	0	346	1072	767	1224
Ayanchery	364	858	907	321	135	288	1173	683	1560
Villiyappally	33	334	763	508	138	697	1692	1129	2213
Maniyur	400	1825	1025	769	584	818	1586	811	1982
Thiruvallur	524	1619	824	411	182	379	1234	551	1811
Thurayur	237	226	335	69	289	459	646	365	902
Keezhariyur	127	376	302	227	288	720	856	324	1040
Thikkodi	136	550	1059	86	214	616	1253	705	1423
Payyoli	134	458	2401	916	252	1517	2602	1458	2550
Meppayyur	352	678	1006	353	202	493	1305	799	2175
Cheruvannur	545	1452	491	246	655	416	930	454	1453
Nochad	518	1072	749	394	121	712	1394	615	1948
Changaroath	285	422	1715	362	96	657	1470	906	1915
Kayanna	267	556	404	169	32	214	770	419	1180

Table 5.10 contd...

L.S.G name	Cultivators	Agricultural labourers	Livestock, Forestry, Fishing, Hunting, Plantation, Orchards, and allied activities	Mining and Quarrying	Manufacturing, Processing Servicing and repairs in Household industries	Manufacturing, Processing, servicing and repairs in other than household industries	Trade and commerce	Transport, storage and Communications	Other Services+ Construction
Koothali	239	625	664	157	92	510	649	458	1070
Perambra	517	1132	850	351	398	671	1997	819	2378
Chakkittappara	221	421	3665	292	62	265	565	360	1403
Balusseri	324	473	969	426	262	864	1330	808	2269
Naduvannur	451	944	448	411	92	570	1100	665	1578
Atholy	390	504	939	404	121	1391	1518	679	1815
Ulliyeri	327	944	745	599	241	1768	1444	851	1848
Kottur	382	1010	1691	836	130	716	1419	878	2359
Unnikulam	765	1195	2620	169	99	1050	1723	1081	3127
Panangad	525	1320	2164	439	38	949	1172	872	2164
Koorachundu	37	114	2670	59	25	241	644	290	1176
Chemancherry	114	245	1776	142	198	2037	1678	907	1775
Arikkulam	314	710	521	243	143	469	878	363	1175
Moodadi	317	714	1241	66	648	882	1592	649	1709
Chengottukavu	85	252	1160	73	129	1664	1466	616	1606
Kakkodi	188	585	355	420	174	1912	2583	2006	2660
Chelannur	788	1109	373	756	132	1203	1964	1398	2508
Kakkur	488	1070	327	364	118	478	767	462	1727
Nanmanda	472	962	639	308	187	748	1162	641	2130
Narikkuni	590	1251	370	212	62	384	921	454	1809
Thalakkulathur	321	605	499	244	129	1523	1754	824	1821
Thiruvambady	1252	1030	2735	81	26	525	896	376	1469
Koodaranhi	560	931	2847	68	57	171	507	216	1082
Kizhakkoth	649	1122	189	143	71	520	1128	671	1911
Madavoor	566	993	290	134	41	422	1079	1028	1633
Koduvally	601	1230	404	130	150	992	2464	1903	2385
Puthuppady	990	3417	2475	74	85	389	904	448	1611
Thamarassery	382	1226	1897	152	62	569	1084	743	1526
Kattippara	398	1250	1957	156	65	589	1120	768	1572
Omassery	685	1497	613	200	114	752	1406	685	2221
Kodiyathur	244	925	264	332	51	684	892	325	2066
Kuruvattur	401	706	283	260	187	994	1549	1095	2470
Mavoor	240	861	130	371	108	3170	984	470	1648
Karassery	495	2020	1804	247	50	329	743	444	1369
Kunnamangalam	313	1098	302	235	289	1816	2425	2888	2971
Chathamangalam	814	1364	508	577	284	1222	1557	852	3617

Table 5.10 contd...

LSG name	Cultivators	Agricultural labourers	Livestock, Forestry, Fishing, Hunting, Plantation, Orchards, and allied activities	Mining and Quarrying	Manufacturing, Processing Servicing and repairs in Household industries	Manufacturing, Processing, servicing and repairs in other than household industries	Trade and commerce	Transport, storage and Communications	Other Services+ Construction
Ramanattukara	59	381	201	132	220	2262	1518	978	2659
Feroke	80	513	630	121	223	4566	2120	1529	3465
Olavanna	109	328	604	405	530	4214	2972	2086	5524
Vadakara Municipality	76	485	2313	261	432	3520	6436	2362	4899
Koyilandy Municipality	195	549	3554	192	1162	2352	4587	1605	4406
Kozhikode Corporation	448	1152	14232	430	1604	35375	49257	24077	53454

5.5 SPATIAL DISTRIBUTION OF THE MAJOR CLASSES OF WORKERS

The concentration index [(number of workers of a particular class of workers in a LSG / total number of workers) / (number of workers of the same class of workers in the District / total number of workers in the district)] of the four classes of workers viz: House Hold Industrial Workers, Cultivators, Agricultural Laborers

and Other Workers are calculated for each LSG (**Annexe 7**) and its spatial variation is analyzed. Concentration index gives an idea about where a particular class of workers is concentrated in the District. Spatial distribution of various categories of workers is shown in the following figures below.

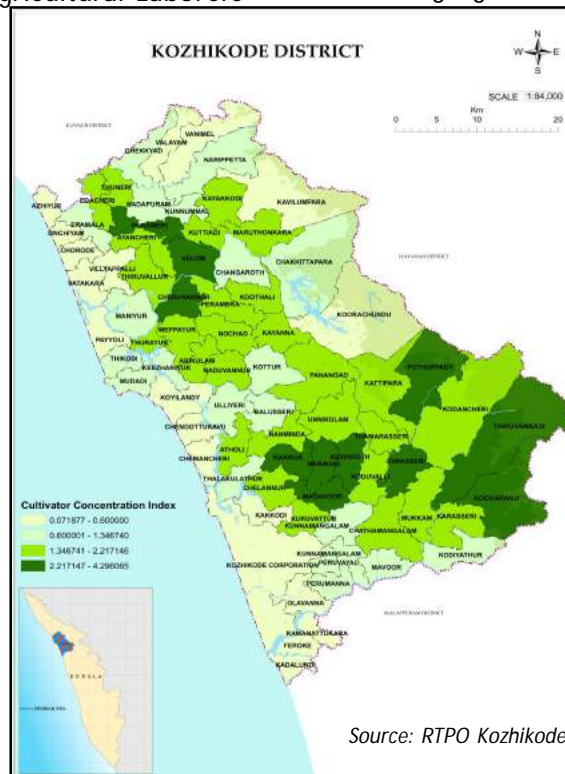


Fig. 5.7 Spatial distribution of the concentration index of Cultivators

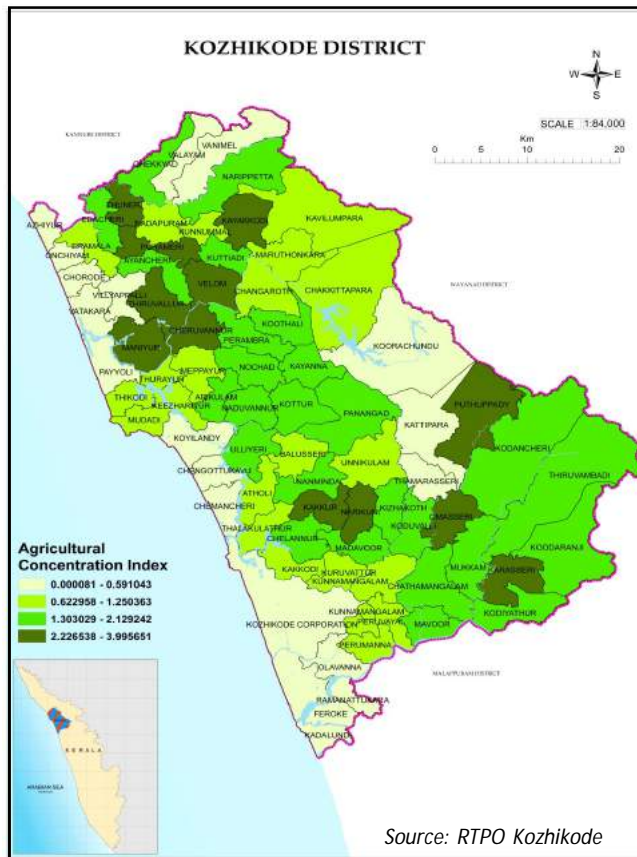


Fig. 5.8 Spatial distribution of the concentration index of Agricultural Labourers

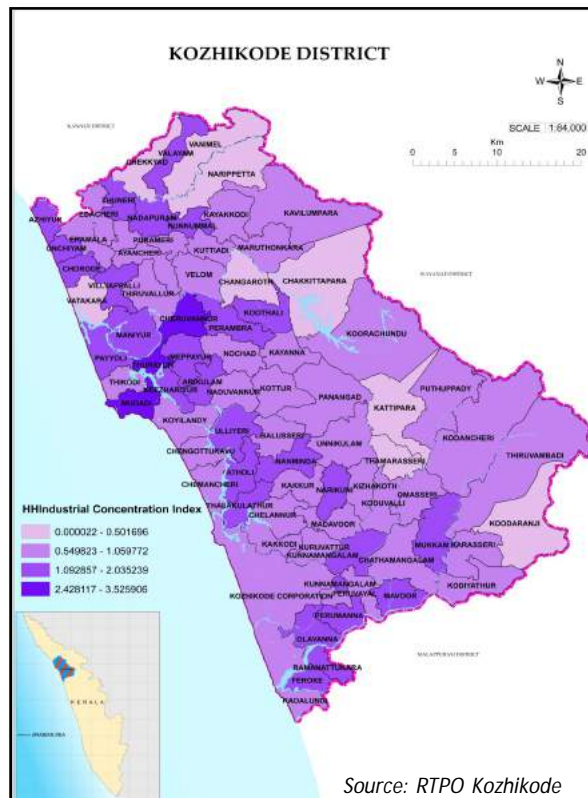


Fig. 5.9 Spatial distribution of the concentration index of HH industrial workers

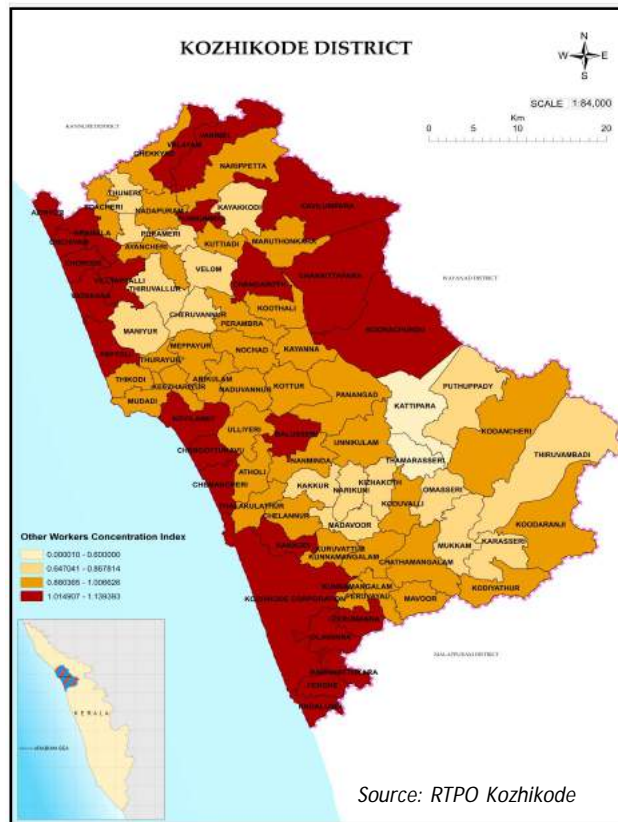


Fig. 5.10 Spatial distribution of the concentration index of other workers

5.6 OCCUPATIONAL STRUCTURE – TEMPORAL VARIATION

The number of various categories of workers from 1981 to 2001 in the District is shown in Table 5.11.

The Household Industrial workers and other workers show an increase whereas the cultivators and Agricultural Labourers show a decrease during the period from 1991 to 2001. This shows that there is a weakening of the primary sector during the period from 1991 to 2001. The change in total workers and main workers during the period from 1981-2001 is shown in Figure 5.11

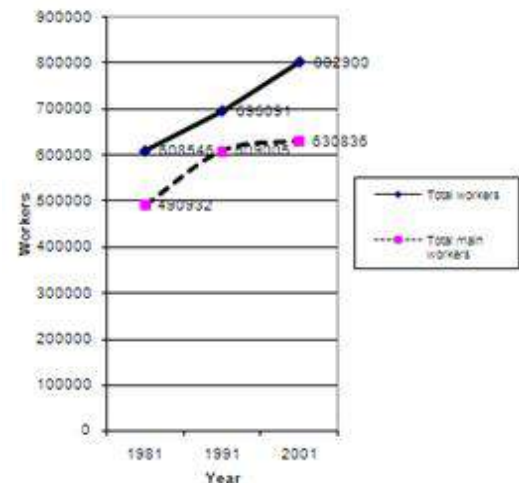


Fig. 5.11 Total workers and main workers during the period from 1981-2001

Table 5.11 Classification of workers

Year	Cultivators (main)	Agricultural laborers (main)	HH industrial workers (main)	Other workers (main)
1981	27315	71120	13746	378751
1991	37599	82588	9837	478981
2001	27889	66066	15734	693211

Figure 5.12 shows the change in WPR and Figure 5.13 shows the change in main to marginal ratio.

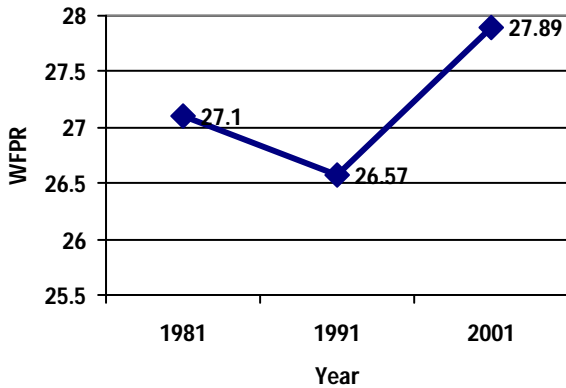


Fig. 5.12 Change in Work Force Participation Ratio

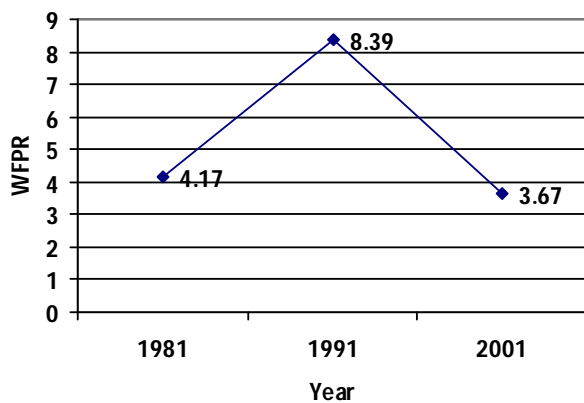


Fig. 5.13 Main to Marginal Ratio

5.7 ACTIVITY ZONES BASED ON CONCENTRATION PATTERN OF WORKERS

Based on the worker concentration index it can be inferred that the cultivators are mainly concentrated in the midlands of the District. Agricultural labourers are mainly concentrated in the mid lands and high lands. Household Industrial Labourers' concentration is more in the midlands. Other Workers show more concentration in the borders of the District.

5.8 INFERENCE

The work participation rate in the District is very low in comparison with other Districts and the value is even less than that of State average. However it is expected that the increase in work participation will increase due to various factors. The women empowerment throughout the State during last decade is a positive factor. Similarly the establishment of Information Technology Park, Ship building Industry, Industrial estates etc may provide better job opportunities both in direct as well as indirect employment.

Chapter 6 LAND USE

This chapter studies the land use pattern of Kozhikode District, comparison with Kerala State and neighbouring districts, concentration pattern of land uses and the activity zones based on land use concentration. The source of data is IRS-P6, LISSIV, Mx/ LISS III+PAN 2003-2004 Satellite purchased from Land Use Board. The above data base used for analysis is predominantly agriculture oriented and as such the analysis limited to that extent. The land use data which is part of the 'Natural Resources & Environmental Data Base' (NREDB) procured from the Kerala State Land Use board has been categorized into 9 major categories as, Forest, Water bodies, Marshy Land, Residential, Agriculture, Plantation, Res/Agri Mix, Other Built-up land use & Others.

6.1 LAND USE PATTERN OF KERALA STATE

Table 6.1 and Figure 6.1 gives the land use break up of Kerala State. Based on the land use data of the Natural resources and Environmental Data Base, the land use of Kerala can be categorized under 9 Major categories and the percentage share of these categories is shown in Table 6.1 and Figure 6.1. Accordingly predominant land use of the State is a mix of residential and agricultural land use which constitute 48.38% of total land area. It can be further seen that forest area of the State contribute nearly 23.18% of the total area making the forest land use as second highest land use of the State. The agricultural land use and plantation landuse together constitute 20.18% of total area. The above analysis further support the real

ground peculiar scenario of the State in terms of urban rural continuum, highly scattered settlement pattern, and traditional homestead type of development-individual house surrounded by agricultural land mainly of mixed crop cultivation.

Table 6.1 Land Use Break Up of Kerala State

Sl No	Land use Category	% Of Total Area
1	Forest	23.18
2	Water bodies	2.92
3	Marshy Land	0.28
4	Residential	3.45
5	Agriculture	10.17
6	Plantation	10.01
7	Res/Agr Mix	41.38
8	Other Built up Land Use	0.48
9	Others	8.13
	Total	100

Source: Kerala State Land Use Board ,TVM

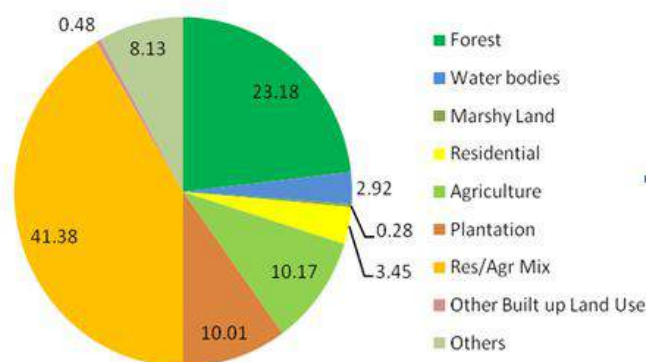


Fig. 6.1 Land Use Break Up of Kerala State

Source: Kerala State Land Use Board ,TVM.

6.2 LAND USE BREAK UP OF THE DISTRICT

Kozhikode District has a total area of 2344 sq.km. The land use map of the District is shown in Figure 6.2. The breakup of the land use of the District is shown in

Table 6.2 and Figure 6.3. The LSG wise land use break up is shown in Figure 6.4. LSG wise land use break up in sq.km is given in **Annexe 8**.

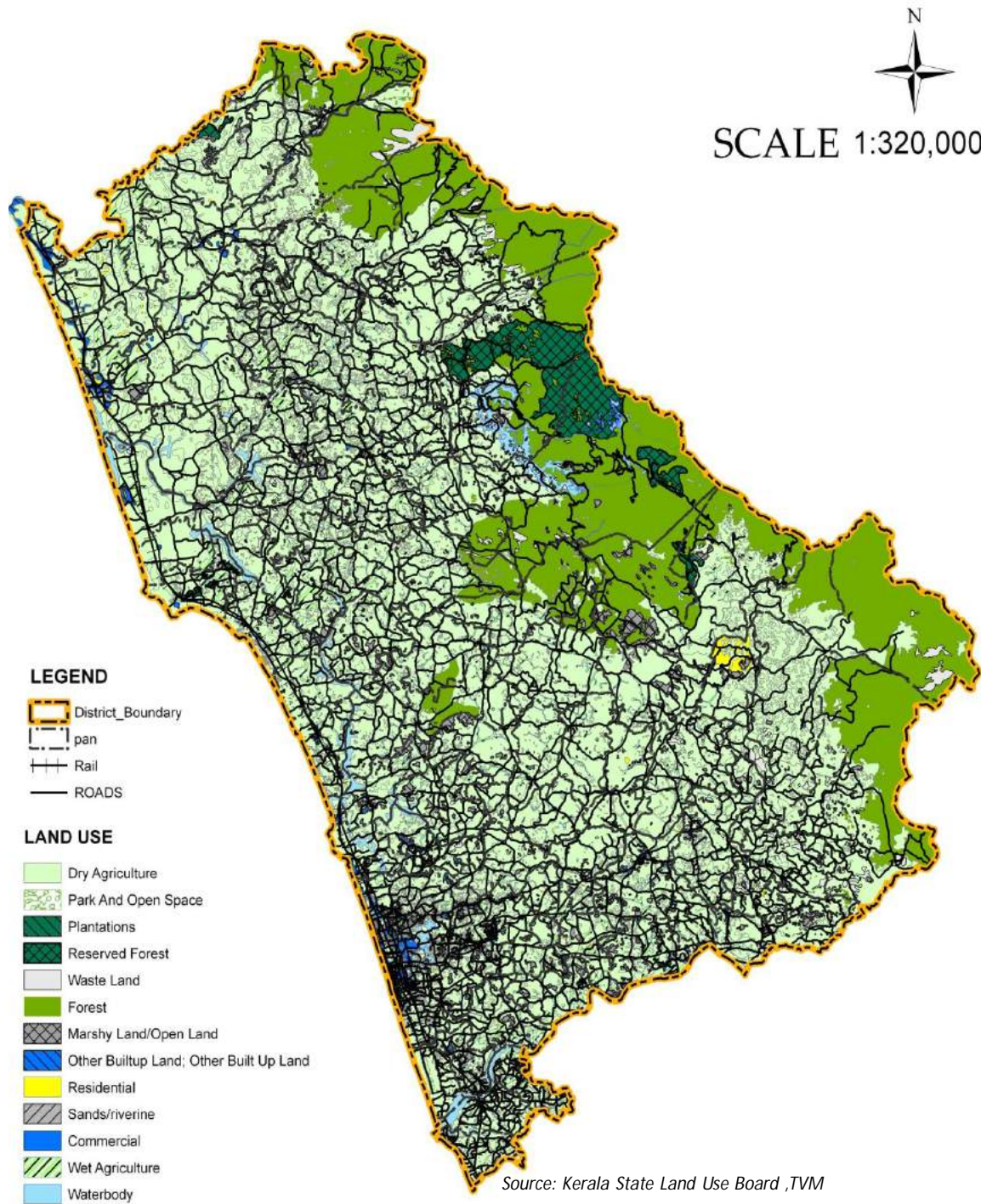
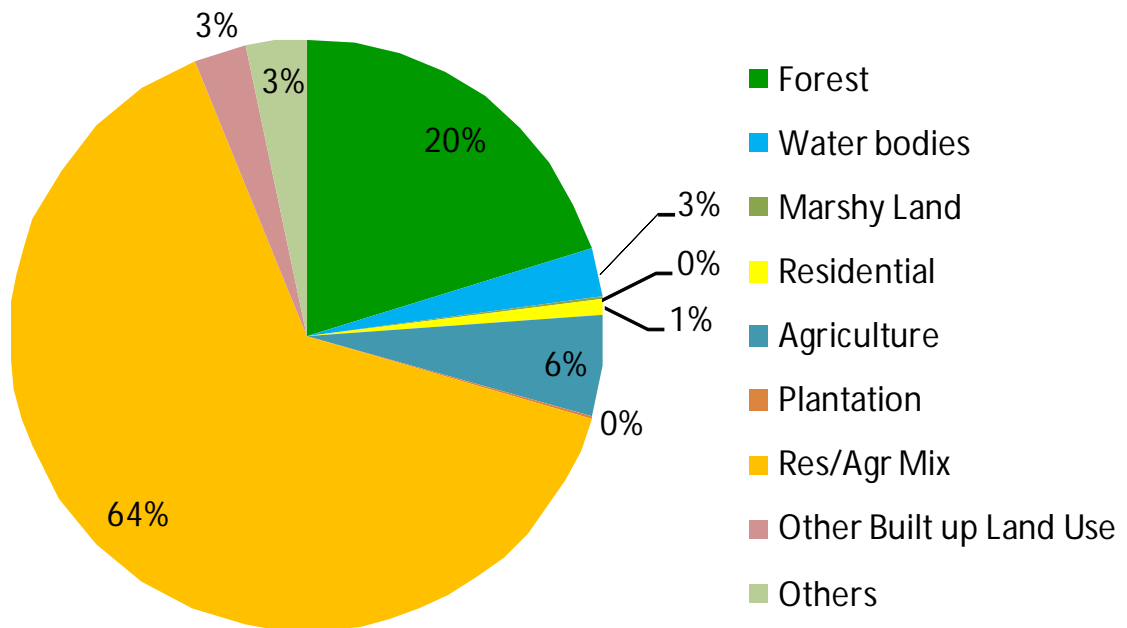


Fig 6.2 Land Use Break Up of Kozhikode District

Table 6.2 Land Use Breakup – Kozhikode District

SI No	Land use	Area (sq.km)	Percentage of total area
1	Forest	476.94	20.35
2	Water bodies	60.34	2.57
3	Marshy Land	4.2	0.18
4	Residential	18.26	0.78
5	Agriculture	128.33	5.47
6	Plantation	4.71	0.2
7	Res/Agr Mix	1506.69	64.28
8	Other Built up Land Use	66.43	2.83
9	Others	78.09	3.33

Source: Kerala State Land Use Board ,TVM



Source: Generated from NREDB

Fig. 6.3 Percentage of Land Use Break up

Kozhikode District consists of 1506.69 sq.km of residential/agricultural mix and 476.94 sq.km of forest land. The major share of the total land of the District comes under these two categories of land use. The District consists of 128.33 sq.km of pacca agricultural land and 18.26 sq.km of residential land.

Water bodies and forest land use in the District is about 60.34 and 476.94 sq.km respectively. The major portion of the total land area of the District is coming under three major land uses Residential/Agricultural mix (64.28%), Forest land (20.35%) and agriculture (5.47%).

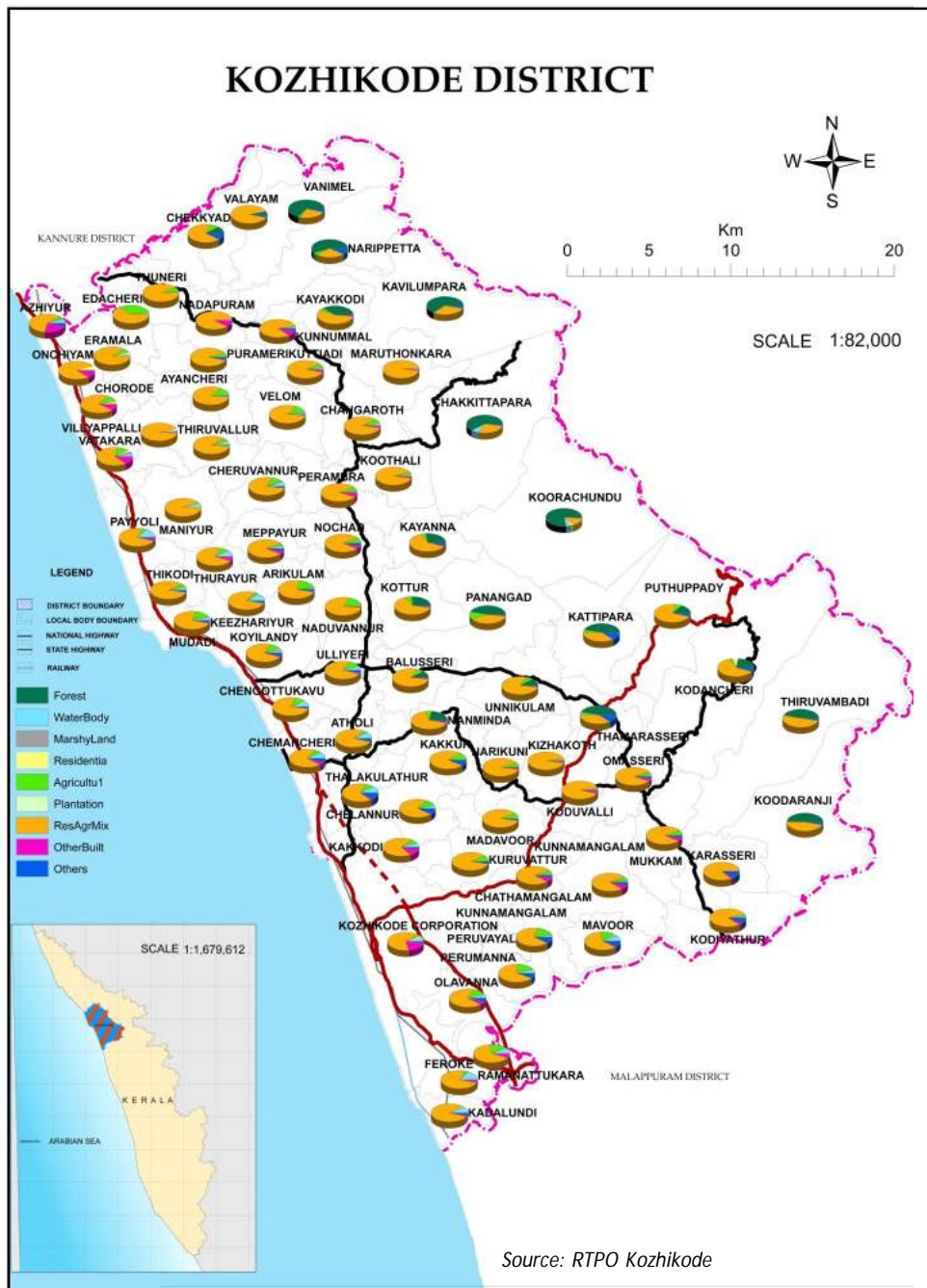


Fig. 6.4 LSG wise Land Use Break up

6.3 REGIONAL LAND USE STUDY

Comparison of the land use pattern of Kozhikode District with that of the State and with the three neighbouring districts Malappuram, Wayanad and Kannur, is done under regional land use study. Table 6.3 shows the comparison with land use of Kerala. When compared to the land use pattern of Kerala State, Kozhikode District shows remarkable variations in the

percentage of plantation land use, Residential/Agricultural land use. The comparison of category wise land use with that of Kerala shows that the share of total Residential/Agricultural mix and Other built up land use in Kerala is high in Kozhikode District. Table 6.4 shows the comparison with neighbouring Districts of Kozhikode.

Table 6.3 Land use Comparison Kozhikode District and State

Sl No	Land use	Area (sq.km)	Percentage of total area	Percentage of the corresponding area in the state
1	Forest	476.94	20.35	23.18
2	Water bodies	60.34	2.57	2.92
3	Marshy Land	4.2	0.18	0.28
4	Residential	18.26	0.78	3.45
5	Agriculture	128.33	5.47	10.17
6	Plantation	4.71	0.2	10.01
7	Res/Agr Mix	1506.69	64.28	41.38
8	Other Built up Land Use	66.43	2.83	0.48
9	Others	78.09	3.33	8.13

Source: Land Use Board Keral

The percentage of Forest Land Use of each District is shown in Figure 6.5. Wayanad District shows highest percentage (39.70%) and Kannur shows lowest (14.69%). Kozhikode and Malappuram shows almost same percentage.

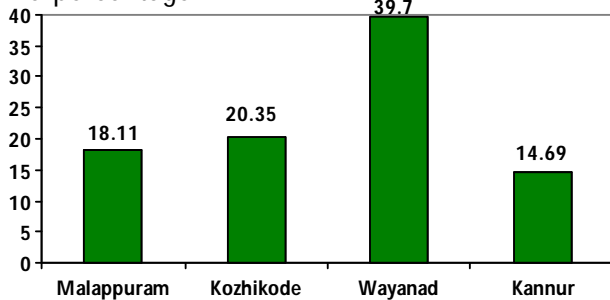


Fig. 6.5 Forest Land Use Comparison with neighbouring districts

Comparison of the percentage of share Forest land use of Kozhikode District and neighbouring three Districts is shown in Figure 6.6. The figure clearly shows that Wayanad District has the highest share where as Kozhikode is placed in the third position.

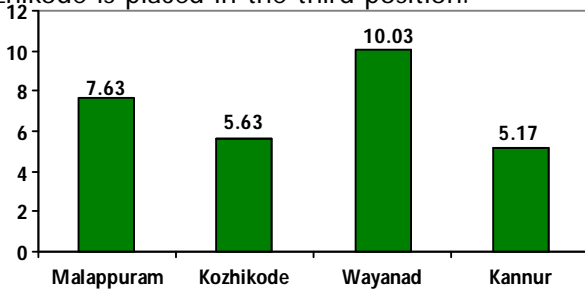


Fig. 6.6 Comparison of percentage share of Forest Land Use in the districts of Kerala- Kozhikode and neighbouring districts

The percentage of Water bodies of each district is shown in Figure 6.7. The figure shows that Kannur District shows highest percentage(2.69%) followed by Kozhikode (2.57%).

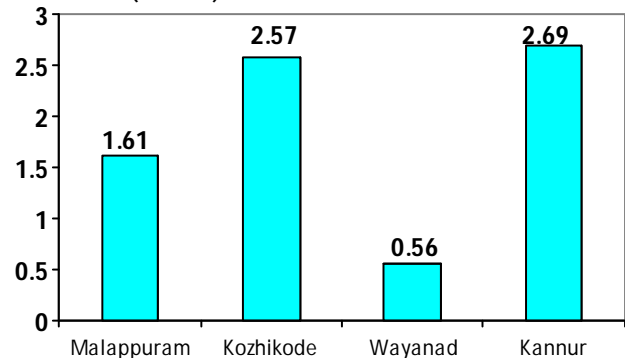


Fig. 6.7 Percentage share of Water Bodies- Comparison with neighbouring districts

Comparison of the percentage of share of Waterbodies of Kozhikode District and neighbouring three Districts is shown in Figure 6.8. The figure clearly shows that Kannur District has the highest share where as Kozhikode is placed in the second position.

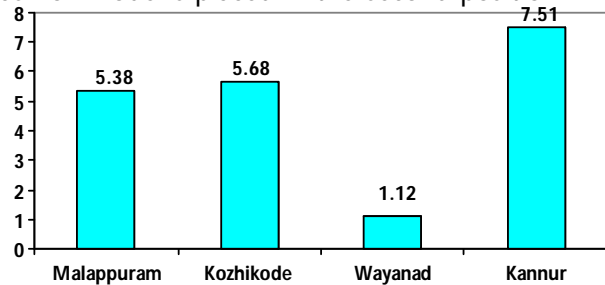


Fig. 6.8 Comparison of percentage share of Water Bodies Land Use in the districts of Kerala- Kozhikode and neighbouring districts

In the case of land depicted as Marshy land in the data base, Wayanad and Kannur Districts has no land under this category whereas Malappuram District shows highest contribution of about 11.58% of total area under this category. The percentage of Marshy land of each district is shown in Figure 6.9. The figure shows that Malappuram District shows highest percentage (11.58%) followed by Kozhikode (4.09%). The percentage share is also high in Malappuram followed by Kozhikode.

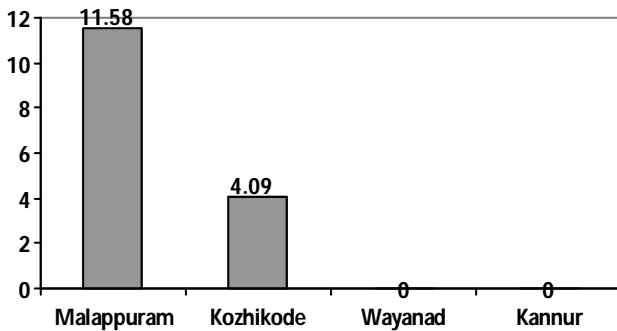


Fig. 6.9 Percentage share of Marshy Land- Comparison with neighbouring districts

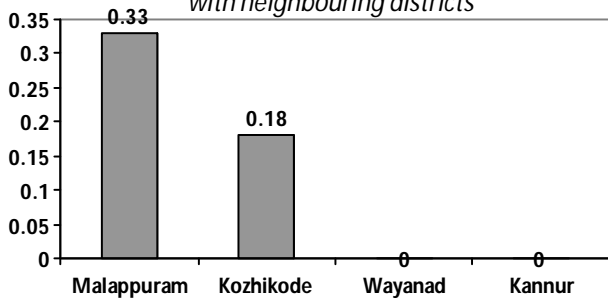


Fig. 6.10 Comparison of percentage share of Marshy Land in the districts of Kerala- Kozhikode and neighbouring districts

Residential land use which includes land uses categorised as Residential and Residential(Converted from Paddy) shows higher concentration in Kannur District(17.44%). The corresponding figure for Kozhikode

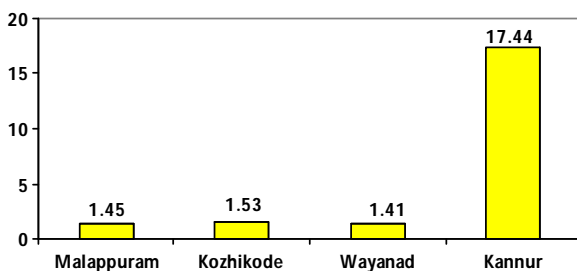


Fig. 6.11 Percentage share of Residential Land Use - Comparison with neighbouring districts

District is only 1.53%. At the same time it is higher than the corresponding shares of Malappuram and Wayanad.

The percentage of Residential Land use of Kozhikode & Surrounding Districts is shown in Figure 6.12. The figure shows that Kannur district shows highest percentage (7.38%) followed by Wayanad (0.83%). Kozhikode occupies third position.

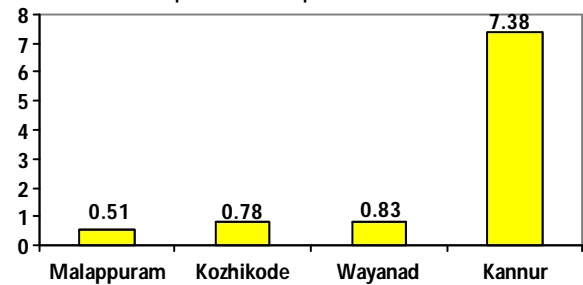


Fig. 6.12 Comparison of percentage share of Residential Land Use in the districts of Kerala- Kozhikode and neighbouring districts

In the case of agricultural land use Kannur shows dominance (22.44%) and Kozhikode has a share of 5.47%. This is shown in Figure 6.13.

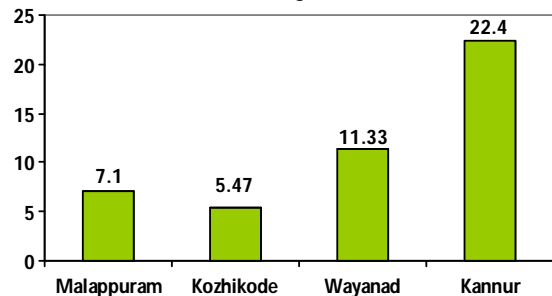


Fig. 6.13 Percentage share of Agricultural Land Use - Comparison with neighbouring districts

The comparison of percentage of Agriculture Land Use of each district is shown in Figure 6.14. The

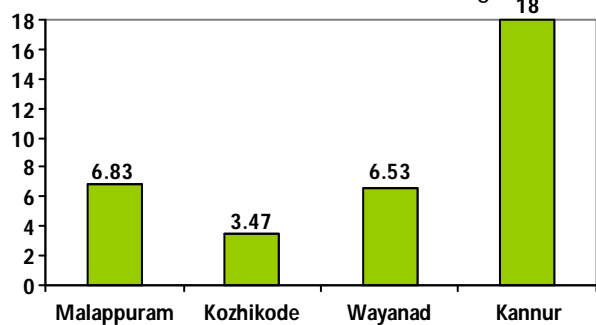


Fig. 6.14 Comparison of percentage share of Agricultural Land Use in the districts of Kerala- Kozhikode and neighbouring district

figure shows that Kannur district shows highest percentage (18%) and Kozhikode District is in last position (3.47%).

The percentage share of Plantation Land Use in Kozhikode & surrounding districts is shown in Figure 6.15. The figure shows that Wayanad district shows highest percentage (6.62%). Among the nearby Districts Kozhikode falls in the third position.

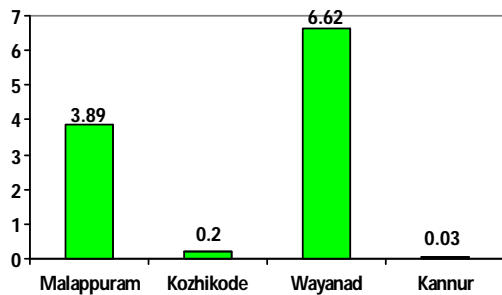


Fig. 6.15 Percentage share of Plantation- Comparison with neighbouring districts

Comparing to the other Districts of Kerala, Kozhikode and surrounding three districts show highest (Figure 6.16) concentration of mix of Residential and Agricultural land uses. Figure shows that among the surrounding Districts, Kozhikode has

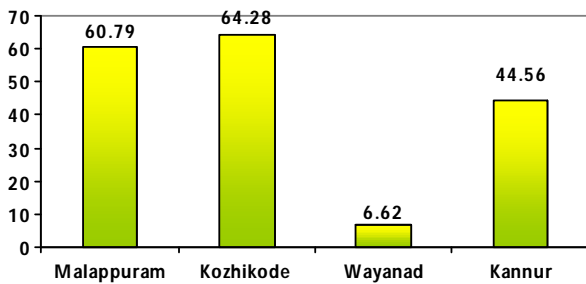


Fig. 6.16 Percentage share of Res/Agri Mix - Comparison with neighbouring districts

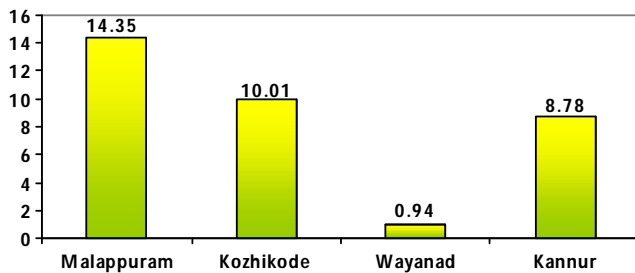


Fig. 6.17 Comparison of percentage share of Res/Agri Mix in the districts of Kerala- Kozhikode and neighbouring district

the highest percentage(64.28%) whereas Wayanad has the lowest(6.62%). But the percentage share of the land use in the State is high for Malappuram District.

6.4 CONCENTRATION PATTERN OF LAND USE

The concentration pattern of a land use gives an idea about where that particular land use is concentrated within the District. The concentration pattern of a land use can be ascertained by the concentration index of that land use which is calculated as follows. The concentration index value may be greater than one, equal to one or less than one.

$$\text{Concentration Index of a particular land use} = \frac{(\text{Area of that land use in a Local Government}) / (\text{Total area of the Local Government})}{(\text{Area of that land use in the District}) / (\text{Total area of the District})}$$

The value of LCI of a particular land use, if greater than one, indicates that the land use under consideration is relatively more concentrated in that LSG, than other local governments in the district. Using the above method concentration index of 9 categories of Land Use (which are Forest, Water Bodies, Marshy Land, Residential, Agriculture, Plantation, Resi/Agri Mix, Other built up land use and others) are analyzed. The concentration index of various land uses are given in **Annexe 9**.

6.4.1 Forest Land Use

Forest Land use contains land use categories of Dense Mixed Forest, Dense Mixed Forest (R.F)/Forest Blank, Dense mixed forest mainly bamboo, Dense mixed forest mainly bamboo & teak (R.F), Dense mixed forest mainly bamboo (R.F), Dense mixed forest mainly teak or cashew, Bamboo (R.F), Open mixed forest/ Open mixed forest (RF), Open mixed forest mainly teak/Open mixed forest mainly teak (RF), Scrub Forest, Underutilized / degraded notified forest, Dense Grassland/Degraded grass land, Degraded grass land (RF), Eucalyptus (R.F)/ Eucalyptus and soft wood (RF)/ Soft wood (silver oak), Dense mixed forest mainly rubber.

The concentration pattern of Forest land use shows (Figure 6.18) that forest area of the District is mainly concentrated in the North - Eastern part of the District. The forest land of the District is concentrated in 15 LSGs namely Grama Panchayat of Vanimel, Naripetta, Kayakkodi, Kavilumpara, Chakkittapara,

Koorachundu, Kayanna, Kottur, Panangad, Kattipara, Nanminda, Thamarasseri, Kodencheri, Koodaranji, Thiruvambadi. The forest land is seen in the high land and in central portion of the midland regions . The variation of concentration index of Forest Land use among the local governments is shown in Figure 6.19.

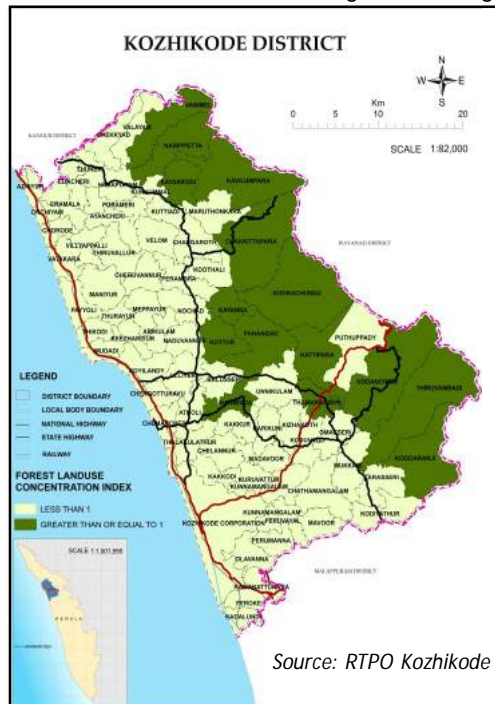


Fig. 6.18 Concentration Pattern of Forest Land Use

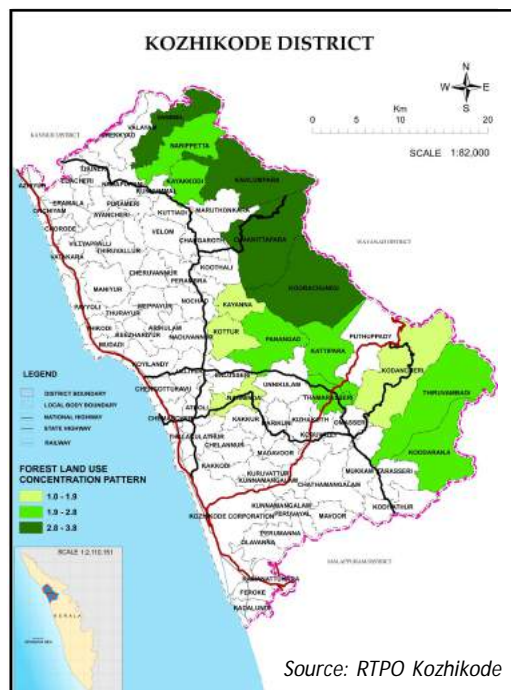


Fig. 6.19 Variation of concentration index of forest land use

6.4.2 Water Bodies

Water bodies include Perennial, Reservoir/ Canal, Reservoir Bed/River bed/ River Island, Sands / Riverine/Flood plain, Water Bodies/Back waters, Dam

6.4.3 Marshy Land

Marshy Land includes land parcels categorized as temporarily marshy land/Marshy land/Permanently marshy land as per NREDB. The concentration pattern



Fig. 6.20 Concentration Pattern of Water bodies

wall. The land use is mainly concentrated in the coastal area and in GramaPanchayats like Mavoor, Chakittapara and Koorachundu. Figure 6.20 shows the concentration pattern of Waterbodies.

and variation in the concentration pattern of Marshy land use in the District are shown in Figure 6.21 and Figure 6.22.

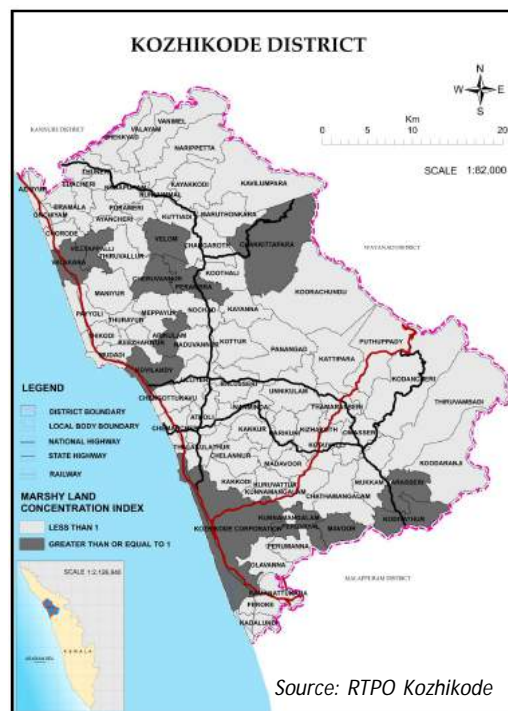
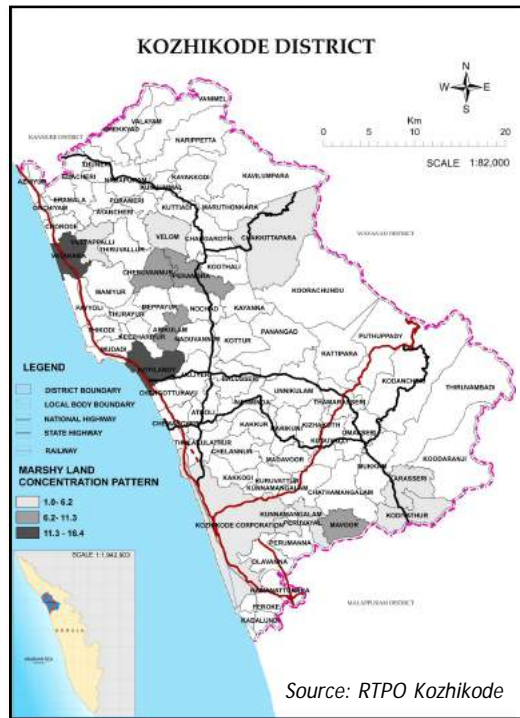


Fig. 6.21 Concentration Pattern of Marshy Land



Source: RTPO Kozhikode

Fig. 6.22 Variation of concentration index of Marshy Land

6.4.4 Residential Land Use

Residential land use includes Residential areas and Residential areas (Converted from Paddy). The con-

centration pattern and variation in the concentration pattern of Residential land use in the District are shown in Figure 6.23 and 6.24.



Fig. 6.23 Concentration Pattern of Residential Land Use

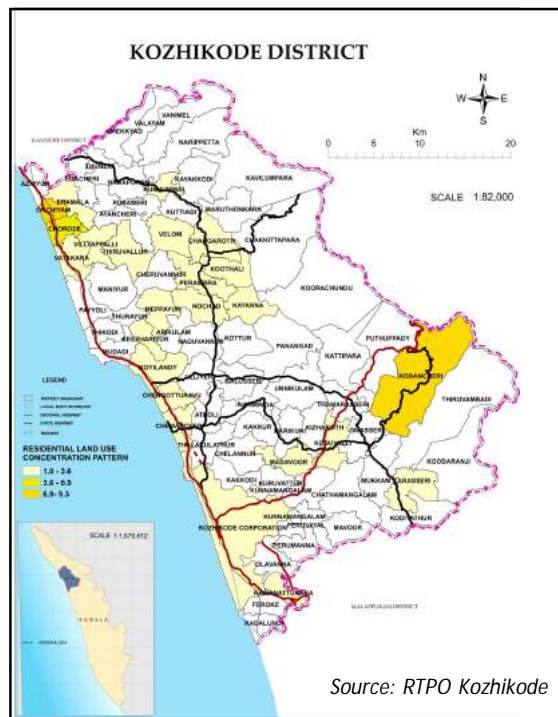


Fig. 6.24 Variation of concentration index of Residential land use

6.4.5 Agricultural Land Use

Agriculture land use includes Cashew/orange/pepper/pine apple, Viruppu (1st Crop)/Mundakan, Land without scrub, Double Crop/Triple crop, Agriculture farm, Agriculture farm (Orchards)/Mixed trees categories of land use as demarkated in the land

use map generated out of NREDB. The concentration pattern and variation in the concentration pattern of Agricultural land use in the District are shown in Figure 6.25 and 6.26. Figures shows that the agricultural land use is concentrated mainly in the mid land regions of the District.



Fig. 6.25 Concentration Pattern of Agricultural Land Use



Fig. 6.26 Variation of concentration index of Agricultural Land Use

6.4.6 Plantation

The land use categories like Rubber (R.F), Tea/ Coffee /cardamom / Eucalyptus, Tea & Eucalyptus, Tea (R.F) /Coffee (RF) /Cardamom(RF), Teak, Teak & Softwood (R.F), Teak (R.F) /Cashew (RF), Oil Palm , Oil Palm (R.F) are included in this land use. The concentration

pattern and variation in the concentration pattern Plantation land use in the Kozhikode District are shown in Figure 6.27 and Figure 6.28. Plantation land use is mainly concentrated in Koorachundu Grama Panchayat.



Fig. 6.27 Concentration Pattern of Plantation Land Use



Fig. 6.28 Variation of concentration index of Plantation land use

6.4.7 Resi/Agri Mix Land Use

Res/Agri Mix Land use consists of land use categories Arecanut, Banana, Banana & Tapioca, Coconut /Coconut and Arecanut / Coconut & Tapioca, Coconut dominant mixed crop, Current fallow, Mixed Crop, Rubber, Mixed, Tapioca. The concentration pattern and

variation in the concentration pattern of Residential/ Agricultural Mix land use in the District are shown in Figure 6.29 and Figure 6.30. This land use is concentrated in the low land and mid land region of the District.



Fig. 6.29 Concentration Pattern of Resi/Agri Mix Land Use

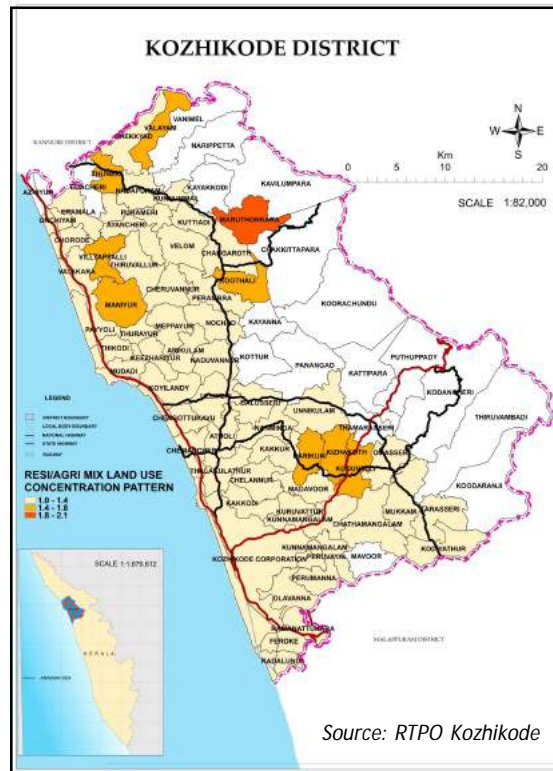


Fig. 6.30 Variation of concentration index of Resi/Agri Mix land use

6.4.8 Other Built up Land Use

Other Built up Land use includes land use categories like Commercial, Harbor /Port, Industrial/ Industrial Park, Mixed Built-up/Mixed Built-up converted

from paddy, Airport, Playground, Educational Institutions. The concentration pattern and variation in the concentration pattern of Other Built up land use in the District are shown in Figure 6.31 and 6.32.

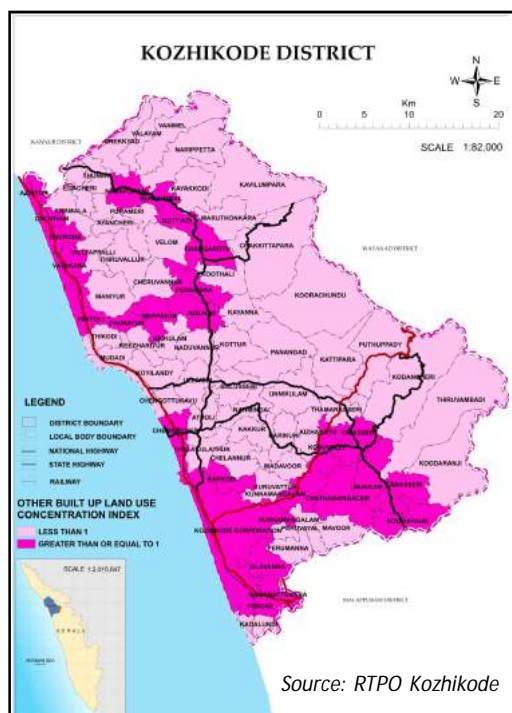


Fig. 6.31 Concentration Pattern of Other Built up Land Use



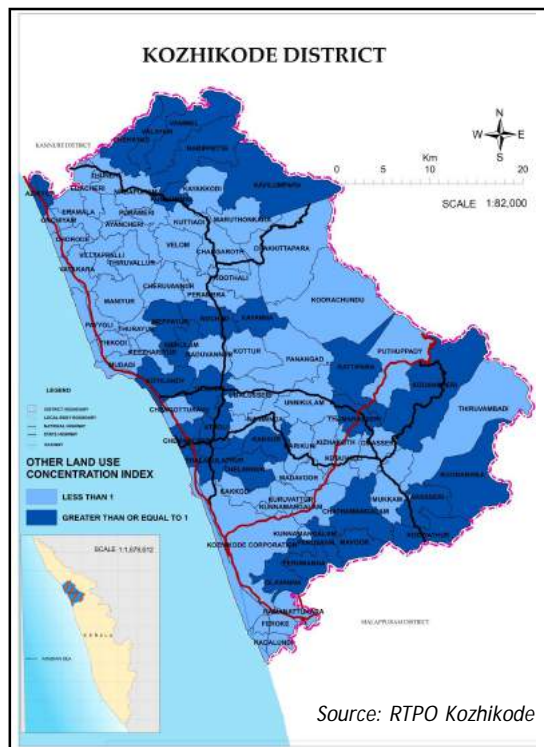
Source: RTPO Kozhikode

Fig. 6.32 Variation of concentration index of Other Built up land use

6.4.9 Other Land Use

Other Land use includes categories like Barren Rocky/ Stone waste/ sheet rock, Barren Rocky/ Stone waste/ sheet rock (RF), Coastal Sand, Land with scrub,

Beaches, Mining / Industrial waste. The concentration pattern and variation in the concentration pattern of Other land use in the District are shown in Figure 6.33 and Figure 6.34.



Source: RTPO Kozhikode

Fig. 6.33 Concentration Pattern of Other Land Use

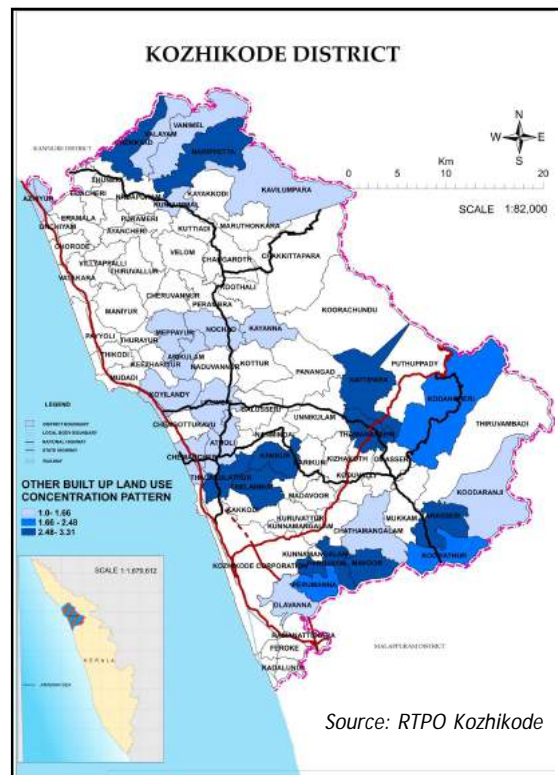


Fig. 6.34 Variation of concentration index of Other land use

6.5 ANALYSIS OF AGRICULTURAL LAND USE

The agricultural land use is analyzed further for all crops within the district. The total agricultural area of the district is 1662.68 sq km. The breakup of the agricultural land use of Kozhikode District is shown in

Table 6.5 and Figure 6.35. Dry Agriculture contributes an area of 1552.34 sq.km and wet agriculture contributes an area of 110.34 sq.km. The LSG wise breakup of the agricultural land use is shown in Figure 6.36.

Table 6.5 Breakup of Agricultural Land Use Kozhikode District, 2010

Sl.No	Type	Area (sq.km)	%
1	Coconut dominant mixed crop	1230.23	73.99
2	Mixed crop	180.64	10.86
3	Paddy	110.34	6.64
4	Rubber	47.25	2.84
5	Perennial	45.18	2.72
6	Coconut	24.17	1.45
7	Land without scrub	7.13	0.43
8	Banana	6.14	0.37
9	Mixed trees	4.83	0.29
10	Cashew	3.21	0.19
11	Pineapple	1.90	0.11
12	Current fallow	1.60	0.10
13	Arecanut	0.06	0.00
14	Tapioca	0.02	0.00
	Grand Total	1662.68	100.00

Source: Kerala State Land Use Board, TVM

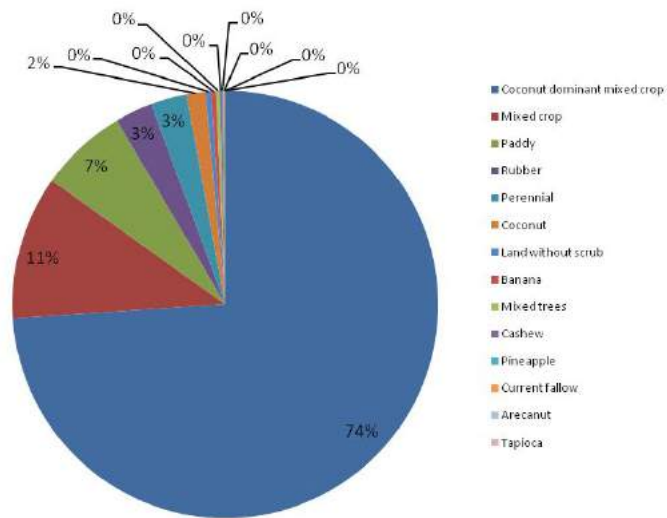


Fig. 6.35 Breakup of agricultural Land use Kozhikode District

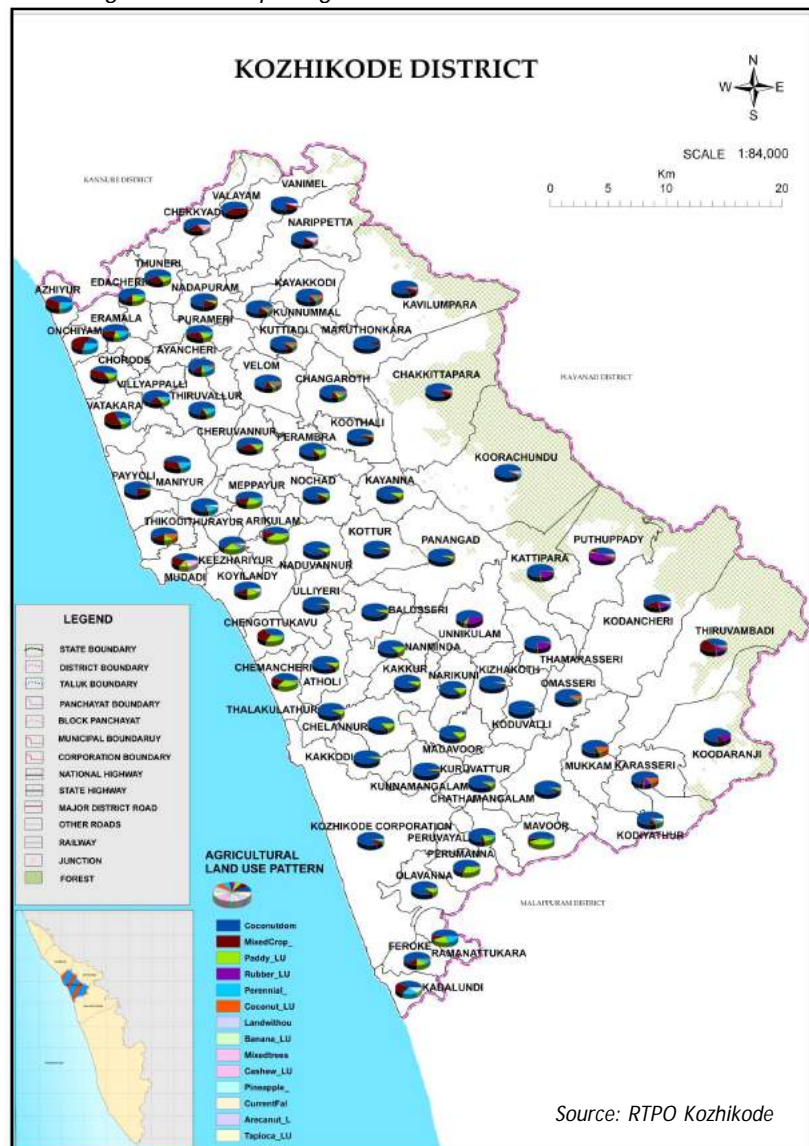


Fig. 6.36 LSG wise break up of agricultural land use

The breakup of agricultural land use of Kozhikode District considering the main crops is shown in Table 6.6.

6.5.1 Concentration Pattern of Major Crops

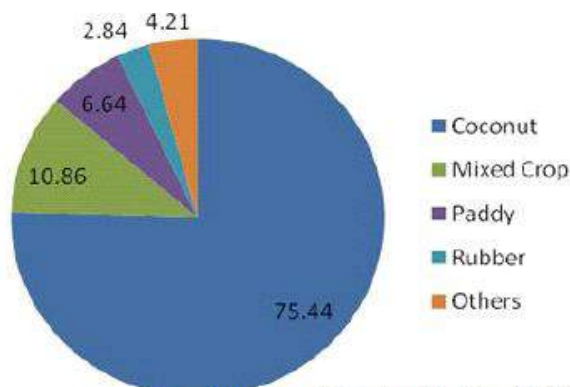
The concentration pattern of major crops gives an idea about where that particular crop is

Table 6.6 Breakup of agricultural land use considering main crops

Major Land Use	Sub Land Use	Area in sq.km	%	Total %
Coconut	Coconut dominant mixed crop	1230.23	73.99	75.44
	Coconut	24.17	1.45	
Mixed Crop	Mixed crop	180.64	10.86	10.86
Paddy	Paddy	110.34	6.64	6.64
Rubber	Rubber	47.25	2.84	2.84
Others	Perennial	45.18	2.72	4.21
	Land without scrub	7.13	0.43	
	Banana	6.14	0.37	
	Mixed trees	4.83	0.29	
	Cashew	3.21	0.19	
	Pineapple	1.9	0.11	
	Current fallow	1.6	0.1	
	Arecanut	0.06	0	
Tapioca	0.02	0		
Total		1662.68	100	100

Source: Kerala State Land Use Board, Tvm

From the above analysis it is found that major contributor among various crops in Kozhikode District is Coconut (75%) followed by mixed crops (10.86%), paddy (6.64%) and Other crops (4.21%). But rubber alone contributes 2.84%. So the agricultural land use is analyzed further considering these four main crops (Coconut, Mixed Crops, Paddy and Rubber). The breakup of the agricultural land use of Kozhikode District considering these main crops is shown in Figure 6.37 and Figure 6.38



Source: Kerala State Land Use Board, Tvm

Fig. 6.37 Breakup of agricultural Land use into five classes

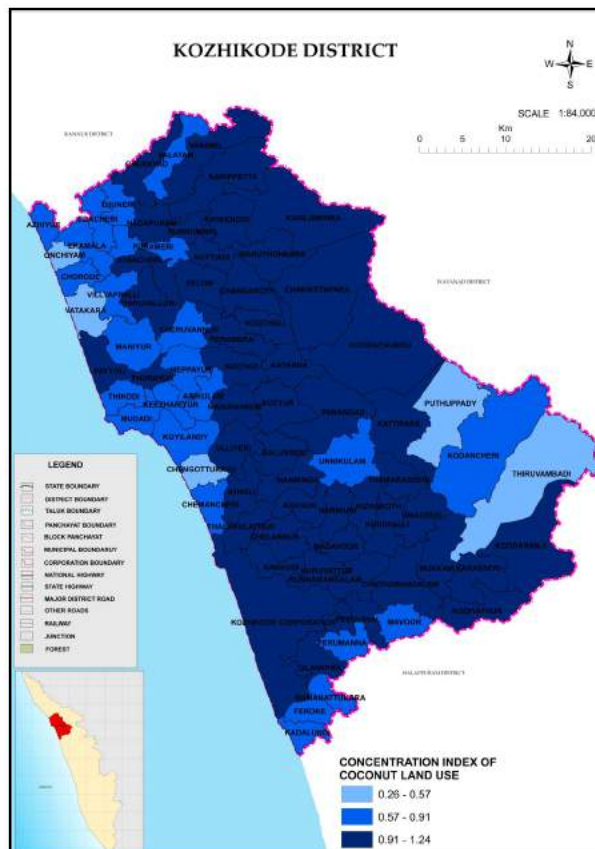
concentrated. Concentration index of various categories of crops is given in **Annexe 10**. Four major agriculture viz: Coconut, Mixed crop, Paddy and rubber that are dominant in Kozhikode district are analyzed here. The concentration index of the four main crops is given in **Annexe 11**.

6.5.1.1 Concentration Pattern of Coconut Land Use

The distribution of the concentration index of coconut is shown in Figure 6.39. From the figure it is clear that the high concentration of coconut land use lying along north eastern and south eastern part of the District.

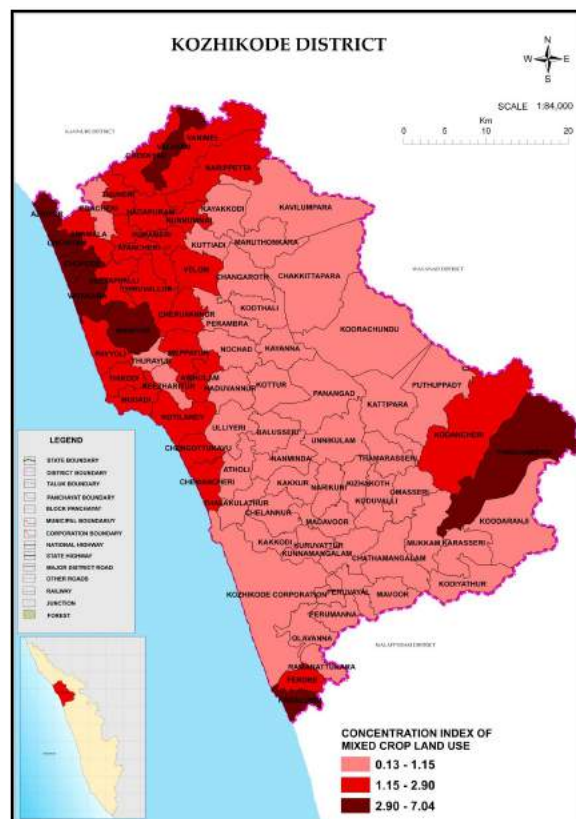
6.5.1.2 Concentration Pattern of Mixed Crop

Figure 6.40 shows the distribution of the concentration index of the mixed crop land use. From the figure it is clear that the high concentration of mixed crop is in the North Western part of the District. The urban and semi urban areas support mixed crop cultivation. Highland areas have less concentration of Mixed crops.



Source: RTPO Kozhikode

Fig. 6.39 Concentration Pattern of Coconut



Source: RTPO Kozhikode

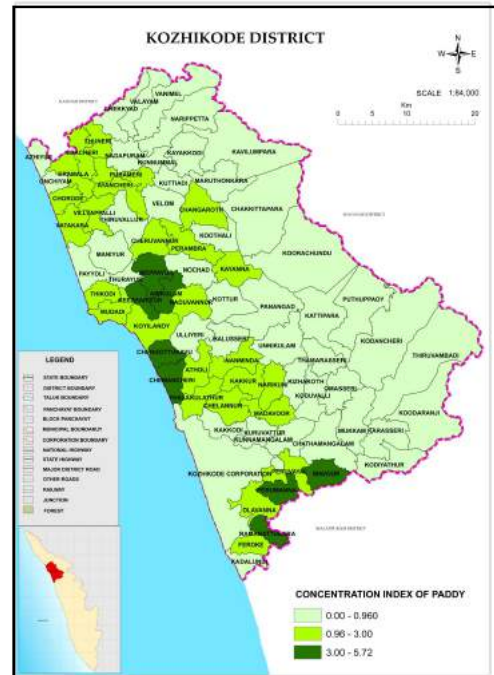
Fig. 6.40 Concentration Pattern of Mixed Crop

6.5.1.3 Concentration Pattern of Paddy

Figure 6.41 shows the distribution of the concentration index of the Paddy land use. Highest concentration index of the paddy area is found in LSGs in low and mid land areas. Highland areas have very poor concentration of paddy lands.

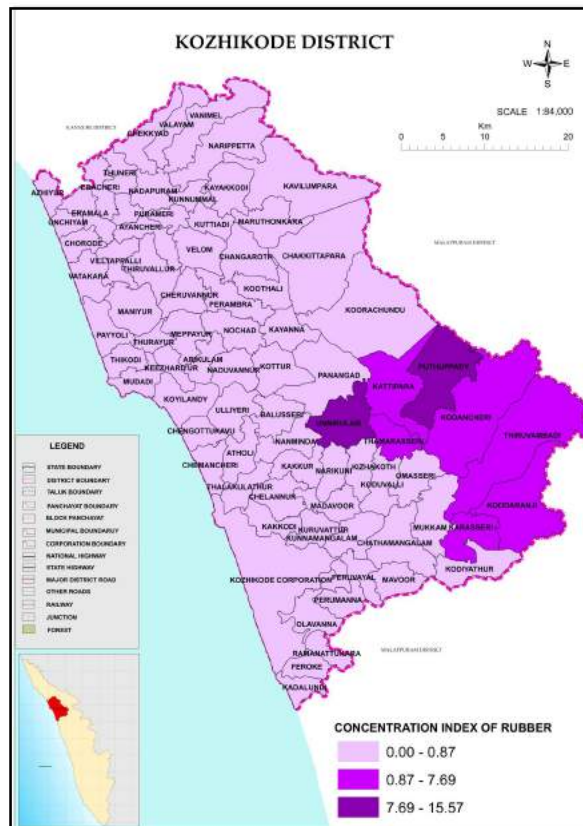
6.5.1.4 Concentration Pattern of Rubber

Figure 6.42 shows the distribution of the concentration index of the Rubber land use. The concentration is very low in the District. South Eastern parts of the district have the highest concentration of Rubber land use especially in the Unnikulam, Puthupaddy, Kattipara, Thamarassery, Kodencheri, Thiruvampadi, Koodaranji, Karasseri Panchayats.



Source: RTPO Kozhikode

Fig. 6.41 Concentration Pattern of Paddy



Source: RTPO Kozhikode

Fig. 6.42 Concentration Pattern of Rubber

6.6 MAJOR AGRICULTURAL ACTIVITIES

The areas of concentration of the major agriculture land uses in the District is delineated taking land put to crops viz coconut, mixed crop, paddy and rubber. In the previous section. By combining the concentration pattern of major agricultural land uses

spatially and by analyzing the resulting pattern, areas of major agricultural (based on the existing land use) activity can be delineated. The crop specialization of each local govt. of the district in agriculture activity is given in **Annexe 12** and Figure 6.43.



Fig. 6.43 Area of Specialization in agriculture

6.7 ACTIVITY ZONES BASED LAND USE CONCENTRATION PATTERN

The area of concentration of the major land uses in the District is delineated taking each land uses separately. In order to evolve the activity zones the nine categories of land uses are grouped into 4 categories which are Urban or Non Agricultural,

Agricultural, Plantation and Forest as given in Table 6.7. The concentration index of these major land use categories is shown in **Annexe 13**. The concentration patterns are shown in Figure 6.44, 6.45, 6.46, 6.47. Based on the pattern, the activity of the LSGs is evolved as per the criteria shown in Table 6.8.

Table 6.7 Grouping of Land Use Classifications

Sl.No.	Major Land Use	Land Use Categories Grouped
1	Non Agriculture(Urban Land Use)	Other builtup+Others+Residential(Plot size<50 cents)
2	Agriculture	Agri+Resi/Agri+Residential(Plot size>50 cents)
3	Forest	All components of Forest Land Use
4	Plantation	All components of Plantation Land Use



Fig. 6.44 Concentration Pattern of Forest Land Use

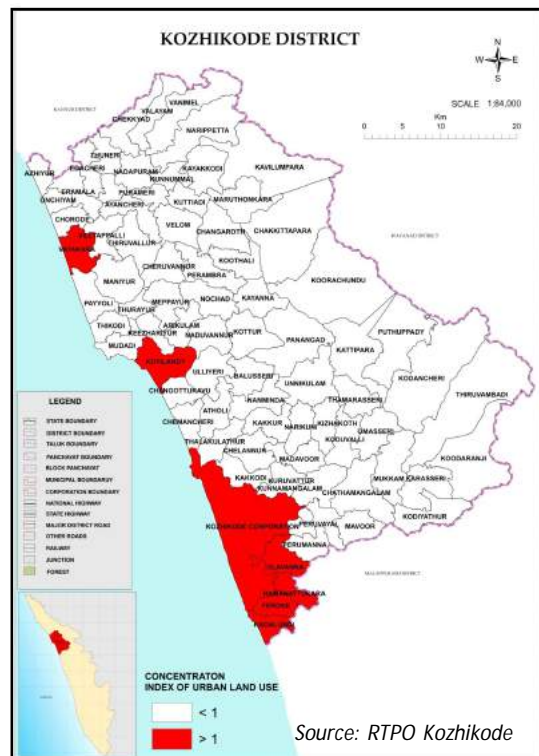


Fig. 6.45 Concentration Pattern of Urban Land Use



Fig. 6.46 Concentration Pattern of Agricultural Land Use

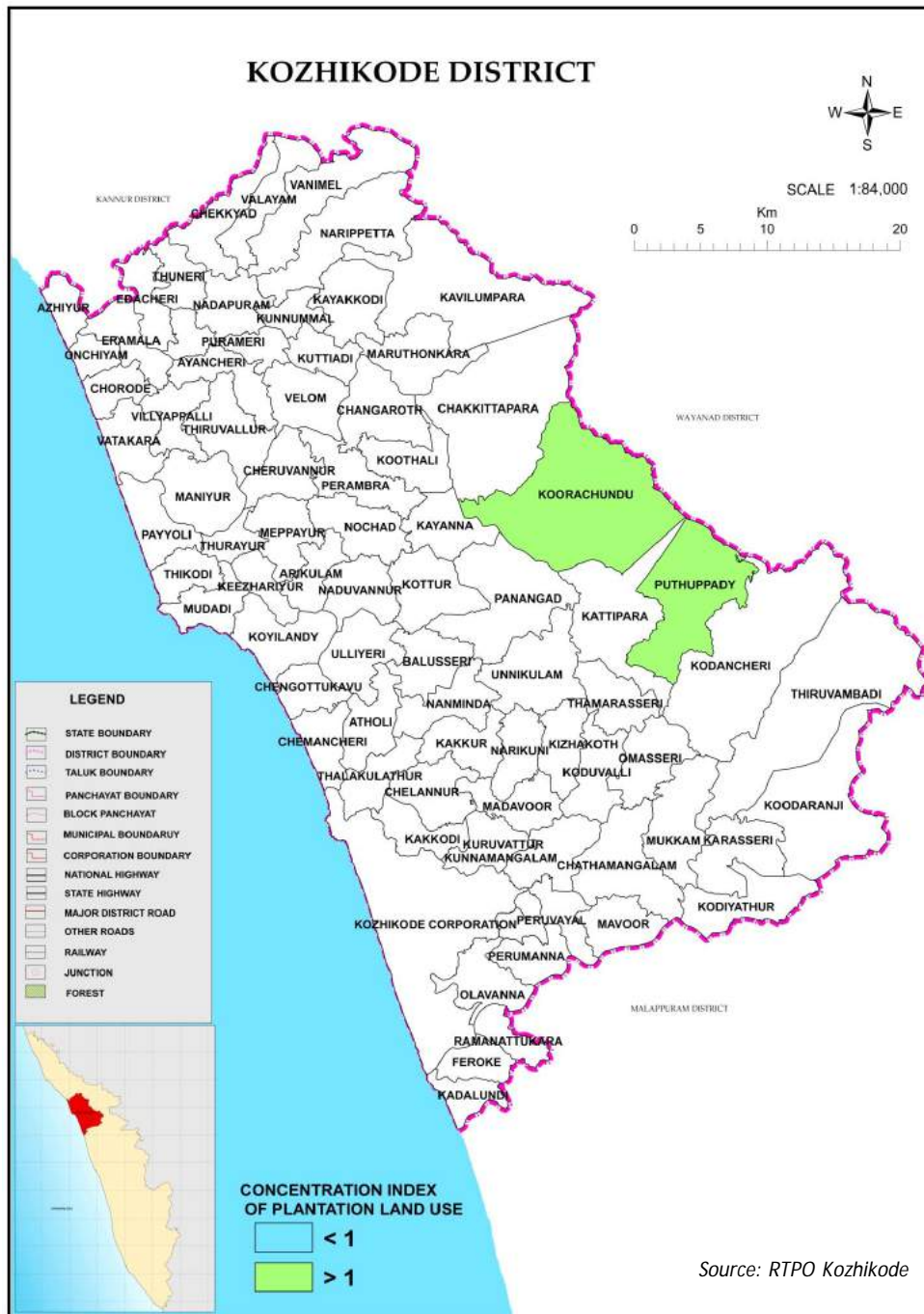


Fig. 6.47 Concentration Pattern of Plantation

Table 6.8 Criteria for determination of activity based on land use

Sl.No.	Activity Based on Land Use	Criteria
1	Urban	CI*Urban>CI Agri/CI Plantation/CI Forest
2	Agricultural/Agri	CI*Agri>CI Urban/CI Plantation
3	Plantation	CI*Plantation>CI Forest/CI Urban/CI Agri
4	Forest	CI* Forest>CI Plantation/CI Urban/CI Agri

* CI- Concentration Index of

By combining the concentration pattern of the major land uses spatially and by analyzing the resulting pattern, activity zones of LSGs (based on the existing land use) is evolved. Activity zones based on land use thus evolved for each LSG is shown in **Annexe 14**.The activity pattern based on the land use is shown in Figure. 6.48.

LSGs showing urban nature are evidently the existing urban LSGs and the LSGs surrounding the Kozhikode Corporation. Activity zones based on agriculture is concentrated in the local governments situated in the mid land region and highlands. LSGs having predominant activity Plantation are Kattipara, Thamarasseri, Puthupaddi and Kurachundu.

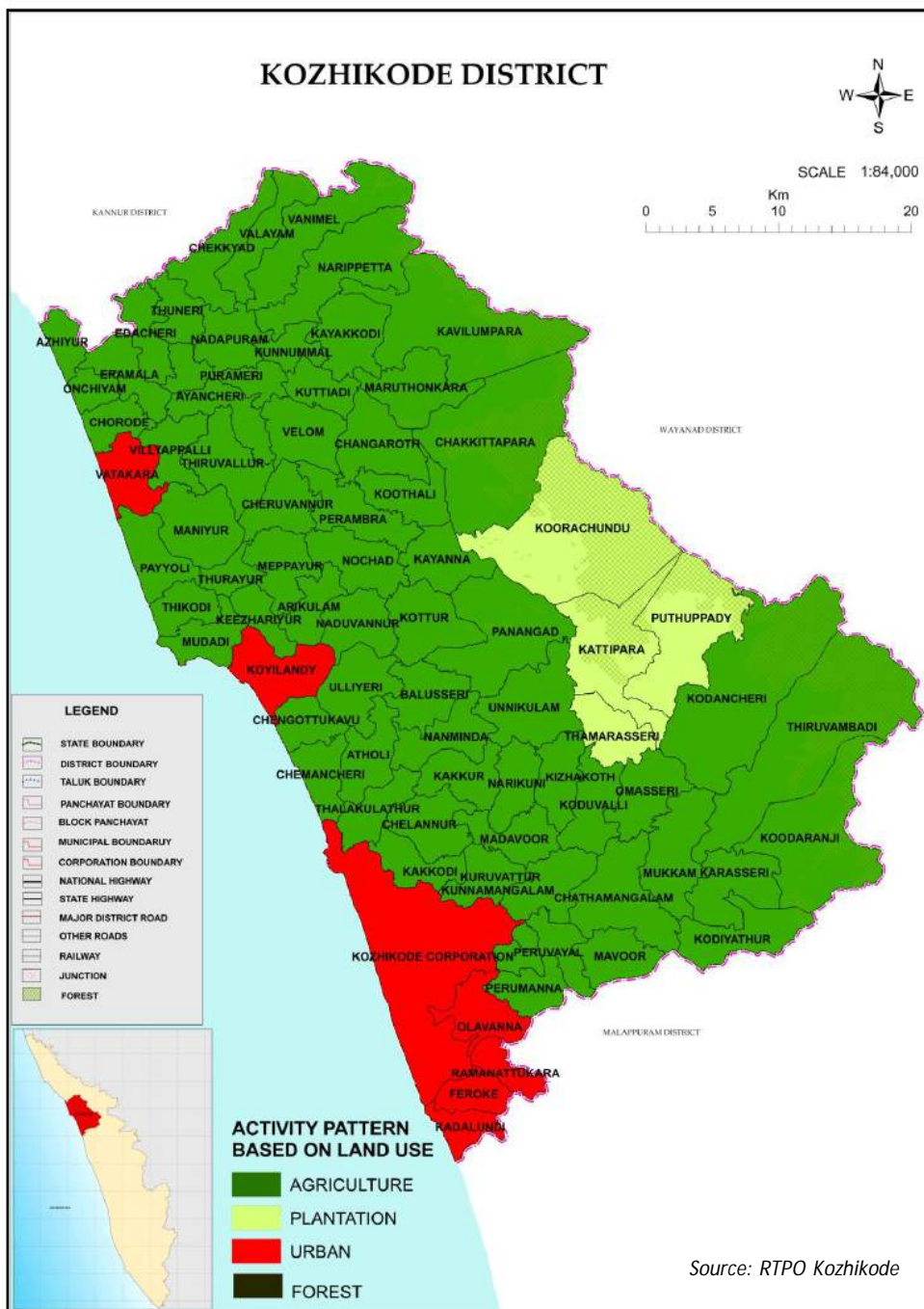


Fig. 6.47 Activity Pattern Based on Land Use

Chapter-7 FUNCTIONAL CHARACTER OF SETTLEMENTS

The chapter analyses the functional character of the settlements in Kozhikode District

7.1 CHARACTER OF SETTLEMENTS

In Kerala context, a ward or a local government will be having either pucca urban area, pucca rural area or mixed(Residential cum agricultural) use area in

separate or in its combination. The Functional Character of an LSG denotes the major activity within the settlement. The Functional Character of the local government can be Pucca Rural (Agriculture and allied activities), Pucca Urban (secondary sector and tertiary sector activities) or a Combination of Both (Semi Rural or Semi Urban). The land uses in the LSGs are

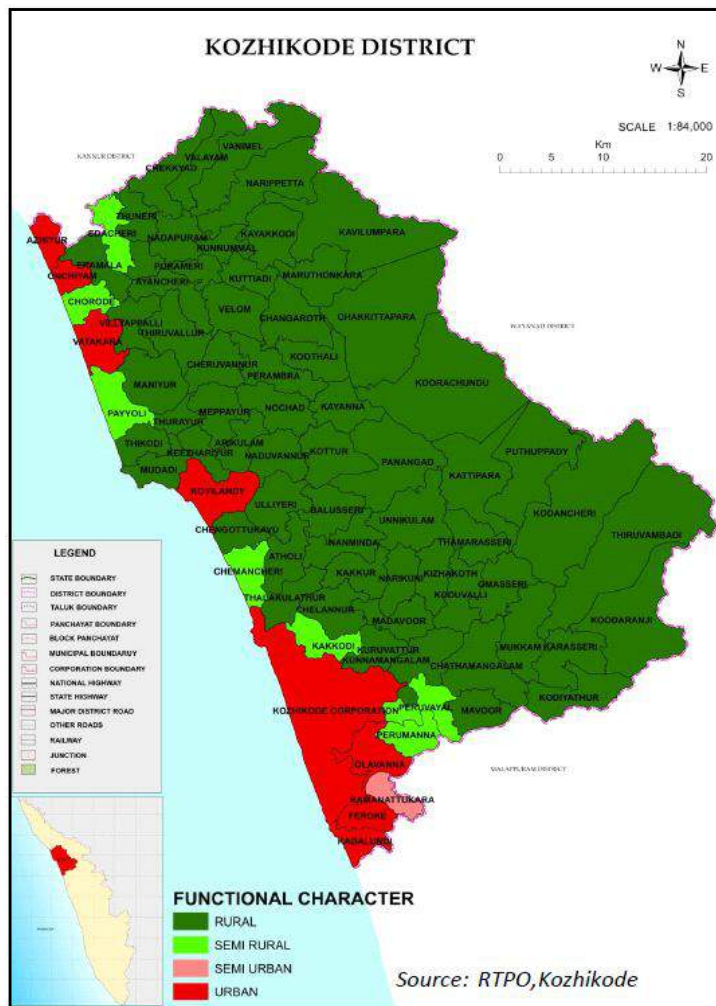


Fig.7.1 Functional Character of LSGs

categorized in to Neutral, Urban, Rural and Residential-Agriculture Mix. The area under each of these categories of land use, population concentration pattern, % of workers engaged in non-agricultural pursuits and the average plot size in the Residential-Agriculture Mix zone are integrated to categorize the LSGs in to Urban, Semi-Urban, Semi-Rural and Rural. The Functional Character of local governments in Kozhikode District are shown in Figure 7.1 and the details are shown in **Annexe 15**.

7.2 INFERENCE

The Local governments showing urban character are evidently Kozhikode Corporation, adjacent local governments such as Olavanna, Feroke and Kadalundi, Vatakara Municipality, Koyilandy Municipality and two coastal gramapanchayats Azhiyur and Onchiyam. Most of the coastal local governments show either urban, semi urban or semi rural nature, whereas non coastal local governments show pucca rural nature.

Chapter 8

HIERARCHY OF SETTLEMENTS

In this chapter the hierarchy of local governments in the District is identified based on the facilities available in each local government. In addition to these rural nodes, Panchayat centres and urban rural growth centres in Kozhikode District are also identified.

8.1 HIERARCHY OF SETTLEMENTS

For the classification of local governments cumulative functional index based on facilities available in local government is calculated. The facilities considered under each sector are given in the Table.

8.2 CALCULATION OF WEIGHTAGE OF FACILITY

Weightage is calculated using the statistical formula

$$W_i = \frac{N}{F_i}$$

Where W_i is the weightage of i^{th} Facility
 N – Total number of settlements in the district i.e. 78 for Kozhikode District.

F_i - Number of settlements having i^{th} facility

Annexe 16 gives weightage of each facility.

Composite Facility Score is calculated by multiplying weightage by number of facilities. Adding the total composite facility score, Cumulative Functional Index is found out. **Annexe 17** gives the calculation of Cumulative Functional Index.

8.3 HIERARCHY OF LOCAL GOVERNMENTS

From the cumulative functional index table the settlements are divided into 1st order, 2nd order, 3rd order and 4th order based on their CFI value. **Annexe 18** gives CFI values and number of settlements.

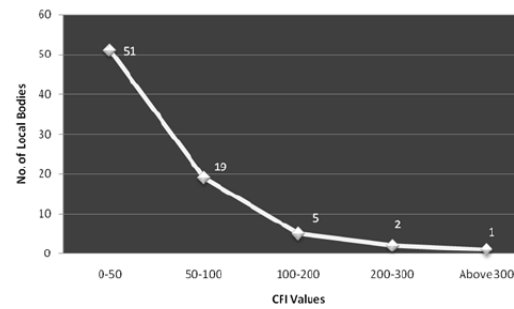
a. Hospital	Homoeopathy, Ayurvedic, Allopathy, Super Speciality, Speciality, Veterinary, ESI, Taluk Hospital, CHC, PHC
b. Banking	Nationalized banks Scheduled banks Co-operative banks
c. Communication	Head Post office Telephone exchange
d. Agriculture	Market- Weekly Seed farms Krishi bhavan
e. Veterinary	Hospital
f. Education	Lower Primary School Upper Primary School High School & Higher Secondary, ITC/ITI, Bed College Arts and Science College Teachers Training Institute Engineering colleges/ College of Science & Technology/ Polytechnic/Allopathic/ Medical College/ Universities Homeopathic/ Ayurvedic College,
g. Entertainment	Cinema theater
h. Other facilities	Police Station, Fire Station, Railway station, Air port, Bus stand

Based on the above classification the order of settlements is identified. **Annexe 19** gives the details.

From **Annexe 19** it can be seen that Kozhikode Corporation has the highest value of cumulative functional index as expected and falls in first order. Vatakara Municipality, which is 1st grade Municipality and Mukkam Grama panchayat which is a 1st grade Panchayat falls in the 2nd Order in Kozhikode District.

In the 3rd order there are 5 local governments namely Perambra, Koyilandy Municipality, Feroke, Nadapuram and Thamarassery.

Remaining 70 local governments in the District are included in 4th order. Figure 8.1 gives spatial distribution of settlements of different hierarchies.



8.4 SUGGESTED HIERARCHY OF SETTLEMENTS

Kozhikode Corporation is the first order settlement in Kozhikode District. The service area cannot be taken as hexagonal since it serves the entire district. As per Crystallor’s central place theory the lower order settlements are placed at the vertices of the hexagonal shaped service area of higher order settlement. Here the service area of the first order



Fig. 8.1 Spatial Distribution of Settlements of Different Hierarchies

settlement is the entire district and hence it is assumed that there are at least 4 second order settlement one from each of the sub regions.(North East division, North West division, South West division, and South East division) of the district. The service area of second order settlement is delineated by drawing perpendicular bisectors to the straight line connecting the second order settlements. This area may form a hexagon or part of hexagon in shape. The vertices of hexagon determine the location of next lower settlements. The service area of the third order settlement can be delineated as hexagonal in shape. The remaining settlement of the district are assumed to be having the lowest order ie. Fourth order.

8.5 PROPOSED HIERARCHY OF SETTLEMENTS

From the existing hierarchy table it can be seen that Kozhikode Corporation is first order, Vatakara Municipality and Mukkam are second order. For assessing the proposed hierarchy of settlements also, Kozhikode Corporation is taken as first order; Mukkam and Vatakara are taken as second order. The first order and second order settlements are marked in the district map and it is shown in the Figure 8.2.

From the Figure 8.2 it can be seen that there is no second order settlement in the north east region and south west region. As per Crystallor’s theory lower order settlement will be placed at the vertices of hexagonal service area of the higher order settlement.

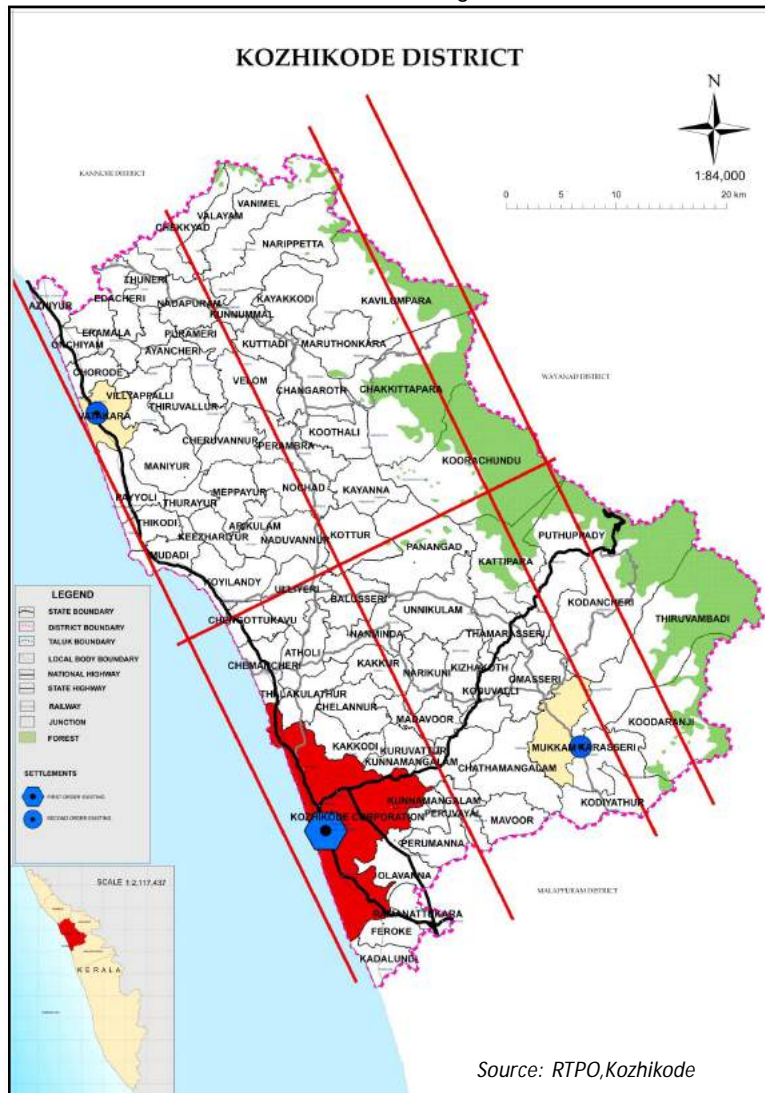


Fig 8.2 Existing First and Second Order Settlements

However this cannot be applied here as the entire district is assumed as the service area of first order settlement ie Kozhikode Corporation. Hence second order settlement is identified from North East and South West region based on the following criteria.

1. Administrative status of the settlements.
2. Centrality
3. Connectivity
4. Existing hierarchy

region and Kunnamangalam Panchayat in the South West region are selected. This is given in Figure 8.3.

Again it can be seen that the middle portion of the District is less served by second order settlement. The distance between Kunnamangalam and Perambra or Perambra and Mukkam is so high that there is a necessity of a second order local government in this region. Applying the above mentioned criteria again Koyilandy is identified as the next second order settlement. The spatial distribution of finalized second

order settlements is produced in Figure 8.4.

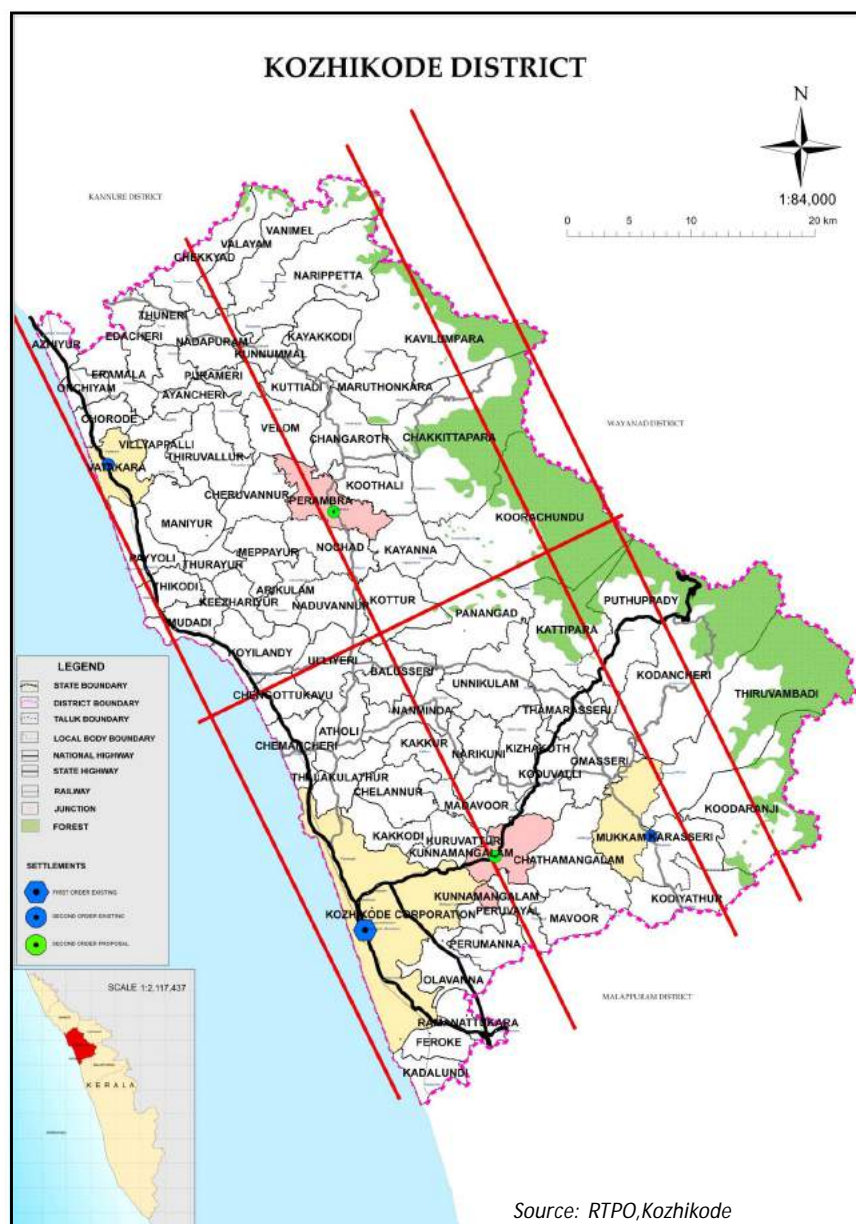


Fig 8.3 Existing Second Order and Proposed Second Order Settlements

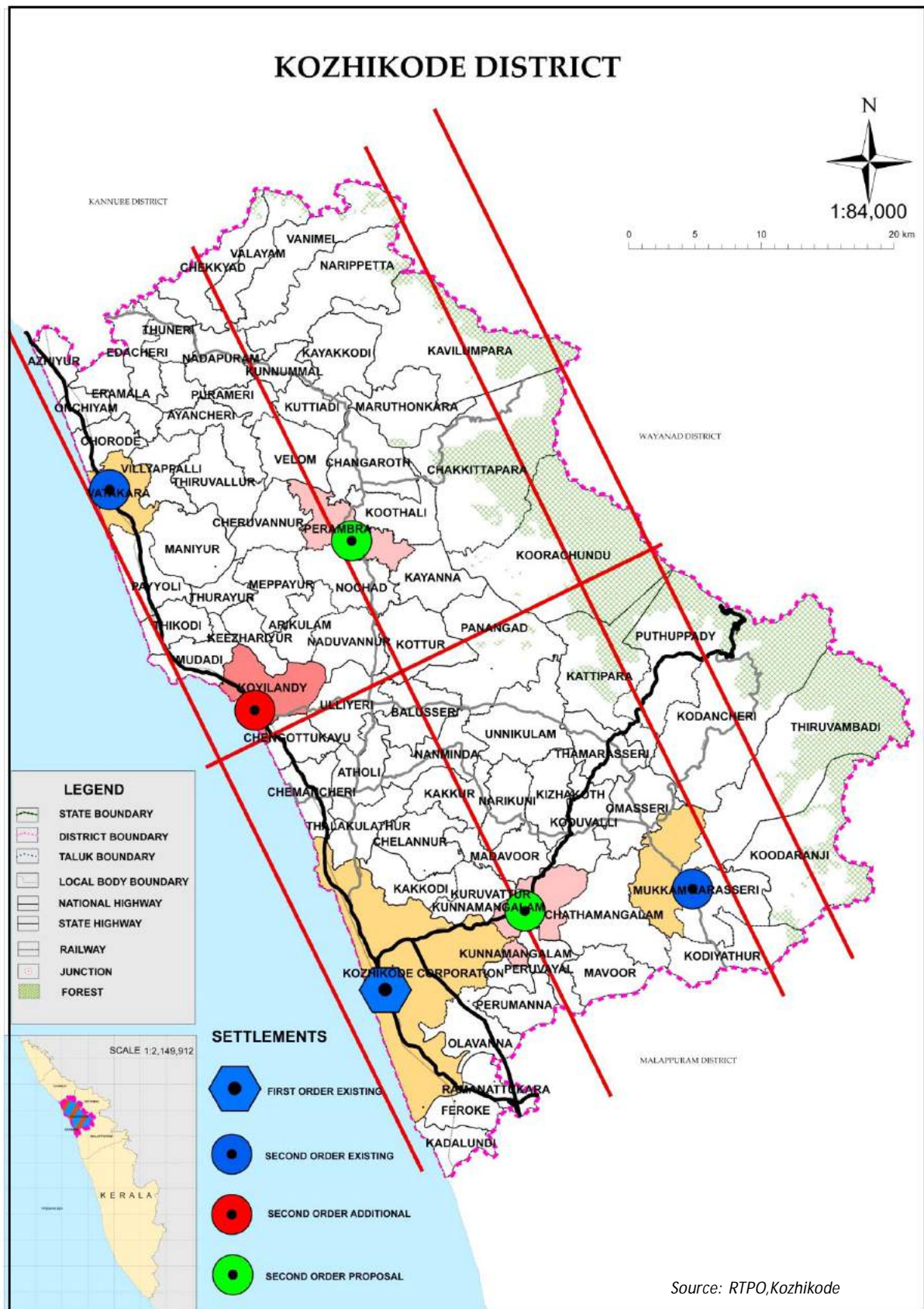


Fig 8.4 Existing Second Order, Proposed Second Order and Additional Second Order Settlements

8.6 THE SERVICE AREA OF SECOND ORDER SETTLEMENTS

The service area of various second order settlements are given in the Table 8.1 & Figure 8.5

Second Order Settlements	No	Service Settlements	Population					Total Service Population	
			Density of Population 2001	2001	Area in Sqkm	2021	Density 2021	2001	2021
KOYILANDY	1	CHEMANCHERI	1941.00	32532	17	3595330	2145	336778	372187
	2	CH ENGO TTU KAVU	1860.00	25293	14	27952	2055		
	3	ATHOLI	1238.00	26071	21	28812	1368		
	4	BALUSSERI	1175	26377	22	29150	1299		
	5	KOYILANDY	2375.00	68982	29	76235	2624		
	6	ULLIYERI	1187.00	30742	26	33974	1312		
	7	MUDADI	1848.00	29607	16	32720	2042		
	8	KEEZHARIYUR	1046.00	14320	14	15826	1156		
	9	THIKODI	1768.00	25015	14	27645	1954		
	10	THURAYUR	1337.00	14009	10	15482	1477		
	11	THALAKULATHUR	1239.00	26687	22	29493	1369		
	12	ARIKULAM	741.00	17143	23	18945	1208		
KOZHIKODE	1	KADALUNDI	3305.00	39099	12	43210	3653	813217	898722
	2	RAMANATTUKARA	2599.00	30440	12	33641	2873		
	3	KOZHIKODE CORPORATION	5075	601887	118.59	665172	5609		
	4	KAKKODI	1942.00	36097	19	39892	2146		
	5	FEROKE	3716.00	50277	14	55563	4107		
	6	OLAVANNA	2586.00	55417	21	61244	2858		
KUNNAMAN AGALAM	1	MAVOOR	1360.00	27845	20	30773	1503	412931	456348
	2	UNNIKULAM	1169.00	44721	38	49423	1292		
	3	KUNNA MANGALAM	1648.00	44883	27	49602	1822		
	4	KURUVATTUR	1577.00	28285	18	31259	1742		
	5	MADAVOOR	1318.00	25358	19	28024	1457		
	6	KODUVALLI	1790.00	42694	24	47183	1978		
	7	CHELANNUR	1488.00	35459	24	39187	1644		
	8	KAKKUR	1034.00	21057	20	23271	1143		
	9	NARIKUNI	1250.00	22196	18	24530	1382		
	10	NANMINDA	1114.00	25628	23	28323	1231		
	11	KIZHAKOTH	1427.00	28316	20	31293	1577		
	12	PERUMANNA	2084.00	28027	13	30974	2303		
	13	PERUVAYAL	1457.00	38462	26	42506	1611		
MUKKAM	1	KODIYATHUR	821.00	24465	30	27037	907	329221	363836
	2	KARASSERI	980.00	27977	29	30919	1083		
	3	MUKKAM	1123.00	35137	31	38831	1241		
	4	CHATHAMANGALAM	1022.00	41121	40	45445	1129		
	5	PUTHUPADY	572.00	37028	65	40921	632		
	6	OMASSERI	1182.00	30082	25	33245	1306		
	7	KAT TIPARA	976.00	27318	28	30190	1078		
	8	THIRUVAMBADI	317.00	26623	84	29422	350		
	9	KODANCHERI	343.00	35179	103	38878	379		
	10	THAMARASSERI	976.00	26509	27	29296	1078		
	11	KOODARANJI	181.00	17782	98	19652	200		

Table 8.1 contd....

PERAMBRA	1	NADUVANNUR	1110.00	24648	22	27240	1227	441510	487933
	2	PANANGAD	36059	32628	47	36059	768		
	3	MEPPAYUR	1143.00	26747	23	29559	1263		
	4	NOCHAD	1069.00	25272	24	27929	1181		
	5	KAYANNA	799.00	13446	17	14860	883		
	6	PERAMBRA	1185.00	30954	26	34209	1310		
	7	KOTTUR	1035.00	30003	29	33158	1144		
	8	KOOTHALI	1109.00	15670	14	17318	1226		
	9	CHERUVANNUR	1025.00	22150	22	24479	1133		
	10	KOORACHUNDU	228.00	16577	73	18320	252		
	11	CHANGAROTH	1003.00	30326	30	33515	1108		
	12	VELOM	974.00	25122	26	27763	1076		
	13	KUTTIADI	1219.00	18548	15	20498	1347		
	14	MARUTHONKARA	694.00	18663	27	20625	767		
	15	KUNNUMMAL	1654.00	17498	11	19338	1828		
	16	KAYAKKODI	823.00	23173	28	25609	910		
	17	NARIPPETTA	514.00	26018	51	28754	568		
	18	KAVILUMPARA	267.00	22612	85	24990	295		
	19	CHAKKITTAPARA	151.00	21455	142	23711	166		
VADAKARA	1	PAYYOLI	2055.00	45917	22	50745	2271	545474	602827
	2	MANIYUR	1202.00	37310	31	41233	1329		
	3	THIRUVALLUR	1194.00	32939	28	36402	1320		
	4	VADAKARA	3558.00	75847	21	83822	3932		
	5	VILLYAPPALLI	1831.00	31772	17	35113	2024		
	6	CHORODE	2643.00	35437	13	39163	2920		
	7	AYANCHERI	1223.00	25446	21	28121	1351		
	8	ONCHIYAM	3062.00	26697	9	29504	3383		
	9	PURAMERI	1253.00	25405	20	28076	1385		
	10	ERAMALA	1687.00	32151	19	35531	1864		
	11	AZHIYUR	2941.00	28731	10	31752	3250		
	12	NADAPURAM	1865.00	38111	20	42118	2061		
	13	EDACHERI	1548.00	25026	16	27657	1710		
	14	THUNERI	1410.00	21780	15	24070	1558		
	15	VANIMEL	641.00	23422	37	25885	709		
	16	VALAYAM	565.00	17549	31	19394	624		
	17	CHEKKYAD	896.00	21934	24	24240	991		

Source: Census of India 2001

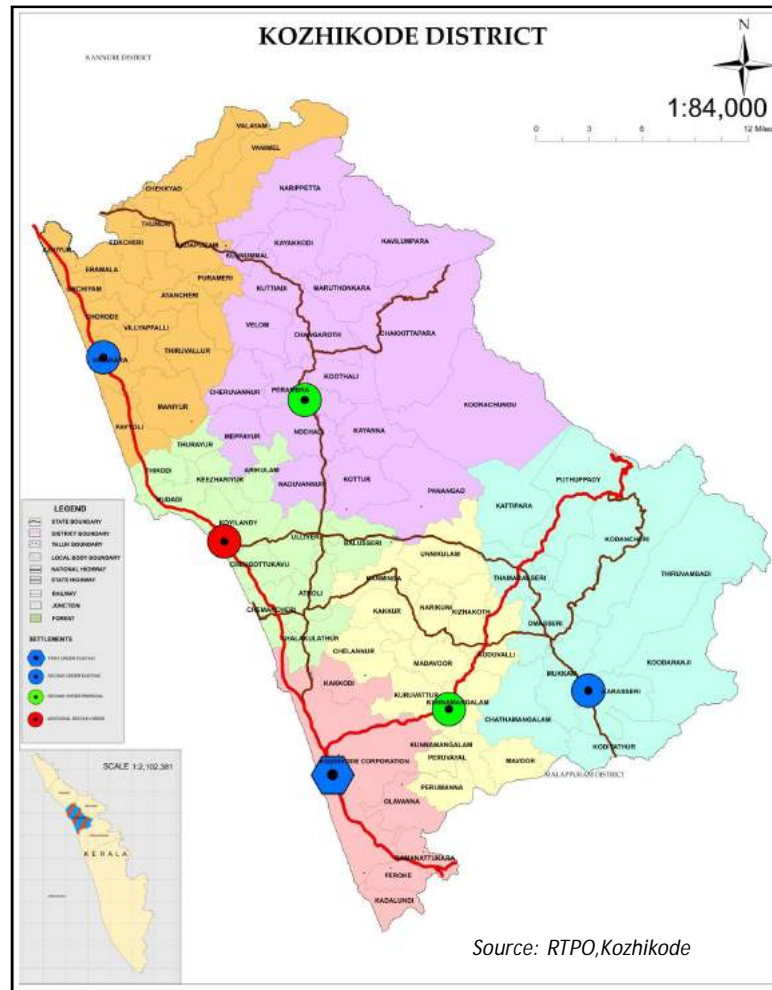


Fig 8.5 Service Area of Second Order Settlements

8.7 IDENTIFICATION OF THIRD ORDER SETTLEMENTS

As per Crystallor’s theory, the lower order settlements will fall in the vertices of the hexagonal service area of the higher order settlements. Third order settlements are those settlements coinciding with the vertices of hexagonal service area of the second order settlements.

The hexagonal service area of Perambra Panchayat is formed firstly.(Figure 8.6) The vertices namely Balussery, Unnikulam, Chakkittappara, Kavalumpara, Nadapuram, Maniyur are to be considered as third order. Theoretically the service area of each third order settlements will be uniform and

hexagonal shape. But there is considerable variation of density of population. Hence service population of third order settlements are worked out firstly. For this the total population (Projected- 2021) is divided by number of third order settlements (Six second order settlement + 6 third order settlements)

As per Crystallor’s theory higher order settlements will function as lower order settlements as well and hence the service area of higher order settlements, when it function as third order settlements are also delineated based on density.

The local governments are divided into 3 groups based on density of population for the year 2021 as shown in Table 8.2

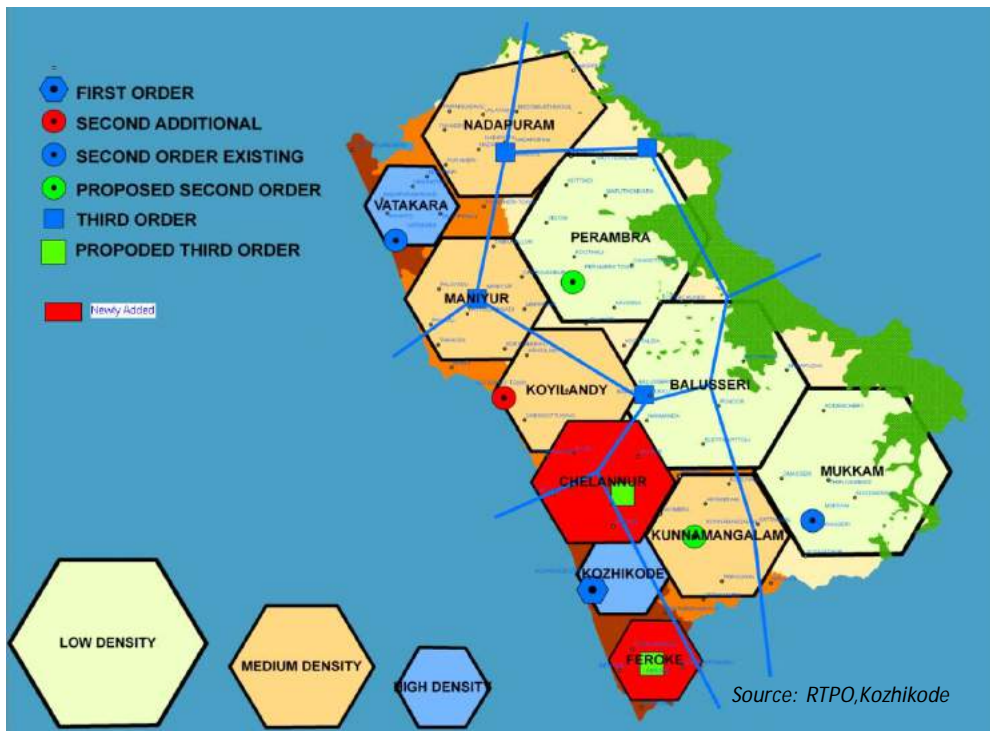


Fig 8.6 Identification of Third Order Settlements

Table 8.2 Local Governments based on Density of Population

Sl No	Density range	Average density	Service Population	Area in sq.km	Side of hexagon in km
1.	7102-2858	4107	265154	65	4.9
2.	2624-1312	1736	265154	153	7.6
3.	1310-166	927	265154	286	10.4

Now the hexagons of respective sizes are placed on settlements. It can be seen that in the eastern side of the district there is too much over lapping of service areas. Therefore 3 second order settlements namely Kavilumpara, Unnikulam and Chakkittapara are excluded. On the western part, just above Kozhikode Corporation there is a necessity of third order settlements. These two are identified based on local centrality, connectivity, and administrative status and CFI values. The settlements with maximum preferred values in the above criteria are Chelannur and Feroke.

The service area are adjusted and service settlements and service population are given in Figure

8.7 and Table 8.3.

I Order	1. Kozhikode Corporation
II Order	1. Vatakara Municipality 2. Koyilandy Municipality 3. Perambra Grama Panchayat 4. Mukkom Grama Panchayat 5. Kunnamangalam Grama Panchayat
III Order	1. Balusseri 2. Feroke 3. Chelannur 4. Maniyur 5. Nadapuram

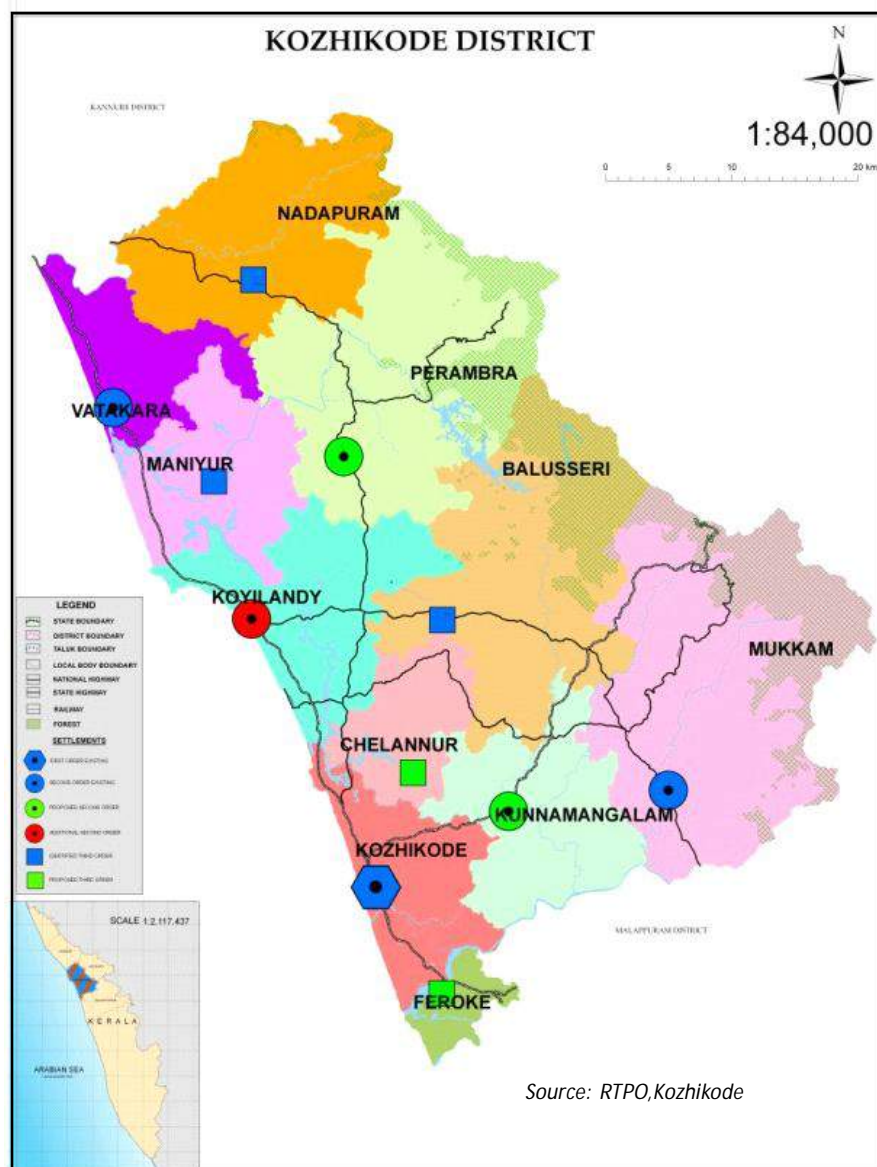


Fig. 8.7 Third Order Settlements and Service Areas

Table 8.3 Third Order Settlements, their Service Area and Service Population

Third order settlements	Name of Local Government	CFI	Density of Pop2001	Population 2001	Area in Sqkm	Projected Pop 2021	Density 2021	Total Service Population	
								2001	2021
BALUSSERI	BALUSSERI	73	1299	26377	22	29302	1306	224642	249556
	PANANGAD	39	768	32628	47	36247	772		
	UNNIKULAM	47	1292	44721	38	49681	1299		
	KOORACHUNDU	28	252	16577	73	18415	253		
	NARIKUNI	55	1382	22196	18	24658	1389		
	KIZHAKOTH	30	1577	28316	20	31456	1586		
	KATTIPARA	10	1078	27318	28	30348	1084		
	THAMARASSERI	108	1078	26509	27	29449	1084		

Third order settlements	Name of Local Government	CFI	Density of Pop2001	Population 2001	Area in Sqkm	Projected Pop 2021	Density 2021	Total Service Population	
								2001	2021
BALUSSERI	BALUSSERI	73	1299	26377	22	29302	1306	224642	249556
	PANANGAD	39	768	32628	47	36247	772		
	UNNIKULAM	47	1292	44721	38	49681	1299		
	KOORACHUNDU	28	252	16577	73	18415	253		
	NARIKUNI	55	1382	22196	18	24658	1389		
	KIZHAKOTH	30	1577	28316	20	31456	1586		
	KATTIPARA	10	1078	27318	28	30348	1084		
	THAMARASSERI	108	1078	26509	27	29449	1084		
CHELANNUR	KAKKODI	30	2146	36097	19	40100	2157	144928	161001
	CHELANNUR	55	1644	35459	24	39392	1653		
	THALAKULATHUR	35	1369	26687	22	29647	1376		
	KAKKUR	28	1143	21057	20	23392	1149		
	NANMINDA	43	1231	25628	23	28470	1237		
FEROKE	KADALUNDI	46	3653	39099	12	43435	3672	119816	133104
	RAMANATTUKARA	51	2873	30440	12	33816	2888		
	FEROKE	152	4107	50277	14	55853	4128		
KOYILANDY	CHEMANCHERI	55	2145	32532	17	36140	2156	285021	316630
	CHENGOTTUKAVU	30	2055	25293	14	28098	2066		
	ATHOLI	59	1368	26071	21	28962	1375		
	KOYILANDY	168	2624	68982	29	76632	2638		
	ULLIYERI	34	1312	30742	26	34151	1319		
	MUDADI	44	2042	29607	16	32891	2053		
	NADUVANNUR	24	1227	24648	22	27382	1233		
	KOTTUR	42	1144	30003	29	33330	1150		
	ARIKULAM	25	1208	17143	23	19044	824		
KOZHIKODE	KOZHIKODE - CORPORATION	1479	5724	436556	84	484972	5754	491973	546535
	OLAVANNA	48	2858	55417	21	61563	2873		
KUNNAMANAGALAM	MAVOOR	71	1503	27845	20	30933	1510	276675	307360
	KUNNAMANGALAM	64	1822	44883	27	49861	1831		
	KURUVATTUR	28	1742	28285	18	31422	1752		
	CHATHAMANGALAM	97	1129	41121	40	45682	1135		
	MADAVOOR	30	1457	25358	19	28170	1464		
	KODUVALLI	90	1978	42694	24	47429	1989		
	PERUMANNA	15	2303	28027	13	31135	2315		
	PERUVAYAL	58	1611	38462	26	42728	1619		

MANIYUR	KEEZHARIYUR	17	1156	14320	14	15908	1162	218407	242629
	THIKODI	27	1954	25015	14	27789	1964		
	PAYYOLI	72	2271	45917	22	51009	2283		
	THURAYUR	20	1477	14009	10	15563	1485		
	MEPPAYUR	82	1263	26747	23	29713	1269		
	CHERUVANNUR	34	1133	22150	22	24607	1139		
	MANIYUR	84	1329	37310	31	41448	1336		
	THIRUVALLUR	46	1320	32939	28	36592	1327		
MUKKAM	KODIYATHUR	28	907	24465	30	27178	912	234273	260256
	KARASSERI	28	1083	27977	29	31080	1089		
	MUKKAM	249	1241	35137	31	39034	1248		
	OMASSERI	51	1306	30082	25	33418	1313		
	PUTHUPPADY	30	632	37028	65	41135	635		
	THIRUVAMBADI	69	350	26623	84	29576	352		
	KODANCHERI	46	379	35179	103	39081	381		
	KOODARANJI	23	200	17782	98	19754	201		
NADAPURAM	PURAMERI	32	1385	25405	20	28223	1392	239916	263527
	KUNNUMMAL	36	1828	17498	11	19439	1837		
	NADAPURAM	133	2061	38111	20	42338	2071		
	KAYAKKODI	34	910	23173	28	25743	915		
	EDACHERI	31	1710	25026	16	24802	1719		
	THUNERI	28	1558	21780	15	24196	1566		
	NARIPPETTA	29	568	26018	51	28904	571		
	VANIMEL	33	709	23422	37	26020	712		
	VALAYAM	24	624	17549	31	19495	627		
	CHEKKYAD	26	991	21934	24	24367	996		
PERAMBRA	NOCHAD	46	1181	25272	24	28075	1188	222068	246696
	KAYANNA	15	883	13446	17	14937	888		
	PERAMBRA	177	1310	30954	26	34387	1317		
	KOOTHALI	18	1226	15670	14	17408	1232		
	CHANGAROTH	33	1108	30326	30	33689	1114		
	VELOM	20	1076	25122	26	27908	1082		
	KUTTIADI	38	1347	18548	15	20605	1354		
	MARUTHONKARA	25	767	18663	27	20733	771		
	KAVILUMPARA	29	295	22612	85	25120	296		
	CHAKKITTAPARA	40	166	21455	142	23834	167		
VADAKARA	VADAKARA	291	3932	75847	21	84259	3952	256081	284482
	VILLYAPPALLI	51	2024	31772	17	35296	2034		
	CHORODE	47	2920	35437	13	39367	2936		
	AYANCHERI	36	1351	25446	21	28268	1358		
	ONCHIYAM	44	3383	26697	9	29658	3401		
	ERAMALA	51	1864	32151	19	35717	1874		
AZHIYUR	54	3250	28731	10	31917	3267			

Source: Census of India 2001

Chapter 9

URBAN PROFILE

The chapter analyses the trend of urbanisation in Kerala and Kozhikode District, urban settlements from 1971 to 2001, growth of urban population, future urbanisation profile of the District.

9.1 TREND OF URBANISATION – KERALA

The process of urbanisation can be assessed in relation to urban population content. In Kerala urban population content had been increasing from 7.1% in 1901 to 26.40% in 1991. A slight decline in this proportion to 26% is seen in 2001 census. This decline in urban population, during 1991-2000 census, is partially due to declassification of Pandalam, Piravom, Koothatukulam and Mannarkadu municipalities during 1991- 2001. The declassification of Eloor and Erattupetta

municipalities has not however affected urbanisation due to classification of area contained in these municipalities as census town in 2001 census. Declassification of few census towns in 2001 census as rural has also contributed to the lower proportion of urban population in the state. Still more than one fourth of the population in the state lives in urban area. Among the Districts, the urban content varies from 3.8% in Wayanad to 50.40% in Kannur. Ernakulam District follows Kannur with 47.6% of urban population. In six districts namely Kannur, Ernakulam, Kozhikode, Thiruvananthapuram, Alappuzha and Thrissur the percentage of urban population is higher than the state average. In 3 districts namely Wayanad, Malappuram and Idukki the urban population is 10% or less.

Table 9.1 Details of Population and PCI rank

District	Population 2001				Urban Content Rank	Per capita Income 2008-2009	PCI Rank
	Urban	Rural	Total	% Urban			
Kannur	1212898	1196058	2408956	50.3	1	48925	7
Ernakulam	1477085	1628713	3105798	47.6	2	72704	1
Kozhikode	1101157	1777974	2879131	38.2	3	48835	8
Thiruvananthapuram	1091661	2142695	3234356	33.8	4	52146	3
Alappuzha	621457	1487703	2109160	29.5	5	49474	6
Thrissur	839433	2134799	2974232	28.2	6	52088	4
Kasaragod	233700	970378	1204078	19.4	7	43347	12
Kollam	465978	2119230	2585208	18	8	45412	11
Kottayam	299808	1653838	1953646	15.3	9	57052	2
Palakkad	356575	2260907	2617482	13.6	10	45704	10
Pathanamthitta	123798	1110218	1234016	10	11	51098	5
Malappuram	356170	3269301	3625471	9.8	12	32247	14
Idukki	57593	1071628	1129221	5.1	13	47096	9
Wayanad	29612	751007	780619	3.8	14	36001	13
Kerala State	8266925	23574449	31841374	26		49316	

Source: Economics and Statistics Department

In Kerala, the development of tertiary sector is the main cause of urbanisation; it is not the outcome of accelerated industrialisation as seen in Tamilnadu, Maharashtra, Andra Pradesh and Karnataka. Table 9.1 gives the details of total population, % of urban

population, rank in urban content, PCI and rank in PCI rank 14 districts.

9.2 URBAN AREAS IN THE DISTRICT

Based on the land use concentration index the urban areas (Refer Section 6.7) are shown in Figure 9.1.

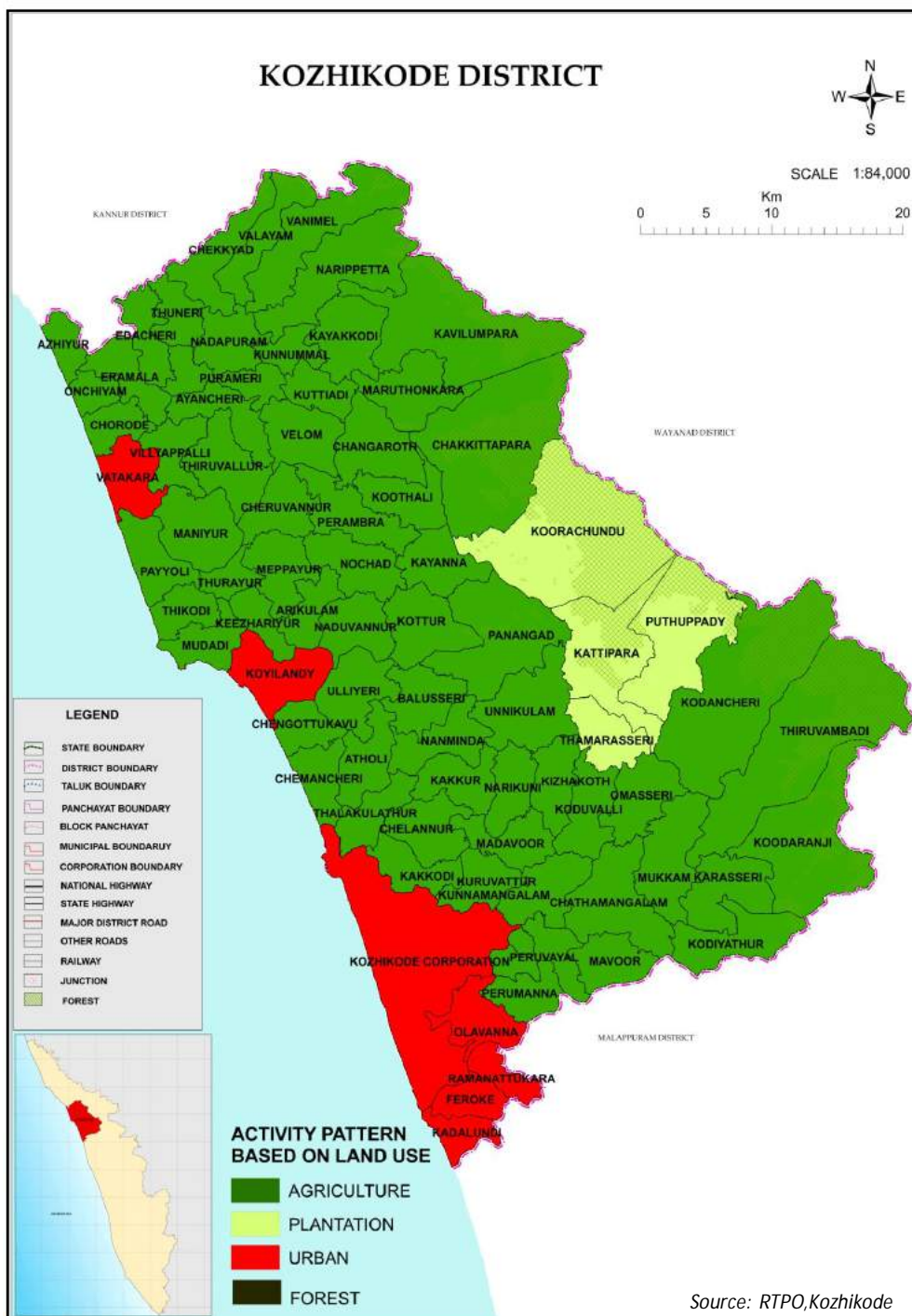


Figure 9.1 Urban Areas in the District

9.3 URBAN POPULATION CONTENT (EXISTING)

From the table 9.1, it can be seen that the urban content rank of Kozhikode district is 3 and the percentage of urban population is 38.2%. The state

phenomenal i.e. 60.97%. This is largely due to the declaration of new municipal towns and census towns in the state and inclusion of peripheral area with pronounced urban characteristics as urban outgrowths. This sudden surge can also be seen in the case of district

Table 9.2 Population

Geographical unit	1971		1981		1991		2001	
	Total	Urban	Total	Urban	Total	Urban	Total	Urban
Kozhikode	1821734	561570	2245265	610232	2619941	1004497	2879131	1101157
Kerala	21347375	3466449	25453680	4771275	29098518	7680294	31838619	8267135
India	542970823	109110000	672645426	159460000	846387888	217551812	1.03E+09	285354954

Source: Census of India 2001

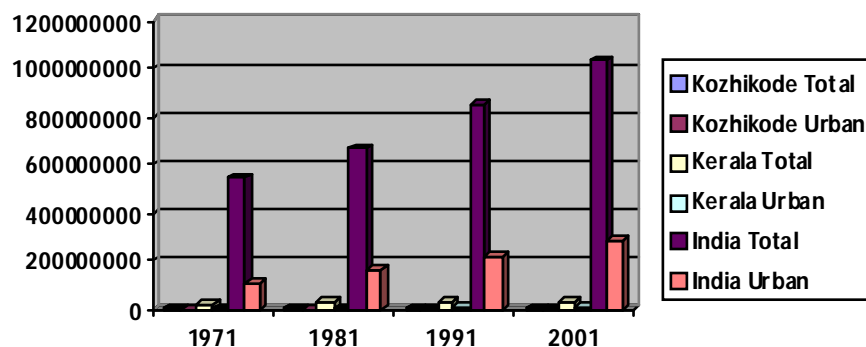


Fig. 9.2 Variation of Urban, Total Population of India, Kerala and Kozhikode

average is 26%. The process of urbanisation is at a faster rate than the rest of districts. Table 9.2 and Figure 9.2 gives the percentage of urban population of Kozhikode District, Kerala state and India for the last four decades.

as well during that period. During 1991- 2001 decadal growth rate of urban population in the District has decreased to 7.64% for the Kerala State and 9.6% for Kozhikode District.

Table 9.3 Population Growth rate Percentage

Geographical Unit	Population Growth rate (%)					
	Year 1971-81		Year 1981-91		Year 1991-01	
	Total	Urban	Total	Urban	Total	Urban
Kozhikode District	23.25	8.67	16.69	64.61	9.87	9.6
Kerala State	19.24	37.64	14.32	60.97	9.42	7.64
India	23.88	46.15	25.83	36.43	21.34	31.17

9.4 GROWTH RATE OF URBAN POPULATION

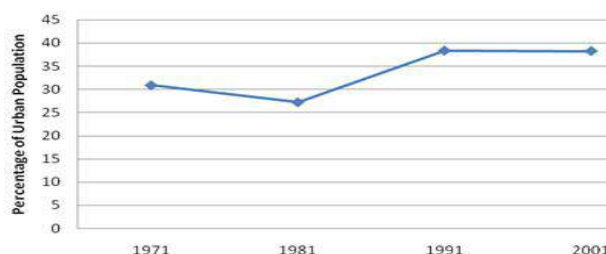
Table 9.3 in gives the decadal growth rate percentage of both total and urban population of India Kerala and Kozhikode District. The analysis shows that during 1981-91 the growth of urban population is

9.5 URBAN SETTLEMENTS FROM 1971-2001

Table 9.4 shows the total population, urban population and percentage of urban population of settlements of Kozhikode District from 1971-2001 and Figure 9.3 gives the percentage of urban population.

Table 9.4 Population of Urban settlements from 1971-2001

	1971	1981	1991	2001
Total Population	1821734	2245265	2619941	2879131
Urban Population	561570	610232	1004499	1101157
% of Urban Population	30.83	27.18	38.34	38.25

*Fig. 9.3 Percentage of Urban Population*

9.6 FUTURE URBANISATION PROFILE OF THE DISTRICT

The future urban scenario of the District is predicted based on three fold classification as per census 2001 (projected), grade of local governments, impact of urban development projects, cumulative functional index, considering the existing and proposed hierarchy of settlements and the existing Municipalities and Corporation (Statutory Urban areas).

9.6.1 Criteria 1 - Census Urban Criteria

In 2001 Census , the workers were classified into four namely Cultivators, Agricultural Laborers, House Hold Industrial Workers and Other Workers. From this, it is not possible to sort non agricultural workers. Hence nine fold classification of workers in 1991 with correction (i.e. contribution of marginal workers also added) is entered in the Calculation Table 1 for finding the urban areas. From the output table it can be seen that 30 local governments are expected to be urbanised in the year 2021 as listed in Table 9.5.

9.6.2 Criteria 2- Grade of Local Governments

The grading of local governments was given comparing their physical and economical developments. In the absence of direct data to assess the above, the grade of local governments assigned earlier is taken as a proxy indicator to measure physical and economical developments.

From Table 9.6 ,it can be seen that out of the 30 LSGs listed in Table 9.5, five local governments namely Thurayur, Keezhariyur, Chengottukavu, Kodyathur, Kuruvattur are of 2nd grade and hence these 5 Grama Panchayats are excluded from the list and new list formed with 25 local governments.

Grama Panchayats excluded from the list are

1. Thurayur
2. Keezhariyur
3. Chengottukavu
4. Kodyathur
5. Kuruvattur

9.6.3 Criteria 3- Urban Development Projects

Two important industrial projects are in pipeline in Kozhikode District -Industrial Town ship at Kinaloor-Panangad Grama Panchayat, and IT park at Palazhi-Kozhikode Corporation. Both projects are in the conception stage . The development of IT Park will accelerate urban development in Corporation area and industrial park will contribute to the development of Panangad and Balussery Panchayats. Balussery Panchayat is already included in the list of 25 LSGs listed based on first two Criteria. Panangad Panchayat is also included in the list.

Another important development is the development of Bepore port which will accelerate the economic growth of immediate neighboring grama

panchayats namely Feroke and Kadalundi. These panchayats are already there in the list.

9.6.4 Criteria 4 - Cumulative Functional Index

Local Governments having a cumulative functional index above 50 are considered. It can be seen that for 8 local governments namely Panangad, Chorode, Ulliyeri, Kakkodi, Thalakkulathur, Perumanna, Kadalundi, Olavanna, the value of CFI is less than 50.

But considering other factors as explained earlier, Kadalundi and Olavanna are retained. Again from CFI table it is observed that the CFI value of Mukkam is 249.04 and that of Perambra is 176.94 which are higher than that of Koyilandy the 2nd grade Municipality. Though these local governments do not qualify based on other criteria; due to the high concentration of facilities these two are included in the list.

Table 9.5 Local Governments Satisfying Threefold Census Criteria

LSG name	Total Workers in 2021	Total male workers	% of non agricultural male workers	Urban
Azhiyur	9145	7590	75.74	TRUE
Chorode	11005	9133	76.96	TRUE
Eramala	10055	8345	80.59	TRUE
Villiyappally	8287	6877	84.95	TRUE
Thurayur	3979	3305	77.37	TRUE
Keezhariyur	5175	4294	81.09	TRUE
Payyoli	13701	11372	75.64	TRUE
Balussey	8599	7139	77.13	TRUE
Atholy	9450	7844	76.38	TRUE
Ulliyeri	9751	8094	77.00	TRUE
Chemancherry	10750	8922	75.92	TRUE
Chengottukavu	9504	7888	78.77	TRUE
Kakkodi	15518	12879	89.64	TRUE
Chelannur	12070	10018	77.81	TRUE
Thalakkulathur	8995	7466	81.56	TRUE
Koduvally	11796	9791	78.20	TRUE
Kodiyathur	6705	5567	75.21	TRUE
Kuruvattur	9659	8016	82.50	TRUE
Mavoor	10278	8530	84.58	TRUE
Kunnamangalam	16914	14039	86.12	TRUE
Chathamangalam	12406	10296	75.12	TRUE
Peruvayal	40211	33378	81.61	TRUE
Perumanna	13226	10979	87.25	TRUE
Kadalundy	13309	11046	76.96	TRUE
Ramanattukara	11505	9550	92.39	TRUE
Feroke	17669	14667	90.77	TRUE
Olavanna	21313	17691	93.79	TRUE
Vadakara Municipality	23973	19897	86.17	TRUE
Koyilandy Municipality	21498	17843	76.90	TRUE
Kozhikode Corporation	257421	213661	91.22	TRUE

Source: Census of India 2001

Table 9.6 Grade of Grama Panchayat (Selected Local Governments)

SINo	LSG name	Total Workers in 2021	Total male workers	% of non agr male workers	Urban	Grade of Panchayat
1	Azhiyur	9145	7590	75.74	TRUE	Special Grade
2	Chorode	11005	9133	76.96	TRUE	I Grade
3	Eramala	10055	8345	80.59	TRUE	I Grade
4	Villiyappally	8287	6877	84.95	TRUE	I Grade
5	Thurayur	3979	3305	77.37	TRUE	II Grade
6	Keezhariyur	5175	4294	81.09	TRUE	II Grade
7	Payyoli	13701	11372	75.64	TRUE	Special Grade
8	Balussery	8599	7139	77.13	TRUE	Special Grade
9	Atholy	9450	7844	76.38	TRUE	I Grade
10	Ulliyeri	9751	8094	77.00	TRUE	I Grade
11	Chemancherry	10750	8922	75.92	TRUE	I Grade
12	Chengottukavu	9504	7888	78.77	TRUE	II Grade
13	Kakkodi	15518	12879	89.64	TRUE	Special Grade
14	Chelannur	12070	10018	77.81	TRUE	I Grade
15	Thalakkulathur	8995	7466	81.56	TRUE	I Grade
16	Koduvally	11796	9791	78.20	TRUE	Special Grade
17	Kodiyathur	6705	5567	75.21	TRUE	II Grade
18	Kuruvattur	9659	8016	82.50	TRUE	II Grade
19	Mavoor	10278	8530	84.58	TRUE	Special Grade
20	Kunnamangalam	16914	14039	86.12	TRUE	Special Grade
21	Chathamangalam	12406	10296	75.12	TRUE	Special Grade
22	Peruvayal	40211	33378	81.61	TRUE	Special Grade
23	Perumanna	13226	10979	87.25	TRUE	I Grade
24	Kadalundy	13309	11046	76.96	TRUE	Special Grade
25	Ramanattukara	11505	9550	92.39	TRUE	Special Grade
26	Feroke	17669	14667	90.77	TRUE	Special Grade
27	Olavanna	21313	17691	93.79	TRUE	Special Grade
28	Vadakara Municipality	23973	19897	86.17	TRUE	I st grade
29	Koyilandy Municipality	21498	17843	76.90	TRUE	II nd grade
30	Kozhikode Corporation	257421	213661	91.22	TRUE	I st grade

Source: Census of India 2001

Table 9.7 CFI of Selected Local Governments

SlNo	LSG name	Total Workers in 2021	Total male workers	% of non agricultural male workers	Urban	Grade of Panchayat	CFI
1	Azhiyur	9145	7590	75.74	TRUE	Special Grade	54.10
2	Eramala	10055	8345	80.59	TRUE	I Grade	51.41
3	Villiyappally	8287	6877	84.95	TRUE	I Grade	51.36
4	Payyoli	13701	11372	75.64	TRUE	Special Grade	73.14
5	Balussery	8599	7139	77.13	TRUE	Special Grade	72.91
6	Atholy	9450	7844	76.38	TRUE	I Grade	58.57
7	Chemancherry	10750	8922	75.92	TRUE	I Grade	54.74
8	Chelannur	12070	10018	77.81	TRUE	I Grade	54.84
9	Koduvally	11796	9791	78.20	TRUE	Special Grade	89.78
10	Mavoor	10278	8530	84.58	TRUE	Special Grade	70.69
11	Kunnamangalam	16914	14039	86.12	TRUE	Special Grade	63.81
12	Chathamangalam	12406	10296	75.12	TRUE	Special Grade	96.70
13	Peruvayal	40211	33378	81.61	TRUE	Special Grade	57.95
14	Kadalundy	13309	11046	76.96	TRUE	Special Grade	45.81
15	Ramanattukara	11505	9550	92.39	TRUE	Special Grade	50.76
16	Feroke	17669	14667	90.77	TRUE	Special Grade	152.13
17	Olavanna	21313	17691	93.79	TRUE	Special Grade	47.99
18	Vadakara Municipality	23973	19897	86.17	TRUE	I st grade	291.10
19	Koyilandy Municipality	21498	17843	76.90	TRUE	II nd grade	168.24
20	Kozhikode Corporation	257421	213661	91.22	TRUE	I st grade	1478.75
21	Perambra	10502	8716	72.58	FALSE	Special Grade	176.94
22	Mukkom	11455	9508	69.90	FALSE	I st grade	249.04

Source: Census of India 2001

9.6.5 Criteria 5 - Existing and Proposed Hierarchy of Settlements

Out of the selected 22 local governments, the first order local government (Kozhikode Corporation)

and all second order local governments (Vadakara , Koyilandy, Mukkom, Kunnamangalam and Perambra) and three third order local governments (Balusseri, Feroke, Chelannur) are included.

Table 9.8 Proposed Hierarchies of Selected Local Governments

SINo	LSG name	Total Workers in 2021	Total male workers	% of non agr male workers	Urban	Grade of Panchayat	CFI	Average Rate of Growth% for last two decades	Proposed Hierarchy
1	Azhiyur	9145	7590	75.74	TRUE	Special Grade	54.10	13.7	
2	Eramala	10055	8345	80.59	TRUE	I Grade	51.41	10.6	
3	Villiyappally	8287	6877	84.95	TRUE	I Grade	51.36	12.2	
4	Payyoli	13701	11372	75.64	TRUE	Special Grade	73.14	14.9	
5	Balussery	8599	7139	77.13	TRUE	Special Grade	72.91	11.8	3rd Order Settlement
6	Atholy	9450	7844	76.38	TRUE	I Grade	58.57	10.7	
7	Chemancherry	10750	8922	75.92	TRUE	I Grade	54.74	10.9	
8	Chelannur	12070	10018	77.81	TRUE	I Grade	54.84	19.3	3rd Order Settlement
9	Koduvally	11796	9791	78.2	TRUE	Special Grade	89.78	18.8	
10	Mavoor	10278	8530	84.58	TRUE	Special Grade	70.69	7.4	
11	Kunnamangalam	16914	14039	86.12	TRUE	Special Grade	63.81	22.9	2nd Order Settlement
12	Chathamangalam	12406	10296	75.12	TRUE	Special Grade	96.70	15.9	
13	Peruvayal	40211	33378	81.61	TRUE	Special Grade	57.95	26.1	
14	Kadalundy	13309	11046	76.96	TRUE	Special Grade	45.81	14.3	
15	Ramanattukara	11505	9550	92.39	TRUE	Special Grade	50.76	20.1	
16	Feroke	17669	14667	90.77	TRUE	Special Grade	152.13	15.5	3rd Order Settlement
17	Olavanna	21313	17691	93.79	TRUE	Special Grade	47.99	27.7	
18	Vadakara Municipality	23973	19897	86.17	TRUE	Ist grade	291.10	8.8	2nd Order Settlement
19	Koyilandy Municipality	21498	17843	76.9	TRUE	IInd grade	168.24	9.6	2nd Order Settlement
20	Kozhikode Corporation	257421	213661	91.22	TRUE	Ist grade	1478.75	5.2	1st Order Settlement
21	Perambra	10502	8716	72.58	FALSE	Special Grade	176.94	13	2nd Order Settlement
22	Mukkom	11455	9508	69.9	FALSE	Ist grade	249.04	18.8	2nd Order Settlement

9.6.6 Criteria 6- Existing Municipalities and Corporation

From Table 9.8 it can be seen that all existing Corporations and Municipalities are included in the list.

9.7 PHASING

In total, 22 local governments of the District are expected to be urbanised in the next two decades. Out of these, three are already statutory urban centres (Kozhikode Corporation, Koyilandy Municipality and Vatakara Municipality). Remaining 19 local governments are not expected to attain urban status gradually, in the coming decades. The rate of growth of population can be taken as the deciding criteria for the

time within which these local governments will attain urban nature. Table 9.9 given below gives the average rate of growth of population for the last two decades. It can be seen that the average growth rate of population is high for the local government adjacent to Kozhikode Corporation. It can be assumed that LSGs having average growth rate of population above 15% may attain urban status in 2011 and the remaining 10 local governments will become urban by 2021 only. This is shown in Table 9.10.

9.8 URBAN PROFILE

By the end of 2021 the local governments adjacent to Kozhikode Corporation with very high

Table 9.9 CFI ,Average Growth Rate of Selected Local Governments

Sl. No	LSG name	Total Workers in 2021	Total male workers	% of non agr male workers	Urban	Grade Panchayat	CFI	Average Rate of Growth% for last two decades
1	Azhiyur	9145	7590	75.74	TRUE	Special Grade	54.1	13.7
2	Eramala	10055	8345	80.59	TRUE	I Grade	51.41	10.6
3	Villiyappally	8287	6877	84.95	TRUE	I Grade	51.36	12.2
4	Payyoli	13701	11372	75.64	TRUE	Special Grade	73.14	14.9
5	Balussery	8599	7139	77.13	TRUE	Special Grade	72.91	11.8
6	Atholy	9450	7844	76.38	TRUE	I Grade	58.57	10.7
7	Chemancherry	10750	8922	75.93	TRUE	I Grade	54.74	10.9
8	Chelannur	12070	10018	77.81	TRUE	I Grade	54.84	19.3
9	Koduvally	11796	9791	78.2	TRUE	Special Grade	89.78	18.8
10	Mavoor	10278	8530	84.58	TRUE	Special Grade	70.69	7.4
11	Kunnamangalam	16914	14039	86.12	TRUE	Special Grade	63.81	22.9
12	Chathamangalam	12406	10296	75.12	TRUE	Special Grade	96.7	15.9
13	Peruvayal	40211	33378	81.61	TRUE	Special Grade	57.95	26.1
14	Kadalundy	13309	11046	76.96	TRUE	Special Grade	45.81	14.3
15	Ramanattukara	11505	9550	92.39	TRUE	Special Grade	50.76	20.1
16	Feroke	17669	14667	90.77	TRUE	Special Grade	152.13	15.5
17	Olavanna	21313	17691	93.79	TRUE	Special Grade	47.99	27.7
18	Vadakara Municipality	23973	19897	86.17	TRUE	Ist grade	291.1	8.8
19	Koyilandy Municipality	21498	17843	76.9	TRUE	IIInd grade	168.24	9.6
20	Kozhikode Corporation	257421	213661	91.22	TRUE	Ist grade	1478.75	5.2
21	Perambra	10502	8716	72.58	FALSE	Special Grade	176.94	13
22	Mukkom	11455	9508	69.9	FALSE	Ist grade	249.04	18.8

Source: Census of India 2001

population growth rates such as Olavanna, Ramanattukara, Feroke may become part of Kozhikode Corporation. In addition to the existing 2 Municipalities

Table 9.10 Phasing of Urbanisation

In the next 10 years	In the next 20 years
1. Olavanna	1. Payyoli
2. Peruvayal	2. Azhiyur
3. Kunnamangalam	3. Perambra
4. Ramanattukara	4. Villiapally
5. Mukkom	5. Balusseri
6. Feroke	6. Atholy
7. Chathamangalam	7. Eramala
8. Chelannur	8. Mavoor
9. Koduvally	9. Chemanchery
	10. Kadalundy

i.e. Koyilandy and Vatakara, Perambra and Mukkam may attain Municipal status. Remaining 14 local governments may become Nagar Panchayat. The changing urban profile of the District is shown in Table 9.11. Table 9.12 shows the total population, urban population and percentage of urban population of Kozhikode District from 1971-2021 and Figure 9.3 shows the percentage of Urban Population.

The spatial distribution of urban local governments expected in 2011 and 2021 are given in Figure 9.4 and 9.5 respectively. Figure 9.6 shows the expected density of population in the District by 2021 and Figure 9.7 shows the expected population concentration in the District by 2021.

Table 9.11 Changing Urban Profile of the District

Census year	Total no. of Urban Areas	Municipal Corporation	Municipal Towns	Non Municipal Town	Nagar Panchayats	Out growth
1971	10	1	1	8		
1981	6	1	1	4		
1991	20	1	1	16		2
2001	19	1	2	10		6
2011	15	1	2	12		
2021	18	1	4		14	

Table 9.12 Total Population, Urban Population and Percentage of Urban Population of Kozhikode District from 1971-2021

	1971	1981	1991	2001	2011	2021
Total Population	1821734	2245265	2619941	2879131	3059385	161280740
Urban Population	561570	610232	1004499	1101157	1295650	3403183
% of Urban Population	30.83	27.18	38.34	38.25	42.35	47.39

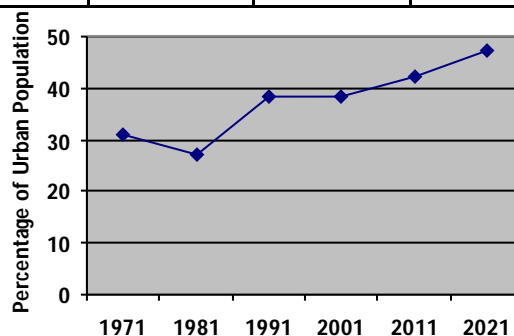


Fig. 9.3 Percentage of Urban Population

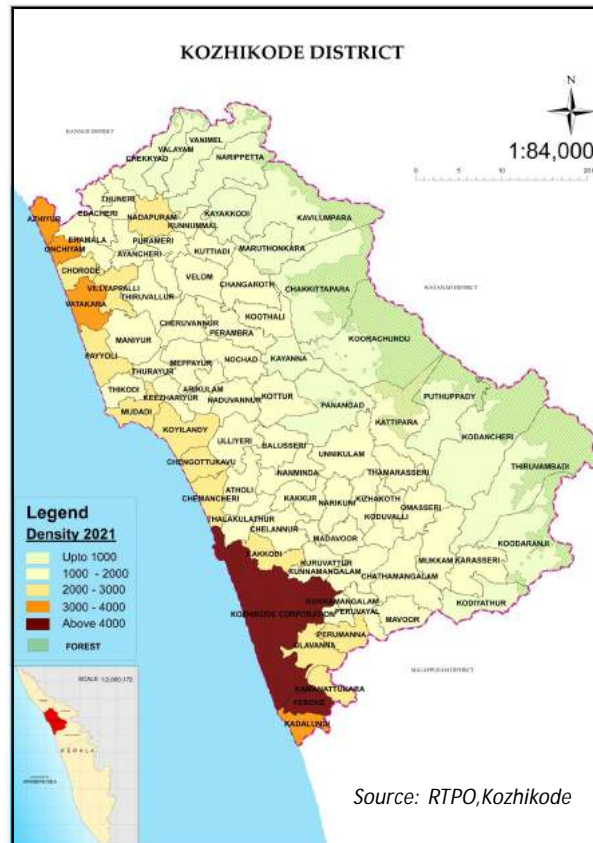


Fig 9.6 Expected Density Of Population – 2021

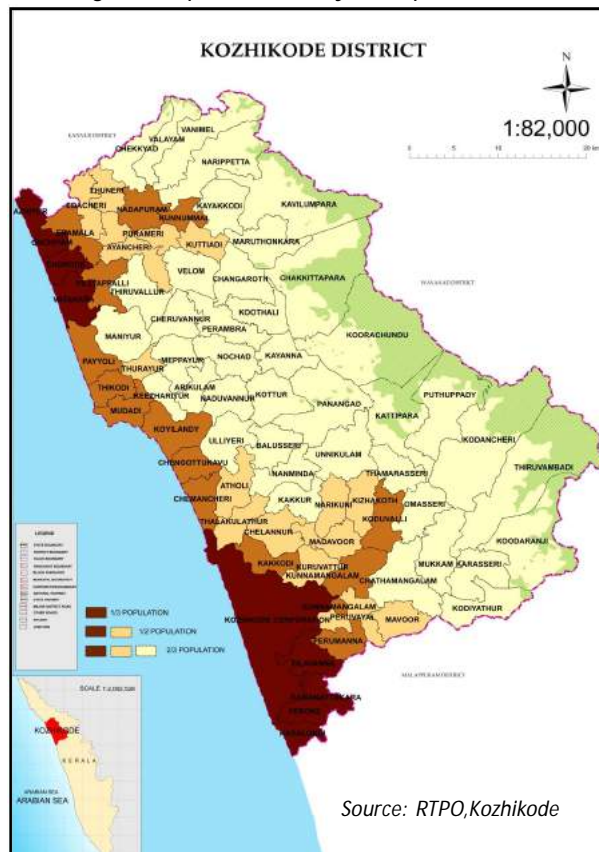
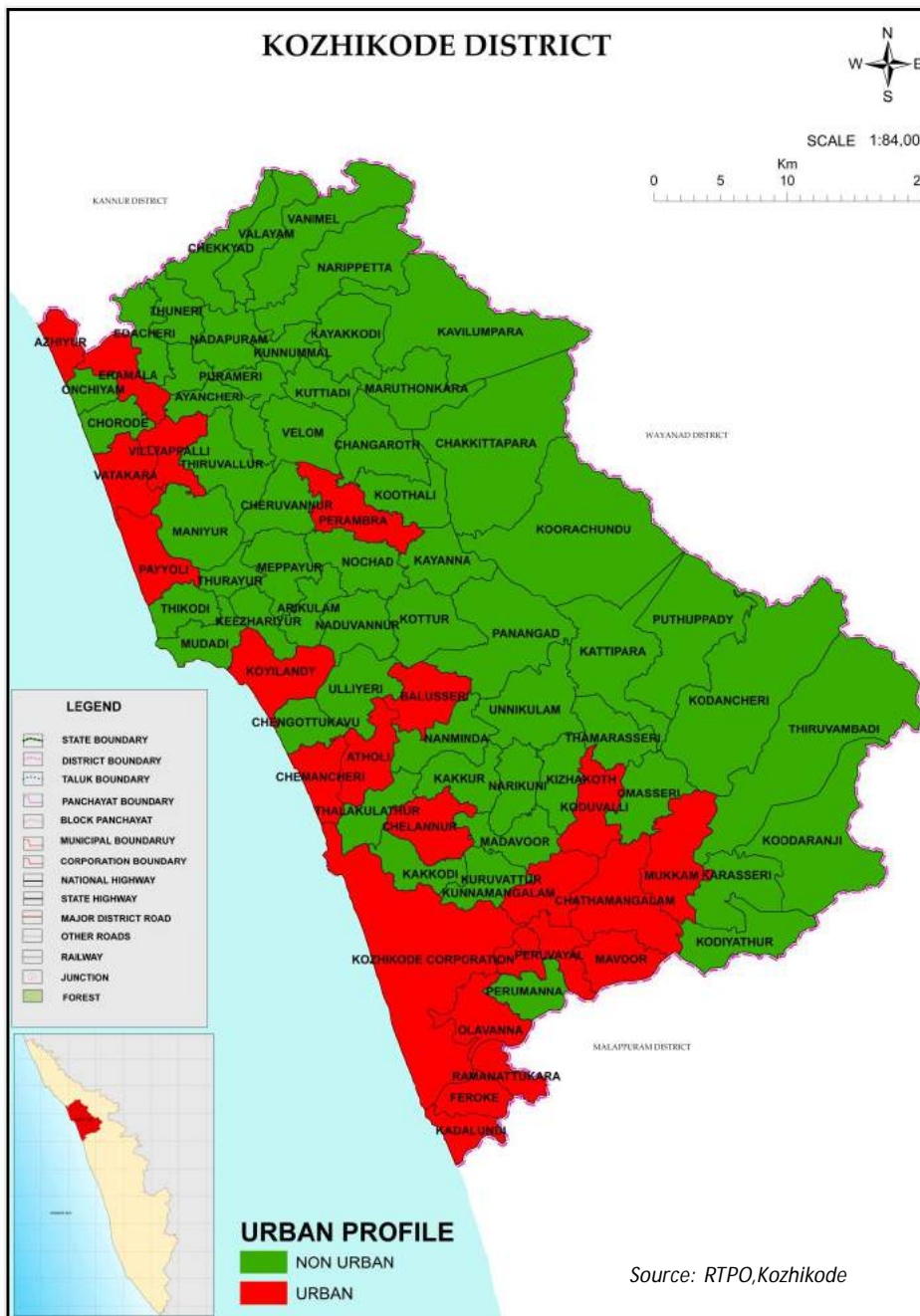


Fig. 9.7 Expected Population Concentration- 2021

The LSGs expected to show urban nature in 2021 in the District are represented in the Figure 9.8.

Ramanattukara, Mukkam, Feroke, Chathamangalam, Chelannur, Kodalandy may become urban by 2011.



1	Azhiyur
2	Eramala
3	Villiyappally
4	Payyoli
5	Balusseri
6	Atholy
7	Chemancherry
8	Chelannur
9	Kozhikode
10	Koyilandy
11	Vatakara
12	Mukkam
13	Perambra
14	Kodalandy
15	Mavoor
16	Kunnamangalam
17	Chathamangalam
18	Peruvayal
19	Kadalundy
20	Ramanattukara
21	Feroke
22	Olavanna

Figure 9.8 LSGs having Urban Nature

9.9 INFERENCE

The study of the future urbanisation profile of the District reveals that in addition to the existing urban LSGs- Kozhikode Corporation, Koyilandy and Vatakara Municipality, 9 existing Grama Panchayats namely Olavanna, Peruvayal, Kunnamangalam,

Further, 10 existing Grama Panchayats namely Payyoli, Azhiyur, Perambra, Villiapilly, Balusseri, Atholy, Eramala, Mavoor, Chemanchery, Kadalundy are expected to become urban by 2021. These LSGs are located mainly along the coastal line, along NH and a few along NH 213 and State Highway.

Chapter 10

ACTIVITY PATTERN

This chapter discusses the activity pattern of the District. Activity Pattern of an LSG indicates the existing major economic activity of the LSG or the most suitable economic activity that can be brought on in the LSG in future. The major economic activities in the LSGs of Kerala are Agriculture and Plantations (Primary Activity), Industries (Secondary Activity), Service Activities (Tertiary Activity) or a combination of these.

The Activity Pattern of an LSG is derived based on the Urban Profile, the Land Use Concentration Index and the Functional Character, which are derived considering a wide range of parameters like the existing population, net population density, growth rate of population in previous decades, distribution of population, occupation structure, expected population and occupation structure in the Plan period, availability of various facilities, existing hierarchy of nodes, connectivity through various modes, locational importance, administrative status, proposed hierarchy of settlements and future urban status, existing land use, average plot size, impact of ongoing, committed and proposed major developmental projects etc. The methodology is briefly described below.

10.1 DESCRIPTION OF LAND USE CONCENTRATION PATTERN

The Land Use Concentration Index indicates the concentration of a particular land use in the LSGI in comparison to other local bodies in the District. To determine the LCI, land uses in the district are categorised into four, namely, Urban, Agricultural, Plantation and Forest. The LCI of a particular land use is calculated as follows.

Concentration Index of a particular land use =
$$\frac{\text{(Area of that land use in a Local Government) / (Total area of the Local Government)}}{\text{(Area of that land use in the District) / (Total area of the District)}}$$

The value of LCI of a particular land use, if greater than one, indicates that the land use under consideration is relatively more concentrated in that LSG, than other local governments in the District. The LSGs are categorised as Urban, Agricultural, Plantation or Forest based on the LCI value of the respective category. The categorization of LSGs based on the LCI having is represented in Figure 10.1.

10.2 DESCRIPTION OF FUTURE URBAN PROFILE

The urban profile of the LSG, i.e., whether the LSG is Urban or Non-Urban in nature, is derived based on the hierarchy of local government based on the availability of facilities, administrative status, urban status, demographic trends, distribution of population, occupation structure, locational significance, regional linkages etc. The future Urban Profile is determined as follows.

- Step 1: Project the occupation structure of the LSG and find out the LSGs in the District having more than 75% non-agricultural main male workers in the year 2021.
- Step 2: Find the first grade local governments from the above list.
- Step 3: Add the LSGs having ongoing, committed and proposed major developmental projects.
- Step 4: Based on the availability of facilities in

in various sectors like health, banking, communication, agriculture and animal husbandry, education, socio-cultural, fire and safety and tourism in the LSGs, find the Cumulative Functional Index of the LSGs as follows. CFI is the sum of Composite Facility Score, which is calculated by multiplying weightage of a facility by number of facilities. Weightage is calculated as

$$W_i = \frac{N}{F_i}$$

Where W_i is the weightage of i^{th} Facility
 N – Total number of settlements in the district i.e. 78 for Kozhikode District.

F_i - Number of settlements having i^{th} facility

The LSGs having Urban nature in Kozhikode District derived as explained above is listed and represented

in the Figure 10.2.

- Step 5: The highest order settlements based on existing and proposed heirarchy of settlements in the District are added to derive the urban profile of the District.

10.3 DESCRIPTION OF FUNCTIONAL CLASSIFICATION

The Functional Character of LSGs in Kozhikode District are shown in Figure 10.3.

10.4 DETERMINATION OF ACTIVITY PATTERN

Integrating the Urban Profile, Land Use Concentration Index and Functional Character, the activity pattern derived for Kozhikode District is represented in Figure 10.4.

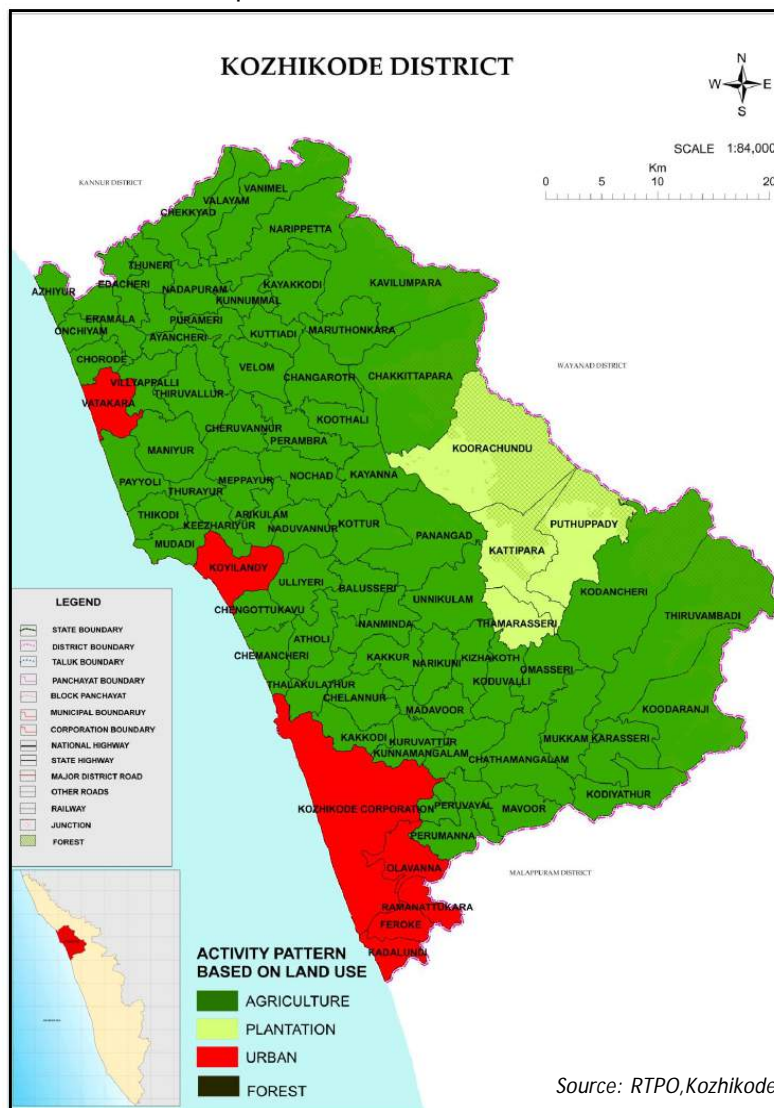


Fig. 10.1 LSGs of Urban Nature based on LCI

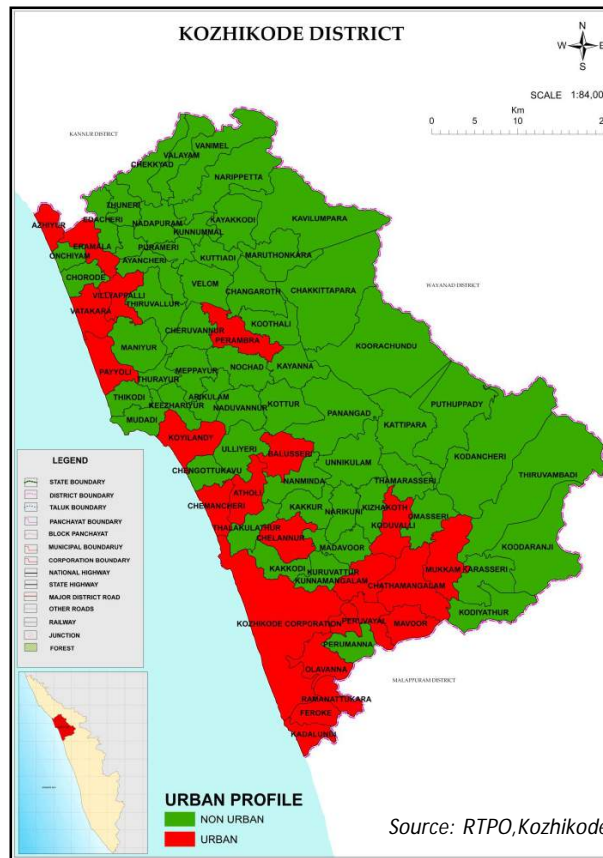


Fig. 10.2 Future Urbanisation Profile

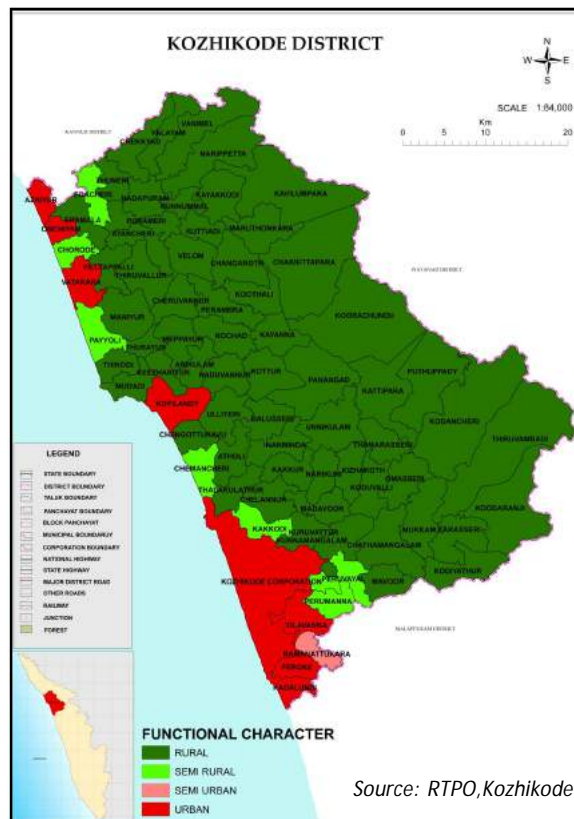


Fig. 10.3 Functional Character of LSGs

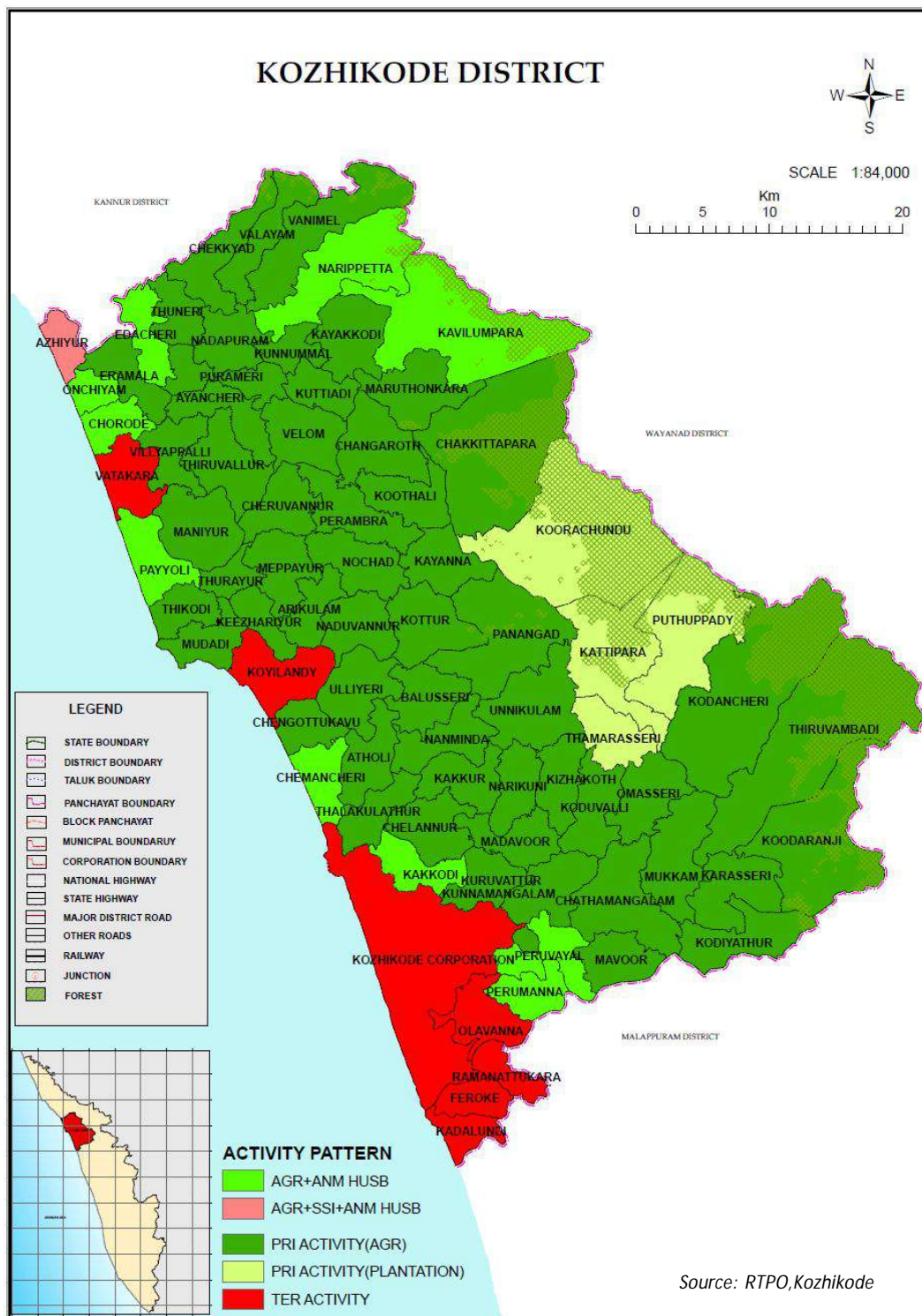


Fig. 10.4 Activity Pattern

10.5 INFERENCE

From the activity pattern of the District derived, it is expected that LSGs near to the first order settlement i.e Kozhikode Corporation and the existing

statutory urban areas of the District will be the centre of tertiary activities. Primary activities will be concentrated mainly in the mid land portion of the District.

Chapter 11

CONNECTIVITY

The existing traffic and transportation in the District is analysed and a future regional transportation network is proposed in this chapter.

11.1 TRAFFIC AND TRANSPORTATION NETWORK

Kozhikode District has good connectivity within the District and to other parts of the State. The nearest airport, the Karipur International Airport, is located 30km away from the Kozhikode city. The railway connects the District with various cities of our country. The road network is the prime mode of transport. The West Coast Canal System connecting Thiruvananthapuram and Hosdurg passes through the District.

11.1.1 Road Network

The major mode of transportation in the District is road. Three National Highways NH-17, NH-212 and NH 213 passes through the District. NH 17 traverses for about 77 km through the District in the North South direction, connecting the District with major cities of Mangalore and Kochi, is a major transportation corridor within the District. NH 212 connects the city with major cities in the East such as Mysore and Bangalore and its length within the District is 55 km. NH 213 has its origin at the outskirts of the city and travels for about 2.5 km within the city connecting it with Chennai and Coimbatore.

State Highways connect Kozhikode city with Municipalities of Koyilandy and Vatakara and other major urban centres within the District. Total length of State Highways passing in the District is 202.55 km. The total length of Major District Road in the District is

1119.17 km and total length of Village Roads connecting Major District Road is 769.11km. The total length of roads excluding National Highways in the District works out to be 2090.83km.

Referring the Table in Annexe 2 it can be seen that the road density i.e. length of road /1000 population for the State is 0.74. As per latest data, the value of Kozhikode District is only 0.73 which is less than the State average. This shows that the road network is yet to develop. The new proposals like Hill Highway project, Tourism Corridor etc. will boost economic development of the District in total and will also ensure better connectivity. Figure 11.1 shows the important road linkage of the District.

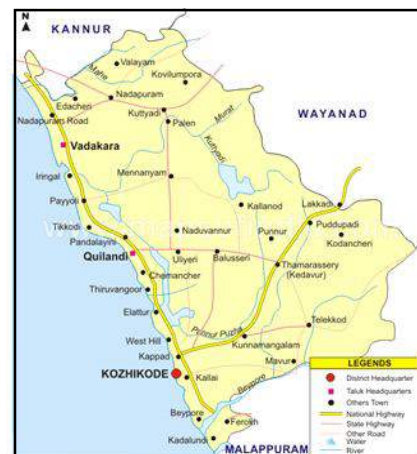


Fig 11.1 Road Network

11.1.2 Rail Network

Kozhikode district falls under Palakkad division of Southern Railway. The railway station at Kozhikode is of Class B category. The railway network runs in the North- South direction and parallel to the sea coast covering a total distance of 72km. This distance is almost

equal to the North South extremities of the District, providing better transport facilities in the District. The District is connected to major cities such as Chennai, Mangalore, Cochin, Pune, Mumbai, Jaipur, Jodhpur etc. The doubling of the broad-gauge railway lines is nearing completion which will further improve the transportation facility in the District. Figure 11.2 shows the rail network of the District.



Fig 11.2 Rail Network

11.1.3 Water Way Network

Water transport, if developed, will certainly ensure cheap transportation of goods and will reduce the congestion of roads. There is a continuous inland water route connecting Vatakara with Ponnani which is a part of West Coast Canal system connecting Thiruvananthapuram and Hosdurg. Between Vatakara and Athirangam there is a break in the canal system.

Details of canal system within the District are given in Table 11.1.

11.1.4 Beypore Port

Beypore is an "Intermediate Port" in the State and is engaged in cargo transportation. Major items of transportation are copra, coir & fibre, fish, timber, cement, iron and steel, machineries, food grains etc.

11.2 Future Regional Road Network

For proposing the future regional road network, hierarchy of nodes, existing & proposed urban settlement hierarchy and existing and proposed urban local governments are considered. The junction values of all important junctions are calculated in **Annexe 20** and hierarchy of nodes are identified. From the Annexe 20, it can be seen that Kozhikode Corporation is first order node, there are six second order nodes out of which Kunnammangalam, Koyilandy and Vatakara coincides with second order settlements. There are 16 third order settlements out of which Perambra coincides with second order settlements. The nodes along with 1st, 2nd and 3rd order settlements are given in Figure 11.3.

11.3 Proposed Road Network

Figure 11.4 shows the concept map for the future regional road network. The settlements are to be connected through important nodes located in between. In most of the cases there are existing roads. Kozhikode Corporation, Vatakara and Koyilandy Municipalities are connected by the National Highway

Table 11.1 Canal System

SI No	Description	Length in Km	Length of Artificial Canal in Km
1	Vatakara to Iringal	0.8
2	Eringal to Payyoli	5.2	5.2
3	Payyoli to Panthalayani	8.5
4	Panthalayani to Agalapuzha	4.8	4.8
5	Agalapuzha to Elathur	15.3	15.3
6	Elathur to Kallayi (Canoli canal)	11.3	11.3
7	Kallayi to Olavanna	3.2
8	Olavanna to Beypore	7.6	7.6
9	Beypore to Kadalundi	16.1

17 . Mukkam, Balusseri, Perambra and Nadapuram are connected with State Highways. It is suggested that the interconnection between second order settlements are to be of the standard of state highway and the interconnection between third order settlements are

to be of the standard of Major District Road. The connectivity between first order and second order settlements/ third order settlements, second order and third order settlements and the interconnections among these settlements are given in Table 11.2.

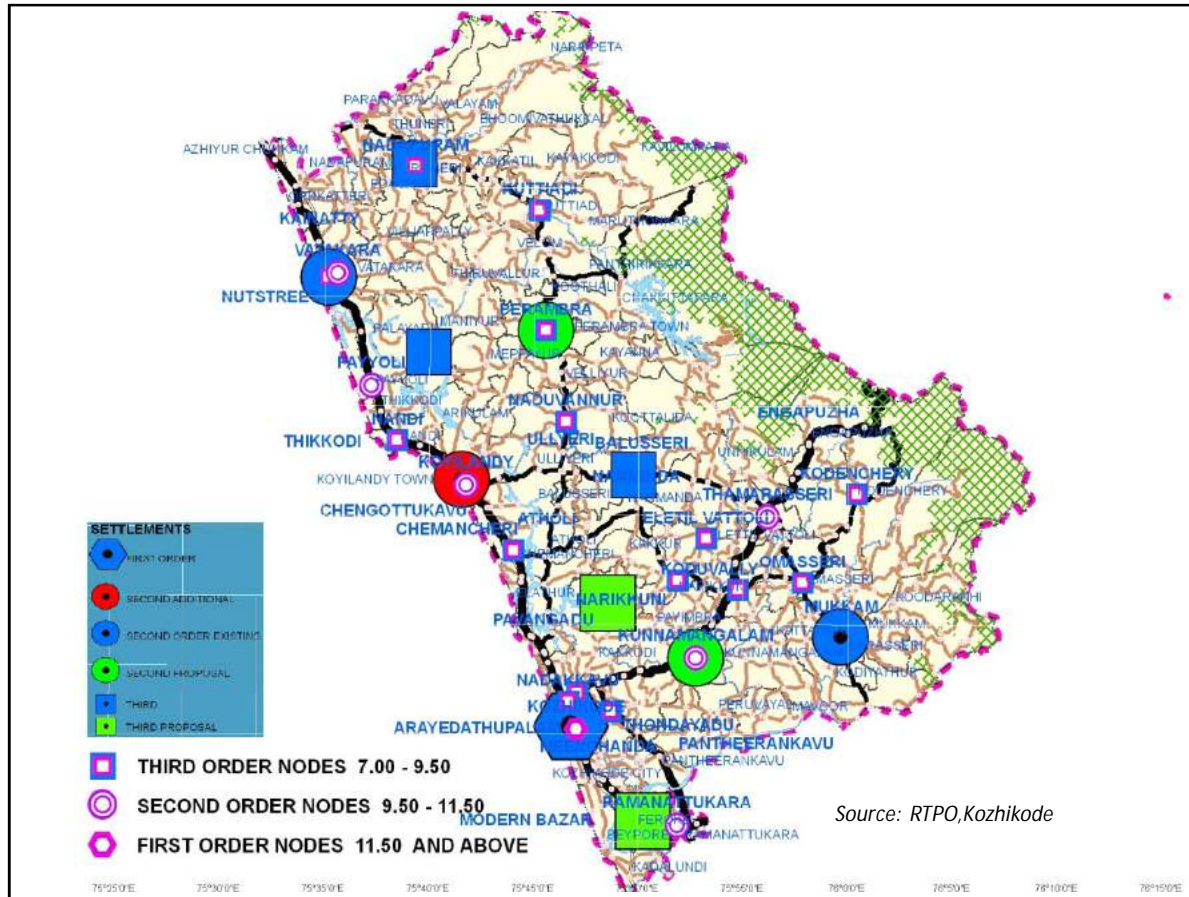


Fig 11.3 Nodes along with 1st, 2nd and 3rd order settlements

Table 11.2 Existing and Proposed Connectivity between Settlements

Name of Settlement	Name of Settlement	Existing Connection	To be upgraded/ constructed to the standard of
Kozhikode	Feroke	NH	-----
	Kunnamangalam	NH	-----
	Koyilandy	NH	-----
	Chelannur	MDR	Up graded to SH
Kunnamangalam	Mukkam	MDR	Up graded to SH
	Feroke	Partially MDR	Connecting MDR
	Balusseri	NH, MDR, SH	MDR to be upgraded to SH
Chelannur	Balusseri	District road	Up graded to SH
Balusseri	Koyilandy	SH	-----
	Perambra	District road(DR)	DR up graded to MDR
	Mukkam	SH	-----

Table 11.2 contd..

Name of Settlement	Name of Settlement	Existing Connection	To be upgraded/ constructed to the standard of
Koyilandy	Perambra	MDR	-----
	Vatakara	NH	-----
	Maniyur	District Road	District road up graded to MDR. Partially MDR proposal
Maniyur	Perambra	MDR	-----
	Vatakara	MDR	-----
Nadapuram	Vatakara	MDR	-----
	Perambra	SH	-----

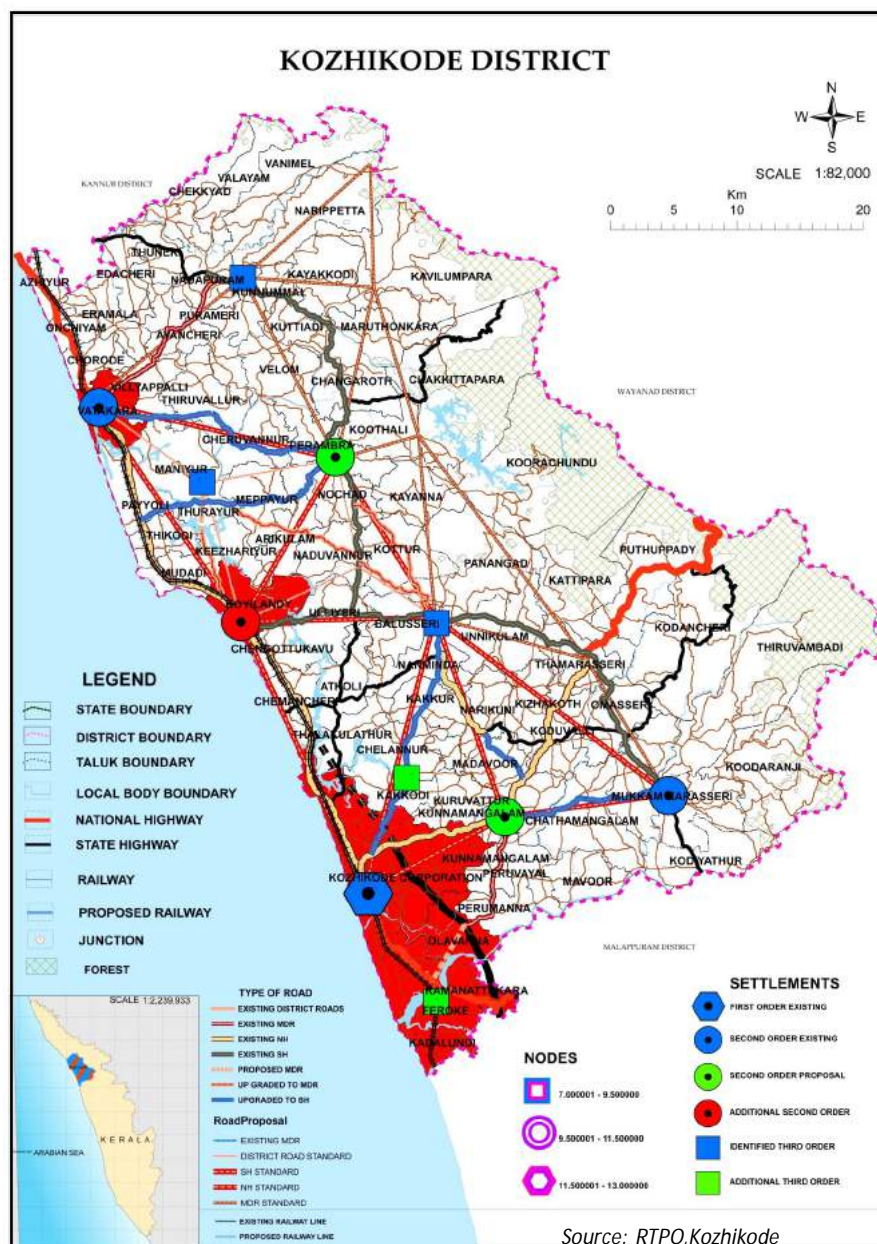


Fig 11.4 Concept Map-Future Regional Road Linkages

Figure 11.5 shows the future regional road network considering the upgradation of the existing roads and development of new roads.

11.4 Proposed Transportation Network

In addition to the proposed road network, a rail network parallel to the coast from the city centre

to Bepore harbour in the District is also proposed. This railway network is intended to enhance the freight movement from the industrial area to other parts of the State and World. Proposed transportation network based on the hierarchy of settlements is given in Figure 11.6.



Fig 11.5 Future Regional Road Network



Fig 11.6 Future Regional Transportation Network

Chapter 12 SPATIAL STRUCTURE

Spatial structure of the District is derived and detailed in this chapter. The spatial structure gives a frame work for determining the location of future development activities rationally.

12.1 SPATIAL STRUCTURE OF THE DISTRICT

The spatial structure of the District was evolved considering the activity pattern, hierarchy of settlements, connectivity and the future prospects, which gives the major functions of an LSG within the District, the hierarchy of the LSG in the District context and regional transportation network.

12.1.1 Hierarchy of settlements

The suggested hierarchy of settlements (Refer Chapter 8) is shown in Figure 12.1.

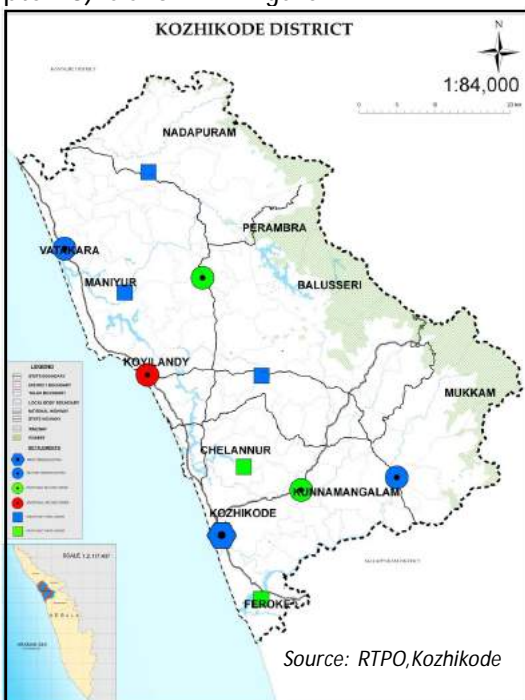


Figure 12.1 Suggested Hierarchy of Settlements

12.1.2 Activity pattern

Integrating the Urban Profile, Land Use Concentration Index and Functional Character, the activity pattern derived for Kozhikode District (Refer Chapter 10)is represented in Figure 12.2.

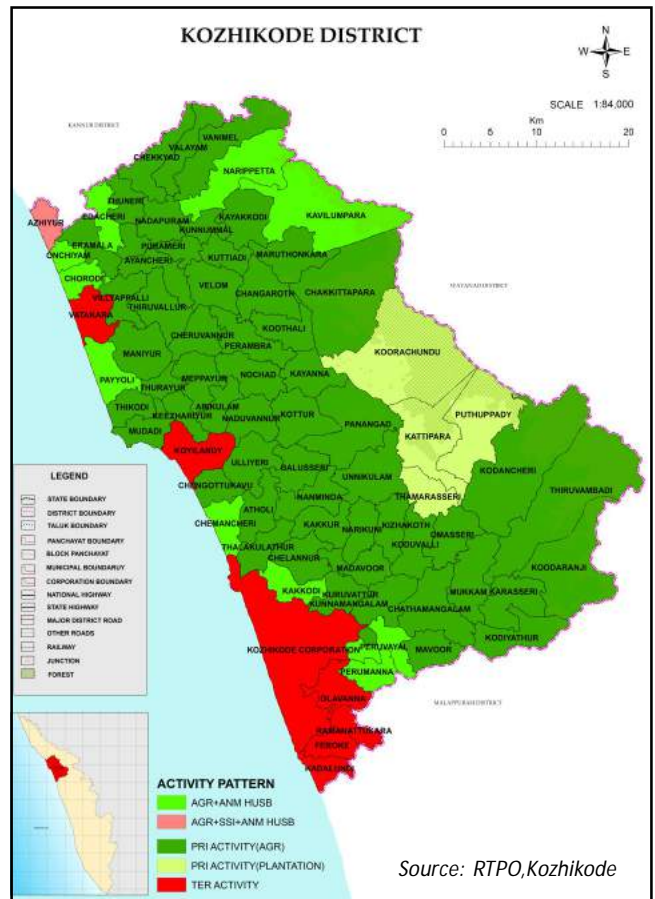


Fig. 12.2 Activity Pattern

12.1.3 Connectivity

Proposed transportation network (Refer Chapter 11)based on the hierarchy of settlements is given in Figure 12.3



Fig 12.3 Future Regional Transportation Network

12.1.4 Future Prospects

A few major developments in the District are enlisted here which may induce urban development in the coming future.

A. Kinaloor Industrial Township

The proposed Kinaloor Industrial Township is located in Panangad Grama Panchayat. Panangad Panchayat is a low grade Panchayat with very little industrial development and is nearly 33 Km away from Kozhikode city. In this project, development of integrated Industrial Township in 275 acre is proposed as per the Memorandum of Understanding between Construction Industry Development Board (CIDB) Malaysia and Kerala state Industrial Development Corporation (KSIDC). It is envisaged to set up knowledge based industries, medical city, education city and other industries with industrial and commercial potential at a cost of roughly Rs. 500 crores and tapping investment potential of Rs. 2500 crore. The project is expected to provide jobs for 25000 people.

On the realization of this project, it will boost up economic development of eastern panchayats like Thamarassery, Kattippara and especially Panangad.

B. Dream city project- Sarovaram

Kottuli wetland in Kozhikode is essentially a

coastal wetland, with abundant mangrove forests. It is rich source of bio diversity and is essentially an important part of the hydrology of Kozhikode. The site of Kottuli wetland offer many opportunities for an effective design proposal for conservation and management of an urban wetland Ecosystem. This project is intended to provide healthy outdoor recreation facilities like boating, natural trails, bird watching and urban eco park for the city and it is a conservation project for the wetland of natural importance. This project is envisaged as integrated model to achieve a sustained conservation of the fragile ecosystem of Kottuli wetland through eco tourism initiatives. The area intended for the development is 93 acres and project cost is approximately 1750 lakhs.

Government has approved theme park project which is being designed by ICICI KINFRA and implementing agency as Tourist Resort Kerala Limited which is a subsidiary of KTDC. TRKL has assigned KITCO to prepare detailed project report for conservation of Kottuli wetland.

C. Beypore Port

Beypore is an intermediate port in the state and is engaged in cargo transportation. Major items of transportation are copra, coir and fibre, fish, timber, cement, iron and steel machineries and food grains.

Recently dredging operation for 100m Warf and construction of godown, passenger terminal etc. completed. For the comprehensive development of Beypore cargo harbor a Master Plan is under preparation engaging consultant.

D. IT Park at Palazhi – Kozhikode Corporation

Another important development in the district is IT Park at Palazhi which is sharing the boundary between Kozhikode Corporation and Olavanna Grama Panchayat and is located on the side of newly formed NH-17 Bypass. The project is in the conception stage and the land acquisition process is underway.

12.1.5 Spatial Structure

The spatial structure of the District is derived by overlaying the map of activity pattern, suggested

hierarchy of settlements and proposed connectivity. Taking into account the future prospects, the spatial structure is modified. Excepted spatial structure of

the District for the year 2021 is shown in Figure 12.4. **Annexe 21** shows the major activity and hierarchy of the local governments.

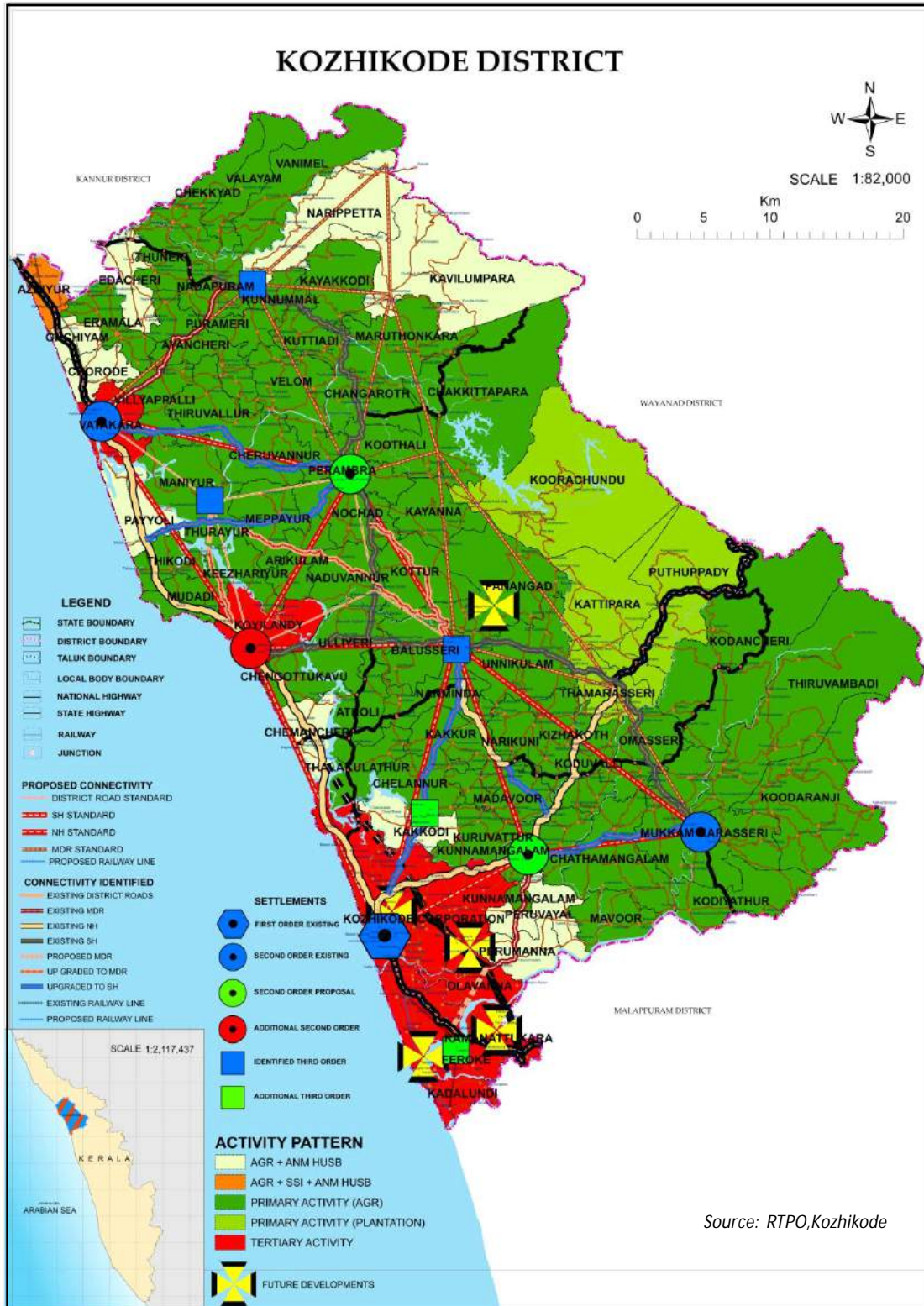


Fig 12.4 Expected Spatial Structure of Kozhikode District

12.2 INFERENCE

The spatial structure of the District expects the following hierarchy of settlements in the District.

- | | |
|-----------|----------------------------------|
| I Order | 1. Kozhikode Corporation |
| II Order | 1. Vatakara Municipality |
| | 2. Koyilandy Municipality |
| | 3. Perambra Grama Panchayat |
| | 4. Mukkom Grama Panchayat |
| | 5. Kunnamangalam Grama Panchayat |
| III Order | 1. Balussery |
| | 2. Feroke |
| | 3. Chelannur |
| | 4. Maniyur |
| | 5. Nadapuram |

The tertiary activities will be concentrated in

the existing urban areas and LSGs along the coast adjacent to the first order settlement. Primary activities will be concentrated in the LSGs in the midland and highland region of the District.

The major developments are concentrated around the first order settlement (Kozhikode Corporation). The LSGs near the coastal belt offers more opportunities for economic development.

The settlements will be connected by an excellent transportation network formed by upgrading existing roads and identifying new road proposals. In addition to the proposed road network, a rail network parallel to the coast from the city centre to Beypore harbour is also proposed. This railway network is intended to enhance the freight movement from the industrial area to other parts of the State and world.

Chapter 13

SUMMARY OF FINDINGS

Kozhikode was the traditional capital of Northern Kerala under the Samuthiri ruler. It was a prominent region of Malabar. Kozhikode city is the nodal point for all districts in the northern region. Kozhikode has traditionally been developed as a centre for forest and agro based industries. Surrounded by the Arabian Sea on the West and the proud peaks of the Wayanad hills on the East, this District with the serene beaches, lush green countryside, historic sites, all combine to make Kozhikode a popular tourist destination filled with a warm ambience to fascinate a visitor.

Kozhikode has been a prominent centre of trade and commerce from time immemorial. The District which still maintains the reminiscences of its glorious past, is excellently linked with the other major settlements in the State, and offers tremendous tourism opportunities. The agricultural base of the District is declining slowly. Most of the traditional industries set up in the region are getting closed. Now the economic base is shifting towards tertiary sector and IT based industries. The infrastructure facilities in the District has to be developed especially in the case of water supply and drainage.

The population density of the District i.e., 1228 persons per sq.km is greater than the State average (819 persons per sq.km.). During 1991- 2001 decadal growth rate of urban population has decreased to 7.64% for the state and 9.6% for the District. As per the Census, 2001, the urban population in Kozhikode (1101157) occupies the second place in the State. The coastal areas of the District show high density of

population when compared to the other areas of the District. Majority of the total population is concentrated in the coastal belt and midland regions next to the coastal belt. Most of the local governments in the coastal area shows urban and semiurban nature. The urban local governments are engaged in tertiary activities and a good transportation corridor is available in these areas. This may be reason for high concentration of population in coastal areas.

It is projected that the population of the District will be increased by 1.8 lakhs and 1.2 lakhs in the succeeding decades, 2001-11 and 2011-2021 respectively.

The work participation rate in the District is very low in comparison with other Districts and the value is even less than that of State average. However work participation is expected to increase in the coming decades. The women empowerment throughout the State during last decade is a positive factor. Similarly the establishment of Information Technology Park, Ship Building Industry, Industrial Estates etc may provide better job opportunities both in direct as well as indirect employment.

When compared to the land use pattern in Kerala State, Kozhikode District shows remarkable variations in the percentage of plantation land use and Residential/Agricultural Mix land use and in the other categories of land use. Kozhikode District has the highest share of total Residential/Agricultural mix and other built up land use in Kerala.

Major share of agricultural land in Kozhikode District is under Coconut (75%) followed by Mixed

Crops (10.86%), Paddy (6.64%) and Rubber(2.84 %). The District shows the high concentration of coconut land use in local governments lying along North Eastern and South Eastern part of the District. High concentration of Mixed Crop is seen in the North Western part of the District. The urban and semi urban areas support mixed crop cultivation. Highland areas have less concentration of Mixed Crops. Highest concentration of the Paddy is found in LSGs in low and mid land areas. Highland areas have very poor concentration of paddy cultivation. South Eastern parts of the District have the highest concentration of Rubber especially in the Unnikulam, Puthupaddy, Kattipara, Thamarassery, Kodencheri, Thiruvampadi, Koodaranji, Karasseri Panchayats. In the District, the mid land region and few areas of low land region offers more concentration of agricultural activities.

Based on land use concentration ,LSGs showing urban nature are evidently the existing urban local governments and the local governments surrounding the Kozhikode Corporation. Activity zones based on agriculture are concentrated in the local governments situated in the mid land region and highlands. Local governments having Plantation nature are Kattipara, Thamarasseri, Puthupaddi and Kurachundu.

The urban profile of the District shows that the LSGs showing urban nature are Kozhikode Corporation, adjacent local governments of Olavanna, Feroke and Kadalundi, Vatakara Municipality, Quilandy Municipality and two coastal grama panchayats Azhiyur

and Onchiyam.

It is anticipated that , in addition to existing urban local governments, nine more Grama Panchayats (Olavanna, Peruvayal, Kunnamangalam, Ramanattukara, Mukkom, Feroke, Chathamangalam, Chelannur, Koduvally) may become urban by 2011 and by 2021 another ten local governments (Payyoli, Azhiyur, Perambra, Villiapally, Balusseri, Atholy, Eramala, Mavoor, Chemanchery, Kadalundy) may attain urban status.

The activity pattern derived for the District reveal that the tertiary activities will be concentrated mainly in the LSGs near the first order settlement i.e Kozhikode Corporation and in the existing statutory urban areas of the district.

To support the envisaged development till 2021, a transportation network is proposed including existing road networks, proposals for new roads, up gradation of existing ones and a rail network parallel to the coast from the city centre to Beypore harbour in the District.

The LSGs near the coastal belt offers more opportunities for economic development. It is expected that the urban activities and semi urban activities will be concentrated in the existing urban areas and LSGs near the coastal areas. These LSGs along the coast will be facilitating major tertiary and industrial activities and that the major developments will be concentrated around the first order settlement (Kozhikode Corporation).

Annexe I

Name and area of Local Governments

Sl. No	Taluk	Block	Name of Local Government	Area in Hectares	Sl. No	Taluk	Block	Name of Local Government	Area in Hectares	
1	VADAKARA	Vadakara	Azhiyur	977	40	KOZHIKODE	Balusseri	Urnikulam	3826	
2			Chorode	1341	41			Panangad	4696	
3			Eramala	1906	42			Koorachundu	7274	
4			Onchiyam	872	43			Panthalayini	Chemancherry	1676
5		Thuneri	Chekkiad	2447	44		Arikkulam		2312	
6			Edachery	1617	45		Moodadi		1602	
7			Purameri	2027	46		Chengottukavu		1360	
8			Thunery	1545	47		Chelannur	Kakkodi	1859	
9			Valayam	3108	48			Chelannur	2383	
10			Vanimel	3653	49			Kakkur	2036	
11		Kunnummel	Kunnummal	1058	50			Nanmanda	2301	
12			Nadapuram	2044	51			Narikkuni	1775	
13			Kayakkodi	2814	52			Thalakkulathur	2154	
14			Kavilumpara	8481	53		Koduvally	Thiruvambady	8396	
15			Kuttiady	1522	54			Koodaranhi	9821	
16			Maruthomkara	2690	55			Kizhakkoth	1984	
17			Velom	2580	56			Madavoor	1924	
18			Narippatta	5063	57			Koduvally	2385	
19		Thodannur	Ayanchery	2081	58			Puthuppady	6475	
20			Villiyappally	1735	59		Thamarassery	2717		
21			Maniyur	3103	60		Kattippara	2800		
22			Thiruvallur	2758	61		Omassery	2546		
23		Meladi	Meladi	Thurayur	1048		62	Kunnamangalam	Kodiyathur	2981
24				Keezhariyur	1369		63		Kuruvattur	1794
25				Thikkodi	1415		64		Mavoor	2048
26				Payyoli	2234		65		Karassery	2854
27				Meppayyur	2341		66		Kunnamangalam	2723
28				Perambra	Cheruvannur		2161		67	Chathamangalam
29		Nochad	2364		68		Mukkom	3128		
30		Changaroath	3024		69		Kodenchery	10258		
31		Kayanna	1683		70		Peruvayal	2639		
32		Koothali	1413		71		Perumanna	1345		
33		Perambra	2612		72		Kozhikode	Kadalundy	1183	
34		Chakkittappara	14245		73			Ramanattukara	1171	
35		Balusseri	Balussery		2244			74	Feroke	1353
36			Naduvannur	2220	75		Olavanna	2143		
37			Atholy	2106	76		Vadakara Municipality	2132		
38			Ulliyeri	2589	77		Koyilandy Municipality	2905		
39		Kottur	2898	78	Kozhikode Corporation		8429			

Source :- District Census Hand Book 2001 and newly updated local governments

Annexe 2
District wise and Category wise roads under PWD

Sl.No	Name of the District	State Highway	Major District Roads	Other District Roads	Village Roads	Total	Length of Road per 1000 Population
1	2	3	4	5	6	7	8
1	Thiruvananthapuram	180.36	1453.818	0	0	1634.18	0.505
2	Kollam	114.49	1667.191	0	0	1781.68	0.689
3	Alappuzha	174.391	644.247	0	0	818.64	0.388
4	Pathanamthitta	249.194	1002.949	0	0	1252.14	1.015
5	Kottayam	401.331	2685.435	0	0	3086.77	1.58
6	Idukki	841.434	1437.968	0	0	2279.4	2.019
7	Ernakulam	309.185	1626.937	0	0	1936.12	0.623
8	Thrissur	453.518	805.264	0	0	1258.78	0.423
9	Palakkad	279.887	1250.255	0	0	1530.14	0.585
10	Malappuram	453.504	1421.546	0	0	1875.05	0.517
11	Kozhikode	357.815	970.577	0	0	1328.39	0.461
12	Wayanad	128.955	571.425	0	0	700.38	0.897
13	Kannur	250.635	800.049	0	0	1050.68	0.436
14	Kasaragod	265.58	780.247	0	0	1045.83	0.869
15	Total	4460.279	17117.93	0	0	21578.21	
	State Average						0.786

Source: Economic review 2009

Annexe 3
District wise and Management wise list of schools in Kerala State 2008-2009

SlNo	District	High Schools				UP Schools				LP Schools				HS + UPS+ LPS				No. of Schools per 1000 Population
		G	PA	PUA	T	G	PA	PUA	T	G	PA	PUA	T	G	PA	PUA	T	
1	Thiruvananthapuram	119	95	43	257	98	101	27	226	299	180	27	226	516	376	97	989	0.31
2	Kollam	78	131	17	226	61	139	19	219	268	190	32	490	407	460	68	935	0.36
3	Alappuzha	59	130	8	197	67	77	11	155	192	197	21	410	318	404	40	762	0.36
4	Pathanamthitta	48	111	9	168	42	83	16	141	168	235	22	425	258	429	47	734	0.59
5	Kottayam	60	166	22	248	67	128	11	206	168	267	24	459	295	561	57	913	0.47
6	Idukki	56	73	12	141	40	63	4	107	85	136	10	231	181	272	26	479	0.42
7	Ernakulam	87	175	52	314	91	103	22	216	181	270	30	481	359	548	104	1011	0.33
8	Thrissur	80	150	30	260	55	162	14	231	115	381	23	519	250	693	67	1010	0.34
9	Palakkad	61	79	35	175	63	159	12	234	194	349	14	557	318	587	61	966	0.37
10	Malappuram	83	84	79	246	112	223	35	370	350	477	27	854	545	784	141	1470	0.41
11	Kozhikode	70	99	23	192	74	240	13	327	181	529	11	721	325	868	47	1240	0.43
12	Wayanad	40	23	5	68	34	39	2	75	91	53	6	150	165	115	13	293	0.12
13	Kannur	84	80	23	187	76	280	19	375	114	607	10	731	274	967	52	1293	1.66
14	Kasaragod	77	33	17	127	72	72	15	159	141	115	12	268	290	220	44	554	0.46
15	Total	1002	1429	375	2806	952	1869	220	3041	2547	3986	269	6802	4501	7284	864	12649	0.397

Source : Economic Review 2009, State Planning Board

Annexe 4**District wise Public Health Institutions and number of beds- 2009**

Sl No	Districts	Allopathic		Ayurveda		Homeopathy		Total		No of Beds/ lakh population
		Institutions	beds	Institutions	beds	Institutions	beds	Institutions	beds	
1	Thiruvananthapuram	117	8225	81	923	56	285	254	9433	292
2	Kollam	89	2189	62	190	40	75	191	2454	95
3	Alappuzha	88	4324	66	180	44	75	198	4579	217
4	Pathanamthitta	64	1755	45	150	26	25	135	1930	157
5	Kottayam	83	3810	52	160	47	175	182	4145	212
6	Idukki	64	1235	37	160	37	50	138	1445	128
7	Ernakulam	115	4550	75	485	54	85	244	5120	165
8	Thrissur	123	4526	96	446	40	25	259	4997	168
9	Palakkad	112	2474	81	160	40	25	233	2659	101
10	Malappuram	123	2520	80	370	44	50	247	2940	81
11	Kozhikode	95	5170	60	210	49	175	204	5555	193
12	Wayanad	41	913	26	170	20	25	87	1108	140
13	Kannur	105	2768	69	316	40	25	214	3109	129
14	Kasaragod	60	1094	41	100	24	75	125	1269	106
15	Total	1279	45553	871	4020	561	1170	2711	50743	159

Source : Economic Review 2009, State Planning Board

Annexe 5
District wise Distribution of Population Covered by Water Supply Schemes-31.03.2009

Sl No	District	Covered Rural population	Percentage of Rural population	Covered Urban population	Percentage of Urban population	Covered Total population	Percentage of Total population
1	Thiruvananthapuram	1601803	74.76	958617	87.81	2560420	79.16
2	Kollam	1142962	53.93	453781	97.38	1596743	61.77
3	Alappuzha	1182805	79.00	521854	83.97	1704659	80.82
4	Pathanamthitta	813091	73.24	107700	87	920791	74.62
5	Kottayam	964558	57.09	292663	97.62	1257221	64.35
6	Idukki	615838	57.47	55262	95.95	671100	59.43
7	Ernakulam	1593378	97.83	1393990	94.38	2987368	96.19
8	Thrissur	1832646	85.85	828354	98.68	2661000	89.47
9	Palakkad	1441881	63.77	340964	95.62	1782845	68.12
10	Malappuram	1774161	54.27	353860	99.35	2128021	58.7
11	Kozhikode	687918	38.69	830762	75.44	1518680	52.75
12	Wayanad	664847	88.53	14835	50.1	679682	87.06
13	Kannur	780361	65.24	708332	58.4	1488693	61.8
14	Kasaragod	751235	77.42	143298	61.32	894533	74.3
15	Total	15847484	67.22	7004272	84.73	22851756	71.77

Source : Kerala Water Authority

Annexe 6
District Details of Telecommunication Net work-2009

SI No	Name of District	Number of Exchanges	Exchange Capacity	Connections	Area	No. of Telephones	Average No. of Telephones/1000 Population
1	Alappuzha	70	408620	367525	1414	260	175
2	Kozhikode	92	560560	503132	2344	215	175
3	Kannur	112	491986	452952	2966	153	188
4	Ernakulam	124	829858	751732	3068	245	243
5	Idukki	80	217135	187844	4358	43	166
6	Kasaragod	58	249478	218392	1992	110	181
7	Kottayam	102	509228	477278	2208	216	244
8	Lakshadweep	11	21064	16306	32	510	269
9	Malappuram	94	573993	505415	3550	142	139
10	Palakkad	117	424648	375773	4480	84	144
11	Pathanamthitta	82	340708	296931	2637	113	241
12	Pondicheri (Mahi)	1	11968	11077	10	1108	369
13	Kollam	85	517094	475616	2491	191	184
14	Thrissur	83	621044	573288	3032	189	193
15	Thiruvananthapuram	97	738803	663977	2192	303	205
16	Wayanad	31	121538	100997	2131	47	128
	Total	1239	6637725	5978235	2431.6	154	187

Source : Economic Review 2009, State Planning Board

Annexe 7					
Concentration Index of various category of workers					
Sl.No	LSGI Name	Cultivators	Agricultural labourers	HH Industrial Workers	Other Workers
1	Azhiyur	0.361	0.271	1.323	1.088
2	Chorode	0.254	0.591	1.104	1.067
3	Eramala	0.676	0.747	0.769	1.042
4	Onchiyam	0.232	0.243	1.25	1.097
5	Chekkiad	0.714	1.323	0.502	0.992
6	Edachery	1.687	1.738	1.014	0.902
7	Purameri	3.26	2.629	0.783	0.759
8	Thunery	1.382	2.285	1.388	0.853
9	Valayam	0.217	0.068	0.161	1.139
10	Vanimel	0.372	0.131	0.397	1.122
11	Kunnummal	0.944	0.732	1.568	1.015
12	Nadapuram	0.686	1.174	1.268	0.99
13	Kayakkodi	2.029	2.854	0.606	0.791
14	Kavilumpara	0.486	0.623	0.609	1.065
15	Kuttiady	1.418	1.724	0.623	0.923
16	Maruthomkara	1.829	1.075	0.676	0.967
17	Velom	2.558	2.474	1.054	0.796
18	Narippatta	1.347	1.465	0.312	0.957
19	Ayanchery	1.666	1.658	0.982	0.911
20	Villiyappally	0.127	0.541	1.162	1.075
21	Maniyur	1.175	2.263	1.739	0.856
22	Thiruvallur	2.002	2.612	0.86	0.809
23	Thurayur	1.934	0.779	2.661	0.946
24	Keezhariyur	0.858	1.072	1.76	0.982
25	Thikkodi	0.648	1.106	0.887	1.007
26	Payyoli	0.314	0.453	1.325	1.072
27	Meppayyur	1.376	1.119	1.206	0.969
28	Cheruvannur	2.362	2.656	3.526	0.73
29	Nochad	1.982	1.732	0.624	0.899
30	Changaroth	1.048	0.655	0.411	1.044
31	Kayanna	1.917	1.685	0.675	0.905
32	Koothali	1.542	1.702	2.035	0.888
33	Perambra	1.633	1.509	1.45	0.916
34	Chakkittappara	0.877	0.705	0.352	1.048
35	Balussery	1.208	0.744	0.925	1.018
36	Naduvannur	2.074	1.833	0.823	0.881
37	Atholy	1.447	0.789	1.164	0.998
38	Ulliyeri	1.074	1.309	1.379	0.959
39	Kottur	1.167	1.303	0.888	0.967
40	Unnikulam	1.862	1.228	0.893	0.946
41	Panangad	1.568	1.664	0.672	0.921

Annexe 7 contd...

42	Koorachundu	0.203	0.264	0.631	1.111
43	Chemancherry	0.37	0.336	0.961	1.09
44	Arikkulam	1.877	1.792	1.314	0.882
45	Moodadi	1.167	1.11	2.428	0.95
46	Chengottukavu	0.347	0.434	0.608	1.089
47	Kakkodi	0.497	0.653	0.764	1.059
48	Chelannur	2.217	1.317	0.693	0.928
49	Kakkur	2.422	2.242	0.73	0.831
50	Nanmanda	1.875	1.613	1.239	0.901
51	Narikkuni	2.806	2.512	1.399	0.774
52	Thalakkulathur	1.197	0.953	1.19	0.992
53	Thiruvambady	4.296	1.492	0.62	0.829
54	Koodaranhi	2.503	1.757	0.428	0.88
55	Kizhakkoth	2.918	2.129	0.709	0.822
56	Madavoor	2.634	1.951	0.676	0.851
57	Koduvally	1.687	1.457	0.96	0.93
58	Puthuppady	2.742	3.996	0.884	0.647
59	Thamarassery	1.447	0	0	0
60	Kattippara	1.447	0	0	0
61	Omassery	2.413	2.227	0.743	0.832
62	Kodiyathur	1.215	1.944	0.777	0.906
63	Kuruvattur	1.453	1.08	1.06	0.973
64	Mavoor	0.866	1.311	1.119	0.973
65	Karassery	1.9	3.273	0.66	0.755
66	Kunnamangalam	0.73	1.082	1.365	0.995
67	Chathamangalam	2.171	1.536	0.941	0.903
68	Mukkom	1.726	2.059	1.093	0.868
69	Kodenchery	1.768	1.574	0.55	0.925
70	Peruvayal	1.241	1.25	0.63	0.975
71	Perumanna	0.934	0.664	1.433	1.025
72	Kadalundy	0.123	0.176	0.71	1.12
73	Ramanattukara	0.202	0.551	1.76	1.058
74	Feroke	0.174	0.471	1.121	1.081
75	Olavanna	0.187	0.238	1.098	1.103
76	Vadakara Municipality	0.105	0.284	1.316	1.097
77	Koyilandy Municipality	0.302	0.359	0.864	1.092
78	Kozhikode Corporation	0.072	0.075	0.876	1.128

Annexe 8
LSG wise Land Use Break Up

Sl.No	LSG Name	Total Area of LSG	Land use in sq.km								
			Forest	Water bodies	Marshy Land	Residential	Agriculture	Plantation	Res/Agr Mix	Other Built-up land use	Others
1	Azhiyur	10.108	0.000	0.578	0.000	0.000	0.418	0.000	6.256	2.432	0.424
2	Chorode	13.707	0.000	0.000	0.000	0.433	1.486	0.000	10.422	1.256	0.111
3	Eramala	18.018	0.000	0.476	0.000	0.375	1.077	0.000	16.007	0.000	0.084
4	Onchiyam	9.473	0.000	0.000	0.000	0.564	0.000	0.000	7.857	0.901	0.151
5	Chekkiad	25.482	2.550	0.254	0.000	0.056	2.403	0.000	17.933	0.000	2.286
6	Edachery	16.394	0.000	0.308	0.000	0.022	6.030	0.000	9.979	0.000	0.055
7	Purameri	19.895	0.000	0.017	0.000	0.123	1.180	0.000	17.697	0.338	0.540
8	Thunery	14.634	0.000	0.176	0.000	0.101	0.872	0.000	13.389	0.000	0.096
9	Valayam	24.105	0.908	0.018	0.000	0.155	0.212	0.000	21.671	0.184	0.956
10	Vanimel	42.036	26.742	0.341	0.000	0.104	1.003	0.000	11.613	0.382	1.852
11	Kunnummal	11.597	0.000	0.000	0.000	0.132	0.222	0.000	9.922	0.933	0.388
12	Nadapuram	19.746	0.000	0.308	0.000	0.069	0.029	0.000	17.529	1.811	0.000
13	Kayakkodi	27.052	10.556	0.176	0.000	0.145	1.129	0.000	14.362	0.565	0.120
14	Kavilumpara	92.558	56.419	0.418	0.000	0.152	0.560	0.000	31.531	0.165	3.314
15	Kuttiady	14.353	0.000	0.234	0.000	0.106	0.907	0.000	12.527	0.520	0.058
16	Maruthomkara	31.048	0.010	0.435	0.000	0.123	0.172	0.000	29.721	0.512	0.076
17	Velom	26.279	0.000	0.604	0.198	0.256	3.065	0.000	21.575	0.225	0.355
18	Narippatta	47.154	26.117	0.420	0.000	0.119	1.782	0.000	14.556	0.160	4.000
19	Ayanchery	19.812	0.000	0.348	0.000	0.135	2.467	0.000	16.618	0.000	0.244
20	Villiyappally	17.546	0.000	0.375	0.067	0.330	0.154	0.000	16.363	0.258	0.000
21	Maniyur	31.267	0.000	1.747	0.000	0.175	0.326	0.000	28.801	0.094	0.124
22	Thiruvallur	27.825	0.000	1.014	0.008	0.350	1.444	0.000	24.648	0.000	0.361
23	Thurayur	9.914	0.000	0.852	0.000	0.071	0.918	0.000	7.425	0.578	0.070
24	Keezhariyur	12.678	0.000	1.142	0.018	0.168	0.541	0.000	10.277	0.119	0.413
25	Thikkodi	14.386	0.000	0.483	0.000	0.007	0.826	0.000	12.570	0.094	0.407
26	Payyoli	22.036	0.000	3.021	0.000	0.089	1.215	0.000	16.566	0.679	0.465

Annexe 8 contd.....

27	Meppayyur	23.106	0.000	0.778	0.000	0.184	0.960	0.000	19.442	0.961	0.781
28	Cheruvannur	20.921	0.000	1.235	0.287	0.132	2.398	0.000	16.387	0.000	0.482
29	Nochad	24.755	0.000	0.004	0.010	0.235	1.917	0.000	20.539	1.136	0.914
30	Changaroth	30.498	0.000	0.457	0.000	0.306	2.517	0.000	26.176	0.897	0.145
31	Kayanna	20.962	5.760	0.024	0.000	0.164	1.211	0.000	12.681	0.291	0.832
32	Koothali	16.953	0.000	0.145	0.000	0.243	0.743	0.000	15.250	0.469	0.102
33	Perambra	26.271	0.000	0.141	0.352	0.242	1.762	0.000	21.983	1.538	0.253
34	Chakkittappara	102.848	59.996	7.812	0.446	0.149	0.847	0.000	30.445	0.693	2.460
35	Balussery	22.377	2.118	0.115	0.000	0.063	1.454	0.000	18.174	0.438	0.015
36	Naduvannur	21.227	0.000	0.322	0.000	0.098	3.318	0.000	17.142	0.248	0.099
37	Atholy	21.419	0.000	1.782	0.016	0.107	0.803	0.000	17.606	0.131	0.975
38	Ulliyeri	25.996	0.000	1.393	0.003	0.157	2.939	0.000	20.230	0.305	0.970
39	Kottur	30.749	7.966	0.031	0.000	0.171	2.436	0.000	19.316	0.414	0.414
40	Unnikulam	36.386	3.658	0.008	0.038	0.082	2.475	0.000	29.344	0.397	0.383
41	Panangad	34.781	16.022	0.035	0.000	0.195	3.271	0.000	14.512	0.398	0.348
42	Koorachundu	124.244	95.451	5.640	0.094	0.091	0.597	4.711	14.892	1.094	1.674
43	Chemancherry	16.561	0.000	1.404	0.017	0.136	1.121	0.000	12.245	0.752	0.886
44	Arikkulam	23.913	0.000	0.275	0.298	0.171	4.258	0.000	17.883	0.236	0.791
45	Moodadi	17.453	0.000	0.737	0.018	0.067	2.907	0.000	12.995	0.322	0.408
46	Chengottukavu	14.202	0.000	0.921	0.016	0.185	1.572	0.000	11.067	0.072	0.369
47	Kakkodi	17.661	0.000	0.928	0.000	0.084	1.180	0.000	13.079	1.876	0.515
48	Chelannur	23.102	0.000	0.842	0.000	0.135	2.455	0.000	17.525	0.239	1.906
49	Kakkur	20.225	0.106	0.000	0.000	0.132	1.987	0.000	16.183	0.112	1.706
50	Nanmanda	22.923	5.146	0.001	0.014	0.060	1.775	0.000	15.081	0.432	0.413
51	Narikkuni	18.086	0.000	0.000	0.000	0.092	1.183	0.000	16.304	0.304	0.203
52	Thalakkulathur	17.363	0.000	1.651	0.002	0.036	1.559	0.000	11.949	0.466	1.700
53	Thiruvambady	120.271	54.708	0.366	0.000	0.063	1.407	0.000	59.831	0.101	3.795
54	Koodarachi	103.289	50.813	0.387	0.000	0.018	0.239	0.000	47.916	0.136	3.780
55	Kizhakkoth	20.261	0.000	0.191	0.029	0.055	0.633	0.000	18.663	0.545	0.146
56	Madavoor	20.385	0.000	0.055	0.000	0.221	1.509	0.000	18.011	0.231	0.359

Annexe 8 contd.....

57	Koduvally	21.622	0.000	0.181	0.016	0.182	0.574	0.000	19.504	0.961	0.205
58	Puthuppady	60.259	8.236	0.512	0.000	0.291	4.470	0.000	44.283	0.000	2.467
59	Thamarassery	36.170	16.593	0.136	0.000	0.019	1.345	0.000	13.820	0.295	3.963
60	Kattipara	36.170	16.593	0.136	0.000	0.019	1.345	0.000	13.820	0.295	3.963
61	Omassery	33.871	0.000	0.390	0.044	0.229	1.663	0.000	29.340	1.274	0.931
62	Kodiyathur	29.410	0.169	0.520	0.163	0.052	0.752	0.000	24.496	0.901	2.356
63	Kuruvattur	17.545	0.000	0.140	0.022	0.082	1.376	0.000	15.218	0.155	0.553
64	Mavoor	20.957	0.000	1.543	0.329	0.329	3.682	0.000	13.001	0.344	1.730
65	Karassery	28.641	0.229	0.250	0.103	0.232	0.222	0.000	23.893	0.814	2.898
66	Kunnamangalam	26.935	0.000	0.320	0.010	0.159	1.572	0.000	22.294	1.755	0.824
67	Chathamangalam	36.323	0.000	0.445	0.008	0.270	2.358	0.000	29.303	2.491	1.448
68	Mukkom	31.212	0.000	0.045	0.016	0.237	2.135	0.000	26.296	1.639	0.845
69	Kodenchery	45.783	10.075	0.130	0.000	3.276	1.638	0.000	28.150	0.000	2.514
70	Peruvayal	23.601	0.000	0.592	0.061	0.168	4.375	0.000	16.053	0.160	2.192
71	Perumanna	16.026	0.000	0.757	0.026	0.024	3.015	0.000	11.032	0.048	1.124
72	Kadalundy	11.887	0.000	1.040	0.000	0.031	0.000	0.000	10.209	0.246	0.361
73	Ramanattukara	12.085	0.000	0.965	0.000	0.112	2.394	0.000	7.913	0.701	0.000
74	Feroke	14.167	0.000	2.027	0.000	0.083	0.535	0.000	10.923	0.573	0.026
75	Olavanna	19.954	0.000	0.985	0.015	0.126	2.862	0.000	13.944	1.078	0.942
76	Vadakara Municipality	21.815	0.000	0.851	0.644	0.491	2.708	0.000	14.380	2.604	0.136
77	Koyilandy Municipality	21.435	0.000	0.582	0.481	0.258	2.366	0.000	16.483	0.393	0.872
78	Kozhikode Corporation	119.839	0.000	6.369	0.323	3.162	3.078	0.000	81.672	22.267	2.968
TOTAL		2344.000	476.940	60.343	4.195	18.265	128.333	4.711	1506.691	66.432	78.091

Annexe 9
LSG wise Land Use Concentration Index

Sl.No	LSG Name	Concentration Index								
		Forest	Water bodies	Marshy Land	Residential	Agriculture	Plantation	Res/Agr Mix	Other Built-up land use	Others
1	Azhiyur	0	2.23	0	0	0.76	0	0.97	8.48	1.27
2	Chorode	0	0	0	4.1	1.99	0	1.19	3.23	0.24
3	Eramala	0	1.03	0	2.7	1.1	0	1.39	0	0.14
4	Onchiyam	0	0	0	7.73	0	0	1.3	3.35	0.48
5	Chekkiad	0.49	0.39	0	0.29	1.73	0	1.1	0	2.71
6	Edachery	0	0.73	0	0.17	6.76	0	0.95	0	0.1
7	Purameri	0	0.03	0	0.8	1.09	0	1.39	0.6	0.82
8	Thunery	0	0.47	0	0.9	1.1	0	1.43	0	0.2
9	Valayam	0.19	0.03	0	0.84	0.16	0	1.41	0.27	1.2
10	Vanimel	3.13	0.32	0	0.32	0.44	0	0.43	0.32	1.33
11	Kunnummal	0	0	0	1.48	0.35	0	1.34	2.84	1.01
12	Nadapuram	0	0.61	0	0.45	0.03	0	1.39	3.23	0
13	Kayakkodi	1.92	0.25	0	0.7	0.77	0	0.83	0.74	0.13
14	Kavilumpara	3	0.18	0	0.21	0.11	0	0.53	0.06	1.08
15	Kuttiady	0	0.64	0	0.96	1.16	0	1.36	1.28	0.12
16	Maruthomkara	0	0.77	0	0.72	0.14	0	2.1	0.81	0.1
17	Velom	0	0.9	4.19	1.27	2.14	0	1.28	0.3	0.41
18	Narippatta	2.72	0.35	0	0.33	0.69	0	0.48	0.12	2.56
19	Ayanchery	0	0.68	0	0.89	2.29	0	1.31	0	0.37
20	Villiyappally	0	0.83	2.11	2.45	0.16	0	1.46	0.52	0
21	Maniyur	0	2.18	0	0.73	0.19	0	1.44	0.11	0.12
22	Thiruvallur	0	1.42	0.16	1.63	0.95	0	1.38	0	0.39
23	Thurayur	0	3.35	0	0.93	1.7	0	1.17	2.05	0.21
24	Keezhariyur	0	3.51	0.8	1.72	0.78	0	1.27	0.33	0.98
25	Thikkodi	0	1.31	0	0.06	1.06	0	1.37	0.23	0.85
26	Payyoli	0	5.34	0	0.53	1.01	0	1.18	1.09	0.64
27	Meppayyur	0	1.31	0	1.03	0.76	0	1.32	1.47	1.02
28	Cheruvannur	0	2.3	7.62	0.82	2.11	0	1.22	0	0.7

Annexe 9 contd.....

29	Nochad	0	0.01	0.22	1.24	1.42	0	1.3	1.62	1.11
30	Changaroath	0	0.58	0	1.3	1.52	0	1.34	1.04	0.14
31	Kayanna	1.35	0.04	0	1.02	1.06	0	0.95	0.49	1.2
32	Koothali	0	0.33	0	1.86	0.81	0	1.41	0.98	0.18
33	Perambra	0	0.21	7.44	1.2	1.23	0	1.31	2.06	0.29
34	Chakkittappara	2.87	2.96	2.41	0.19	0.15	0	0.46	0.24	0.72
35	Balussery	0.47	0.2	0	0.36	1.19	0	1.27	0.69	0.02
36	Naduvannur	0	0.59	0	0.6	2.87	0	1.26	0.41	0.14
37	Atholy	0	3.24	0.41	0.65	0.69	0	1.28	0.22	1.37
38	Ulliyeri	0	2.09	0.06	0.78	2.08	0	1.22	0.41	1.13
39	Kottur	1.27	0.04	0	0.72	1.46	0	0.98	0.47	0.41
40	Unnikulam	0.49	0.01	0.59	0.29	1.25	0	1.26	0.38	0.32
41	Panangad	2.26	0.04	0	0.73	1.73	0	0.65	0.4	0.3
42	Koorachundu	3.78	1.77	0.42	0.1	0.09	18.79	0.19	0.31	0.41
43	Chemancherry	0	3.3	0.58	1.07	1.24	0	1.16	1.6	1.61
44	Arikkulam	0	0.45	6.92	0.93	3.27	0	1.17	0.35	1
45	Moodadi	0	1.65	0.57	0.5	3.06	0	1.16	0.65	0.7
46	Chengottukavu	0	2.53	0.63	1.69	2.03	0	1.22	0.18	0.78
47	Kakkodi	0	2.05	0	0.62	1.23	0	1.16	3.75	0.88
48	Chelannur	0	1.42	0	0.76	1.95	0	1.19	0.37	2.49
49	Kakkur	0.03	0	0	0.85	1.81	0	1.25	0.19	2.55
50	Nanmanda	1.1	0	0.35	0.34	1.42	0	1.03	0.66	0.54
51	Narikkuni	0	0	0	0.66	1.2	0	1.41	0.59	0.34
52	Thalakkulathur	0	3.71	0.07	0.27	1.65	0	1.08	0.95	2.96
53	Thiruvambady	2.24	0.12	0	0.07	0.22	0	0.78	0.03	0.95
54	Koodarachi	2.42	0.15	0	0.02	0.04	0	0.73	0.05	1.1
55	Kizhakkoth	0	0.37	0.8	0.35	0.57	0	1.44	0.95	0.22
56	Madavoor	0	0.11	0	1.41	1.36	0	1.38	0.4	0.53
57	Koduvally	0	0.33	0.41	1.09	0.49	0	1.41	1.57	0.29
58	Puthuppady	0.67	0.24	0	0.45	0.97	0	0.82	0	0.88
59	Thamarassery	2.25	0.15	0	0.07	0.68	0	0.6	0.29	3.31

Annexe 9 contd....

60	Kattipara	2.25	0.15	0	0.07	0.68	0	0.6	0.29	3.31
61	Omassery	0	0.45	0.72	0.88	0.9	0	1.35	1.33	0.83
62	Kodiyathur	0.03	0.69	3.08	0.23	0.47	0	1.3	1.08	2.42
63	Kuruvattur	0	0.31	0.71	0.61	1.44	0	1.36	0.31	0.95
64	Mavoor	0	2.32	8.98	0.81	3.23	0	0.97	0.24	2.49
65	Karassery	0.04	0.35	2.01	1.05	0.14	0	1.3	1	3.05
66	Kunnamangalam	0	0.46	0.2	0.77	1.07	0	1.29	2.3	0.92
67	Chathamangalam	0	0.48	0.13	0.97	1.19	0	1.26	2.42	1.2
68	Mukkom	0	0.06	0.29	0.99	1.26	0	1.32	1.85	0.82
69	Kodenchery	1.08	0.11	0	9.29	0.66	0	0.96	0	1.66
70	Peruvayal	0	0.98	1.43	0.93	3.41	0	1.06	0.24	2.8
71	Perumanna	0	1.84	0.92	0.19	3.46	0	1.08	0.11	2.12
72	Kadalundy	0	3.41	0	0.34	0	0	1.34	0.73	0.92
73	Ramanattukara	0	3.11	0	1.2	3.64	0	1.02	2.04	0
74	Feroke	0	5.58	0	0.76	0.69	0	1.21	1.43	0.06
75	Olavanna	0	1.93	0.43	0.82	2.64	0	1.09	1.91	1.43
76	Vadakara Municipality	0	1.52	16.39	2.93	2.28	0	1.03	4.21	0.19
77	Koyilandy Municipality	0	1.06	12.46	1.56	2.03	0	1.2	0.65	1.23
78	Kozhikode Corporation	0	2.07	1.5	3.43	0.47	0	1.07	6.55	0.75

Annexe 10
Concentration Index of Various categories of Agricultural land uses

Sl. No.	LSG Name	Concentration Index													
		Coconut dominant mixed crop	Mixed Crop	Paddy	Rubber	Perennial	Coconut	Land without shrub	Banana	Mixed trees	Cashew	Pineapple	Current Fallow	Areca nut	Tapio ca
1	Azhiyur	0.57	3.01	0.66	0.00	7.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Chorode	0.60	3.54	1.78	0.00	1.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Eramala	0.69	1.94	1.62	0.00	5.51	0.84	0.00	0.00	0.00	0.00	0.00	1.13	0.00	0.00
4	Onchiyam	0.19	5.22	0.00	0.00	10.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Chekkiad	0.84	2.26	0.00	0.00	0.19	1.53	1.62	0.00	15.68	17.91	0.00	0.00	0.00	0.00
6	Edachery	0.85	1.15	2.98	0.00	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Purameri	0.72	2.51	2.03	0.00	1.65	0.36	1.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Thunery	0.78	2.42	1.84	0.00	1.28	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Valayam	0.79	3.52	0.00	0.23	0.00	0.71	0.00	0.00	3.28	0.00	0.00	0.00	0.00	0.00
10	Vanimel	1.04	1.43	0.00	0.26	0.00	0.08	1.36	1.02	18.76	0.00	0.00	0.00	0.00	0.00
11	Kunnummal	0.99	1.30	0.56	0.02	1.33	2.44	2.34	13.78	0.00	0.00	0.00	0.00	0.00	0.00
12	Nadapuram	1.00	1.69	0.74	0.00	0.00	1.41	0.00	0.34	1.23	0.00	0.00	0.00	0.45	0.00
13	Kayakkodi	1.01	0.96	0.37	0.00	1.53	5.26	0.12	0.00	0.52	0.00	0.00	0.00	0.00	0.00
14	Kavilumpara	1.10	0.99	0.00	0.15	0.41	1.97	1.52	0.00	8.46	0.00	0.00	0.00	0.00	0.00
15	Kuttiady	1.08	0.86	0.52	0.00	0.99	3.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	Maruthomkara	1.26	0.48	0.07	0.13	0.00	0.17	0.02	0.00	0.00	0.00	0.00	0.57	0.00	0.00
17	Velom	0.91	1.38	0.93	0.87	1.30	3.37	0.12	0.13	1.39	0.00	0.00	0.00	0.00	0.00
18	Narippatta	0.98	1.43	0.00	0.00	0.54	0.08	0.00	10.09	34.46	0.00	0.00	0.00	0.00	0.00
19	Ayanchery	0.82	1.32	1.07	0.00	4.89	2.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	Villiyappally	0.86	1.92	1.09	0.00	2.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	Maniyur	0.62	3.14	0.42	0.00	6.02	0.00	0.48	0.83	0.00	0.00	0.00	0.00	0.00	0.00
22	Thiruvallur	0.95	1.14	0.88	0.00	4.12	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	Thurayur	1.04	0.35	0.45	0.00	4.44	0.07	0.00	0.00	0.00	0.00	0.00	12.82	0.00	0.00
24	Keezhariyur	0.79	0.32	3.80	0.00	1.71	2.04	0.00	0.00	0.00	3.69	0.00	13.65	0.00	0.00
25	Thikkodi	0.78	1.58	2.02	0.00	0.00	7.25	0.00	0.00	0.00	4.02	0.00	0.00	0.00	0.00
26	Payyoli	1.01	1.91	0.56	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	Meppayyur	0.70	1.73	3.47	0.00	2.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annexe 10 contd.....

27	Meppayyur	0.70	1.73	3.47	0.00	2.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Cheruvannur	0.76	2.67	1.63	0.00	0.85	0.46	1.37	0.52	0.00	0.00	0.00	0.00	0.00	0.00
29	Nochad	1.06	1.01	0.83	0.03	1.23	0.47	1.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	Changaroath	0.96	1.06	1.11	0.05	1.64	3.30	0.00	4.23	0.00	0.00	0.00	0.00	0.00	0.00
31	Kayanna	1.14	0.35	1.41	0.00	0.37	0.52	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	Koothali	1.17	0.82	0.45	0.00	0.26	0.15	0.07	4.48	0.00	0.00	0.00	0.00	0.00	0.00
33	Perambra	1.01	0.92	1.68	0.00	0.98	0.43	1.55	1.85	0.00	0.00	0.00	0.00	0.00	0.00
34	Chakkittappara	1.10	0.91	0.13	0.36	0.29	1.61	5.46	3.20	1.40	0.00	0.00	2.36	0.00	0.00
35	Balussery	1.22	0.28	0.87	0.00	0.00	0.11	0.16	0.21	0.32	0.00	0.00	0.00	0.00	0.00
36	Naduvannur	1.16	0.38	1.26	0.00	0.13	0.01	2.17	2.16	0.00	0.00	0.00	0.00	0.00	0.00
37	Atholy	1.14	0.57	1.35	0.00	0.04	0.15	0.44	0.00	0.00	0.00	0.00	0.06	0.00	0.00
38	Ulliyeri	1.21	0.49	0.67	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	Kottur	1.21	0.42	0.79	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	Unnikulam	0.85	0.25	0.74	10.30	0.01	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41	Panangad	1.19	0.26	0.80	0.78	0.17	0.18	0.28	2.01	0.00	0.00	0.00	0.00	0.00	0.00
42	Koorachundu	1.15	0.40	0.09	0.00	0.83	0.27	12.27	0.00	5.14	0.00	0.00	0.28	0.00	0.00
43	Chemancherry	0.63	1.53	4.78	0.00	0.63	1.03	0.00	0.00	0.00	0.00	0.00	5.11	0.00	0.00
44	Arikkulam	0.62	1.38	5.39	0.00	0.53	0.28	0.00	0.00	0.00	4.56	0.00	0.00	0.00	0.00
45	Moodadi	0.64	2.17	1.76	0.00	0.00	2.60	0.00	0.00	0.00	44.48	0.00	0.00	0.13	0.26
46	Chengottukavu	0.48	2.89	4.30	0.00	1.47	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	Kakkodi	1.26	0.14	0.56	0.00	0.24	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	Chelannur	1.10	0.32	1.98	0.02	0.42	0.37	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	Kakkur	1.18	0.27	1.26	0.00	0.00	0.47	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00
50	Nanmanda	1.13	0.21	2.00	0.00	0.07	0.05	0.25	0.00	0.49	0.00	0.00	0.00	0.00	0.00
51	Narikkuni	1.16	0.30	1.59	0.00	0.00	0.19	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00
52	Thalakkulathur	1.19	0.32	1.16	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	Thiruvambady	0.51	3.84	0.16	4.22	0.72	2.21	5.07	0.00	0.25	0.00	0.00	0.00	0.00	0.00
54	Koodarachi	1.00	1.04	0.00	4.29	0.00	0.42	2.23	35.54	0.00	0.00	0.00	0.00	0.00	0.00
55	Kizhakkoth	1.29	0.24	0.15	0.00	0.09	0.24	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annexe 10 contd.....

56	Madavoor	1.13	0.21	1.89	0.02	0.00	0.99	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	Koduvally	1.29	0.13	0.11	0.00	0.54	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	Puthuppady	0.51	0.61	0.46	15.48	0.00	2.80	6.99	0.00	0.47	4.49	0.00	0.00	0.00	0.00
59	Thamarassery	0.95	0.28	0.28	7.83	0.08	0.24	3.07	0.00	0.00	1.77	0.00	0.00	0.00	0.00
60	Kattipara	0.95	0.28	0.28	7.83	0.08	0.24	3.07	0.00	0.00	1.77	0.00	0.00	0.00	0.00
61	Omassery	1.16	0.20	0.36	0.13	0.82	4.52	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	Kodiyathur	1.06	0.96	0.31	0.77	1.54	1.15	1.79	0.40	0.00	0.00	0.00	0.00	0.00	0.00
63	Kuruvattur	1.25	0.27	0.49	0.00	0.27	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	Mavoor	0.67	0.59	5.70	0.00	1.19	1.01	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65	Karassery	0.90	0.53	0.25	4.07	0.90	8.13	0.16	1.98	0.13	0.00	0.00	0.00	0.00	0.00
66	Kunnamangalam	1.16	0.27	0.94	0.00	0.96	1.15	1.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
67	Chathamangalam	1.21	0.36	0.56	0.04	0.80	0.24	0.17	1.10	0.00	0.00	0.00	0.04	0.00	0.00
68	Mukkum	0.99	0.72	0.51	0.38	0.29	8.77	1.59	0.17	0.00	0.00	0.00	0.00	0.00	0.00
69	Kodenchery	0.77	1.91	0.28	4.61	0.83	0.00	10.28	0.00	0.06	0.00	0.00	0.00	0.00	0.00
70	Peruvayal	0.99	0.57	2.24	0.00	1.32	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
71	Perumanna	0.85	0.39	4.53	0.00	0.29	0.00	3.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	Kadalundy	0.64	2.44	0.00	0.00	9.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	Ramanattukara	0.66	0.69	3.70	0.00	6.58	0.58	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00
74	Feroke	0.79	1.47	2.39	0.00	2.32	0.98	0.00	0.00	0.00	0.00	0.00	4.28	0.00	0.00
75	Olavanna	1.11	0.48	1.48	0.00	0.29	0.21	3.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76	Vadakara Municipality	0.42	4.59	1.37	0.00	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	Koyilandy Municipality	0.82	1.67	2.85	0.00	0.46	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	Kozhikode Corporation	1.16	0.67	0.32	0.00	0.67	0.15	0.10	0.03	0.00	0.00	8.39	0.22	0.00	0.00

Annexe 11
Concentration Index of four main crops in Kozhikode District

Sl.No.	Name	Land Use in sq.km				Land use Concentration			
		Coconut	Mixed Crop	Paddy	Rubber	Coconut	Mixed Crop	Paddy	Rubber
1	Azhiyur	1.51	1.17	0.16	0.00	0.68	3.63	0.8	0
2	Chorode	6.11	5.29	1.62	0.00	0.60	3.58	1.80	0.00
3	Eramala	15.77	6.32	3.22	0.00	0.79	2.20	1.84	0.00
4	Onchiyam	1.22	4.82	0.00	0.00	0.26	7.04	0.00	0.00
5	Chekkiad	13.23	5.07	0.00	0.00	0.92	2.44	0.00	0.00
6	Edachery	10.25	2.03	3.22	0.00	0.84	1.15	3.00	0.00
7	Purameri	10.17	5.19	2.56	0.00	0.72	2.55	2.06	0.00
8	Thunery	13.53	6.17	2.87	0.00	0.76	2.41	1.84	0.00
9	Valayam	12.70	8.14	0.00	0.14	0.77	3.42	0.00	0.23
10	Vanimel	12.79	2.57	0.00	0.12	1.05	1.46	0.00	0.26
11	Kunnummal	9.94	1.82	0.48	0.01	1.03	1.31	0.56	0.02
12	Nadapuram	13.43	3.23	0.87	0.00	0.97	1.63	0.72	0.00
13	Kayakkodi	16.12	2.03	0.48	0.00	1.10	0.96	0.37	0.00
14	Kavilumpara	13.97	1.79	0.00	0.07	1.12	1.00	0.00	0.15
15	Kuttiady	19.92	2.20	0.82	0.00	1.10	0.85	0.52	0.00
16	Maruthomkara	13.34	0.75	0.06	0.05	1.19	0.47	0.06	0.12
17	Velom	23.49	4.88	2.01	0.80	0.96	1.38	0.93	0.87
18	Narippatta	12.78	2.74	0.00	0.00	1.05	1.56	0.00	0.00
19	Ayanchery	15.46	3.41	1.69	0.00	0.95	1.46	1.19	0.00
20	Villiyappally	14.38	4.71	1.62	0.00	0.88	2.00	1.13	0.00
21	Maniyur	10.28	7.61	0.62	0.00	0.71	3.62	0.48	0.00
22	Thiruvallur	16.04	2.84	1.34	0.00	1.01	1.24	0.96	0.00
23	Thurayur	11.82	0.58	0.46	0.00	1.17	0.40	0.52	0.00
24	Keezhariyur	8.82	0.50	3.63	0.00	0.87	0.34	4.04	0.00

Annexe 11 contd...

25	Thikkodi	4.97	1.26	0.98	0.00	0.88	1.54	1.96	0.00
26	Payyoli	9.16	2.53	0.45	0.00	0.96	1.84	0.54	0.00
27	Meppayyur	6.07	2.19	2.68	0.00	0.70	1.77	3.54	0.00
28	Cheruvannur	4.62	2.35	0.88	0.00	0.75	2.64	1.61	0.00
29	Nochad	14.06	1.94	0.97	0.02	1.05	1.01	0.83	0.03
30	Changaroath	13.22	2.00	1.27	0.02	1.02	1.07	1.11	0.05
31	Kayanna	11.59	0.52	1.27	0.00	1.10	0.34	1.37	0.00
32	Koothali	11.62	1.20	0.40	0.00	1.12	0.80	0.43	0.00
33	Perambra	13.52	1.80	2.00	0.00	0.99	0.91	1.67	0.00
34	Chakkittappara	13.48	1.59	0.14	0.16	1.11	0.91	0.13	0.36
35	Balussery	31.67	1.05	2.02	0.00	1.16	0.27	0.84	0.00
36	Naduvannur	34.85	1.66	3.39	0.00	1.11	0.37	1.22	0.00
37	Atholy	25.06	1.84	2.66	0.00	1.08	0.55	1.30	0.00
38	Ulliyeri	34.76	2.06	1.72	0.00	1.15	0.47	0.65	0.00
39	Kottur	31.54	1.61	1.84	0.00	1.14	0.41	0.76	0.00
40	Unnikulam	22.98	1.01	1.80	10.74	0.80	0.24	0.71	9.91
41	Panangad	31.47	1.01	1.88	0.78	1.14	0.25	0.77	0.75
42	Koorachundu	8.27	0.42	0.06	0.00	1.20	0.43	0.09	0.00
43	Chemancherry	2.20	0.76	1.45	0.00	0.63	1.52	4.75	0.00
44	Arikkulam	4.93	1.61	3.83	0.00	0.60	1.37	5.33	0.00
45	Moodadi	4.53	2.07	1.03	0.00	0.75	2.39	1.95	0.00
46	Chengottukavu	2.34	2.06	1.87	0.00	0.47	2.90	4.31	0.00
47	Kakkodi	28.18	0.47	1.12	0.00	1.20	0.14	0.54	0.00
48	Chelannur	23.26	0.99	3.74	0.01	1.05	0.31	1.93	0.02
49	Kakkur	23.25	0.78	2.20	0.00	1.13	0.26	1.21	0.00
50	Nanmanda	23.20	0.62	3.68	0.00	1.07	0.20	1.93	0.00
51	Narikkuni	23.02	0.86	2.84	0.00	1.09	0.29	1.53	0.00

Annexe 11 contd....

52	Thalakkulathur	25.59	1.02	2.24	0.00	1.13	0.31	1.12	0.00
53	Thiruvambady	11.78	12.07	0.31	3.47	0.54	3.85	0.16	4.24
54	Koodarachi	16.45	2.48	0.00	2.68	0.97	1.01	0.00	4.18
55	Kizhakkoth	23.13	0.62	0.24	0.00	1.22	0.23	0.14	0.00
56	Madavoor	23.54	0.63	3.48	0.01	1.08	0.20	1.82	0.02
57	Koduvally	31.88	0.49	0.25	0.00	1.24	0.13	0.11	0.00
58	Puthuppady	11.76	1.87	0.86	12.44	0.55	0.61	0.46	15.57
59	Thamarassery	16.88	0.72	0.44	5.33	0.92	0.27	0.27	7.69
60	Kattipara	16.88	0.72	0.44	5.33	0.92	0.27	0.27	7.69
61	Omassery	38.04	0.91	0.97	0.15	1.21	0.20	0.35	0.13
62	Kodiyathur	9.37	1.22	0.24	0.25	1.07	0.97	0.31	0.77
63	Kuruvattur	28.12	0.88	0.99	0.00	1.19	0.26	0.47	0.00
64	Mavoor	4.96	0.62	3.66	0.00	0.68	0.59	5.72	0.00
65	Karassery	9.22	0.68	0.20	1.36	1.02	0.52	0.25	4.02
66	Kunnamangalam	33.06	1.10	2.37	0.00	1.15	0.26	0.94	0.00
67	Chathamangalam	46.62	2.05	1.93	0.05	1.17	0.36	0.55	0.04
68	Mukkom	23.84	2.16	0.94	0.30	1.11	0.70	0.50	0.37
69	Kodenchery	12.77	4.63	0.42	2.92	0.78	1.97	0.29	4.75
70	Peruvayal	11.23	0.95	2.27	0.00	0.99	0.58	2.27	0.00
71	Perumanna	6.57	0.44	3.12	0.00	0.82	0.38	4.45	0.00
72	Kadalundy	2.00	1.12	0.00	0.00	0.81	3.16	0.00	0.00
73	Ramanattukara	2.00	0.31	0.99	0.00	0.77	0.82	4.34	0.00
74	Feroke	3.87	1.03	1.02	0.00	0.83	1.53	2.49	0.00
75	Olavanna	8.70	0.55	1.04	0.00	1.07	0.47	1.45	0.00
76	Vadakara Municipality	5.60	8.94	1.62	0.00	0.44	4.88	1.45	0.00
77	Koyilandy Municipality	8.80	2.60	2.71	0.00	0.79	1.63	2.77	0.00
78	Kozhikode Corporation	66.83	5.69	1.65	0.00	1.14	0.68	0.32	0.00

Annexe 12
LSG wise area of Specialization against agricultural land use

Sl.NO	Name	Crop Specialization
1	Azhiyur	Mixed Crop
2	Chorode	Mixed Crop+Paddy
3	Eramala	Mixed Crop+Paddy
4	Onchiyam	Mixed Crop
5	Chekkiad	Mixed Crop
6	Edachery	Mixed Crop+Paddy
7	Purameri	Mixed Crop+Paddy
8	Thunery	Mixed Crop+Paddy
9	Valayam	Mixed Crop
10	Vanimel	Coconut+Mixed Crop
11	Kunnummal	Coconut+Mixed Crop
12	Nadapuram	Mixed Crop
13	Kayakkodi	Coconut
14	Kavilumpara	Coconut
15	Kuttiady	Coconut
16	Maruthomkara	Coconut
17	Velom	Mixed Crop
18	Narippatta	Coconut+Mixed Crop
19	Ayanchery	Mixed Crop+Paddy
20	Villiyappally	Mixed Crop+Paddy
21	Maniyur	Mixed Crop
22	Thiruvallur	Coconut+Mixed Crop
23	Thurayur	Coconut
24	Keezhariyur	Paddy
25	Thikkodi	Mixed Crop+Paddy
26	Payyoli	Mixed Crop
27	Meppayyur	Mixed Crop+Paddy
28	Cheruvannur	Mixed Crop+Paddy
29	Nochad	Coconut+Mixed Crop
30	Changaroth	Coconut+Mixed Crop+Paddy
31	Kayanna	Coconut+Paddy
32	Koothali	Coconut
33	Perambra	Paddy
34	Chakkittappara	Coconut
35	Balussery	Coconut
36	Naduvannur	Coconut+Paddy
37	Atholy	Coconut+Paddy
38	Ulliyeri	Coconut
39	Kottur	Coconut
40	Unnikulam	Rubber
41	Panangad	Coconut
42	Koorachundu	Coconut
43	Chemancherry	Mixed Crop+Paddy
44	Arikkulam	Mixed Crop+Paddy
45	Moodadi	Mixed Crop+Paddy
46	Chengottukavu	Mixed Crop+Paddy

Annexe 12 contd.....

47	Kakkodi	Coconut
48	Chelannur	Coconut+Paddy
49	Kakkur	Coconut+Paddy
50	Nanmanda	Coconut+Paddy
51	Narikkuni	Coconut+Paddy
52	Thalakkulathur	Coconut+Paddy
53	Thiruvambady	Mixed Crop+Rubber
54	Koodarachi	Mixed Crop+Rubber
55	Kizhakkoth	Coconut
56	Madavoor	Coconut+Paddy
57	Koduvally	Coconut
58	Puthuppady	Rubber
59	Thamarassery	Rubber
60	Kattipara	Rubber
61	Omassery	Coconut
62	Kodiyathur	Coconut
63	Kuruvattur	Coconut
64	Mavoor	Paddy
65	Karassery	Coconut+Rubber
66	Kunnamangalam	Coconut
67	Chathamangalam	Coconut
68	Mukkom	Coconut
69	Kodenchery	Mixed Crop+Rubber
70	Peruvayal	Paddy
71	Perumanna	Paddy
72	Kadalundy	Mixed Crop
73	Ramanattukara	Paddy
74	Feroke	Mixed Crop+Paddy
75	Olavanna	Coconut+Paddy
76	Vadakara Municipality	Mixed Crop+Paddy
77	Koyilandy Municipality	Mixed Crop+Paddy
78	Kozhikode Corporation	Coconut

Annexe 13
Concentration Index of Major Land Use Categories

Sl.NO	Name	CI of Forest	CI of Urban	CI of Agr	CI of Plantation
1	Azhiyur	0	0	1.26	0
2	Chorode	0	0	1.39	0
3	Eramala	0	0.3	1.35	0
4	Onchiyam	0	0	1.37	0
5	Chekkiad	0.52	0	1.12	0
6	Edachery	0	0.22	1.37	0
7	Purameri	0	0.2	1.36	0
8	Thunery	0	0	1.37	0
9	Valayam	0.15	0	1.29	0
10	Vanimel	2.89	0.03	0.44	0
11	Kunnummal	0	0.06	1.35	0
12	Nadapuram	0	0.21	1.37	0
13	Kayakkodi	1.91	0.05	0.84	0
14	Kavilumpara	3.05	0.03	0.49	0
15	Kuttiady	0	0.1	1.37	0
16	Maruthomkara	0	0.12	1.92	0
17	Velom	0	0.09	1.33	0
18	Narippatta	3.2	0.09	0.49	0
19	Ayanchery	0	0.16	1.35	0
20	Villiyappally	0	0.45	1.35	0
21	Maniyur	0	0	1.31	0
22	Thiruvallur	0	0	1.33	0
23	Thurayur	0	0	1.27	0
24	Keezhariyur	0	0	1.22	0
25	Thikkodi	0	0.42	1.3	0
26	Payyoli	0	0	1.18	0
27	Meppayyur	0	0.08	1.3	0
28	Cheruvannur	0	0	1.26	0
29	Nochad	0	0.14	1.34	0
30	Changaroath	0	0.06	1.37	0
31	Kayanna	1.4	0.04	0.96	0
32	Koothali	0	0.09	1.38	0
33	Perambra	0	0.35	1.35	0
34	Chakkittappara	2.99	0.09	0.44	0
35	Balussey	0	0.12	1.25	0
36	Naduvannur	0	0.05	1.37	0
37	Atholy	0	0.08	1.21	0

Annexe 13 contd....

38	Ulliyeri	0	0.2	1.27	0
39	Kottur	1.37	0.18	1.01	0
40	Unnikulam	0.37	0.1	1.24	0
41	Panangad	2.35	0.07	0.74	0
42	Koorachundu	3.98	0	0.19	13.21
43	Chemancherry	0	0.45	1.19	0
44	Arikkulam	0	0	1.32	0
45	Moodadi	0	0.44	1.29	0
46	Chengottukavu	0	0	1.27	0
47	Kakkodi	0	0.69	1.28	0
48	Chelannur	0	0.48	1.23	0
49	Kakkur	0	0.05	1.27	0
50	Nanmanda	0	0.41	1.06	0
51	Narikkuni	0	0.48	1.38	0
52	Thalakkulathur	0	0	1.13	0
53	Thiruvambady	2.26	0	0.71	0
54	Koodarachi	2.37	0.18	0.65	0
55	Kizhakkoth	0	0.27	1.37	0
56	Madavoor	0	0.28	1.37	0
57	Koduvally	0	0.04	1.37	0
58	Puthuppady	0.06	0.04	0.81	10.16
59	Thamarassery	2.34	0	0.6	1.13
60	Kattipara	2.34	0	0.6	1.13
61	Omassery	0	0.23	1.34	0
62	Kodiya thur	0.03	0.33	1.24	0
63	Kuruvattur	0	0.42	1.34	0
64	Mavoor	0	0	1.13	0
65	Karassery	0.04	0.94	1.23	0
66	Kunnamangalam	0	0.23	1.34	0
67	Chathamangalam	0	0.23	1.32	0
68	Mukkom	0	0.12	1.36	0
69	Kodenchery	1.12	0	1.01	0
70	Peruvayal	0	0.18	1.23	0
71	Perumanna	0	0	1.23	0
72	Kadalundy	0	1.5	1.2	0
73	Ramanattukara	0	4.33	1.19	0
74	Feroke	0	2.98	1.13	0
75	Olavanna	0	3.89	1.18	0
76	Vadakara Municipality	0	9.14	1.09	0
77	Koyilandy Municipality	0	1.95	1.23	0
78	Kozhikode Corporation	0	13.66	0.99	0

Annexe 14
LSG Wise Activity Based on Land Use

Sl.No.	LSG Name	Activity	Sl.No.	LSG Name	Activity
1	Azhiyur	AGR	40	Unnikulam	AGR
2	Chorode	AGR	41	Panangad	AGR
3	Eramala	AGR	42	Koorachundu	PLANTATION
4	Onchiyam	AGR	43	Chemancherry	AGR
5	Chekkiad	AGR	44	Arikkulam	AGR
6	Edachery	AGR	45	Moodadi	AGR
7	Purameri	AGR	46	Chengottukavu	AGR
8	Thunery	AGR	47	Kakkodi	AGR
9	Valayam	AGR	48	Chelannur	AGR
10	Vanimel	AGR	49	Kakkur	AGR
11	Kunnummal	AGR	50	Nanmanda	AGR
12	Nadapuram	AGR	51	Narikkuni	AGR
13	Kayakkodi	AGR	52	Thalakkulathur	AGR
14	Kavilumpara	AGR	53	Thiruvambady	AGR
15	Kuttiady	AGR	54	Koodarachi	AGR
16	Maruthomkara	AGR	55	Kizhakkoth	AGR
17	Velom	AGR	56	Madavoor	AGR
18	Narippatta	AGR	57	Koduvally	AGR
19	Ayanchery	AGR	58	Puthuppady	PLANTATION
20	Villiyappally	AGR	59	Thamarassery	PLANTATION
21	Maniyur	AGR	60	Kattipara	PLANTATION
22	Thiruvallur	AGR	61	Omassery	AGR
23	Thurayur	AGR	62	Kodiyathur	AGR
24	Keezhariyur	AGR	63	Kuruvattur	AGR
25	Thikkodi	AGR	64	Mavoor	AGR
26	Payyoli	AGR	65	Karassery	AGR
27	Meppayyur	AGR	66	Kunnamangalam	AGR
28	Cheruvannur	AGR	67	Chathamangalam	AGR
29	Nochad	AGR	68	Mukkom	AGR
30	Changaroth	AGR	69	Kodenchery	AGR
31	Kayanna	AGR	70	Peruvayal	AGR
32	Koothali	AGR	71	Perumanna	AGR
33	Perambra	AGR	72	Kadalundy	URBAN
34	Chakkittappara	AGR	73	Ramanattukara	URBAN
35	Balussery	AGR	74	Feroke	URBAN
36	Naduvannur	AGR	75	Olavanna	URBAN
37	Atholy	AGR	76	Vadakara Municipality	URBAN
38	Ulliyeri	AGR	77	Koyilandy Municipality	URBAN
39	Kottur	AGR	78	Kozhikode Corporation	URBAN

Annexe 15
Functional Character of Grama Panchayats

SL.No	LSG Name	Category	SL.No	LSG Name	Category
1	Azhiyur	URBAN	40	Unnikulam	RURAL
2	Chorode	SEMI RURAL	41	Panangad	RURAL
3	Eramala	RURAL	42	Koorachundu	RURAL
4	Onchiyam	URBAN	43	Chemancherry	SEMI RURAL
5	Chekkiad	RURAL	44	Arikkulam	RURAL
6	Edachery	SEMI RURAL	45	Moodadi	RURAL
7	Purameri	RURAL	46	Chengottukavu	RURAL
8	Thunery	RURAL	47	Kakkodi	SEMI RURAL
9	Valayam	RURAL	48	Chelannur	RURAL
10	Vanimel	RURAL	49	Kakkur	RURAL
11	Kunnummal	RURAL	50	Nanmanda	RURAL
12	Nadapuram	RURAL	51	Narikkuni	RURAL
13	Kayakkodi	RURAL	52	Thalakkulathur	RURAL
14	Kavilumpara	RURAL	53	Thiruvambady	RURAL
15	Kuttiady	RURAL	54	Koodarachi	RURAL
16	Maruthomkara	RURAL	55	Kizhakkoth	RURAL
17	Velom	RURAL	56	Madavoor	RURAL
18	Narippatta	RURAL	57	Koduvally	RURAL
19	Ayanchery	RURAL	58	Puthuppady	RURAL
20	Villiyappally	RURAL	59	Thamarassery	RURAL
21	Maniyur	RURAL	60	Kattipara	RURAL
22	Thiruvallur	RURAL	61	Omassery	RURAL
23	Thurayur	RURAL	62	Kodiyathur	RURAL
24	Keezhariyur	RURAL	63	Kuruvattur	RURAL
25	Thikkodi	RURAL	64	Mavoor	RURAL
26	Payyoli	SEMI RURAL	65	Karassery	RURAL
27	Meppayyur	RURAL	66	Kunnamangalam	RURAL
28	Cheruvannur	RURAL	67	Chathamangalam	RURAL
29	Nochad	RURAL	68	Mukkom	RURAL
30	Changaroath	RURAL	69	Kodenchery	RURAL
31	Kayanna	RURAL	70	Peruvayal	SEMI RURAL
32	Koothali	RURAL	71	Perumanna	SEMI RURAL
33	Perambra	RURAL	72	Kadalundy	URBAN
34	Chakkittappara	RURAL	73	Ramanattukara	SEMI URBAN
35	Balussery	RURAL	74	Feroke	URBAN
36	Naduvannur	RURAL	75	Olavanna	URBAN
37	Atholy	RURAL	76	Vadakara Municipality	URBAN
38	Ulliyeri	RURAL	77	Koyilandy Municipality	URBAN
39	Kottur	RURAL	78	Kozhikode Corporation	URBAN

Annexe 16 Weight age of Facilities

LSG Code	LSG Name	Number of local bodies in the district 78																																		
		Panchayat	Municipality	HS	HSS	Arts & Science College	IGI College	Teacher Training Institute	Engineering College	College of Science and Technology	Medical College	Vocational Training Institute	Bank for Rural Development	Self Help	Market - Weekly	LTCB	Tollway / Road	CNC	CWC	Municipal Bus	Sports Stadium	Library / Open Air	Museum / Zoo	Cinema / Show	Museum / Art / Gallery	Cinema / Show	Cinema / Show	Cinema Theater			Jalapa	Zoo / Park	Public Library			
																												A	B	C						
No of facilities																																				
1	Azhiyur	0	18	2	0	0	0	0	0	0	5	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	2	2	5	0	0	1
2	Chorode	0	24	1	1	0	0	0	0	0	2	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2	7	0	0	0	
3	Eramala	0	24	1	1	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	1	8	0	0	0		
4	Onchiyam	0	15	2	1	1	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	4	4	0	0	0			
5	Chekkiaid	0	16	2	1	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1		
6	Edachery	0	14	1	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2	5	0	0	2			
7	Purameri	0	23	1	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	1		
8	Thunery	0	15	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	1	1	0	0	0	0			
9	Valayam	0	11	1	1	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1			
10	Vanimel	0	13	3	0	0	0	1	0	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2			
11	Kunnummal	0	13	2	1	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	2	1	0	0	0	1			
12	Nadapuram	0	17	2	3	2	1	0	0	0	7	0	0	0	1	0	0	0	0	4	0	1	0	1	0	0	0	0	0	3	0	0	1			
13	Kayakkodi	0	14	1	1	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2	0	1	3	0	0	1			
14	Kavilumpara	0	9	1	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1				
15	Kuttiady	0	9	1	1	0	0	0	0	0	5	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	1	0	0	1				
16	Maruthomkara	0	12	1	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	2	3	0	0	0			
17	Velom	0	13	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1			
18	Narippatta	0	13	1	1	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	1	0	4	0	0	0			
19	Ayanchery	0	22	2	1	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	3	0	0	0				
20	Villyappally	0	22	2	2	1	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	2	1	4	0	0	2				
21	Maniyur	0	30	1	0	1	0	1	1	0	3	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2	3	12	0	0	0				
22	Thiruvallur	0	27	1	0	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2	3	0	0	0				
23	Thurayur	0	12	2	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0				
24	Keezhariyur	0	10	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0			
25	Thikkodi	0	10	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	2	0	0	0				
26	Payyoli	0	29	2	1	0	0	0	0	0	6	0	0	0	0	0	2	0	0	0	0	1	0	0	0	2	1	2	3	3	0	0	2			
27	Meppayur	0	19	1	1	1	1	1	0	0	4	0	0	1	0	0	1	0	0	0	1	1	0	0	0	1	2	3	9	0	0	1				
28	Cheruvannur	0	16	1	1	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	1	3	2	0	0	2				
29	Nochad	0	23	1	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	3	1	8	0	0	0				

Annexe 16 contd.....

61	Omassery	0	11	2	0	0	0	0	0	0	2	0	0	0	0	2	0	1	0	0	1	0	0	0	0	1	0	0	1	0	0	2	
62	Kodiyathur	0	14	2	1	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	1	
63	Kuruvattur	0	13	2	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	3	1	0	0	1	
64	Mavoor	0	12	2	1	0	0	0	0	0	4	0	0	0	0	2	0	0	0	0	1	0	0	1	0	1	1	0	1	0	0	2	
65	Karassery	0	9	1	0	1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	
66	Kunnamangalam	0	19	3	5	0	0	0	0	0	6	0	0	0	0	1	0	0	0	1	1	0	0	0	0	2	1	4	6	0	0	1	
67	Chathamangalam	0	25	2	2	2	1	0	2	0	3	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3	3	0	0	1	
68	Mukkom	0	22	6	3	1	0	2	2	3	4	0	1	2	0	1	0	0	0	3	0	1	0	1	0	0	2	1	2	3	0	0	1
69	Kodenchery	0	13	5	1	1	0	0	0	0	2	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	0	4	1	0	0	3	
70	Peruvayal	0	14	2	1	1	0	0	2	0	2	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2	2	0	0	1	
71	Perumanna	0	4	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	2	1	0	0	0	
72	Kadalundy	0	22	2	1	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	2	1	0	0	0	1	
73	Ramanattukara	0	13	3	1	0	2	0	0	0	4	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2	1	1	0	0	0	1	
74	Feroke	0	18	1	1	1	0	1	0	0	9	0	0	1	0	0	1	1	0	1	0	1	0	0	0	1	1	2	1	0	0	0	0
75	Olavanna	0	22	3	2	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	3	1	2	0	0	1	
76	Vadakara Municipality	1	54	8	4	1	2	1	1	0	17	0	1	2	1	0	0	0	0	3	1	1	0	1	0	1	2	5	3	8	0	0	3
77	Koyilandy Municipality	1	29	5	3	3	0	0	0	0	10	0	0	3	1	0	0	0	0	0	1	1	0	0	0	1	2	5	2	7	0	0	1
78	Kozhikode Corporation	2	223	46	37	9	5	6	4	3	110	0	0	16	0	0	0	0	7	22	2	4	0	3	1	5	5	25	12	13	0	0	16

Annexe 17
Cumulative Functional Index

SI.No	LSG Name	CFI	SI.No	LSG Name	CFI
1	Azhiyur	54.1	40	Unnikulam	47.25
2	Chorode	46.92	41	Panangad	38.91
3	Eramala	51.41	42	Koorachundu	28.22
4	Onchiyam	44.58	43	Chemancherry	54.74
5	Chekkiad	26.33	44	Arikkulam	25.2
6	Edachery	30.67	45	Moodadi	43.69
7	Purameri	32.18	46	Chengottukavu	29.67
8	Thunery	28.32	47	Kakkodi	30.17
9	Valayam	23.48	48	Chelannur	54.84
10	Vanimel	33.22	49	Kakkur	27.81
11	Kunnummal	35.63	50	Nanmanda	43.25
12	Nadapuram	133.17	51	Narikkuni	54.77
13	Kayakkodi	34.53	52	Thalakkulathur	34.55
14	Kavilumpara	28.91	53	Thiruvambady	68.61
15	Kuttiady	38.25	54	Koodaranhi	23.47
16	Maruthomkara	24.9	55	Kizhakkoth	30.32
17	Velom	19.99	56	Madavoor	30.2
18	Narippatta	29.03	57	Koduvally	89.78
19	Ayanchery	35.76	58	Puthuppady	29.64
20	Villiyappally	51.36	59	Thamarassery	107.63
21	Maniyur	83.92	60	Kattippara	9.6
22	Thiruvallur	46.27	61	Omassery	51.15
23	Thurayur	19.64	62	Kodiyathur	27.51
24	Keezhariyur	16.88	63	Kuruvattur	27.8
25	Thikkodi	26.53	64	Mavoor	70.69
26	Payyoli	73.14	65	Karassery	28.37
27	Meppayyur	82.05	66	Kunnamangalam	63.81
28	Cheruvannur	34.29	67	Chathamangalam	96.7
29	Nochad	45.76	68	Mukkom	249.04
30	Changaroath	33.37	69	Kodenchery	46.13
31	Kayanna	14.66	70	Peruvayal	57.95
32	Koothali	17.91	71	Perumanna	15.2
33	Perambra	176.94	72	Kadalundy	45.81
34	Chakkittappara	40.08	73	Ramanattukara	50.76
35	Balussery	72.91	74	Feroke	152.13
36	Naduvannur	23.65	75	Olavanna	47.99
37	Atholy	58.57	76	Vadakara Municipality	291.1
38	Ulliyeri	34.38	77	Koyilandy Municipality	168.24
39	Kottur	42.01	78	Kozhikode Corporation	1478.75

Annexe 18**Cumulative Functional Index and Number of Local Governments**

Sl.No.	CFI range	Hierarchy	No. of Local Government
1	Above 300	1	1
2	200-300	2	2
3	100-200	3	5
4	50-100	4	19
5	0-50	5	51

Annexe 19
Cumulative Functional Index and Hierarchy

SI.No	LSG Name	CFI	Hierarchy
1	Kozhikode Corporation	1478.75	1
2	Vadakara Municipality	291.1	2
3	Mukkom	249.04	2
4	Perambra	176.94	3
5	Koyilandy Municipality	168.24	3
6	Feroke	152.13	3
7	Nadapuram	133.17	3
8	Thamarassery	107.63	3
9	Chathamangalam	96.7	4
10	Koduvally	89.78	4
11	Maniyur	83.92	4
12	Meppayyur	82.05	4
13	Payyoli	73.14	4
14	Balussery	72.91	4
15	Mavoor	70.69	4
16	Thiruvambady	68.61	4
17	Kunnamangalam	63.81	4
18	Atholy	58.57	4
19	Peruvayal	57.95	4
20	Chelannur	54.84	4
21	Narikkuni	54.77	4
22	Chemancherry	54.74	4
23	Azhiyur	54.1	4
24	Eramala	51.41	4
25	Villiyappally	51.36	4
26	Omassery	51.15	4
27	Ramanattukara	50.76	4
28	Olavanna	47.99	5
29	Unnikulam	47.25	5
30	Chorode	46.92	5
31	Thiruvallur	46.27	5
32	Kodenchery	46.13	5
33	Kadalundy	45.81	5
34	Nochad	45.76	5
35	Onchiyam	44.58	5
36	Moodadi	43.69	5
37	Nanmanda	43.25	5
38	Kottur	42.01	5
39	Chakkittappara	40.08	5

SI.No	LSG Name	CFI	Hierarchy
40	Panangad	38.91	5
41	Kuttiady	38.25	5
42	Ayanchery	35.76	5
43	Kunnummal	35.63	5
44	Thalakkulathur	34.55	5
45	Kayakkodi	34.53	5
46	Ulliyeri	34.38	5
47	Cheruvannur	34.29	5
48	Changaroath	33.37	5
49	Vanimel	33.22	5
50	Purameri	32.18	5
51	Edachery	30.67	5
52	Kizhakkoth	30.32	5
53	Madavoor	30.2	5
54	Kakkodi	30.17	5
55	Chengottukavu	29.67	5
56	Puthuppady	29.64	5
57	Narippatta	29.03	5
58	Kavilumpara	28.91	5
59	Karassery	28.37	5
60	Thunery	28.32	5
61	Koorachundu	28.22	5
62	Kakkur	27.81	5
63	Kuruvattur	27.8	5
64	Kodiyathur	27.51	5
65	Thikkodi	26.53	5
66	Chekkiad	26.33	5
67	Arikkulam	25.2	5
68	Maruthomkara	24.9	5
69	Naduvannur	23.65	5
70	Valayam	23.48	5
71	Koodaranhi	23.47	5
72	Velom	19.99	5
73	Thurayur	19.64	5
74	Koothali	17.91	5
75	Keezhariyur	16.88	5
76	Perumanna	15.2	5
77	Kayanna	14.66	5
78	Kattippara	9.6	5

Annexe 20

Nodes

1. HIERARCHY OF NODES

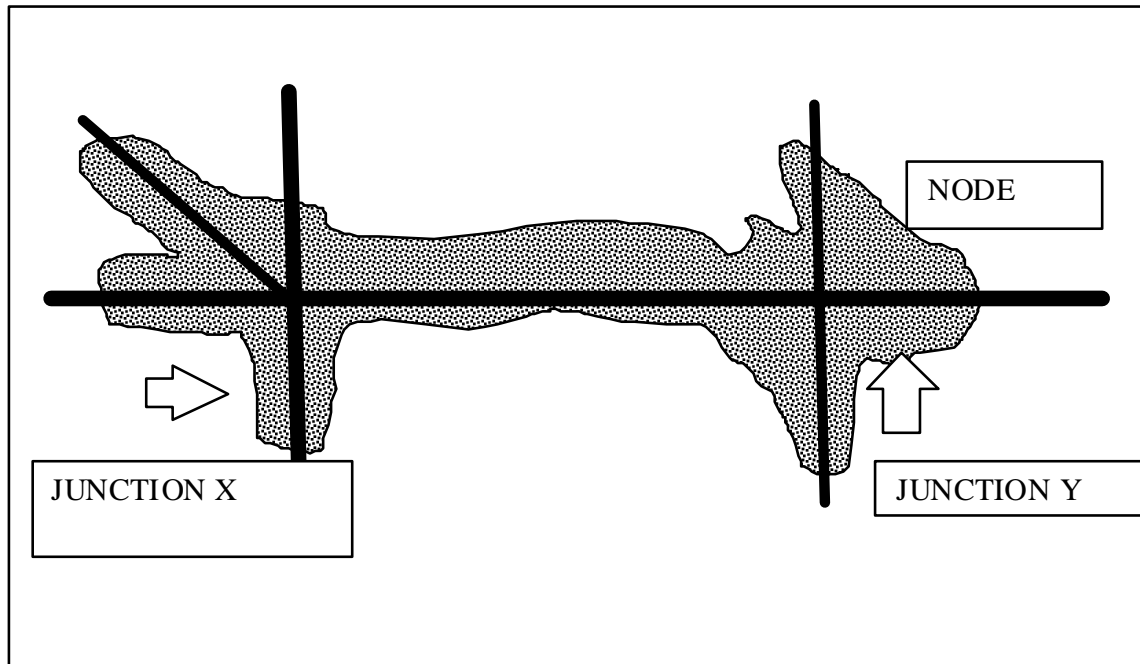
In the Kerala context where urban rural continuum persists, each local government is having at least one node. The agglomeration of activity area around one or more (adjacent) road junctions which act as commercial centre of a local government is termed here as a node. The node need not be confined fully within a local body area and in most of the cases its service area goes beyond the boundary of the local government within which it locates. In certain cases the nodes may be located at the meeting point of the boundary of one or two local governments. This means that the nodes have an entity independent of the local government area and necessitates a separate study other than the settlement study. The hierarchy of the nodes is determined by the extent of activity taking place there. The number and type of shops, the number of people using the node, the business turn over, the extent of traffic activity taking place there all determines the extent of activity taking place there and hence the hierarchy of nodes. But extensive survey and study are required to assess all these factors. Whereas it can be seen that the extent of development in a node is directly proportional to the hierarchy of the roads meeting at a node. Here an attempt is made to determine the hierarchy of the nodes based on the hierarchy of roads meeting at the node.



Panchayat Centres

1.1 The concept

1. The hierarchy of the activity nodes is the sum of the hierarchy value of all the junctions contained in the node.



2. The hierarchy of a junction is directly proportional to the hierarchy and the number of the roads meeting at the junction.

1.2 Methodology.

Step1:

Categorize the roads meeting at a junction

- A. National Highway and State Highway
- B. Major District Road
- C. Major Bus routes, Jilla Panchayat roads, Local primary/Block Panchayat Roads
- D. Sub major Bus route, Local secondary roads/ Grama Panchayat roads
- L. Lower category roads, Minor bus route

Step2:

Assign values to the meeting of various roads according to the following matrix

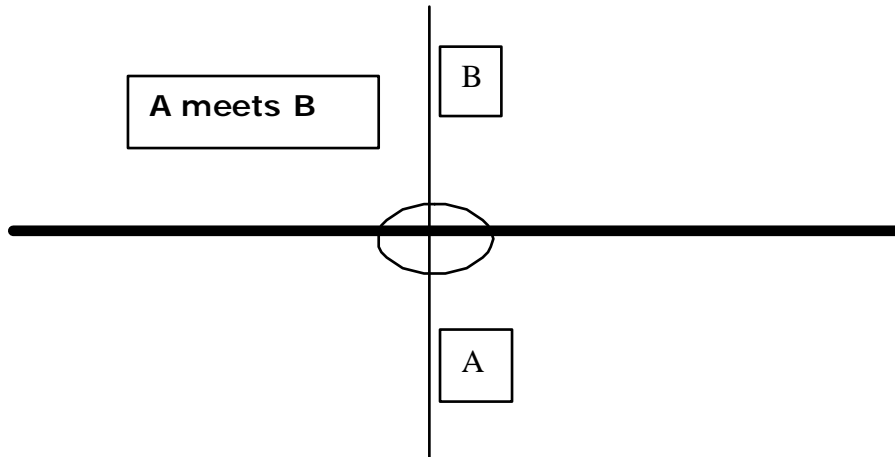
This can be termed as junction values

	A	B	C	D	L
A	9	8	7	6	2
B	8	7	6	5	2
C	7	6	5	4	2
D	8	5	4	3	2
L	2	2	2	2	1

Step3:

Find the sum of all the junction values (within the node taken) to get the total weight age of the node.

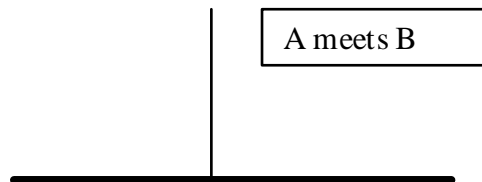
EXAMPLE- 1



Here Junction value is of A meets B

. (1,2) i.e. TWJ = 8.

EXAMPLE- 2

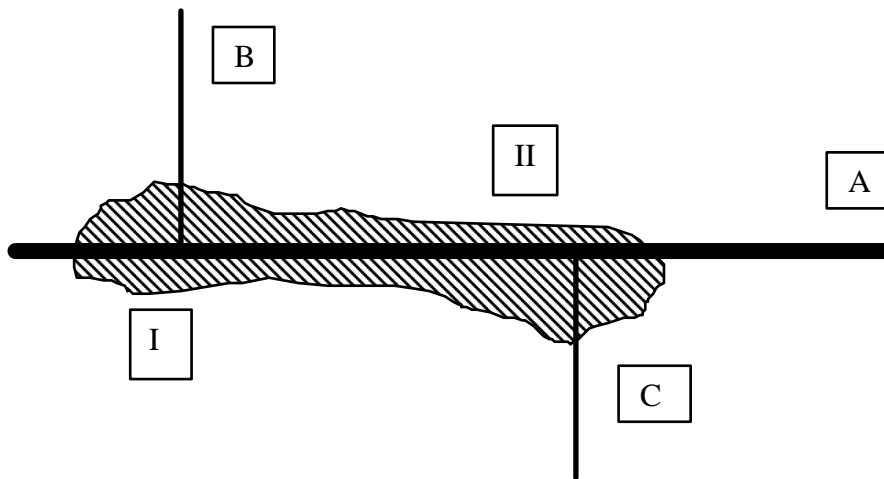


Weightage = $\frac{3}{4}$ of the Junction value of A meets B

$$= \frac{3}{4} * 8 = 6$$

EXAMPLE- 3

The physical development is so contiguous that the node contains two junctions



Calculate the Weight age of the junctions in the in the order of hierarchy i.e. calculate the Weight age of highest order first.

Weight age of I = 3/4 of the Weight age of the A meets B

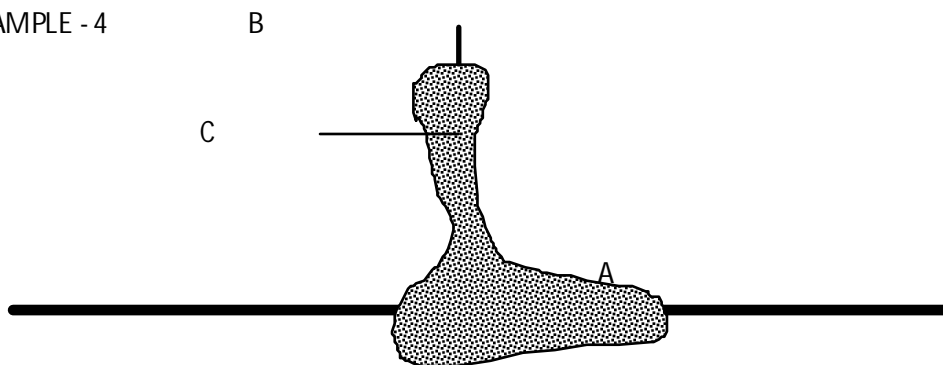
$$\frac{3}{4} \text{ of } 8 = 6$$

Weight age of II = 1/4 of the Weight age of the A meets C

$$\frac{1}{4} \text{ of } 7 = 1.25$$

$$\text{Total weightage} = 6 + 1.25 = 7.25$$

EXAMPLE - 4



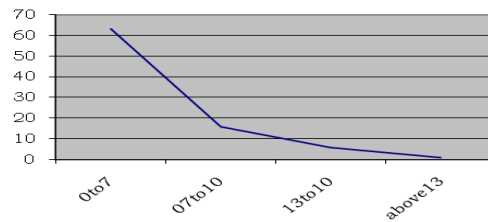
The road B makes two joins one with A and the other with C, but the development due to B is taken only once.

$$\frac{3}{4} \text{ of } A \text{ meets } B + \frac{1}{4} \text{ of } B \text{ meets } C$$

Step 4

The Weight age of rural nodes as explained above are calculated . A graph is plotted with Weight age of nodes in each range along y axis as given below.

Sl .No	Range of weight age of rural Nodes	No of rural nodes	Hierarchy
1	Below 7	63	IV
2	7 to 10	16	III
3	10 to13	6	II
4	above 13	1	I



Step 5

Find the break points in the graph to determine the hierarchy of the nodes. From the graph there is one first order, six second order, sixteen third order and sixty three fourth order nodes. The spatial distribution of nodes is given in figure below.



Spatial Distribution of Higher Order Nodes

Annexe 21
Activity and Hierarchy of Local Governments

SL.No	LSG Name	Hierarchy	Activity Pattern	SL.No	LSG Name	Hierarchy	Activity Pattern
1	Azhiyur	4	AGR+SSI+ANMHUSB	40	Unnikulam	5	PRI ACTIVITY(AGR)
2	Chorode	5	AGR+ANMHUSB	41	Panangad	5	PRI ACTIVITY(AGR)
3	Eramala	4	PRI ACTIVITY(AGR)	42	Koorachundu	5	PRI ACTIVITY(PLANTATION)
4	Onchiyam	5	AGR+ANMHUSB	43	Chemancherry	4	AGR+ANMHUSB
5	Chekkiad	5	PRI ACTIVITY(AGR)	44	Arikkulam	5	PRI ACTIVITY(AGR)
6	Edachery	5	AGR+ANMHUSB	45	Moodadi	5	PRI ACTIVITY(AGR)
7	Purameri	5	PRI ACTIVITY(AGR)	46	Chengottukavu	5	PRI ACTIVITY(AGR)
8	Thunery	5	PRI ACTIVITY(AGR)	47	Kakkodi	5	AGR+ANMHUSB
9	Valayam	5	PRI ACTIVITY(AGR)	48	Chelannur	4	PRI ACTIVITY(AGR)
10	Vanimel	5	PRI ACTIVITY(AGR)	49	Kakkur	5	PRI ACTIVITY(AGR)
11	Kunnummal	5	PRI ACTIVITY(AGR)	50	Nanmanda	5	PRI ACTIVITY(AGR)
12	Nadapuram	3	PRI ACTIVITY(AGR)	51	Narikkuni	4	PRI ACTIVITY(AGR)
13	Kayakkodi	5	PRI ACTIVITY(AGR)	52	Thalakkulathur	5	PRI ACTIVITY(AGR)
14	Kavilumpara	5	AGR+ANMHUSB	53	Thiruvambady	4	PRI ACTIVITY(AGR)
15	Kuttiady	5	PRI ACTIVITY(AGR)	54	Koodarachi	5	PRI ACTIVITY(AGR)
16	Maruthomkara	5	PRI ACTIVITY(AGR)	55	Kizhakkoth	5	PRI ACTIVITY(AGR)
17	Velom	5	PRI ACTIVITY(AGR)	56	Madavoor	5	PRI ACTIVITY(AGR)
18	Narippatta	5	AGR+ANMHUSB	57	Koduvally	4	PRI ACTIVITY(AGR)
19	Ayanchery	5	PRI ACTIVITY(AGR)	58	Puthuppady	5	PRI ACTIVITY(PLANTATION)
20	Villiyappally	4	PRI ACTIVITY(AGR)	59	Thamarassery	3	PRI ACTIVITY(PLANTATION)
21	Maniyur	4	PRI ACTIVITY(AGR)	60	Kattipara	5	PRI ACTIVITY(PLANTATION)
22	Thiruvallur	5	PRI ACTIVITY(AGR)	61	Omassery	4	PRI ACTIVITY(AGR)
23	Thurayur	5	PRI ACTIVITY(AGR)	62	Kodiyathur	5	PRI ACTIVITY(AGR)
24	Keezhariyur	5	PRI ACTIVITY(AGR)	63	Kuruvattur	5	PRI ACTIVITY(AGR)
25	Thikkodi	5	PRI ACTIVITY(AGR)	64	Mavoor	4	PRI ACTIVITY(AGR)
26	Payyoli	4	AGR+ANMHUSB	65	Karassery	5	PRI ACTIVITY(AGR)
27	Meppayyur	4	PRI ACTIVITY(AGR)	66	Kunnamangalam	4	PRI ACTIVITY(AGR)
28	Cheruvannur	5	PRI ACTIVITY(AGR)	67	Chathamangalam	4	PRI ACTIVITY(AGR)
29	Nochad	5	PRI ACTIVITY(AGR)	68	Mukkom	2	PRI ACTIVITY(AGR)
30	Changaroath	5	PRI ACTIVITY(AGR)	69	Kodenchery	5	PRI ACTIVITY(AGR)
31	Kayanna	5	PRI ACTIVITY(AGR)	70	Peruvayal	4	AGR+ANMHUSB
32	Koothali	5	PRI ACTIVITY(AGR)	71	Perumanna	5	AGR+ANMHUSB
33	Perambra	3	PRI ACTIVITY(AGR)	72	Kadalundy	5	TER ACTIVITY
34	Chakkittappara	5	PRI ACTIVITY(AGR)	73	Ramanattukara	4	TER ACTIVITY
35	Balussery	4	PRI ACTIVITY(AGR)	74	Feroke	3	TER ACTIVITY
36	Naduvannur	5	PRI ACTIVITY(AGR)	75	Olavanna	5	TER ACTIVITY
37	Atholy	4	PRI ACTIVITY(AGR)	76	Vadakara Municipality	2	TER ACTIVITY
38	Ulliyeri	5	PRI ACTIVITY(AGR)	77	Koyilandy Municipality	3	TER ACTIVITY
39	Kottur	5	PRI ACTIVITY(AGR)	78	Kozhikode Corporation	1	TER ACTIVITY